SG388/D
Rev. 11, Jun-2010

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Enabling Energy Efficient Solutions

Master Components Selector Guide

Including Former Catalyst, PulseCore and CMD Devices

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AC−DC Controllers and Regulators, Amplifiers and Comparators, Analog Switches, Bipolar Transistors, Clock and Data Distribution, Clock Generation, Custom, DC−DC Controllers, Converters, and Regulators, Digital Potentiometers, Diodes, Drivers, DSP Systems, EMI/RFI Filters, IGBTs and FETs, Interfaces, Memory, Rectifiers, Standard Logic, Thermal Management, Thyristors, Voltage and Current Management

SG388/D
Rev. 11, May−2010

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NOTE: The **Tape & Reel Specification** information has been moved to its own publication. Please see ON Semiconductor brochure, BRD8011/D, for information on Tape & Reel.

AC−DC Controllers and Regulators

AC–DC Controllers and Regulators

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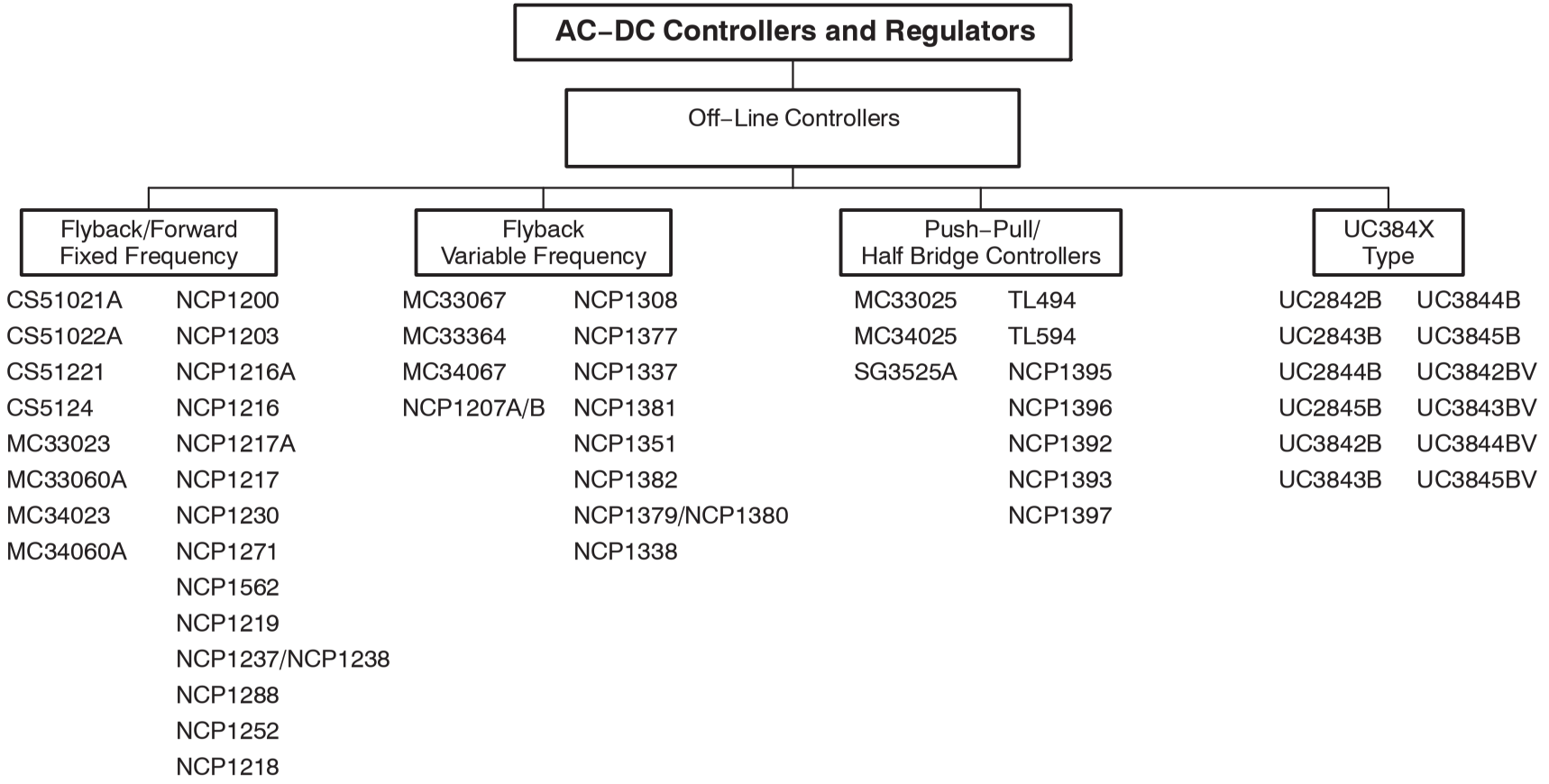
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FLYBACK / FORWARD FIXED FREQUENCY

Device	Control Mode	Switching Freq (kHz)	Freq Jittering (%)	Standby Mode Technique	Min HV Startup Limit (V)	Dynamic Self Supply (mA)	Under-voltage Lock–Out (V)	Short Circuit Protection	Over Power Compensation	Brown–Out Protection	Latch	Soft–Start (ms)	Max V_{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Packages	Additional Features
CS51021A	Current Mode	Adjustable	N/A	NO	NO	NO	YES	YES	NO	NO	Via the Latch / Demag	Adj	20	1,000	–40 to +85	SO–16	Bidirectional Synchronization
CS51022A	Current Mode	Adjustable	N/A	NO	NO	NO	YES	YES	NO	NO	Via the Latch / Demag	Adj	20	1,000	–40 to +85	TSSOP–16, SO–16	100 μA Max Sleep Current
CS51221	Voltage Mode	Adjustable	N/A	NO	NO	NO	YES	YES	NO	NO	Via the Latch / Demag	Adj	15	1,000	–40 to +85	SO–16	
CS5124	Current Mode	400	N/A	NO	NO	NO	YES	YES	NO	NO	NO	Adj	20	200	–40 to +105	SO–8	
MC33023	Voltage or Current	Adjustable	N/A	NO	NO	NO	YES	YES	NO	NO	NO	Adj	30	200	–40 to +105	SO–16 WB	
MC34023	Voltage or Current	Adjustable	N/A	NO	NO	NO	YES	YES	NO	NO	NO	Adj	30	200	0 to +70	PDIP–16	
MC33060A	Voltage Mode	200	N/A	NO	NO	NO	YES	YES	NO	NO	NO	Adj	42	200	–40 to +85	SO–14, PDIP–14	
MC34060A	Voltage Mode	200	N/A	NO	NO	NO	YES	YES	NO	NO	NO	Adj	42	200	0 to +70	SO–14, PDIP–14	
NCP1200	Current Mode	100, 40, 60	±0.7	Adj Skip Mode	30	4	N/A	When DSS is used	NO	NO	NO	NO	16	250 / 250	–25 to +125	SO–8, PDIP–8	
NCP1203	Current Mode	100, 40, 60	N/A	Adj Skip Mode	30	NO	7.8 to 12.8 Typ.	NO	NO	NO	NO	NO	16	250	–40 to +125	SO–8, PDIP–8	
NCP1216A	Current Mode	133, 100, 65	±4	Adj Skip Mode	30	8	NO	When DSS is used	NO	NO	NO	1.00	16	500	0 to +125	SO–8, PDIP–7	Limited Duty Cycle to 50%
NCP1216	Current Mode	133, 100, 65	±4	Adj Skip Mode	30	8	NO	When DSS is used	NO	NO	NO	NO	16	500	0 to +125	SO–8, PDIP–7	
NCP1217A	Current Mode	133, 100, 65	N/A	Adj Skip Mode	30	NO	7.6 to 12.8 Typ.	NO	NO	NO	Via the Latch / Demag	1.00	16	500	0 to +125	SO–8, PDIP–7	Limited Duty–Cycle to 50%
NCP1217	Current Mode	133, 100, 65	N/A	Adj Skip Mode	30	NO	7.6 to 12.8 Typ.	NO	NO	NO	Via the Latch / Demag	NO	16	500	0 to +125	SO–8, PDIP–7	
NCP1219	Current Mode	65, 100	±7.5	Adj. Skip Mode	20	12.8	9.4 to 12.7	YES	NO	NO	Via the Latch Demag	4.8	20	500 / 800	–40 to +125	SO–7	HV Startup up to 500V
NCP1230	Current Mode	133, 100, 65	±6.4	Adj Skip Mode	20	NO	7.7 to 12.6 Typ.	YES	NO	NO	Via the Latch / Demag	2.50	18	500 / 800	–40 to +125	SO–8, PDIP–7	

FLYBACK / FORWARD FIXED FREQUENCY (CONTINUED)

Device	Control Mode	Switching Freq (kHz)	Freq Jittering (%)	Standby Mode Technique	Min HV Startup Limit (V)	Dynamic Self Supply (mA)	Under-voltage Lock–Out (V)	Short Circuit Protection	Over Power Compensation	Brown–Out Protection	Latch	Soft–Start (ms)	Max V_{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Packages	Additional Features
NCP1237/ NCP1238	Current Mode	65, 100, 133	±6	Freq. Foldback and Soft–Skip	60	8	9.5 to 12 Typ	NO	YES	YES	YES	4	28	1000 / 1000	–40 to +125	SO–7	HV Startup up to 500V
NCP1218	Current Mode	65	±7.5	Adj. Skip Mode	20	13	9.5 to 12.6 Typ	YES	NO	NO	Vias the Latch / Demag	4	20	500 / 800	–40 to +125	SO–7	HV Startup up to 500V
NCP1252	Current Mode	Up to 500	±5	Skip Mode	N/A	NO	9 to 10 Typ	YES	NO	YES	YES	Adj	28	500 / 800	–25 to +125	SO–8	
NCP1271	Current Mode	65, 100	±7.5	Adj Skip Mode with Transient Load Detection	20	NO	12.6 to 20 Typ.	YES	NO	NO	Via the Latch / Demag	4	20	500 / 800	–40 to +125	SO–7	
NCP1288	Current Mode	65, 100, 133	±6	Freq. Foldback and Soft–Skip	60	NO	10.5 to 16 Typ	NO	YES	YES	YES	4	28	1000 / 1000	–40 to +125	SO–7	HV Startup up to 500V
NCP1562	Voltage Mode	230	N/A	NO	NO	NO	7 to 10.3 Typ.	NO	NO	NO	Line UVOV detectors	Adj	20	1000 / 2000	–40 to +125	SO–16	HV Startup up to 100V

FLYBACK VARIABLE FREQUENCY

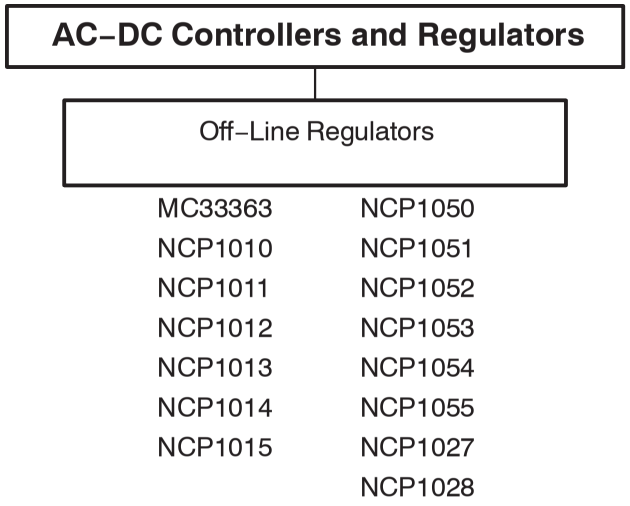
Device	Control Mode	Freq Clamp Max On Time (μs)	Freq Clamp Min Off Time (μs)	Standby Mode Tech-nique	Min HV Start–Up Lim-it (V)	Dynamic Self Supply (mA)	Under-voltage Lock–Out (V)	Short Circuit Protec-tion	Over Power Com-pensa-tion	Brown–Out Protec-tion	Latch	Soft–Start (ms)	Max V_{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Pack-ages
MC33067	Voltage Mode	Adj	Adj	NO	NO	NO	9 to 16 Typ.	YES	NO	NO	NO	Adj	20	200 / 200	–40 to +85	SO–16, PDIP–16
MC34067	Voltage Mode	Adj	Adj	NO	NO	NO	9 to 16 Typ.	YES	NO	NO	NO	Adj	20	200 / 200	0 to +70	SO–16, PDIP–16
MC33364	Current Mode	NO	6.9	Freq Clamp	40	NO	7.6 to 15 Typ.	NO	NO	NO	NO	NO	16	220 / 600	–25 to +125	SO–8, SO–16
NCP1207A NCP1207 /B	Current Mode	NO	8 (A Version) 4.5 (B Version)	Adj Skip Mode	40	7	9.8 to 10.4 Typ.	YES	NO	NO	Via the Latch / Demag	1	16	500 / 500	–40 to +125	SO–8, PDIP–8
NCP1308	Current Mode	NO	10	Adj Skip Mode	40	7	9.8 to 12 Typ.	YES	NO	NO	Fixed on the V_{CC}	1	16	500 / 500	0 to +125	SO–8
NCP1337	Current Mode	67	35	Soft–Ripple Mode	55	9.5	10 to 12 Typ.	YES	YES	YES	Via the Latch / Demag	4	20	500 / 500	0 to +125	SO–7, PDIP–7
NCP1338	Current Mode	67	35	Soft–Ripple Mode	55	9.5	10 to 12 Typ.	YES	YES	YES	Via the Latch / Demag	4	20	500 / 500	0 to +125	SO–7 PDIP–7
NCP1351	Current Mode	Fixed Ton	Variable Toff	Adj Skip Mode	NO	NO	8.5 to 15 Typ.	YES	NO	NO	NO	NO	20	300 / 150	0 to +125	SO–8, PDIP–8
NCP1377	Current Mode	NO	3, 8	Adj Skip Mode	40	NO	7.6 to 12.8 Typ.	NO	NO	NO	Via the Latch / Demag	1	16	500 / 500	0 to +125	SO–7, PDIP–7
NCP1379/ NCP1380	Current Mode	NO	NO	Freq. Foldback	NO	NO	9 to 17 Typ	YES	YES	YES	A&C Versions	3.8	28	500 / 800	–40 to +125	SO–8
NCP1381	Current Mode	45	8	Adj Skip Mode	NO	NO	10 to 15 Typ.	YES	YES	YES	Via the Latch / Demag	5	20	500 / 800	0 to +125	SO–14
NCP1382	Current Mode	45	8	Adj Skip Mode	NO	NO	10 to 15 Typ.	YES	YES	YES	Via the Latch / Demag	5	20	500 / 800	0 to +125	SO–14

PUSH–PULL / HALF–BRIDGE CONTROLLERS

Device	Control Mode	Switching Freq (kHz)	Standby Mode Technique	Max Duty Cycle (%)	Under-voltage Lock–Out (V)	Short Circuit Protec-tion	Latch	Internal Ref Voltage (V)	Enable Capab-ility	Soft–Start (ms)	Max V_{CC} (V)	Drive Capability Source/ Sink (mA)	Temp (°C)	Packages	Additional Features
MC33025	Voltage & Current mode	1000	NO	45	9.2 & 4.2	YES	NO	5.1	NO	Adj	30	200 / 200	–40 to +105	SO–16, PDIP–16	
MC34025	Voltage & Current mode	1000	NO	45	9.2 & 4.2	YES	NO	5.1	NO	Adj	30	200 / 200	0 to +70	SO–16, PDIP–16	
NCP1392	Current	250	NO	50	9	NO	NO	3.5	YES	Adj	16 Clamped	500 / 1000	–40 to +125	SO–8	Brown–Out Protection
NCP1393	Current	250	NO	50	9	NO	YES	3.5	NO	Adj	16 Clamped	500 / 1000	–40 to +125	SO–8	Brown–Out Protection
NCP1395	Voltage	1000	Adj Skip Mode	52	9.3	NO	YES	2	YES	Adj	20	180/180	0 to +125	SO–16, PDIP–16	
NCP1396	Voltage	500	Skip Cycle Possible (A)	50	9.5	NO	YES	2	YES	Adj	20	500 / 1000	–40 to +125	SO–15	
NCP1397	Voltage	500	Skip Cycle Possible	50	9.5	YES	YES	2	YES	Adj	20	500 / 1000	–40 to +125	SO–15	
SG3525A	Voltage	400	NO	49	7	NO	NO	5.1	YES	Adj	40	400 / 400	0 to +70	SO–16, PDIP–16	
TL494	Voltage	200	NO	48	6.43	NO	NO	5	NO	Adj	40	500 / 500	40 to +125 0 to +70 –40 to +85	SO–16, PDIP–16	
TL594	Voltage	300	NO	50	5.2	NO	NO	5	NO	Adj	42	500 / 500	–40 to +85	SO–16, PDIP–16, TSSOP–16	

UC384X TYPE

Device	Control Mode	Switching Freq (kHz)	Standby Mode Technique	Max Duty Cycle (%)	Undervoltage Lock–out (V)	Short Circuit Protection	Latch	Internal Ref Voltage (V)	Soft–Start (ms)	Max V_{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Packages
UC2842B	Current Mode	52	NO	96	10 to 16 Typ.	YES	N/A	5	NO	30	200 / 200	–25 to +85	SO–14, SO–8, PDIP–8
UC2843B	Current Mode	52	NO	96	7.6 to 8.5 Typ.	YES	N/A	5	NO	30	200 / 200	–25 to +85	SO–14, SO–8, PDIP–8
UC2844B	Current Mode	52	NO	48	10 to 16 Typ.	YES	N/A	5	NO	30	200 / 200	–25 to +85	SO–14, SO–8. PDIP–8
UC2845B	Current Mode	52	NO	48	7.6 to 8.5 Typ.	YES	N/A	5	NO	30	200 / 200	–25 to +85	SO–14, SO–8, PDIP–8
UC3842B	Current Mode	52	NO	96	10 to 16 Typ.	YES	N/A	5	NO	30	200 / 200	0 to +70	SO–14, SO–8, PDIP–8
UC3843B	Current Mode	52	NO	96	7.6 to 8.5 Typ.	YES	N/A	5	NO	30	200 / 200	0 to +70	SO–14, SO–8, PDIP–8
UC3844B	Current Mode	52	NO	50	10 to 16 Typ.	YES	N/A	5	NO	25	200 / 200	0 to +70	SO–14, SO–8, PDIP–8
UC3845B	Current Mode	52	NO	50	7.6 to 8.5 Typ.	YES	N/A	5	NO	25	200 / 200	0 to +70	SO–14, SO–8, PDIP–8
UC3842BV	Current Mode	52	NO	96	10 to 16 Typ.	YES	N/A	5	YES	30	200 / 200	–40 to +105	SO–14, SO–8
UC3843BV	Current Mode	52	NO	96	7.6 to 8.5 Typ.	YES	N/A	5	YES	30	200 / 200	–40 to +105	SO–14, SO–8
UC3844BV	Current Mode	52	NO	50	10 to 16 Typ.	YES	N/A	5	YES	25	200 / 200	–40 to +105	SO–14, SO–8
UC3845BV	Current Mode	52	NO	50	7.6 to 8.5 Typ.	YES	N/A	5	YES	25	200 / 200	–40 to +105	SO–14, SO–8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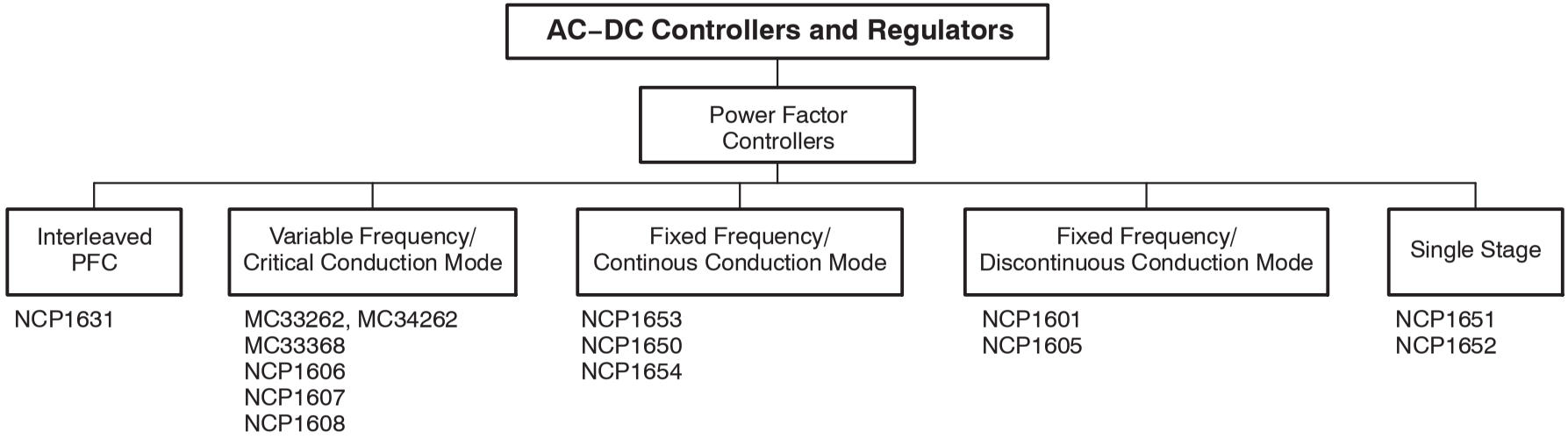
OFF–LINE REGULATORS

Device	Control Mode	Switching Freq (kHz)	Freq Jittering (%)	Standby Mode Tech-nique	$R_{DS(on)}$ Typ (Ω)	Max Break-down Voltage (V)	Max Internal Current Set Point (mA)	Min HV Startup Limit (V)	Dynamic Self Supply (mA)	Under-voltage Lock–out (V)	Short Circuit Protec-tion	Over Power Com-pensa-tion	Brown –Out Protec-tion	Latch	Temp (°C)	Pack-ages	Com ments
MC33363	Voltage Mode	285	N/A	NO	14	700	400	9	NO	9.5 to 15.2 Typ.	NO	NO	NO	NO	–25 to +150	SO–16, PDIP–16	
NCP1010	Current Mode	65, 100, 130	± 3.3	Skip Mode	22	700	100	30	8.5	7.5 to 8.5 Typ.	When DSS is used	NO	NO	YES	0 to +125	PDIP–7, SOT–223	
NCP1011	Current Mode	65, 100, 130	± 3.3	Skip Mode	22	700	250, 450	30	8.5	7.5 to 8.5 Typ.	When DSS is used	NO	NO	YES	0 to +125	PDIP–7, PDIP–7 SMT. SOT–223	
NCP1012	Current Mode	65, 100, 130	±3.3	Skip Mode	11	700	250	30	8	7.5 to 8.5 Typ.	When DSS is used	NO	NO	YES	0 to +125	PDIP–7, PDIP–7 SMT, SOT–223	
NCP1013	Current Mode	65, 100, 130	±3.3	Skip Mode	11	700	350	30	8	7.5 to 8.5 Typ.	When DSS is used	NO	NO	YES	0 to +125	PDIP–7, SOT–223	
NCP1014	Current Mode	65, 100, 130	±3.3	Skip Mode	11	700	450	30	8	7.5 to 8.5 Typ.	When DSS is used	NO	NO	YES	0 to +125	PDIP–7, PDIP–7 SMT. SOT–223	
NCP1015	Current Mode	65, 100	±3.3	Skip Mode	11	700	450	30	8	7.5 to 8.5 Typ.	When DSS is Used	No	No	Yes	0 to +125	PDIP–7, SOT–223	
NCP1027	Current Mode	65,100	±6.0	Skip Mode	5.6	700	800	30	N/A	7.2 to 8.5 Typ.	YES	YES	YES	YES	0 to +125	PDIP–7	
NCP1028	Current Mode	65,100	±6.0	Skip Mode	5.6	700	800	30	N/A	7.2 to 8.5 Typ.	YES	YES	YES	YES	0 to +125	PDIP–7	No OVP on V_{CC} Pin
NCP1050	Gated Oscillator	45.5, 103, 140	±5.0	Skip Mode	30	700	100	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	–40 to +150	PDIP–7, SOT–223	
NCP1051	Gated Oscillator	45.5, 103, 140	±5.0	Skip Mode	30	700	200	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	–40 to +150	PDIP–7, SOT–223	
NCP1052	Gated Oscillator	45.5, 103, 140	±5.0	Skip Mode	30	700	300	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	–40 to +150	PDIP–7, SOT–223	
NCP1053	Gated Oscillator	45.5, 103, 140	±5.0	Skip Mode	15	700	400	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	–40 to +150	PDIP–7, SOT–223	
NCP1054	Gated Oscillator	45.5, 103, 140	±5.0	Skip Mode	15	700	530	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	–40 to +150	PDIP–7, SOT–223	
NCP1055	Gated Oscillator	45.5, 103, 140	±5.0	Skip Mode	15	700	680	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	–40 to +150	PDIP–7, SOT–223	


AC–DC Controllers and Regulators
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NCP1607
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NCP1650
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NCP1601
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Single Stage
NCP1651
NCP1652

INTERLEAVED PFC

Device	Control Mode	Topology	Freq Clamp Freq Max (kHz)	Under Voltage Lock–Out (V)	Max Start-tup Con–sumption (mA)	Over Power Limita-tion	Current Limit Detec-tion	Brown–out Protec-tion	Latch	Under (Output) Voltage Protec-tion	In–Rush Detec-tion	Enable Capability	Main PWM Turn On Sig-nal	Max V_{CC} (V)	Drive Capabil-ity Source/ Sink (mA)	Temp (°C)	Pack–ages
NCP1631	Volage Mode	Boost	500	10 to 11.85 Typ.	100	YES	Current Sensing	YES	Fixed	Fixed	YES	YES	YES	20	500 / 800	–40 to +125	SO–16

VARIABLE FREQUENCY / CRITICAL CONDUCTION MODE

Device	Control Mode	Topology	Freq Clamp Freq Max (kHz)	Min HV Startup Limit (V)	Under Voltage Lock–Out (V)	Max Startup Consumption (μA)	Current Limit Detection	Latch	Under Voltage Protection	Enable Capability	Max V_{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Packages
MC33262	Current Mode	Boost	NO	N/A	8 to 13 Typ.	400	Current Sensing	Fixed	NO	YES	30	500 / 500	–40 to +105	SO–8, PDIP–8
MC34262	Current Mode	Boost	NO	N/A	8 to 13 Typ.	400	Current Sensing	Fixed	NO	YES	30	500 / 500	0 to +85	SO–8, PDIP–8
MC33368	Current Mode	Boost	YES	YES	8.5 to 13 Typ.	N/A	Current Sensing	Fixed	NO	YES	16	1000 / 1000	–25 to +125	SO–16
NCP1606	Voltage Mode	Boost	600	N/A	9.5 to 12 Typ.	50	Current Sensing	Program–mable	Fixed	YES	20	500 / 800	–40 to +125	SO–8, PDIP–8
NCP1607	Voltage Mode	Boost	600	N/A	9.5 to 12 Typ.	50	Current Sensing	Program–mable	Fixed	YES	20	500 / 800	–40 to +125	SO–8
NCP1608	Voltage Mode	Boost	600	N/A	9.5 to 12 Typ.	50	Current Sensing	Program–mable	Fixed	YES	20	500 / 800	–40 to +125	SO–8

FIXED FREQUENCY / CONTINUOUS CONDUCTION MODE

Device	Control Mode	Topology	Switching Freq (kHZ)	Under Voltage Lock–Out (V)	Max Start-tup Con–sumption (μA)	Over Power Limitation	Current Limit Detection	Brown Out Protection	Latch	Under (Output) Voltage Protec-tion	In–Rush Detec-tion	Enable Capability	Max V_{CC} (V)	Drive Capability Source/ Sink (mA)	Temp (°C)	Pack–ages
NCP1650	Average Current Mode	Boost	Adjustable 25 to 250	10 to 10.5 Typ.	80	NO	Negative Current Sensing	YES	Fixed	NO	NO	YES	20	1500 / 1500	–40 to +125	SO–16
NCP1653	Average Current Mode or Peak Current Mode	Boost and Follower Boost	67, 100	8.7 to 13.25 Typ.	50	YES	Program mable Negative Current Sensing	NO	Fixed	Fixed	YES	YES	18	1000 / 1000	–40 to +125	SO–8, PDIP–8
NCP1654	Average Current Mode	Boost	65, 133, 200	9 to 13.75 9 to 10.5	150	YES	Current Sensing	YES	YES	YES	YES	YES	25	1500 / 1500	–40 to +125	SO–8

FIXED FREQUENCY / DISCONTINUOUS CONDUCTION MODE

Device	Control Mode	Topology	Switching Freq (kHz)	Min HV Startup Limit (V)	Under Voltage Lock–Out (V)	Startup Con–sumption (μA)	Current Limit Detection	Latch	Under (Output) Voltage Protection	In–Rush Detection	Main PWM Turn On Signal	Enable Capability	Max V_{CC} (V)	Drive Cap-ability Source/ Sink (mA)	Temp (°C)	Pack–ages
NCP1601	Voltage Mode	Boost	up to 405	N/A	9 to 13.75 Typ. 9 to 10.5 Typ.	40	Negative Current Sensing	Fixed	Fixed	YES	N/A	YES	18	500 / 800	–40 to +125	SO–8, PDIP–8
NCP1605 NCP1605A	Volage Mode	Boost	up to 250	N/A	9 to 15, 9 to 10.5 (A Version)	N/A	Current Sensing	Fixed	Fixed	YES	YES	YES	20	500 / 800	0 to +125	SO–16

SINGLE STAGE

Device	Control Mode	Topology	Switching Freq (kHz)	Standby Mode Technique	Min HV Startup Limit (V)	Under Voltage Lock–Out (V)	Max Star-tup Con–sumption (mA)	Current Limit Detec-tion	Under (Output) Voltage Protec-tion	Enable Capability	Max V_{CC} (V)	Drive Capabil-ity Source/ Sink (mA)	In–Rush Detec-tion	Temp (°C)	Pack–ages
NCP1651	Average Current Mode	Boost	Adjustable 25 to 250	N/A	17	9.8 to 10.8 Typ.	5.5	Current Sensing	YES	YES	18	1500 / 1500	N/A	–40 to +125	SO–16
NCP1652	Average Current Mode	Boost	100	Adj Skip Mode	40	11 to 14 Typ.	100	Current Sensing	YES	YES	20	300 / 700	N/A	–40 to +125	SO–16

SECONDARY SIDE CONTROLLERS

Device	IC Operating Voltage	Converter Input Voltage	Output Voltage	Output Driver	Freq.	Temp. (T_A)	Features	Package
CS5101	ULVO: 7.0/8.0 V Max: 45 V	(V_{gate} max: 75 V)	(V_{REF} = 2.0 V)	1.5 A	SYNC	–40 to +85°C	• Voltage mode • Configured as either buck or boost with external NFET • Externally programmable overcurrent protection • 5.0 V 2% reference pin	DIP–14
NCP4303	Max: 30 V	–	12 V (A Version) 6 V (B Version)	5 A / 2.5 A	Up to 500 kHz	–40 to +125	• Synchronous rectification driver • Adjustable minimum ON and OFF times • Parasitic inductance compensation • Ca be used in CCM, DCM, and QR flyback applications as well as LLC applications	SO–8
NCP4330	Max: 45 V	–	–	–	–	–40 to +125°C	• Bootstrap for N–MOSFET High Side Drive	SO–8

Amplifiers and Comparators

Amplifiers and Comparators

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SINGLE OPERATIONAL AMPLIFIERS

Device Name	V_{CC} (min) (V)	V_{CC} (max) (V)	G_{BW} (typ) (MHz)	Slew Rate (typ) (V/μs)	V_{IO} (max @ 25°C, Vs = 5.0 V) (mV)	I_{IB} (typ) (nA)	I_D (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e_n (typical) $\left(nV/\sqrt{Hz}\right)$ @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
LM201A	±3.0	±22	1.0	0.5	2.0	30	1.8	–25 to +85	96	–	1	Split	DIP–8, SO–8	General Purpose, Precision Non Compensated
LM201AV	±3.0	±22	1.0	0.5	2.0	30	1.8	–40 to +105	96	–	1	Split	DIP–8, SO–8	General Purpose, Precision Non Compensated
LM301A	±3.0	±18	1.0	0.5	7.5	70	1.8	0 to +70	90	–	1	Split	DIP–8, SO–8	General Purpose, Non Compensated
LMV321	2.5	5.5	1	1.0	9	1	140	–40 to +85	65	50	1	Single	SC–70, TSOP–5	Low Voltage, Rail–to–Rail
LMV931	1.8	5	1.5	0.48	6	1	90	–40 to +125	70	50	1	Single	SC–70	Low Voltage, Rail–to–Rail
LMV981	1.8	5	1.5	0.48	6.0	1	0.21	–40 to +125	70	50	1	Single, Split	ULLGA–8	Low Power, Rail–to–Rail
MC33071	3.0 or ±1.5	44	4.5	13	5.0	100	1.6	–40 to +85	97	32	1	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC33071A	3.0 or ±1.5	44	4.5	13	3.0	100	1.6	–40 to +85	97	32	1	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC33171	3.0 or ±1.5	44 or ±22	1.8	2.1	5.0	20	0.18	–40 to +85	90	32	1	Single, Split	DIP–8, SO–8	Low Power, Single Supply, Two Voltage Ranges
MC33201	1.8 or ±0.9	12	2.2	1.0	6.0	80	0.9	–40 to +105	90	20	1	Single, Split	DIP–8, SO–8	Low Voltage, Rail–to–Rail
MC33201V	1.8 or ±0.9	12	2.2	1.0	6.0	80	0.9	–55 to +125	90	20	1	Single, Split	DIP–8, SO–8	Low Voltage, Rail–to–Rail, Extended Temp. Range
MC33501	1.0 or ±0.5	7.0 or ±3.5	4 @ Vs = 5	3.0	5.0	0.04 pA	1.2 @ Vs = 1 V	–40 to +105	75	30	1	Single, Split	TSOP–5	One Volt SMARTMOS™, Rail–to–Rail
MC33503	1.0 or ±0.5	7.0 or ±3.5	4 @ Vs = 5	3.0	5.0	0.04 pA	1.2 @ Vs = 1 V	–40 to +105	75	30	1	Single, Split	TSOP–5	One Volt SMARTMOS, Rail–to–Rail

SINGLE OPERATIONAL AMPLIFIERS (continued)

Device Name	V_{CC} (min) (V)	V_{CC} (max) (V)	G_{BW} (typ) (MHz)	Slew Rate (typ) (V/μs)	V_{IO} (max @ 25°C, Vs = 5.0 V) (mV)	I_{IB} (typ) (nA)	I_D (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e_n (typical) $\left(nV/\sqrt{Hz}\right)$ @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
MC34071	3.0 or ±1.5	44	4.5	13	5.0	100	1.6	0 to +70	97	32	1	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC34071A	3.0 or ±1.5	44	4.5	13	3.0	100	1.6	0 to +70	97	32	1	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
NCS2001	0.9 or ±0.45	7.0 or ±3.5	1.4	1.6	6.0	10 pA	0.80	–40 to +105	70	100	1	Single, Split	TSOP–5, SC70–5	One Volt, CMOS Rail–to–Rail
NCS2002	0.9 or ±0.45	7.0 or ±3.5	0.8	1.2	6.0	10 pA	0.80	–40 to +105	82	100	1	Single, Split	TSOP–6	One Volt, CMOS Rail–to–Rail with Enable
NCS7101	1.8 or ±0.9	10 or ±5.0	1.0	1.2	7.0	1.0 pA	1.1	–40 to +85	65 (min)	140	1	Single, Split	TSOP–5	Low Voltage, Rail–to–Rail
NCV2002	0.9 or ±0.45	7.0 or ±3.5	0.8	1.2	6.0	10 pA	0.80	–40 to +125	82	100	1	Single, Split	TSOP–6	One Volt, CMOS Rail–to–Rail with Enable
NE5230	±0.9 or 1.8	±7.5 or 15	0.6	0.25	3.0	40	0.6	0 to +70	95	30	1	Single, Split	SO–8, PDIP–8	Single Low Voltage Op Amp
NE5534	±3.0	±20	10	13	4.0	500	4.0	0 to +70	100	4.0	1	Single, Split	SO–8, PDIP–8	Single Low Noise Op Amp
NE5534A	±3.0	±20	10	13	4.0	500	4.0	0 to +70	100	3.5	1	Single, Split	SO–8, PDIP–8	Single Low Noise Op Amp
SA5230	±0.9 or 1.8	±7.5 or 15	0.6	0.25	3.0	40	0.6	–40 to +85	95	30	1	Single, Split	SO–8, PDIP–8	Single Low Voltage Op Amp
SA5534	±3.0	±20	10	13	4.0	500	4.0	–40 to +85	100	4.0	1	Single, Split	PDIP–8	Single Low Noise Op Amp
SA5534A	±3.0	±20	10	13	4.0	500	4.0	–40 to +85	100	3.5	1	Single, Split	SO–8, PDIP–8	Single Low Noise Op Amp
SE5534	±3.0	±20	10	13	2.0	400	4.0	–55 to +125	100	4.0	1	Single, Split	PDIP–8	Single Low Noise Op Amp
SE5534A	±3.0	±20	10	13	2.0	400	4.0	–55 to +125	100	3.5	1	Single, Split	PDIP–8	Single Low Noise Op Amp

DUAL OPERATIONAL AMPLIFIERS

Device Name	V_{CC} (min) (V)	V_{CC} (max) (V)	G_{BW} (typ) (MHz)	Slew Rate (typ) (V/μs)	V_{IO} (max @ 25°C, Vs = 5.0 V) (mV)	I_{IB} (typ) (nA)	I_D* (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e_n (typical) $\left(nV/\sqrt{Hz}\right)$ @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
LM258	3.0 or ±1.5	32 or ±18	1.0	0.6	5.0	45	0.7	–25 to +85	85	–	2	Single, Split	DIP–8, SO–8, Micro8	Low Noise
LM358	3.0 or ±1.5	32 or ±18	1.0	0.6	7.0	45	0.7	0 to +70	70	–	2	Single, Split	DIP–8, SO–8, Micro8	Low Noise
LMV358	2.7	5	1	1	9.0	1	140	–40 to +85	65	50	2	Single	Micro8, SOIC–8	Low Voltage, Rail–to–Rail
LM833	±2.5	36	15	7.0	5.0	300	4.0	–40 to +85	100	4.5	2	Single, Split	DIP–8, SO–8	Low Noise
LM2904	3.0 or ±1.5	26 or ±13	1.0	0.6	7.0	45	0.7	–40 to +105	70	–	2	Single, Split	DIP–8, SO–8, Micro8	Low Power
LM2904V	3.0 or ±1.5	26 or ±13	1.0	0.6	7.0	45	0.7	–40 to +125	70	–	2	Single, Split	DIP–8, SO–8, Micro8	Low Power
MC33072	3.0 or ±1.5	44 or ±22	4.5	13	5.0	100	3.2	–40 to +85	97	32	2	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC33072A	3.0 or ±1.5	44 or ±22	4.5	13	3.0	100	3.2	–40 to +85	97	32	2	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC33077	±2.5	±18	37	11	1 @ V_S = ±15 V	280	3.5	–40 to +85	107	4.4	2	Split	DIP–8, SO–8	Low Noise
MC33078	±5.0	±18	16	7.0	2.0	300	4.1	–40 to +85	100	4.5	2	Split	DIP–8, SO–8	Low Noise
MC33172	3.0 or ±1.5	44 or ±22	1.8	2.1	5.0	20	0.36	–40 to +85	90	32	2	Single, Split	DIP–8, SO–8	Low Power, Single Supply, Two Voltage Ranges
MC33172V	3.0 or ±1.5	44 or ±22	1.8	2.1	5.0	20	0.36	–40 to +105	90	32	2	Single, Split	SO–8	Low Power, Single Supply, Two Voltage Ranges, Extended Temp. Range
MC33178	±2.0	±18	5.0	2.0	3.0	100	0.85	–40 to +85	110	7.5	2	Split	DIP–8, SO–8	High Output Current, Low Power, Low Noise

*I_D typical for total device (all channels)

DUAL OPERATIONAL AMPLIFIERS (continued)

Device Name	V_{CC} (min) (V)	V_{CC} (max) (V)	G_{BW} (typ) (MHz)	Slew Rate (typ) (V/μs)	V_{IO} (max @ 25°C, Vs = 5.0 V) (mV)	I_{IB} (typ) (nA)	I_D* (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e_n (typical) $\left(nV/\sqrt{Hz}\right)$ @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
MC33202	1.8 or ±0.9	12 or ±6	2.2	1.0	8.0	80	1.8	–40 to +105	90	20	2	Single, Split	DIP–8, SO–8, Micro8™	Low Voltage, Rail–to–Rail
MC33202V	1.8 or ±0.9	12 or ±6	2.2	1.0	8.0	80	1.8	–55 to +125	90	20	2	Single, Split	DIP–8, SO–8	Low Voltage, Rail–to–Rail, Extended Temp. Range
MC33272A	3.0 or ±1.5	36 or ±18	24	10	1 @ V_S = ±15 V 2 @ V_S = 5.0 V	300	4.30	–40 to +85	100	18	2	Single, Split	DIP–8, SO–8	Single Supply, High SR, Low Input Offset Voltage
MC33502	1.0	7.0	5.0	3.0	5.0	0.04 pA	3.3	–40 to +105	75	30	2	Single, Split	DIP–8, SO–8	One Volt SMARTMOS, Rail–to–Rail
MC34072	3.0 or ±1.5	44 or ±22	4.5	13	5.0	100	3.2	0 to +70	97	32	2	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC34072A	3.0 or ±1.5	44 or ±22	4.5	13	3.0	100	3.2	0 to +70	97	32	2	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC34072V	3.0 or ±1.5	44 or ±22	4.5	13	5.0	100	3.2	–40 to +125	97	32	2	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, Extended Temp. Range, *Av = –1.0
NE592	–8.0	+8.0	90	–	–	9.0 μA	18	0 to +70	86	–	2	–	SO–8, 14 PDIP–8, 14	Video Amplifier
NE5532/A	±3.0	±20	10	9.0	4.0 @ ±15 V	200	8.0	0 to +70	100	8.0	2	Split	DIP–8, SO–8, SO–16W	Low Noise
SA5532	±3.0	±20	10	9.0	4.0 @ ±15 V	200	8.0	–40 to +85	100	8.0	2	Split	DIP–8	Low Noise
SE5532/A	±3.0	±20	10	9.0	2.0 @ ±15 V	200	8.0	–55 to 125	100	8.0	2	Split	DIP–8, SO–8	Low Noise
TCA0372	5.0 or ±2.5	40 or ±20	1.4	1.4	15 @ ±15 V	100	5.0	–40 to +125	90	22	2	Single, Split	SOP (12+2+2) DIP–8, DIP–16	Power, High Current
TCA0372B	5.0 or ±2.5	40 or ±20	1.4	1.4	15 @ ±15 V	100	5.0	–40 to +125	90	22	2	Single, Split	DIP–8, SO–16W	Power, High Current

*I_D typical for total device (all channels)

QUAD OPERATIONAL AMPLIFIERS

Device Name	V_{CC} (min) (V)	V_{CC} (max) (V)	G_{BW} (typ) (MHz)	Slew Rate (typ) (V/μs)	V_{IO} (max @ 25°C, Vs = 5.0 V) (mV)	I_{IB} (typ) (nA)	I_D* (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e_n (typical) $\left(nV/\sqrt{Hz}\right)$ @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
LM224	3.0 ±1.5	32 ±16	1.0	0.6	5.0	90	–	−25 to +85	85	–	4	Single, Split	DIP−14, SO−14	Low Power
LM324	3.0 ±1.5	32 ±16	1.0	0.6	7.0	90	–	0 to +70	70	–	4	Single, Split	DIP−14, SO−14	Low Power
LMV324	2.5	5.5	1.0	1.0	9.0	1	140	−40 to +85	65	50	4	Single	SO_14, TSSOP−14	Low Voltage, Rail−to−Rail
LM324A	3.0 ±1.5	32 ±16	1.0	0.6	3.0	45	0.7	0 to +70	70	–	4	Single, Split	DIP−14, SO−14	Low Power
LMV824	2.5	5	5.0	2.0	3.5	245	1.3	−40 to +85	90	7.5	4	Single, Split	SO−14, TSSOP−14	Low Power, Rail−to−Rail
LM2902	3.0 ±1.5	26 ±13	1.0	0.6	7.0	90	–	−40 to +105	70	–	4	Single, Split	DIP−14, SO−14	Low Power
LM2902V	3.0 ±1.5	26 ±13	1.0	0.6	7.0	90	–	−40 to +125	70	–	4	Single, Split	DIP−14, SO−14	Low Power, Extended Temp. Range
MC3303	3.0 ±1.5	36 ±18	1.0	0.6	8.0	200	2.8	−40 to +85	90	–	4	Single, Split	DIP−14, SO−14	Low Power
MC33074	3.0 or ±1.5	44 or ±22	4.5	13	5.0	100	6.4	−40 to +85	97	32	4	Single, Split	DIP−14, SO−14, TSSOP−14	High SR, Wide BW, Single Supply, *AV = −1.0
MC33074A	3.0 or ±1.5	44 or ±22	4.5	13	3.0	100	6.4	−40 to +85	97	32	4	Single, Split	DIP−14, SO−14, TSSOP−14	High SR, Wide BW, Single Supply, *AV = −1.0
MC33079	±5.0	±18	16	7.0	2.5	300	8.4	−40 to +85	100	4.5	4	Split	DIP−14, SO−14	Low Noise
MC33174	3.0 or ±1.5	44 or ±22	1.8	2.1	5.0	20	0.72	−40 to +85	90	32	4	Single, Split	DIP−14, SO−14, TSSOP−14	Low Power, Single Supply, Two Voltage Ranges
MC33174V	3.0 or ±1.5	44 or ±22	1.8	2.1	5.0	20	0.72	−40 to +105	90	32	4	Single, Split	DIP−14, SO−14	Low Power, Single Supply, Two Voltage Ranges, Extended Temp. Range
MC33179	±2.0	±18	5.0	2.0	3.0	100	1.7	−40 to +85	110	7.5	4	Split	DIP−14, SO−14	High Output Current, Low Power, Low Noise

*I_D typical for total device (all channels)

QUAD OPERATIONAL AMPLIFIERS (continued)

Device Name	V_{CC} (min) (V)	V_{CC} (max) (V)	G_{BW} (typ) (MHz)	Slew Rate (typ) (V/μs)	V_{IO} (max @ 25°C, Vs = 5.0 V) (mV)	I_{IB} (typ) (nA)	I_D* (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e_n (typical) $\left(nV/\sqrt{Hz}\right)$ @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
MC33204	1.8 or ±0.9	12 or ±6.0	2.2	1.0	10	80	3.6	–40 to +105	90	20	4	Single, Split	DIP–14, SO–14, TSSOP–14	Low Voltage, Rail–to–Rail
MC33204V	1.8 or ±0.9	12 or ±6.0	2.2	1.0	10	80	3.6	–55 to +125	90	20	4	Single, Split	DIP–14, SO–14	Low Voltage, Rail–to–Rail, Extended Temp. Range
MC33274A	3.0 or ±1.5	36 or ±18	24	10	1.0 @ Vs = ±15 V 2.0 @ Vs = 5.0 V	300	8.6	–40 to +85	100	18	4	Single, Split	DIP–14, SO–14	Single Supply, High SR, Low Input Offset Voltage
MC3403	3.0 ±1.5	36 ±18	1.0	0.6	10	200	2.8	0 to +70	90	–	4	Single, Split	DIP–14, SO–14	Low Power
MC34074	3.0 or ±1.5	44 or ±22	4.5	13	5.0	100	6.4	0 to +70	97	32	4	Single, Split	DIP–14, SO–14	High SR, Wide BW, Single Supply, *AV = –1.0
MC34074A	3.0 or ±1.5	44 or ±22	4.5	13	3.0	100	6.4	0 to +70	97	32	4	Single, Split	DIP–14, SO–14	High SR, Wide BW, Single Supply, *AV = –1.0
MC34074V	3.0 or ±1.5	44 or ±22	4.5	13	5.0	100	6.4	–40 to +125	97	32	4	Single, Split	DIP–14, SO–14	High SR, Wide BW, Single Supply, *AV = –1.0
NCV33274A	3.0 or ±1.5	36 or ±18	24	10	3.5 @ Vs = ±15 V 2.0 @ Vs = ±5.0 V	300	8.6	–40 to +125	100	18	4	Single, Split	DIP–14, SO–14	Single Supply, High SR, Low Input Offset Voltage

*I_D typical for total device (all channels)

SINGLE COMPARATORS

Device Name	V_{CC} (min)	V_{CC} (max)	V_{IO} (max) (mV)	I_{IO} (max) (nA)	I_{IB} (typ) (nA)	Iq (typ) (mA)	Temp Range (°C)	Response Time (ns)	Supply Type	Number of Channels	Package	Description
LM211	5.0 or ±2.5	36 or ±15	3.0	10	45	2.4	–25 to +85	200	Single, Split	1	SO–8	Highly Flexible Voltage
LM311	5.0 or ±2.5	36 or ±15	7.5	50	45	2.4	0 to +70	200	Single, Split	1	SO–8, DIP–8	Highly Flexible Voltage
LMV331	2.7	5	9	< 1	< 1	0.06	–40 to +85	600	Single, Split	1	SC–70, TSOP–5	Low Voltage CMOS
NCS2200	0.85 or ±0.425	6.0 or ±3.0	+8.0	–	1.0 pA	10	–40 to +105	700	Single, Split	1	SOT–23–5, DFN–6	Low Voltage CMOS
NCS2201	0.85 or ±0.425	6.0 or ±3.0	+8.0	–	1.0 pA	10	–40 to +105	700	Single, Split	1	SOT–23–6	Low Voltage CMOS with Enable
NCS2202	0.85 or ±0.425	6.0 or ±3.0	+8.0	–	1.0 pA	10	–40 to +105	700	Single, Split	1	SOT–23–5	Low Voltage CMOS
NCS2203	0.85 or ±0.425	6.0 or ±3.0	+8.0	–	1.0 pA	10	–40 to +105	700	Single, Split	1	SOT–23–6	Low Voltage CMOS with Enable

DUAL COMPARATORS

Device Name	V_{CC} (min)	V_{CC} (max)	V_{IO} (max) (mV)	I_{IO} (max) (nA)	I_{IB} (typ) (nA)	Iq* (typ) (mA)	Temp Range (°C)	Response Time (ns)	Supply Type	Number of Channels	Package	Description
LM293	2.0 or ±1.0	36 or ±18	5.0	50	25	0.4	–25 to +85	1300	Single, Split	2	SO–8	Low Offset Voltage
LM393	2.0 or ±1.0	36 or ±18	5.0	50	25	0.4	0 to +70	1300	Single, Split	2	SO–8, DIP–8	Low Offset Voltage
LMV393	2.7	5	9	< 1	< 1	0.1	–40 to +85	600	Single, Split	2	Micro8, SO–8, UDFN–8	Low Voltage CMOS
LM2903	2.0 or ±1.0	36 or ±18	7.0	50	25	0.4	–40 to +105	1500	Single, Split	2	SO–8, DIP–8	Low Offset Voltage
LM2903V	2.0 or ±1.0	36 or ±18	7.0	50	25	0.4	–40 to +125	1500	Single, Split	2	SO–8, DIP–8	Low Offset Voltage

*Iq typical for total device (all channels)

QUAD COMPARATORS

Device Name	V_{CC} (min)	V_{CC} (max)	V_{IO} (max) (mV)	I_{IO} (max) (nA)	I_{IB} (typ) (nA)	Iq* (typ) (mA)	Temp Range (°C)	Response Time (ns)	Supply Type	Number of Channels	Package	Description
LM239	3.0 or ±1.5	36 or ±18	5.0	50	25	0.8	−25 to +85	1300	Single, Split	4	SO−14, DIP−14	TTL and CMOS Compatible
LM339	3.0 or ±1.5	36 or ±18	5.0	50	25	0.8	0 to +70	1300	Single, Split	4	SO−14, DIP−14	TTL and CMOS Compatible
LMV339	2.7	5	9	< 1	< 1	0.17	−40 to +85	600	Single, Split	4	SO−14, TSSOP−14	Low Voltage CMOS
LM2901	3.0 or ±1.5	36 or ±18	7.0	50	25	0.8	−40 to +105	1300	Single, Split	4	SO−14, DIP−14	TTL and CMOS Compatible
LM2901V	3.0 or ±1.5	36 or ±18	7.0	50	25	0.8	−40 to +125	1300	Single, Split	4	SO−14, DIP−14	TTL and CMOS Compatible
MC3302	3.0 or ±1.5	30 or ±15	20	100	25	0.8	−40 to +85	1300	Single, Split	4	SO−14, DIP−14	TTL and CMOS Compatible

*Iq typical for total device (all channels)

AUDIO AMPLIFIERS

Product	Class	Output	Efficiency Typ (%)	t_{on} Typ (ms)	THD + N Typ (%)	I_Q Typ (mA)	I_{SD} Typ (nA)	Package
NCP2809	AB	–	63	285	–	1.5	10	Micro–10, UDFN–10
NCP2811	AB	–	–	1	0.01	6	10	TSSOP–14, Flip–Chip–12, WQFN–12
NCP2820	D	Differential	–	–	0.05	2.2	300	Flip–Chip–9, DFN–8
NCP2823	–	BTL	92	–	–	–	–	Flip–Chip–9
NCP2830	D	BTL	89	0.2	0.03	7	10	UQFN–20
NCP2890	AB	BTL	63	285	0.02	1.5	10	Flip–Chip–9, Micro8™
NCP2892	AB	BTL	63	90	0.01	1.5	10	Flip–Chip–9
NCP2990	AB	BTL	63	70	0.01	1.7	10	Flip–Chip–9
NCP2991	AB	BTL	64	30	0.015	1.8	20	Flip–Chip–9
NCP4894	AB	Differential	64	140	0.01	1.9	20	Micro–10, Flip–Chip–9, DFN–10
NCS2211	AB	BTL	63	0.001	0.2	20	1000	SOIC–8, DFN–9
NLMD5820	D	Differential	87	0	0.05	2.2	300	UDFN–16

TRANSCONDUCTANCE AMPLIFIERS

Device Name	Channels	V_{CC} (typ) (V)	T_A (min) (°C)	T_A (max) (°C)	g_M (typ) (μmho)	V_{IO} (typ) (mV)	I_{IB} (typ) (μA)	S_R (typ) (V/μs)	B_W (typ) (MHz)	e_n (typ) (pA/Hz)	THD (typ) (%)	Package
AU5517	2	44	–40	+125	9600	0.4	0.4	50	2	25	0.5	SOIC–16
NE5517A	2	44	0	+70	9600	0.4	0.4	50	2	25	0.5	PDIP–16
NE5517	2	44	0	+70	9600	0.4	0.4	50	2	25	0.5	SOIC–16, PDIP–16

VIDEO AMPLIFERS

Device Name	Channels	Filter Order	V_{CC} (V)	I_{CC} (mA)	G (dB)	B_W (MHz)	Attenuation (dB)	ΔG_D (ns)	Temperature Range (°C)	Package
NCS2566	6	6	5	60	6 ± 0.2	/34	50 @ 27 MHz; 43 @ 74.25 MHz	10 for HD; 20 for SD	−40 to +85	TSSOP−20
NCS2554	4	6	5	40	6 ± 0.2		50 @ 27 MHz	20	−40 to +85	TSSOP−14
NCS2564	4	6	5	40	6 ± 0.2	8/34	50 @ 27 MHz; 43 @ 74.25 MHz	10 for HD; 20 for SD	−40 to +85	TSSOP−14
NCS2553	3	6	5	23	6 ± 0.2	9	45 @ 27 MHz	27 for SD	−40 to +85	SOIC−8
NCS2563	3	6	5	22	6 ± 0.2	33	36 @ 74.25 MHz	6 for HD	−40 to +85	SOIC−8
NCS2561	1	2	2.7 – 3.3	6	6 ± 0.2	9.3	22 @ 27 MHz	15 for SD	−40 to +125	SC−88
NE592D14	1	–	8	18	100	90	–	–	0 to +70	SOIC−14
NE592D8	1	–	8	18	400	40	–	–	0 to +70	SOIC−8
NE592N14	1	–	8	18	100	90	–	–	0 to +70	PDIP−14
NE592N8	1	–	8	18	400	40	–	–	0 to +70	PDIP−8

COMPANDORS

Device Name	Channels	V_{CC} (min) (V)	V_{CC} (max) (V)	I_{CC} (max) (V)	THD (typ) (%)	e_n (typ) (μV)	V_{REF} (V)	T_A (min) (°C)	T_A (max) (°C)	Package
NE570	2	6	24	4.3	0.3	20	1.8	0	70	SO−16 WB
SA571	2	6	18	4.3	0.5	20	1.8	−40	85	SO−16 WB, PDIP−16
SA572D	2	6	22	6.3	0.05	6	2.5	−40	85	SO−16 WB, TSSOP−16, PDIP−16
SA575D	2	3	7	4.2	0.12	6		−40	85	SOIC−20 WB, TSSOP−20, PDIP−20

Analog Switches

Analog Switches

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AUDIO SWITCHES

Device	Configuration	THD (%)	R_{on} Max (Ω)	I_{lkg} Max (μA)	V_{CC} Min (V)	V_{CC} Max (V)	Packages
NLAS3699B	Dual DPDT	0.01	0.75	1	1.65	4.5	QFN−16
NLAS3699	Dual DPDT	0.01	0.75	1	1.65	3.6	QFN−16
NLAS3799BL	Dual DPDT	0.042	0.4	1	1.65	4.3	WQFN−16
NLAS3799B	Dual DPDT	0.042	0.4	1	1.65	4.3	UQFN−16, WQFN−16
NLAS3799L	Dual DPDT	0.042	0.5	1	1.65	3.6	WQFN−16
NLAS3799	Dual DPDT	0.042	0.5	1	1.65	3.6	WQFN−16
NLAS3899B	Dual DPDT	0.007	4	1	1.65	4.3	WQFN−16
NLAS4157	SPDT	0.012	1	1	1.65	5.5	SC−88/SC70−6/SOT−363
NLAS4684	Dual SPDT	0.14	0.5	1	1.8	5.5	DFN−10, FLIP−CHIP−10, Micro−10
NLAS4783B	Triple SPDT	0.008	1.2	1	1.65	4.5	QFN−16
NLAS4783	Triple SPDT	0.008	1.2	1	1.65	3.6	QFN−16
NLAS5113	SPST	0.08	1.1	2	1.65	4.5	UDFN−6, SC−88
NLAS5123	SPDT	0.012	1	1	1.65	5.5	UDFN−6, WDFN−6
NLAS5157	SPDT	0.02	0.5	1	1.65	4.3	UDFN−6
NLAS5213A	Dual SPST	–	1.3	1	1.65	4.5	UDFN−8, US−8
NLAS5213B	Dual SPST	–	1.3	1	1.65	4.5	UDFN−8, US−8
NLAS52231	Dual SPDT	0.03	0.5	1	1.65	4.5	UQFN−10
NLAS5223BL	Dual SPDT	0.08	0.5	1	1.65	4.5	WQFN−10
NLAS5223B	Dual SPDT	0.08	0.5	1	1.65	4.5	UQFN−10, WQFN−10
NLAS5223	Dual SPDT	0.12	0.5	1	1.65	3.6	WQFN−10
NLMD5820	Amp+DPST	0.08	0.5	2	1.65	4.2	UDFN−16
NS5S1153	DPDT	0.01	4.6	35	2.7	5.0	UQFN−10

DATA SWITCHES

Device	Data Type	Configuration	C_{on} Typ (pF)	Bandwidth Typ (MHz)	R_{on} Max (Ω)	I_{lkg} Max (μA)	V_{CC} Min (V)	V_{CC} Max (V)	Packages
NLAS3899B	SIM	Dual DPDT	20	280	4	1	1.65	4.3	WQFN−16
NLAS4717EP	USB	DPDT	38	90	4.5	1	1.8	5.5	WQFN−10, FLIP−CHIP−10
NLAS4717	USB	DPDT	110	40	4.5	1	1.8	5.5	FLIP−CHIP−10, Micro−10
NLAS7213	USB HS	DPST	5	1100	10	1	1.65	4.5	UQFN−8
NLAS7222A	USB HS	DPDT	7	500	9	1	3	3.6	UQFN−10, WQFN−10
NLAS7222B	USB HS	DPDT	8	500	8	1	1.65	4.5	UQFN−10
NLAS7222C	USB HS	DPDT	10	500	8	1	1.65	4.5	UQFN−10
NLAS7223B	USB HS	DPDT	7.5	900	7.5	1	1.65	4.5	UQFN−10
NLAS7223C	USB HS	DPDT	7.5	900	7.5	1	1.65	4.5	UQFN−10
NLAS8252	USB	DP3T	16	200	6	1	1.65	4.5	UQFN−12
NLAS7242	USB	DPDT	7.5	900	7.5	1	1.65	4.5	UQFN−10
NS5S1153	USB/Audio	DPDT	6.9	900	4.6	35	2.7	5.0	UQFN−10

SIGNAL SWITCHES

Device	Configuration	Number of Elements	Channels	r_{on} Max (Ω)	I_{lkg} Max (μA)	V_{CC} Min (V)	V_{CC} Max (V)	Package
MC14016B	Quad SPST	4	1	660	0.1	3	18	PDIP−14, SOIC−14
MC14051B	SP8T	1	8	500	0.1	3	18	PDIP−16, SOEIAJ−16, SOIC−16, TSSOP−16
MC14052B	DP4T	2	4	500	0.1	3	18	PDIP−16, SOEIAJ−16, SOIC−16, TSSOP−16
MC14053B	Triple SPDT	3	2	500	0.1	3	18	PDIP−16, SOEIAJ−16, SOIC−16, TSSOP−16
MC14066B	Quad SPST	4	1	500	0.1	3	18	PDIP−14, SOEIAJ−14, SOIC−14, TSSOP−14
MC14067B	SP16T	1	16	500	0.1	3	18	SOIC−24
MC14551B	4PDT	4	2	500	0.1	3	18	PDIP−16, SOEIAJ−16, SOIC−16
MC74HC4051A	SP8T	1	8	190	0.2	2	12	PDIP−16, SO−16 WB, SOEIAJ−16, SOIC−16, TSSOP−16
MC74HC4067A	SP16T	1	16	250		2	6	TSSOP−24, SOIC−24
MC74HC4052A	DP4T	2	4	190	0.1	2	12	PDIP−16, SO−16 WB, SOEIAJ−16, SOIC−16, TSSOP−16

SIGNAL SWITCHES

Device	Configuration	Number of Elements	Channels	r_{on} Max (Ω)	I_{lkg} Max (μA)	V_{CC} Min (V)	V_{CC} Max (V)	Package
MC74HC4053A	Triple SPDT	3	2	190	0.1	2	12	PDIP−16, SO−16 WB, SOEIAJ−16, SOIC−16, TSSOP−16
MC74HC4066A	Quad SPST	4	1	120	0.1	2	12	PDIP−14, SOEIAJ−14, SOIC−14, TSSOP−14
MC74HC4316A	Quad SPST	4	1	160	0.1	2	6	PDIP−16, SOEIAJ−16, SOIC−16
MC74HC4851A	SP8T	1	8	550	0.1	2	6	PDIP−16, SO−16 WB, SOIC−16, TSSOP−16
MC74HC4852	DP4T	2	4	550	0.1	2	6	PDIP−16, SO−16 WB, SOIC−16, TSSOP−16
M74HCT4051A	SP8T	1	8	160		4.5	5.5	TSSOP−16, SOIC−16
M74HCT4052A	DP4T	2	4	160		4.5	5.5	TSSOP−16, SOIC−16
M74HCT4053A	Triple SPDT	2	4	160		4.5	5.5	TSSOP−16, SOIC−16
M74HCT4851A	SP8T	1	8	550		4.5	5.5	TSSOP−16, SOIC−16
MC74HCT4851A	SP8T	1	8	550		4.5	5.5	TSSOP−16, SOIC−16
MC74HCT4852A	DP4T	2	4	550		4.5	5.5	TSSOP−16, SOIC−16
MC74LVX4066	Quad SPST	4	1	25	0.1	2	6	SOEIAJ−14, SOIC−14, TSSOP−14
MC74LVX8051	SP8T	1	8	30	0.2	2	6	SOEIAJ−16, SOIC−16, TSSOP−16
MC74LVX8053	Triple SPDT	3	2	30	0.1	2	6	SOEIAJ−16, SOIC−16, TSSOP−16
MC74LVXT4066	Quad SPST	4	1	25	0.1	2	5.5	SOEIAJ−14, SOIC−14, TSSOP−14
MC74LVXT8051	SP8T	1	8	30	0.1	2	6	SOEIAJ−16, SOIC−16, TSSOP−16
MC74LVXT8053	Triple SPDT	3	2	30	0.1	2	6	SOEIAJ−16, SOIC−16, TSSOP−16
MC74VHC1G66	Single SPST	1	1	45	0.1	2	5.5	UDFN−6, SC−88A, SC−70−5, TSOP−5 / SOT23−5
MC74VHC1GT66	Single SPST	1	1	45	0.1	2	5.5	SC−88A, SC−70−5, TSOP−5 / SOT23−5
MC74VHC4051	SP8T	1	8	160	0.1	2	6	SOEIAJ−16, SOIC−16, TSSOP−16
MC74VHC4066	Quad SPST	4	1	120	0.1	2	12	SOEIAJ−14, SOIC−14, TSSOP−14
NL7WB66	Dual SPST	2	1	11	0.1	1.65	5.5	US−8
NLAS1053	Single SPDT	1	2	28	1	2	5.5	US−8
NLAS2066	Dual SPST	2	1	11	0.1	1.65	5.5	US−8
NLAS3158	Dual SPDT	2	2	6	1	1.65	5.5	DFN−12
NLAS323	Dual SPST	2	1	30	0.1	2	5.5	US−8
NLAS324	Dual SPST	2	1	30	0.1	2	5.5	US−8

SIGNAL SWITCHES

Device	Configuration	Number of Elements	Channels	r_{on} Max (Ω)	I_{lkg} Max (μA)	V_{CC} Min (V)	V_{CC} Max (V)	Package
NLAS325	Dual SPST	2	1	30	0.2	2	5.5	US−8
NLAS3799	Dual DPDT	4	2	0.5	1	1.65	3.6	QFN−16
NLAS3899B	Dual DPDT	4	2	4	1	1.65	4.3	QFN−16
NLAS4051	SP8T	1	8	37	0.1	2.5	5.5	SOIC−16, TSSOP−16
NLAS4051S	SP8T	1	8	26	0.1	2.5	5.5	TSSOP−16
NLAS4053	Triple SPDT	3	2	37	0.1	2.5	5.5	SOIC−16, TSSOP−16
NLAS44599	Dual DPDT	4	2	30	0.2	2	5.5	QFN−16
NLAS4501	Single SPST	1	1	30	0.1	2	5.5	SC−88A, SC−70−5, TSOP−5 / SOT23−5
NLAS4599	Single SPDT	1	2	30	0.1	2	5.5	SC−88/SC70−6, TSOP−6
NLAS4717EP	Dual SPDT	2	2	4.5	1	1.8	5.5	FLIP−CHIP−10, WQFN−10
NLAS5113	SPST	1	1	1.1	2	1.65	4.5	UDFN−6, SC−88/SC−70−6
NLAS5123	Single SPDT	1	2	1	1	1.65	5.5	UDFN−6, WDFN−6
NLAS5223L	Dual SPDT	2	2	0.5	1	1.65	3.6	WQFN−10
NLAS5223	Dual SPDT	2	2	0.5	1	1.65	3.6	WQFN−10
NLAS9431	Dual DPDT	4	2	30	0.2	2	5.5	QFN−16
NLASB3157	Single SPDT	1	2	7	1	1.65	5.5	SC−88/SC−70−6, WDFN−6
NLAST4051	SP8T	1	8	37	0.1	2.5	5.5	TSSOP−16
NLAST4053	Triple SPDT	3	2	26	1	2.5	5.5	TSSOP−16
NLAST44599	Dual DPDT	4	2	30	0.2	2	5.5	QFN−16
NLAST4501	Single SPST	1	1	30	0.1	2	5.5	SC−88A, SC−70−5, TSOP−5 / SOT23−5
NLAST4599	Single SPDT	1	2	30	0.1	2	5.5	SC−88/SC−70−6, TSOP−6
NLAST9431	Dual DPDT	4	2	30	0.2	2	5.5	QFN−16
NS5B1G384	Single SPST	1	1	7	1	2	5.5	SC−88A, SC−70−5, TSOP−5 / SOT23−5
NS5B1G385	Single SPST	1	1	7	1	2	5.5	SC−88A, SC−70−5, TSOP−5 / SOT23−5

VIDEO SWITCHES

Device	Number of Inputs	Number of Outputs	B_W Typ (MHz)	I_{CCH} Typ (mA)	V_{CC} Min (V)	V_{CC} Max (V)	T_A Min (°C)	T_A Max (°C)	Package
NCS6415	8	6	20	30	8	11	0	70	SOIC−20
NCS6416	6	6	15	30	4.75	5.25	0	70	SOIC−20
NCS6433	4	8	570		4	5.5	−40	85	TSSOP−16, SOIC−16

Bipolar Transistors

Bipolar Transistors

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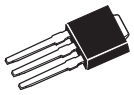
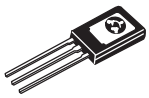
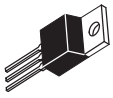
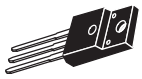
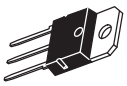
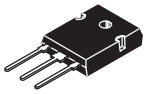
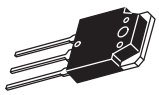
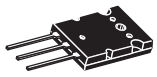
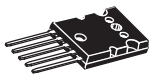
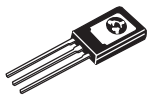
BIPOLAR TRANSISTORS SELECTOR GUIDE

SELECTION BY PACKAGE

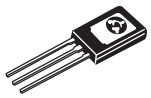
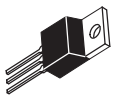
Package		I_C Range (Amps)	V_{CE} Range (Volts)	P_D (Watts)
	SOT–223	0.5–3.0	30–300	2.75–3.0
	DPAK	0.5–10	25–450	12.5–25
	D^2PAK	6.0–10	80–350	50–75
	**DPAK**	0.5–10	25–450	12.5–25
	**TO–225AA**	0.3–5.0	25–500	12.5–50
	**TO–220AB**	0.5–15	32–400	30–150
	**Isolated TO–220**	1.0–10	60–450	28–45
	**TO–218**	10–25	60–350	80–150
	**TO–247**	8.0–30	150–250	100–200
	**TO–3P**	15–20	150–260	150–200
	**TO–264**	15–20	250–350	200–250
	**TO–264 5–Lead**	15	260	200
	TO–3 (TO–204AA) 40 Mil Pins	4.0–30	40–250	115–250
	TO–3 (TO–204AE) 60 Mil Pins	40–60	60–250	150–300

DISCRETE TRANSISTORS

I_CCont Amps Max	$V_{CEO(sus)}$ Volts Min	Device Type		h_{FE} Min/Max	@ I_C Amp	f_T MHz Min	P_D (Case) Watts @ 25°C	Package
		NPN	PNP					
0.5	300		MMJT350T1	30/240	0.05	30	2.75	
2.0	100	NSS1C201MZ4	NSS1C200MZ4	120/360	0.5	100	2.0	
3.0	40		NJT4030P	200/400	1.0	160 typ	2.0	
	40	NJT4031N		200/400	1.0	215	2.0	SOT–223
	40	NSS40301MZ4	NSS40300MZ4	200/500	1.0	150	2.0	
6.0	60	NSS60601MZ4	NSS60600MZ4	120/360	1.0	100	2.0	
0.5	300	MJD340T4	MJD350T4	30/240	0.05	30	15	
1.0	250	MJD47T4		30/150	0.3	10	15	
	350		MJD5731T4	10 min	1.0	10	15	
	400	MJD50T4		30/150	0.3	10	15	
2.0	50	NJD2873T4		40 min	2.0	30	12.5	
3.0	40	MJD31T4	MJD32T4	10 min	1.0	3.0	15	
	100	MJD31CT4	MJD32CT4	10 min	1.0	3.0	15	
4.0	45		MJD148T4	50 min	2.0	3.0	20	DPAK
	100	MJD243T4	MJD253T4	40/180	0.2	40	12.5	
5.0	25	MJD200T4	MJD210T4	45/180	2.0	65	12.5	
6.0	100	MJD41CT4	MJD42CT4	15/75	3.0	3.0	20	
8.0	80	MJD44H11T4	MJD45H11T4	40 min	4.0	50 typ	20	
10	60	MJD3055T4	MJD2955T4	20/100	4.0	2.0	20	
6.0	100	MJB41CT4	MJB42CT4	15/75	3.0	3.0	65	
8.0	80	MJB44H11T4	MJB45H11T4	40/100	4.0	40	50	D^2PAK
0.3	350	MJE3439		40/160	0.02	15	15	
0.5	200	MJE344		30/300	0.05	15	20.8	
	250	2N5655		30/250	0.1	10	20	
	300	MJE340	MJE350	30/240	0.05	30	20.8	
	350	2N5657		30/250	0.1	10	20	
		BD159		30/240	0.05	30	20	
1.0	40	2N4921	2N4918	20/100	0.5	3.0	30	
	60	2N4922	2N4919	20/100	0.5	3.0	30	
	80	2N4923	2N4920	20/100	0.5	3.0	30	
1.5	45	BD135	BD136	40/250	0.15	50	12.5	
	60	BD137	BD138	40/250	0.15	50	12.5	TO–225AA
	80	BD139	BD140	40/250	0.15	50	12.5	
2.0	45		BD234	25 min	1.0	3.0	25	
	80	BD237		25 min	1.0	3.0	25	
3.0	40	MJE180	MJE170	50/250	0.1	50	12.5	
	60	MJE181	MJE171	50/250	0.1	50	12.5	
	80	BD179	BD180	40/250	0.15	3.0	25	
		MJE182	MJE172	50/250	0.1	50	12.5	

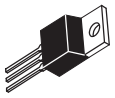
†Style 3.

DISCRETE TRANSISTORS (continued)

I_CCont Amps Max	$V_{CEO(sus)}$ Volts Min	Device Type		h_{FE} Min/Max	@ I_C Amp	f_T MHz Min	P_D (Case) Watts @ 25°C	Package
		NPN	PNP					
4.0	32	BD435	BD436	50 min	2.0	3.0	36	
	40		MJE371	40 min	1.0	3.0	40	
		2N5190		25 min	1.5	2.0	40	
	45	BD437	BD438	40 min	2.0	3.0	36	
	60	BD439	BD440	25 min	2.0	3.0	36	
		BD787	BD788	20 min	2.0	50	15	
		2N5191	2N5194	25/100	1.5	2.0	40	TO–225AA
	80	2N5192	2N5195	25/100	1.5	2.0	40	
		BD441	BD442	15 min	2.0	3.0	36	
	100	MJE243	MJE253	40/120	0.2	40	15	
5.0	25	MJE200	MJE210	45/180	2.0	65	15	
1.0	60	TIP29A		15/75	1.0	3.0	30	
	80	TIP29B		15/75	1.0	3.0	30	
	100	TIP29C	TIP30C	15/75	1.0	3.0	30	
	250	TIP47		30/150	0.3	10	40	
	300	TIP48	MJE5730	30/150	0.3	10	40	
	350		MJE5731	30/150	0.3	10	40	
	375		MJE5731A	30/150	0.3	10	40	
	400	TIP50		30/150	0.3	10	40	
2.0	450/1000	BUX85		30	0.1	4.0	50	
		MJE18002		14/34	0.2	12 typ	40	
3.0	40	TIP31	TIP32	25 min	1.0	3.0	40	
	60	TIP31A	TIP32A	25 min	1.0	3.0	40	
	80		BD242B	25 min	1.0	3.0	40	TO–220AB
		TIP31B	TIP32B	25 min	1.0	3.0	40	
	100	BD241C	BD242C	25 min	1.0	3.0	40	
		TIP31C	TIP32C	25 min	1.0	3.0	40	
4.0	80	D44C12	D45C12	40/120	0.2	40 typ	30	
	350	MJE15034	MJE15035	10 min	2.0	30	50	
	400/700	MJE13005		6/30	3.0	4.0	60	
	500/800	BUH50		10 typ	2.0	4.0	50	
5.0	400/700	BUL45		14/34	0.3	12 typ	75	
		BUL45D2*		22 min	0.8	13 typ	75	
	450/1000	MJE18004		14/34	0.3	13	75	

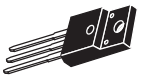
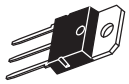
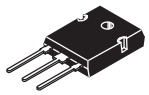
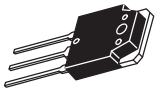
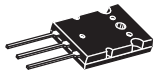
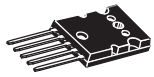
NOTE: When two voltages are given, the format is $V_{CEO(sus)}/V_{CES}$.
*D2 suffix indicates transistor with built–in C–E freewheeling diode and antisaturation network.

DISCRETE TRANSISTORS (continued)

I_CCont Amps Max	$V_{CEO(sus)}$ Volts Min	Device Type		h_{FE} Min/Max	@ I_C Amp	f_T MHz Min	P_D (Case) Watts @ 25°C	Package
		NPN	PNP					
6.0	40		TIP42	15/75	3.0	3.0	65	
	60	TIP41A	TIP42A	15/75	3.0	3.0	65	
	80	TIP41B	TIP42B	15/75	3.0	3.0	65	
			BD244B	15 min	3.0	3.0	65	
	100	BD243C	BD244C	15 min	3.0	3.0	65	
		TIP41C	TIP42C	15/75	3.0	3.0	65	
	450/1000	MJE18006		14/34	0.5	14 typ	100	
7.0	30	2N6288	2N6111	30/150	3.0	4.0	40	
	50		2N6109	30/150	2.5	4.0	40	
	70	2N6292	2N6107	30/150	2.0	4.0	40	
	200	BU406		30 min	1.5	10	60	
8.0	120	MJE15028	MJE15029	20 min	4.0	30	50	
	150	MJE15030	MJE15031	20 min	4.0	30	50	
	250	MJE15032	MJE15033	10 min	2.0	30	50	
	300		MJE5850	15 min	2.0	30 typ	80	 TO–220AB
	350		MJE5851	15 min	2.0	30 typ	80	
	400		MJE5852	15 min	2.0	30 typ	80	
		MJE13007		5/30	5.0	14 typ	80	
	450/1000	MJE18008		16/34	1.0	13 typ	125	
10	60	D44H8	D45H8	40 min	4.0	3.0	50	
		MJE3055T	MJE2955T	20/70	4.0	3.0	75	
	80	BD809	BD810	15 min	4.0	1.5	90	
		D44H11	D45H11	40 min	4.0	50 typ	50	
	400/700	BUH100		6.0 min	10	23 typ	100	
12	90	BUV26		12 min	12	30 typ	85	
	120	BUV27		12 min	8.0	30 typ	70	
	400/700	MJE13009		6/30	8.0	4.0	100	
15	60	2N6487	2N6490	20/150	5.0	5.0	75	
	80	2N6488	2N6491	20/150	5.0	5.0	75	
		D44VH10	D45VH10	20 min	4.0	50 typ	83	
	400/700	BUH150		4.0 min	20	23 typ	150	

NOTE: When two voltages are given, the format is $V_{CEO(sus)}/V_{CES}$.

DISCRETE TRANSISTORS (continued)

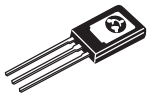
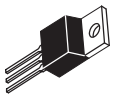
I_C Cont Amps Max	$V_{CEO(sus)}$ Volts Min	Device Type		h_{FE} Min/Max	@ I_C Amp	f_T MHz Min	P_D (Case) Watts @ 25°C	Package
		NPN	PNP					
1.0	250	MJF47		30/150	0.3	10	28	 Isolated TO–220
3.0	100	MJF31C	MJF32C	10 min	1.0	3.0	28	
5.0	450/1000	MJF18004		14/34	0.3	13 typ	35	
8.0	150	MJF15030	MJF15031	40 min	3.0	30	35	
	450/1000	MJF18008		16/34	1.0	13 typ	45	
10	60	MJF3055	MJF2955	20/100	4.0	2.0	40	
	80	MJF44H11	MJF45H11	40/100	4.0	40	35	
10	100	TIP33C		20/100	3.0	3.0	80	 TO–218
15	60	TIP3055	TIP2955	5 min	10	2.5	80	
16	160	MJE4343	MJE4353	15 min	8.0	1.0	125	
25	60	TIP35A	TIP36A	15/75	15	3.0	125	
	100	TIP35C	TIP36C	15/75	15	3.0	125	
8.0	150	MJW21192	MJW21191	15 min	8.0	4.0	100	 TO–247
15	260	MJW0281A	MJW0302A	75/150	3.0	30	150	
		MJW3281A	MJW1302A	75/150	4.0	30	200	
16	250	MJW21194	MJW21193	20/60	8.0	4.0	200	
		MJW21196	MJW21195	20/60	8.0	4.0	200	
30	450/1000	MJW18020		14/35	3.0	13 typ	250	
15	260	NJW0281	NJW0302	75/150	3.0	30	150	 TO–3P
	260	NJW3281	NJW1302	75/150	4.0	30	200	
16	250	NJW21194	NJW21193	20/60	8.0	4.0	200	
15	260	MJL3281A	MJL1302A	75/150	4.0	30	200	 TO–264
	350	MJL4281A	MJL4302A	80/250	5.0	35	230	
16	250	MJL21194	MJL21193	25/75	8.0	4.0	200	
		MJL21196	MJL21195	25/75	8.0	4.0	200	
15	260	NJL0281D	NJL0302D	75/150	3.0	30	180	 TO–264 (5–Lead)
	260	NJL3281D	NJL1302D	75/150	4.0	30	200	
	350	NJL4281D	NJL4302D	75/150	5.0	30	250	
16	250	NJL21194D	NJL21193D	25/75	8.0	4.0	200	
10	140	2N3442		20/70	4.0	3.0	117	TO–3 (TO–204AA)
15	60	2N3055	MJ2955	20/70	4.0	2.5	115	
		2N3055A		20/70	4.0	0.8	115	
	120	MJ15015	MJ15016	20/70	4.0	1.0	180	
	140	MJ15001	MJ15002	25/150	4.0	2.0	200	

NOTE: When two voltages are given, the format is $V_{CEO(sus)}/V_{CES}$.

DISCRETE TRANSISTORS (continued)

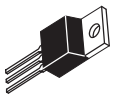
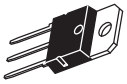
I_C Cont Amps Max	$V_{CEO(sus)}$ Volts Min	Device Type		h_{FE} Min/Max	@ I_C Amp	f_T MHz Min	P_D (Case) Watts @ 25°C	Package
		NPN	PNP					
16	140	2N3773		15/60	8.0	4.0	150	
	200		MJ15023	15/60	8.0	5.0	250	
	250	MJ15024	MJ15025	15/60	8.0	5.0	250	
		MJ21194	MJ21193	25/75	8.0	4.0	250	
		MJ21196	MJ21195	25/75	8.0	4.0	250	
20	60	2N3772		15/60	10	2.0	150	
	90	2N5038		20/100	12	60	140	
	140	MJ15003	MJ15004	25/150	5.0	2.0	250	
25	60	2N5885	2N5883	20/100	10	4.0	200	**TO–3 (TO–204AA)**
	80	2N5886	2N5884	20/100	10	4.0	200	
	100	2N6338		30/120	10	40	200	
	150	2N6341		30/120	10	40	200	
30	40	2N3771		15/60	15	2.0	150	
	60	2N5302		15/60	15	2.0	200	
	100	MJ802	MJ4502	25/100	7.5	2.0	200	
40	200	BUV21		10 min	25	8.0	150	
	250	BUV22		10 min	20	8.0	250	
50	80	2N5686	2N5684	15/60	25	2.0	300	**TO–3 (TO–204AE)**
60	80	MJ14002		15/100	50	3.0	300	

DARLINGTON TRANSISTORS

I_CCont Amps Max	$V_{CEO(sus)}$ Volts Min	Device Type		h_{FE} Min/Max	@ I_C Amp	f_T MHz Min	P_D (Case) Watts @ 25°C	Package
		NPN	PNP					
2.0	100	MJD112T4	MJD117T4	1000 min	2.0	25	20	
4.0	80	MJD6039T4		1k/2k	2.0	25	20	
	350	NJD35N04		2000 min	2.0	90	45	
8.0	100	MJD122T4	MJD127T4	1k/2k	4.0	4	20	DPAK
	120		MJD128T4	1k/2k	4.0	4	20	
10	80	MJD44E3T4		1k min	5.0		20	
10	350	BUB323Z		500/3400	5.0	2.0	75	D^{2}PAK
2.0	100	MJE270†	MJE271†	1.5k min	0.12	6.0	15	
4.0	40		2N6034	25 min	1.5	2.0	40	
	45	BD675	BD676	750	1.5	3.0	40	
		BD675A	BD676A	750	2.0	3.0	40	
	60	BD677	BD678	750 min	1.5		40	
		BD677A	BD678A	750 min	2.0		40	
		MJE800	MJE700	750 min	1.5	1.0	40	
		2N6038	2N6035	750/18k	2.0	25	40	
	80	BD679	BD680	750 min	1.5		40	TO–225AA
		BD679A	BD680A	750 min	2.0		40	
		MJE802	MJE702	750 min	1.5	1.0	40	
		MJE803	MJE703	750 min	2.0	1.0	40	
		2N6039	2N6036	750/18k	2.0	25	40	
	100	BD681	BD682	750 min	1.5		40	
2.0	60	TIP110	TIP115	500 min	2.0	25	50	
	80	TIP111	TIP116	500 min	2.0	25	50	
	100	TIP112	TIP117	500 min	2.0	25	50	
5.0	60	TIP120	TIP125	1k min	3.0	4.0	65	
	80	TIP121	TIP126	1k min	3.0	4.0	65	
	100	TIP122	TIP127	1k min	3.0	4.0	75	
8.0	60	2N6043	2N6040	1k/10k	4.0	4.0	75	
		TIP100		1k/20k	3.0	4.0	80	
	80	BDX53B	BDX54B	750 min	3.0	4.0	60	
		TIP101	TIP106	1k/20k	3.0	4.0	80	TO–220AB
		TIP131		1k/15k	4.0		70	
	100	TIP132		1k/15k	4.0		70	
		2N6045	2N6042	1k/10k	3.0	4.0	75	
		BDX53C	BDX54C	750 min	3.0			
		TIP102	TIP107	1k/20k	3.0	4.0	80	
	400	MJE5742		200 min	4.0		80	

NOTE: When two voltages are given, the format is $V_{CEO(sus)}/V_{CES}$.
†Style 3.

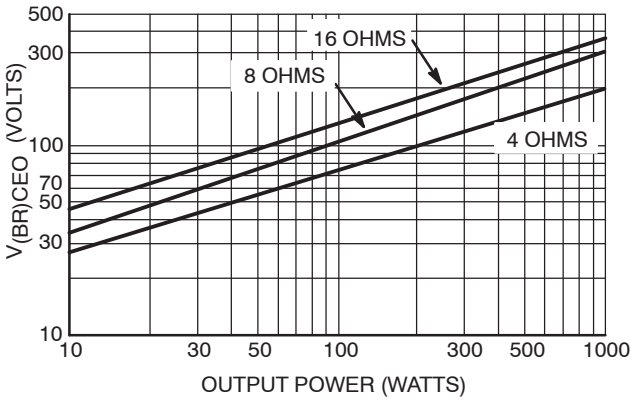
DARLINGTON TRANSISTORS (continued)

I_CCont Amps Max	$V_{CEO(sus)}$ Volts Min	Device Type		h_{FE} Min/Max	@ I_C Amp	f_T MHz Min	P_D (Case) Watts @ 25°C	Package
		NPN	PNP					
10	60	2N6387	2N6667	1k/20k	5.0	20	65	 TO–220AB
	80	BDX33B	BDX34B	750 min	3.0	3.0	70	
		2N6388		1k/20k	5.0	20	65	
	100	BDX33C	BDX34C	750 min	3.0	3.0	70	
15	80		BDW46	1k min	5.0	4.0	85	
	100	BDW42	BDW47	1k min	5.0	4.0	85	
5.0	100	MJF122	MJF127	2000 min	3.0	4.0	28	Isolated TO–220
10	100	MJF6388		3k/20k	3.0	20	40	
10	60	TIP140		500 min	10	4.0	125	 TO–218
		TIP141		500 min	10	4.0	125	
	100	BDV65B	BDV64B	1k min	5.0		125	
		TIP142	TIP147	500 min	10	4.0	125	
	350	BU323Z		500/3400	5.0		150	
15	150		MJH11017	400/15k	10	3.0	150	
	200	MJH11020	MJH11019	400/15k	10	3.0	150	
	250	MJH11022	MJH11021	400/15k	10	3.0	150	
20	100	MJH6284	MJH6287	750/18k	10	4.0	125	
12	100		2N6052	750/18k	6.0	4.0	150	TO–3 (TO–204AA)
15	250	MJ11022	MJ11021	100 min	15	3.0	175	
20	80		2N6286	750/18k	10	4.0	160	
	100	2N6284	2N6287	750/18k	10	4.0	160	
30	60	MJ11012		1k min	20	4.0	200	
	120	MJ11016	MJ11015	1k min	20	4.0	200	
	250	MJ11022	MJ11021	400/15k	10	3.0	200	
50	60	MJ11028		400 min	50		300	TO–3 (TO–204AE)
	90	MJ11030		400 min	50		300	
	120	MJ11032	MJ11033	400 min	50		300	

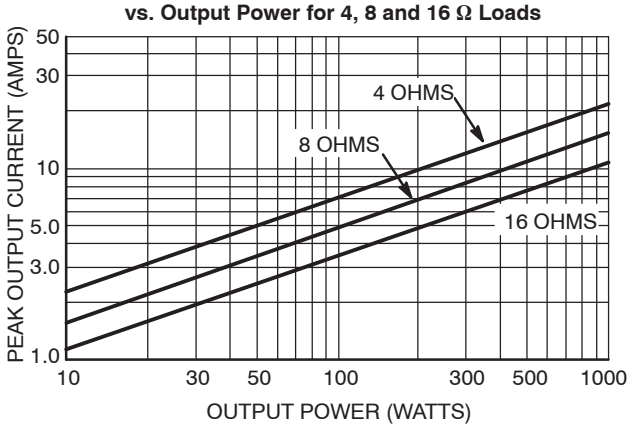
Audio

GENERAL DESIGN CURVES FOR POWER AUDIO OUTPUT STAGES

$V_{(BR)CEO}$ Required on Output and Driver Transistor vs. Output Power for 4, 8 and 18 Ω Loads



Output Transistor Peak Collector Current vs. Output Power for 4, 8 and 16 Ω Loads



Another important parameter that must be considered before selecting the output transistors is the safe−operating area these devices must withstand. For a complete discussion see Application Note AN485.

RECOMMENDED POWER TRANSISTORS FOR AUDIO/SERVO LOADS

RMS Power Output	NPN	PNP	Package	P_D Watts @ 25°C	V_{CEO}	I_C Max	h_{FE}		f_T MHz Typ
							Min/Max	@ I_C Amps	
To 25 W	MJE15030	MJE15031	TO−220	50	150	8.0	20 min	4.0	30
	MJE15032	MJE15033	TO−220	50	250	8.0	50 min	1.0	30
25 to 50 W	MJE15034	MJE15035	TO−220	50	350	4.0	50 min	1.0	30
50 to 100 W	MJ15003	MJ15004	TO−3	150	140	20	25/150	5.0	3.0
	MJ15015	MJ15016	TO−3	180	120	15	20/70	4.0	3.0
Over 100 W	MJW21192	MJW21191	TO−3	100	150	8.0	15 min	4.0	4.0
	NJW0281	NJW0302	TO−3P	150	260	15	75/150	3.0	30
	NJL0281D	NJL0302D	TO−264 (5−Lead)	180	260	15	75/150	3.0	30
	MJL21194	MJL21193	TO−264	200	250	16	25/75	8.0	4.0
	MJL21196	MJL21195	TO−264	200	250	16	25/75	8.0	4.0
	MJW21194	MJW21193	TO−247	200	250	16	20/60	8.0	4.0
	NJW21194	NJW21193	TO−3P	200	250	16	20/60	8.0	4.0
	MJW21196	MJW21195	TO−247	200	250	16	25/60	8.0	4.0
	MJL3281A	MJL1302A	TO−264	200	260	15	75/150	5.0	30

RECOMMENDED POWER TRANSISTORS FOR AUDIO/SERVO LOADS (continued)

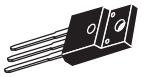
RMS Power Output	NPN	PNP	Package	P_D Watts @ 25°C	V_{CEO}	I_C Max	h_{FE}		f_T MHz Typ
							Min/Max	@ I_C Amps	
Over 100 W	MJW3281A	MJW1302A	TO−247	200	260	15	75/150	5.0	30
	NJW3281	NJW1302	TO−3P	200	260	15	75/150	5.0	30
	MJL4281A	MJL4302A	TO−264	200	350	15	80/200	5.0	35
	NJL3281D	NJL1302D	TO−264 (5−Lead)	200	260	15	75/150	7.0	30
	NJL4281D	NJL4302D	TO−264 (5−Lead)	250	350	15	75/150	5.0	30
	MJ15024	MJ15025	TO−3	250	250	16	15/60	8.0	4.0
	MJ21194	MJ21193	TO−3	250	250	16	25/75	8.0	4.0

The Power Transistors shown are provided for reference only and show device capability. The final choice of the Power Transistors used is left to the circuit designer and depends upon the particular safe−operating area required and the mounting and heat sinking configuration used.

Bipolar Power Transistors for Electronic Lamp Ballasts

I_CCont Amps Max	$V_{CEO(sus)}$ Volts Min	V_{CES} Volts Min	Device Type	I_C Operating Amps	h_{FE} min @ I_C Operating V_{CE} = 1.0 V	Inductive Switching @ I_C Operating t_{si}/t_{fi} Max (μs)	P_D (Case) Watts @ 25°C	Package
2.0	450	1000	MJE18002	1.0	6.0	2.75/0.175	50	TO−220AB
4.0	500	800	BUH50	2.0	8.0 typ	2.75/0.15	50	
5.0	400	700	BUL45	2.0	7.0	3.8/0.17	75	
		700	BUL45D2*	2.0	10	2.25/0.015	75	
	450	1000	MJE18004	2.0	6.0	2.5/0.175	75	
6.0	450	1000	MJE18006	3.0	6.0	3.2/0.15	100	
8.0	450	1000	MJE18008	4.5	6.0	3.2/0.15	125	
10	400	700	BUH100	5.0	10 typ	3.5/0.15	100	
15	400	700	BUH150	10	8.0 typ	2.75/0.175	150	

Isolated TO−220

I_CCont Amps Max	$V_{CEO(sus)}$ Volts Min	V_{CES} Volts Min	Device Type	I_C Operating Amps	h_{FE} min @ I_C Operating V_{CE} = 1.0 V	Inductive Switching @ I_C Operating t_{si}/t_{fi} Max (μs)	P_D (Case) Watts @ 25°C	Package
5.0	450	1000	MJF18004	2.0	6.0	2.5/0.175	35	 Isolated TO−220
8.0	450	1000	MJF18008	4.5	6.0	3.2/0.15	45	

BUH−Series are specified for Halogen applications.
*D2 suffix indicates transistor with built−in C−E freewheeling diode and antisaturation network.
†Style 3.

The isolated TO−220 is UL RECOGNIZED for its isolation feature and has been evaluated to 3500 volts RMS. Actual isolation rating depends on specific mounting position and maintaining required strike and creepage distances.

BIPOLAR TRANSISTORS

GENERAL–PURPOSE TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	h_{FE} Max	f_T MHz Min	NF dB Max	Package
MPS8099	–	80	500	100	300	150	–	**TO–226AA, TO–92 Case 29–11**
MPSA06	***MPSA56***	80	500	100	–	100	–	
BC639	–	80	1000	40	160	60	0.5	
BC639–16	–	80	1000	100	250	60	0.5	
–	BC640–016	80	500	100	250	–	–	
BC546B	–	65	100	180	450	150	10	
MPSA05	MPSA55	60	500	100	–	100	–	
–	***MPS2907A***	60	600	100	300	200	–	
MPS651	***MPS751***	60	2000	75	–	75	0.5	
BC637	–	60	500	40	160	–	0.5	
–	***2N5087***	50	50	250	800	40	2.0	
–	BC307B	45	100	200	460	150	10	
BC337	–	45	800	100	630	210 (Typ)	–	
BC337–25	BC327–25	45	800	160	400	260 (Typ)	–	
BC337–40	BC327–40	45	800	250	630	260 (Typ)	–	
BC550C	–	45	100	380	800	250 (Typ)	2.5	
BC547B	BC557B	45	100	180	450	150	10	
–	BC557C	45	100	380	800	150	10	
MPS2222A	–	40	600	100	300	300	–	
PN2222A	–	40	600	100	300	300	4	
2N4401	***2N4403***	40	600	100	300	200	–	
–	***MPS6652***	40	1000	50	–	100	–	
2N3904	***2N3906***	40	200	100	300	250	5.0	
BC548C	–	30	100	420	800	300	10	**TO–226AA, TO–92 Case 29–11**
BC549C	–	30	100	420	800	–	–	
MPS2222	–	30	600	100	300	250	–	
2N5088	–	30	50	350	–	50	3.0	
2N5089	–	25	50	450	–	50	2.0	
2N4124	–	25	200	120	360	300	–	
MPS4124	–	25	200	120	360	170	5.0	
MPS5172	–	25	100	100	500	–	–	
–	BC369	20	1000	60	–	65	0.5	
MPSW06	***MPSW56***	80	500	80	–	50	–	**TO–226AE** (1–WATT) **TO–92 Case 29–10**
MPSW05	–	60	500	60	–	50	250	
MPSW01A	***MPSW51A***	40	1000	50	–	50	–	
MPSW01	MPSW51	30	1000	50	–	50	–	
MPS6726	–	30	1000	50	250	–	–	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

GENERAL–PURPOSE TRANSISTORS (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
MMBT5550L	–	140	600	60	250	–	–	TO–236AB, SOT–23 Case 318–08
–	BSS63L	100	100	30	–	50	–0.25	
BSS64L	–	80	100	20	–	60	0.15	
MMBTA06L	***MMBTA56L***	80	500	100	–	100	–	
MMBT8099L	–	80	500	100	300	150	–	
BC846AL	–	65	100	110	220	100	10	
BC846BL	–	65	100	200	450	100	10	
–	***BC856AL***	65	100	125	250	100	10	
–	***BC856BL***	65	100	220	475	100	10	
–	***MMBT2907AL***	60	600	100	300	200	–	
MMBT2484L	–	60	50	250	–	–	3.0	
MMBTA05L	–	60	500	100	–	100	–	
–	MMBTA55L	60	500	100	–	50	–	
MMBT6428L	–	50	200	250	–	100	3.0 (Typ)	
–	***MMBT5087L***	50	50	250	–	40	2.0	
MMBT6429L	–	45	200	500	–	100	3.0 (Typ)	
BC817–16L	–	45	500	100	250	100	–	
BC817–25L	–	45	500	160	400	100	–	
BC817–40L	–	45	500	250	600	100	–	
–	BC807–16L	45	500	100	250	100	–	
–	***BC807–25L***	45	500	160	400	100	–	
–	***BC807–40L***	45	500	250	600	100	–	
BC847AL	–	45	100	110	220	100	10	
BC847BL	–	45	100	200	450	100	10	
BC847CL	–	45	100	420	800	100	10	
BC850BL	–	45	100	200	450	100	4.0	
BC850CL	–	45	100	420	800	100	4.0	
–	***BC857AL***	45	100	125	250	100	10	
–	***BC857BL***	45	100	220	475	100	10	
–	***BC857CL***	45	100	420	800	100	10	
–	BCW68GL	45	800	120	400	100	10	
–	BCW70L	45	100	215	500	–	10	
BCW72L	–	45	100	200	450	300	10	
–	BCX17L	45	500	100	600	–	–	
BCX19L	–	45	500	100	600	–	–	
MMBT2222AL	–	40	600	100	300	300	4.0	
MMBT3904L	–	40	200	100	300	200	5.0	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

GENERAL–PURPOSE TRANSISTORS (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	h_{FE} Max	f_T MHz Min	NF dB Max	Package
–	***MMBT3906L***	40	200	100	300	250	4.0	TO–236AB, SOT–23 Case 318–08
MMBT4401L	–	40	600	100	300	250	–	
–	***MMBT4403L***	40	600	100	300	200	–	
MMBT3416L	–	40	100	75	225	–	–	
–	MMBTA70L	40	100	40	400	125	–	
–	BCW30L	32	100	215	500	–	10	
BCW32L	–	32	100	200	450	–	10	
BCW65AL	–	32	800	100	250	100	10	
BCW65CL	–	32	100	250	630	100	10	
BC848AL	–	30	100	110	220	100	10	
BC848BL	–	30	100	200	450	100	10	
BC848CL	–	30	100	420	800	100	10	
BC849BL	–	30	100	200	450	100	4.0	
BC849CL	–	30	100	420	800	100	4.0	
MMBT489L	–	30	1000	300	900	100	–	
–	MMBT589L	30	1000	100	300	100	–	
–	***BC858AL***	30	100	125	250	100	10	
–	***BC858BL***	30	100	220	475	100	10	
–	***BC858CL***	30	100	420	800	100	10	
MMBT5088L	–	30	50	300	900	5	3.0	
MMBT2222L	–	30	600	100	300	250	4.0	
MMBT6521L	–	25	100	300	600	–	–	
MMBT5089L	–	25	50	400	1200	50	2.0	
MMBT4124L	–	25	200	120	360	300	5.0	
BC818–40L	–	25	500	250	600	100	–	
–	MMBT4126L	25	200	120	300	250	4.0	
–	BC808–25L	25	500	160	400	100	–	
BCW33L	–	20	100	420	800	–	10	
MSD601–R	–	50	100	210	340	–	–	SC–59 Case 318D–04
MSD602–R	–	50	500	120	240	–	–	
MSC2712G	–	50	100	200	400	–	–	
–	***MSA1162G***	50	100	200	400	–	–	
–	***MSA1162Y***	50	100	120	240	–	–	
–	***MSB710–R***	50	500	120	240	–	–	
–	***MSB709–R***	45	100	210	340	–	–	
MSD1328–R	–	20	500	200	350	–	–	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

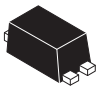
GENERAL–PURPOSE TRANSISTORS (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	h_{FE} Max	f_T MHz Min	NF dB Max	Package
MMBTA06W	***MMBTA56W***	80	500	100	–	100	–	SC–70, SOT–323 Case 419–04
BC846BW	–	65	100	200	450	100	10	
–	***BC856BW***	65	100	220	475	100	10	
–	***MMBT2907AW***	60	600	100	–	200	–	
MSD1819A–R	–	50	100	210	340	–	–	
BC847AW	–	45	100	110	220	100	10	
BC847BW	–	45	100	200	450	100	10	
BC847CW	–	45	100	420	800	100	4.0	
–	***BC857BW***	45	100	220	475	100	10	
–	***BC857CW***	45	100	420	800	100	10	
–	***MSB1218A–R***	45	100	210	340	–	–	
MMBT4401W	–	40	600	100	300	250	–	
–	MMBT4403W	40	600	100	300	200	–	
MMBT2222AW	–	40	600	100	300	300	4.0	
MMBT3904W	–	40	200	100	300	300	5.0	
–	***MMBT3906W***	40	200	100	300	250	4.0	
BC848BW	–	30	100	200	450	100	10	
BC848CW	–	30	100	420	800	100	4.0	
–	***BC858AW***	30	100	110	220	100	10	
–	***BC858BW***	30	100	200	450	100	10	
2SC4617	–	50	100	120	560	180 (Typ)	–	SOT–416, SC–75, SC–90 Case 463–01
–	***2SA1774***	50	100	120	560	140 (Typ)	–	
BC847BT	–	45	100	200	450	100	10	
BC847CT	–	45	100	420	800	100	4.0	
–	***BC857BT***	45	100	220	475	100	10	
MMBT3904T	–	40	200	100	300	300	5.0	
–	***MMBT3906T***	40	200	100	300	250	4.0	
MMBT2222AT	–	40	600	100	300	300	4.0	
MMBT5551M3	–	160	60	80	250	–	–	SOT–723 Case 631AA–01
BC846BM3	–	65	100	200	450	100	10	
–	MMBT2907AM3	60	600	100	300	200	–	
2SC5658M3	–	50	100	120	560	180 (Typ)	–	
–	2SA2029M3	50	100	120	560	140 (Typ)	–	
–	2SC5658RM3	50	100	215	375	180 (Typ)	–	
–	NS2029M3	50	100	120	560	100	–	
–	BC856BM3	45	100	220	475	100	10	
BC847BM3	–	45	100	200	450	100	10	
–	MMBT4403M3	40	600	100	300	200	–	
MMBT4401M3	–	40	600	100	300	250	–	
MMBT2222AM3	–	40	600	100	300	300	4	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

GENERAL–PURPOSE TRANSISTORS (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	h_{FE} Max	f_T MHz Min	NF dB Max	Package
NST846BF3	–	65	100	200	450	100	10	 SOT–1123 Case 524AA
–	NST856BF3	65	100	200	475	100	10	
NST847BF3	–	45	100	200	450	100	10	
–	NST857BF3	45	100	200	475	100	10	
NST3904F3	–	40	200	100	300	200	5	
–	NST3906F3	40	200	100	300	250	4	
NST848BF3	–	30	100	200	450	100	10	
BCP56	***BCP53***	80	1000	40	250	50 (Typ)	–	SOT–223 Case 318E–04
BCP56–10	***BCP53–10***	80	1000	63	160	50 (Typ)	–	
BCP56–16	***BCP53–16***	80	1000	100	250	50 (Typ)	–	
–	***PZT2907A***	60	600	100	300	200	–	
PZT651	***PZT751***	60	2000	75	–	75	–	
PZT2222A	–	40	600	100	300	300	–	
BCP68	***BCP69***	25	1000	85	375	60 (Typ)	–	
–	MMBT2131	30	700	150	–	–	–	SC–74 Case 318F–05
–	MBT35200M	35	2000	100	400	100	–	TSOP–6 SINGLE Case 318G–02
NST489AM	–	30	3000	300	900	200	–	
–	NSL12AW	12	2000	100	300	100	–	SC–88, SOT–363 Case 419B–02

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

GENERAL–PURPOSE MULTIPLE TRANSISTORS

Device	Type	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	h_{FE} Max	f_T MHz Min	NF dB Max	Package
BC846BDW1	Dual NPN	65	100	200	450	100	10	**SC–88, SOT–363 Case 419B–02**
BC856BDW1	Dual PNP	65	100	220	475	100	10	
BC846BPDW1	Dual Complementary	65	100	200	475	100	10	
BC847BDW1	Dual NPN	45	100	200	290	100	10	
BC847CDW1	Dual NPN	45	100	420	520	100	4.0	
BC857BDW1	Dual PNP	45	100	220	290	100	10	
BC857CDW1	Dual PNP	45	100	420	520	100	10	
BC847BPDW1	Dual Complementary	45	100	200	290	100	10	
MBT3904DW1	Dual NPN	40	200	100	300	300	5.0	
MBT3906DW1	Dual PNP	40	200	100	300	250	4.0	
MBT3946DW1	Dual Complementary	40	200	100	300	250	5.0/4.0	
MBT2222ADW1	Dual NPN	40	600	100	300	300	4.0	
MBT6429DW1	Dual NPN	45	200	500	1250	100	–	
NST45011MW6	Dual Matched NPN	45	100	200	500	100	10	
UMZ1N	Dual Complementary	50	200	200	400	114 (Typ)	–	
BC848CDW1	Dual NPN	30	100	420	250	100	4.0	
BC848CPDW1	Dual Complementary	30	100	420	520	100	4.0/10	
BC847CDXV6	NPN	45	100	420	520	100	–	**SOT–563 Case 463A–01**
EMT1DXV6	Dual PNP	60	100	120	560	140 (Typ)	–	
EMX1DXV6	Dual NPN	50	100	120	560	180 (Typ)	–	
EMX2DXV6	Dual NPN	50	100	120	560	180 (Typ)	–	
EMZ1DXV6	Complementary	60	100	120	560	140 (Typ)	–	
BC847BPDXV6	Complementary	45	100	200	290	100	–	
NST3904DXV6	Dual NPN	40	200	100	300	300	–	
NST3906DXV6	Dual PNP	40	200	100	300	250	–	
NST3946DXV6	Complementary	40	200	100	300	250	–	
NST30010MXV6	Matched Dual PNP	30	100	420	520	100	–	
BC858CDXV6	Dual PNP	30	100	420	520	100	–	
NST3904DP6	Dual NPN	40	200	100	300	200	5	**SOT–963 Case 527AA**
NST3906DP6	Dual PNP	40	200	100	300	250	4	
NST3946DP6	Dual Complementary	40	200	100	300	200	5	
NST847BDP6	Dual NPN	45	100	200	450	100	10	
NST847BPDP6	Dual Complementary	45	100	200	450	100	10	
NST857BDP6	Dual PNP	45	100	200	475	100	10	
NST45010MW6	Matched Dual PNP	45	100	220	475	100	10	
HN1B01FDW1	Complementary	50	200	200	400	–	–	**SC–74 Case 318F–05**
NSS40301MD	Matched Dual NPN	40	3000	200	500	150	–	8 1 **SOIC–8 Case 751 STYLE 16**

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

LOW NOISE AND GOOD H_{FE} LINEARITY

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	h_{FE} Max	f_T MHz Min	NF dB Max	Package
–	***2N5087***	50	50	250	800	40	2.0	**TO–226AA, TO–92 Case 29–11** (Note 1)
BC550C	–	45	100	380	800	250 (Typ)	2.5	
2N5088	–	30	50	350	–	50	3.0	
2N5089	–	25	50	450	–	50	2.0	
MMBT2484L	–	60	50	250	–	–	3.0	**TO–236AB, SOT–23 Case 318–08**
MMBT6428L	–	50	200	250	–	100	3.0 (Typ)	
–	***MMBT5087L***	50	50	250	–	40	2.0	
MMBT6429L	–	45	200	500	–	100	3.0 (Typ)	
MMBT5088L	–	30	50	300	900	5	3.0	
MMBT5089L	–	25	50	400	–	50	2.0	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

1. N_F: Noise Figure at R_S = 2.0 kΩ, I_C = 200 μA, V_{CE} = 5.0 Volts. f = 30 Hz to 15 kHz.

DARLINGTON TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	h_{FE} Max	f_T MHz Min	NF dB Max	Package
MPSW45A	–	50	1000	25K	150K	100	1.5	**TO–226AE** (1–WATT) **TO–92 Case 29–10**
MPSW45	–	40	1000	25K	150K	100	1.5	
MPSA29	–	100	500	10K	–	125	1.5	**TO–226AA, TO–92 Case 29–11**
BC373	–	80	1000	10K	160K	100	1.1	
MPSA27	–	60	500	10K	–	–	1.5	
2N6427	–	40	500	20K	200K	–	1.5	
2N6426	–	40	500	30K	300K	125	1.5	
MPSA14	–	30	500	20K	–	125	1.5	
MPSA13	–	30	500	10K	–	125	1.5	
BC517	–	30	1000	30K	–	200 (Typ)	1.0	
MMBT6427L	–	40	500	20000	200000	–	10	**TO–236AB, SOT–23 Case 318–08**
MMBTA14L	***MMBTA64L***	30	300	20K	–	125	–	
MMBTA13L	–	30	300	10000	–	125	–	
–	MMBTA63L	30	500	10000	–	125	–	
BSP52	–	80	1000	2000	–	–	–	**SOT–223 Case 318E–04**

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

HIGH CURRENT TRANSISTORS (≥ 500 mA)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	h_{FE} Max	f_T MHz Min	NF dB Max	Package
BC639	–	80	500	40	160	60	0.5	TO–226AA, TO–92 Case 29–11
BC639–16	–	80	1000	100	250	60	0.5	
MPS8099	–	80	500	100	300	150	–	
MPSA06	***MPSA56***	80	500	100	–	100	–	
MPS651	***MPS751***	60	2000	75	–	75	0.5	
BC637		60	500	40	160	–	0.5	
MPSA05	MPSA55	60	500	100	–	100	–	
–	***MPS2907A***	60	600	100	300	200	–	
BC337	–	45	800	100	630	210 (Typ)	–	
BC337–25	BC327–25	45	800	160	400	260 (Typ)	–	
BC337–40	BC327–40	45	800	250	630	260 (Typ)	–	
MPS650	–	40	2000	40	–	75	–	
MPS2222A	–	40	600	100	300	300	–	
2N4401	***2N4403***	40	600	100	300	200	–	
P2N2222A	–	40	600	100	300	300	–	
PN2222A	–	40	600	100	300	300	–	
	MPS6652	40	1000	50	–	100	–	
MPS2222	–	30	600	100	300	250	–	
–	BC369	20	1000	60	–	65	0.5	
MPSW06	***MPSW56***	80	500	80	–	50	–	TO–226AE (1–WATT) TO–92 Case 29–10
MPSW05	–	60	500	60	–	50	250	
–	2SA1020	50	2000	70	240	100	–	
MPSW01A	***MPSW51A***	40	1000	50	–	50	–	
MPSW01	MPSW51	30	1000	50	–	50	–	
MPS6726	–	30	1000	50	250	–	–	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

HIGH CURRENT TRANSISTORS (≥ 500 mA) (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
MMBT5550L	–	140	600	60	250	–	–	TO–236AB, SOT–23 Case 318–08
MMBTA06L	***MMBTA56L***	80	500	100	–	100	–	
MMBT8099L	–	80	500	100	300	150	–	
–	***MMBT2907AL***	60	600	100	300	200	–	
MMBTA05L	–	60	500	100	–	100	–	
–	MMBTA55L	60	500	100	–	50	–	
–	BCW68GL	45	800	120	400	100	10	
BCW66GL	–	45	800	160	400	100	10	
–	BCX17L	45	500	100	600	–	–	
BCX19L	–	45	500	100	600	–	–	
MMBT2222AL	–	40	600	100	300	300	4.0	
MMBT4401L	–	40	600	100	300	250	–	
–	***MMBT4403L***	40	600	100	300	200	–	
BCW65AL	–	32	800	100	250	100	10	
MMBT2222L	–	30	600	100	300	250	4.0	
BCP56	***BCP53***	80	1000	40	250	50 (Typ)	–	SOT–223 Case 318E–04
BCP56–10	***BCP53–10***	80	1000	63	160	50 (Typ)	–	
BCP56–16	***BCP53–16***	80	1000	100	250	50 (Typ)	–	
–	***PZT2907A***	60	600	100	300	200	–	
PZT651	***PZT751***	60	2000	75	–	75	–	
PZT2222A	–	40	600	100	300	300	–	
BCP68	***BCP69***	25	1000	85	375	60 (Typ)	–	
MMBT2222AT	–	40	600	100	300	300	4.0	SOT–416, SC–75, SC–90 Case 463–01
–	***MMBT2907AW***	60	600	100	–	200	–	SC–70, SOT–323 Case 419–04
MMBT2222AW	–	40	600	100	300	300	4.0	
–	MSB92ASW	300	500	120	200	50	–	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

HIGH VOLTAGE TRANSISTORS (> 100 V)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
MPSW42	–	300	50	40	–	50	0.5	**TO–226AE** (1–WATT) **TO–92** **Case 29–10**
–	***MPSW92***	300	50	25	–	50	0.5	
2N5551	–	160	600	80	250	100	8.0	
–	***2N5401***	150	600	60	240	100	8.0	
MPSA44	–	400	300	50	200	–	–	**TO–226AA, TO–92** **Case 29–11**
–	***2N6520***	350	500	30	200	40	–	
MPSA42	–	300	50	40	–	50	0.5	
–	***MPSA92***	300	50	40	–	50	0.5	
2N5550	–	140	600	60	250	100	10	
MMBT6517L	–	350	100	15	–	40	–	**TO–236AB, SOT–23** **Case 318–08**
–	***MMBT6520L***	350	500	15	–	40	–	
MMBTA42L	–	300	50	40	–	50	–	
–	***MMBTA92L***	300	50	25	–	50	–	
MMBT5551L	–	160	600	80	250	–	–	
–	***MMBT5401L***	150	500	50	–	100	8.0	
MMBT5550L	–	140	600	60	250	–	–	
BSP19A	–	350	100	40	–	70	–	**SOT–223** **Case 318E–04**
PZTA42	***PZTA92***	300	50	40	–	50	–	
–	PZTA96S	450	50	50	150	–	–	
–	***BSP16***	300	100	30	120	15	–	
BF720	***BF721***	250	100	50	–	60	–	
MSD42W	–	300	150	40	–	–	–	**SC–70, SOT–323** **Case 419–04**
–	***MSB92W***	300	50	25	–	50	–	
–	***MSB92AW***	300	50	120	200	50	–	
–	MSB92ASW	300	50	120	200	50	–	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

RF TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	h_{FE} Max	f_T MHz Min	Cap pF Max	Package
MPSH10	–	25	–	60	–	650	C_{RB} = 0.65	**TO–226AA, TO–92 Case 29–11**
MMBTH10L	–	25	–	60	–	650	C_{CB} = 0.7	**TO–236AB, SOT–23 Case 318–08**
MMBTH10–4L	–	25	–	120	240	800	C_{CB} = 0.7	
MMBT918L	–	15	50	20	–	600	C_{OBO} = 1.7	
BSV52L	–	12	100	40	120	400	–	
MMBTH10M3	–	25	–	60	–	650	C_{CB} = 0.7	**SOT–723 Case 631AA–01**

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

SWITCHING TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	h_{FE} Max	f_T MHz Min	T_{off} ns Max	Package
–	***MPS2907A***	60	600	100	300	200	110	**TO–226AA, TO–92 Case 29–11**
2N4401	***2N4403***	40	600	100	300	200	–	
2N3904	***2N3906***	40	200	100	300	250	300	
P2N2222A	–	40	600	100	300	300	285	
MPS2222A	–	40	600	100	300	300	285	
–	***MMBT2907AL***	60	600	100	300	200	100	**TO–236AB, SOT–23 Case 318–08**
MMBT2222AL	–	40	600	100	300	300	285	
MMBT3904L	–	40	200	100	300	300	250	
–	***MMBT3906L***	40	200	100	300	250	300	
MMBT4401L	–	40	600	100	300	250	255	
–	***MMBT4403L***	40	600	100	300	200	255	
MMBT2369L	–	15	200	40	120	–	18	
MMBT2369AL	–	15	200	40	120	–	18	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

SWITCHING TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	T_{off} ns Max	Package
				Min	Max			
–	***MMBT2907AW***	60	600	100	300	200	100	**SC–70, SOT–323 Case 419–04**
MMBT3904W	–	40	200	100	300	300	250	
–	***MMBT3906W***	40	200	100	300	250	300	
MMBT2222AW	–	40	600	100	300	300	285	
MMBT4401W	–	40	600	100	300	250	255	
–	***MMBT4403W***	40	600	100	300	200	255	
MMBT3904T	–	40	200	100	300	300	250	**SOT–416, SC–75, SC–90 Case 463–01**
–	***MMBT3906T***	40	200	100	300	250	300	
MMBT2222AT	–	40	600	100	300	300	285	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

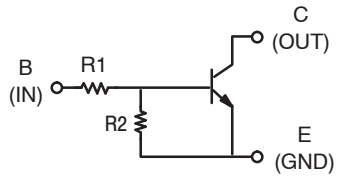
MULTIPLE SWITCHING TRANSISTORS

Device	Type	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	T_{off} ns Max	Package
				Min	Max			
MBT3904DW1	Dual NPN	40	200	100	300	300	250	**SC–88, SOT–363 Case 419B–02**
MBT3906DW1	Dual PNP	40	200	100	300	250	300	
MBT3946DW1	Dual Complementary	40	200	100	300	250	250/300	
MBT2222ADW1	Dual NPN	40	600	100	300	300	285	
HN1B01FDW1	Dual Complementary	50	200	200	400	–	–	**SC–74 Case 318F–05**

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS)



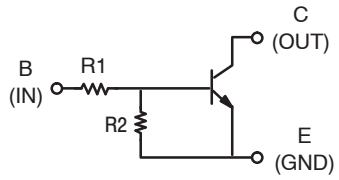
These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	R1 Ω	R2 Ω	Package
MUN2211	***MUN2111***	50	100	35	10K	10K	SC–59 Case 318D–04
MUN2212	***MUN2112***	50	100	60	22K	22K	
MUN2213	***MUN2113***	50	100	80	47K	47K	
MUN2214	***MUN2114***	50	100	80	10K	47K	
MUN2215		50	100	160	10K	∞	
MUN2216		50	100	160	4.7K	∞	
MUN2230		50	100	3.0	1.0K	1.0K	
MUN2232		50	100	15	4.7K	4.7K	
MUN2233		50	100	80	4.7K	47K	
MUN2234		50	100	80	22K	47K	
MUN2237		50	100	80	47K	22K	
MUN2240	–	50	100	160	47K	∞	
MMUN2211L	***MMUN2111L***	50	100	35	10K	10K	TO–236AB, SOT–23 Case 318–08
MMUN2212L	***MMUN2112L***	50	100	60	22K	22K	
MMUN2213L	***MMUN2113L***	50	100	80	47K	47K	
MMUN2214L	***MMUN2114L***	50	100	80	10K	47K	
MMUN2215L	***MMUN2115L***	50	100	160	10K	∞	
MMUN2216L	***MMUN2116L***	50	100	160	4.7K	∞	
MMUN2231L		50	100	8.0	2.2K	2.2K	
MMUN2232L	***MMUN2132L***	50	100	15	4.7K	4.7K	
MMUN2233L	***MMUN2133L***	50	100	80	4.7K	47K	
MMUN2234L		50	100	80	22K	47K	
MMUN2238L	–	50	100	160	2.2K	∞	
MUN5211	***MUN5111***	50	100	35	10K	10K	SC–70, SOT–323 Case 419–04
MUN5212	***MUN5112***	50	100	60	22K	22K	
MUN5213	***MUN5113***	50	100	80	47K	47K	
MUN5214	***MUN5114***	50	100	80	10K	47K	
MUN5215		50	100	160	10K	∞	
MUN5230		50	100	3.0	1.0K	1.0K	
	MUN5131	50	100	8.0	2.2K	2.2K	
MUN5232	***MUN5132***	50	100	15	4.7K	4.7K	
MUN5233	***MUN5133***	50	100	80	4.7K	47K	
MUN5235	***MUN5135***	50	100	80	2.2K	47K	

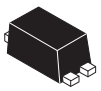
Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS) (continued)



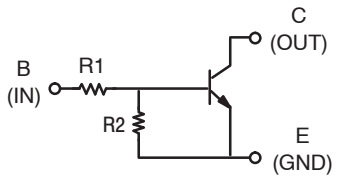
These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	R1 Ω	R2 Ω	Package
DTC114EE	***DTA114EE***	50	100	35	10k	10k	**SOT−416, SC−75, SC−90 Case 463−01**
DTC124EE		50	100	60	22k	22k	
DTC144EE	***DTA144EE***	50	100	80	47k	47k	
DTC114YE	***DTA114YE***	50	100	80	10k	47k	
DTC114TE	***DTA114TE***	50	100	160	10k	∞	
DTC143EE	***DTA143EE***	50	100	15	4.7k	4.7k	
DTC143ZE	***DTA143ZE***	50	100	80	4.7k	4.7k	
DTC124XE	–	50	100	80	22k	47k	
DTC123JE		50	100	80	2.2k	47k	
DTC115EE	***DTA115EE***	50	100	80	100k	100k	
DTC114EM3	***DTA114EM3***	50	100	35	10k	10k	**SOT−723 Case 631AA−01**
DTC124EM3	***DTA124EM3***	50	100	60	22k	22k	
DTC144EM3	***DTA144EM3***	50	100	80	47k	47k	
DTC114YM3	***DTA114YM3***	50	100	80	10k	47k	
DTC114TM3	***DTA114TM3***	50	100	160	10k	∞	
DTC143TM3	***DTA143TM3***	50	100	160	4.7k	∞	
DTC123EM3	***DTA123EM3***	50	100	8.0	2.2k	2.2k	
DTC143EM3	***DTA143EM3***	50	100	15	4.7k	4.7k	
DTC143ZM3	***DTA143ZM3***	50	100	80	4.7k	4.7k	
DTC124XM3	***DTA124XM3***	50	100	80	22k	47k	
DTC123JM3		50	100	80	2.2k	47k	
DTC115EM3	***DTA115EM3***	50	100	80	100k	100k	
DTC144WM3	***DTA144WM3***	50	100	80	47k	22k	
DTC144TM3	***DTA144TM3***	50	100	160	47k	∞	
NSBC143EF3	NSBA143EF3	50	100	15	4.7k	4.7k	 **SOT−1123 Case 524AA**
NSBC114EF	NSBA114EF3	50	100	35	10k	10k	
NSBC124EF3	NSBA124EF3	50	100	60	22k	22k	
NSBC144EF3	NSBA144EF3	50	100	80	47k	47k	
NSBC123JF3	NSBA123JF3	50	100	80	2.2k	47k	
NSBC143ZF3	NSBA143ZF3	50	100	80	4.7k	47k	
NSBC144WF3	NSBA144WF3	50	100	80	47k	22k	
NSBC123TF3	NSBA123TF3	50	100	160	2.2k	∞	
NSBC114TF3	NSBA114TF3	50	100	160	10k	∞	
NSBC115TF3	NSBA115TF3	50	100	160	100k	∞	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

DUAL DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS)

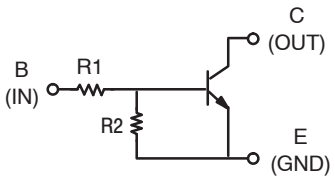


These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	R1 Ω	R2 Ω	Package
MUN5211DW1	***MUN5111DW1***	50	100	35	10k	10k	**SC−88, SOT−363 Duals Case 419B−02**
MUN5212DW1		50	100	60	22k	22k	
MUN5213DW1	***MUN5113DW1***	50	100	80	47k	47k	
MUN5214DW1	***MUN5114DW1***	50	100	80	10k	47k	
MUN5215DW1	***MUN5115DW1***	50	100	160	10k	∞	
MUN5216DW1	***MUN5116DW1***	50	100	160	4.7k	∞	
MUN5230DW1		50	100	3.0	1.0k	1.0k	
MUN5232DW1		50	100	15	4.7k	4.7k	
MUN5233DW1	***MUN5133DW1***	50	100	80	4.7k	47k	
MUN5235DW1	***MUN5135DW1***	50	100	80	2.2k	47k	
MUN5237DW1		50	100	80	47k	22k	
NSBC114EDXV6	NSBA114EDXV6	50	100	35	10k	10k	**SOT−563 Duals Case 463A−01**
NSBC124EDXV6		50	100	60	22k	22k	
NSBC144EDXV6	NSBA144EDXV6	50	100	80	47k	47k	
NSBC114YDXV6	NSBA114YDXV6	50	100	80	10k	10k	
NSBC114TDXV6		50	100	160	10k	–	
NSBC143ZDXV6		50	100	80	4.7k	4.7k	
	NSBA123JDXV6	50	100	80	2.2k	47k	
NSBC115EDXV6	NSBA115EDXV6	50	100	80	100k	100k	
NSBC143EDP6	NSBA143EDP6	50	100	15	4.7k	4.7k	**SOT−963 Case 527AA**
NSBC114EDP6	NSBA114EDP6	50	100	35	10k	10k	
NSBC124EDP6	NSBA124EDP6	50	100	60	22k	22k	
NSBC114YDP6	NSBA114YDP6	50	100	80	10k	47k	
NSBC123JDP6	NSBA123JDP6	50	100	80	2.2k	47k	
NSBC143ZDP6	NSBA143ZDP6	50	100	80	4.7k	47k	
NSBC144EDP6	NSBA144EDP6	50	100	80	47k	47k	
NSBC144WDP6	NSBA144WDP6	50	100	80	47k	22k	
NSBC114TDP6	NSBA114TDP6	50	100	160	10k	∞	
NSBC115TDP6	NSBA115TDP6	50	100	160	100k	∞	
NSBC123TDP6	NSBA123TDP6	50	100	160	2.2k	∞	

BIPOLAR TRANSISTORS

DUAL DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS)



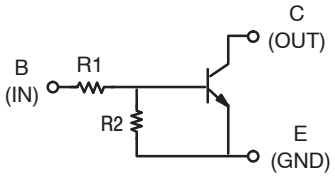
These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	R1 Ω	R2 Ω	Package
NSBC114YF3	NSBA114YF3	45	100	80	10k	47k	SOT–1123 Case 524AA
IMH20TR1	–	15	600	100	2.2k	–	SC–74 Case 318F–05

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

COMBINATIONAL DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS)



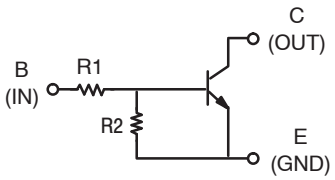
These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.

Device	Type	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	Q1	Q2	Package
MUN5311DW1	Dual Complementary	50	100	35	MUN5211	MUN5111	SC–88, SOT–363 Case 419B–02
MUN5312DW1		50	100	60	MUN5212	MUN5112	
MUN5313DW1		50	100	80	MUN5213	MUN5113	
MUN5314DW1		50	100	80	MUN5214	MUN5114	
MUN5315DW1		50	100	160	MUN5215	MUN5115	
MUN5316DW1		50	100	160	MUN5216	MUN5116	
MUN5330DW1		50	100	3.0	MUN5230	MUN5130	
MUN5333DW1		50	100	80	MUN5233	MUN5133	
MUN5334DW1		50	100	80	22k/47k	22k/47k	
MUN5335DW1		50	100	80	MUN5235	MUN5135	
NSB4904DW1		50	100	80	22k/47k	22k/47k	
UMC3N	Dual Common Base Collector	50	100	35	4.7k/10k	47k/47k	SC–88A, SOT–353 SC70–5 Case 419A–02
UMC5N		50	100	20	47k/∞	47k/∞	
NSB1706DMW5	Dual Common Emitter	50	100	80	4.7k/47k	4.7k/47k	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

COMBINATIONAL DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS)



These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.

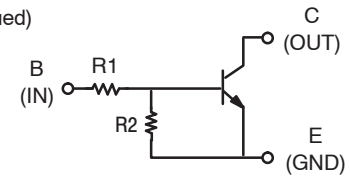
Device	Type	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	Q1	Q2	Package
EMC3DXV5	Dual Common Base Collector	50	100	35	10k/10k	10k/10k	SOT–553 Case 463B–01
EMC4DXV5		50	100	80	10k/47k	4.7k/47k	
EMC5DXV5		50	100	35	4.7k/10k	4.7k/47k	
EMG2DXV5	Dual Common Base, Common Emitter	50	100	80	4.7k/47k	4.7K/47k	
NSTB1002DXV5	Dual Common Base Collector	40	100	100	47k/47/k	47k/47k	
NSTB1005DXV5		50	100	80	47k/47k	47k/47k	
NSB1010XV5		50	100	–	4.7k/4.7k	10k/10k	
EMD4DXV6	Dual Complementary	50	100	80	10k/47k	47k/47k	SOT–563 Case 463A–01
EMD5DXV6		50	100	20	4.7k/10k	47k/47k	
NSBC114EPDXV6		50	100	35	10k/10k	10k/10k	
NSBC114YPDXV6		50	100	80	10k/47k	10k/47k	
NSBC123JPDXV6		50	100	80	2.2k/47k	2.2k/47k	
NSBC124EPDXV6		50	100	60	22k/22k	22k/22k	
NSBC143TPDXV6		50	100	160	4.7k/∞	4.7k/∞	
NSBC143ZPDXV6		50	100	80	4.7k/47k	4.7k/47k	
NSBC144EPDXV6		50	100	80	47k/47k	47k/47k	
NSB1011XV6	Dual NPN	50	100	–	2.2k/47k	10k/10k	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

COMBINATIONAL DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS) (continued)

These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.

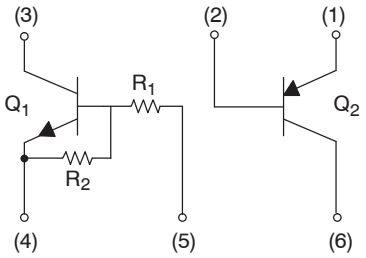


Device	Type	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	Q1	Q2	Package
NSBC114EPD6	Dual Complementary	50	100	35	10k/10k	10k/10k	SOT−963 Case
NSBC114YPDP6		50	100	80	10k/47k	10k/47k	
NSBC123JPDP6		50	100	80	2.2k/47k	2.2k/47k	
NSBC143ZPDP6		50	100	80	4.7k/47k	4.7k/47k	
NSBC144EPDP6		50	100	80	47k/47k	47k/47k	
NSBC115TPDP6		50	100	160	100k/∞	100k/∞	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

COMPLEX DIGITAL TRANSISTORS

These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.

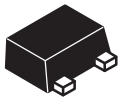


Device	Switching Transistor				Digital Transistor			Package
	$V_{(BR)CEO}$ V	I_C (mA) Max	h_{FE} Min	h_{FE} Max	h_{FE} Min	R1 Ω	R2 Ω	
EMF5XV6	12	500	270	680	80	47K	47K	SOT−563 Case 463A−01
EMF18XV6	60	100	120	560	80	47K	47K	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

LOW SATURATION VOLTAGE TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C DC A Max	I_C Peak A Max	h_{FE} @ 1.0 A Min	h_{FE} @ 1.0 A Max	f_t MHz Min	$V_{CE(sat)}$ @ 1.0 A Max	Package
NSS1C201L	–	100	2	3	120	360	100	0.09	TO–236AB, SOT–23 Case 318–08 STYLE 6
–	NSS1C200L	100	2	3	120	360	120	0.115	
NSS60201L	–	60	2	4	200	500	150	0.070	
–	NSS60200L	60	2	4	200	500	150	0.095	
NSS40201L	–	40	2	4	200	500	150	0.060	
–	NSS40200L	40	2	4	200	500	150	0.090	
NSS30101L	–	30	1	2	100	500	100	0.200	
–	NSS30100L	30	1	2	100	500	100	0.300	
NSS20201L	–	20	2	4	200	500	150	0.050	
–	NSS20200L	20	2	4	200	500	150	0.080	
NSS12201L	–	12	2	4	200	500	150	0.055	
–	NSS12200L	12	2	4	200	500	150	0.080	
NSS20101J	–	20	1	2	200	500	350	0.22	SC–89 Case 463A–01
–	NSS12100M3	12	1	3	120			0.41	 SOT–723 Case 631AA–01
NSS30071MR6	–	30	0.7	2	150	500	100	0.250	SC–74 Case 318F–05 STYLE 2
–	NSS30070MR6	30	0.7	2	150	500	100	0.250	
–	NSS35200MR6	35	2	5	100	400	100	0.150	TSOP–6 Single Case 318G–02 STYLE 6
NSS30201MR6	–	30	2	5	200	900	100	0.150	
NSS20201MR6	–	20	2	5	200	900	100	0.150	
–	NSS20300MR6	20	3	5	100	400	100	0.150	
NSS40601CF8	–	40	6	6	225	500	100	0.065	ChipFET™ Case 1206A–03 STYLE 4
–	NSS40600CF8	40	6	6	220	500	100	0.065	
–	NSS35200CF8	35	2	7	100	400	100	0.150	
NSS20601CF8	–	20	6	6	250	500	100	0.050	
NSS12601CF8	–	12	6	6	250	500	100	0.050	
NSS40501UW3	–	40	5	6	250	500	100	0.045	WDFN3 Case 506AU–01
–	NSS40500UW3	40	5	6	250	500	100	0.080	
NSS20501UW3	–	20	5	6	250	500	100	0.045	
–	NSS20500UW3	20	5	7	250	500	100	0.090	
NSS12501UW3	–	12	5	6	250	500	100	0.045	
–	NSS12500UW3	12	5	6	250	500	100	0.070	
NSS12100UW3	–	12	1	2	200	400	200	0.44	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

LOW SATURATION VOLTAGE TRANSISTORS (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C DC A Max	I_C Peak A Max	h_{FE} @ 1.0 A		f_t MHz Min	$V_{CE(sat)}$ @ 1.0 A Max	Package
					Min	Max			
–	NSS40200UW6	40	2	4	150	500	100	0.120	WDFN6 Case 506AS–01
–	NSS12200W	12	2	3	100	300	100	0.290	SC–88, SOT–363 Case 419B–02 STYLE 20
–	NSS12100XV6	12	1	2	200	500	150	0.280	SOT–563 Case 463A–01
NJD2873	–	50	2	3	120	360	65	0.300	DPAK Case 369C–01
NSS1C201MZ4	–	100	2	3	120	360	100	0.100	SOT–223 Case 318E–04
–	NSS1C200MZ4	100	2	3	120	360	120	0.125	
NSS40301MZ4	–	40	3	5	200	500	150	0.045	
–	NSS40300MZ4	40	3	5	200	500	150	0.050	
NSS60601MZ4	–	60	6	12	120	360	100	0.060	
–	NSS60600MZ4	60	6	12	120	360	100	0.065	
–	NSB9435	30	3	5	125	500	110	0.210	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

LOW SATURATION VOLTAGE MULTIPLE TRANSISTORS

Device	Type	$V_{(BR)CEO}$	I_C DC	I_C Peak	h_{FE}		f_t	$V_{CE(sat)}$	Package
					Min	Max			
NSS40301MD	Matched Dual NPN	40	3	6	200		100	0.05	8 1 SOIC–8 Case 751
NSS40300DD	Dual PNP	40	3	6	220		100	0.095	
NSS40300MD	Matched Dual PNP	40	3	6	220		100	0.095	
NSS40302PD	Dual Complementary	40	3	6	200		100	0.06	

LOAD SWITCH TRANSISTORS (Low Saturation Voltage Transistors with BRT Driver)

NPN	PNP	$V_{(BR)CEO}$	I_C DC A Max	I_C Peak A Max	h_{FE} @ 1.0 A		f_t MHz Min	$V_{CE(sat)}$ @ 0.1 A Max	Package
					Min	Max			
–	EMF5XV6	50	0.1	0.5	270	680	–	0.250	SOT–563 Case 463A–01
–	EMF18XV6	50	0.1	0.5	120	560	–	0.400	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

Clock and Data Distribution

Clock and Data Distribution

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ARITHMETIC FUNCTIONS

ADDERS/SUBTRACTORS

Device	Type	V_{CC} Typ (V)	Input Level	Output Level	t_{pd} Typ (ns)	t_R & t_F Max (ps)	Package
MC10H180	Dual 2-Bit Adder/Subtractor	−5.2	ECL	ECL	1.8	2100	PDIP-16, PLCC-20

COUNTERS

Device	Type	V_{CC} Typ (V)	Input Level	Output Level	f_{Max} Typ (MHz)	t_{pd} Typ (ns)	t_R & t_F Max (ps)	Package
MC100EP016A	8-Bit Synchronous Binary Up Counter	3.3	ECL, CML	ECL	1400	0.55	320	QFN-32, LQFP-32
MC10EP016	8-Bit Synchronous Binary Up Counter	3.3	ECL, CML	ECL	900	0.5	220	LQFP-32
MC100E016	8-Bit Synchronous Binary Up Counter	5	ECL	ECL	900	0.775	700	PLCC-28
MC10E016	8-Bit Synchronous Binary Up Counter	5	ECL	ECL	900	0.775	800	PLCC-28
MC10H016	4-Bit Binary Counter	5	ECL	ECL	200	1.8	21	PDIP-16, PLCC-20
MC100E136	6-Bit Universal Up/Down Counter	5	ECL	ECL	650	1.15	600	PLCC-28
MC10E136	6-Bit Universal Up/Down Counter	5	ECL	ECL	650	1.15	600	PLCC-28
MC10H136	Universal Hexadecimal Counter	5	ECL	ECL	250	1.5	2400	PDIP-16, PLCC-20
MC100E137	8-Bit Ripple Counter	5	ECL	ECL	2200	2.9	600	PLCC-28
MC10E137	8-Bit Ripple Counter	5	ECL	ECL	2200	2.9	600	PLCC-28

ARITHMETIC FUNCTIONS (continued)

DIVIDERS

Device	Input Level	Output Level	Type	V_{CC} Typ (V)	f_{Max} Typ (MHz)	t_{pd} Typ (ns)	t_R & t_F Max (ps)	Package
NB6L239	ECL, CML, LVDS, CMOS	ECL	Dual Bank ÷1/2/4/8, ÷2/4/8/16	2.5	3000	0.47	120	QFN-16
NB6N239S	ECL, CML, LVDS, CMOS	LVDS	Dual Bank ÷1/2/4/8, ÷2/4/8/16	3.3	3000	0.665	190	QFN-16
NB7N017M	ECL, CML, LVDS, CMOS	CML	8 Bit Dual Modulus Divider	3.3	3500	0.5	65	QFN-52
MC100LVEP34	ECL, CML, LVDS	ECL	÷2, ÷4, ÷8	3.3	2800	0.7	250	TSSOP-16, SOIC-16
MC100LVEL34	ECL, CML, LVDS	ECL	÷2, ÷4, ÷8	3.3	1500	0.7	400	TSSOP-16, SOIC-16
MC100EL34	ECL	ECL	÷2, ÷4, ÷8	5	1100	1	52.5	SOIC-16
MC10EL34	ECL	ECL	÷2, ÷4, ÷8	5	1100	1	52.5	SOIC-16
MC100LVEL37	ECL, LVDS	ECL	1:4 ÷1/÷2	3.3	1000	0.7	550	SOIC-20
MC100LVEL38	ECL	ECL	÷2, ÷4/6	3.3	1000	0.9	550	SOIC-20
MC100EL38	ECL	ECL	÷2, ÷4/6	5	1200	0.9	550	SOIC-20
MC100EP139	ECL, CML	ECL	÷2/4, ÷4/5/6	3.3	1000	0.75	275	TSSOP-20, SOIC-20, QFN-20
MC10EP139	ECL, CML	ECL	÷2/4, ÷4/5/6	3.3	1000	0.75	275	TSSOP-20, SOIC-20
MC100LVEL39	ECL, LVDS	ECL	÷2/4, ÷4/6	3.3	1000	0.9	550	SOIC-20
MC100EL39	ECL	ECL	÷2/4, ÷4/6	5	1200	0.9	550	SOIC-20
NB7L32M	ECL, CML, LVDS	CML	÷2	2.5	14000	0.155	45	QFN-16
MC100EP32	ECL, CML	ECL	÷2	3.3	4000	0.35	170	TSSOP-8, SOIC-8, DFN-8
MC10EP32	ECL, CML	ECL	÷2	3.3	4000	0.35	170	TSSOP-8, SOIC-8, DFN-8
MC100LVEL32	ECL, LVDS	ECL	÷2	3.3	2600	0.51	320	TSSOP-8, SOIC-8, DFN-8
MC100EL32	ECL	ECL	÷2	5	3000	0.51	350	TSSOP-8, SOIC-8
MC10EL32	ECL	ECL	÷2	5	3000	0.51	350	TSSOP-8, SOIC-8
MC100EP33	ECL, CML	ECL	÷4	3.3	4000	0.32	180	TSSOP-8, SOIC-8, DFN-8
MC10EP33	ECL, CML	ECL	÷4	3.3	4000	0.32	180	TSSOP-8, SOIC-8, DFN-8
MC100LVEL33	ECL, LVDS	ECL	÷4	3.3	4000	0.63	320	TSSOP-8, SOIC-8, DFN-8
MC100EL33	ECL	ECL	÷4	5	4200	0.65	350	TSSOP-8, SOIC-8
MC10EL33	ECL	ECL	÷4	5	4000	0.65	350	TSSOP-8, SOIC-8

ARITHMETIC FUNCTIONS (continued)

MAGNITUDE COMPARATORS

Device	Input Level	Output Level	Type	V_{CC} Typ (V)	f_{Max} Typ (MHz)	t_{pd} Typ (ns)	t_R & t_F Max (ps)	Package
MC10E166	ECL	ECL	9-Bit	5	1100	0.85	800	PLCC-20
MC10H166	ECL	ECL	5-Bit	5		2	1600	PDIP-16, PLCC-20

PRESCALERS

Device	Input Level	Output Level	Type	V_{CC} Typ (V)	f_{Max} Typ (MHz)	Package
MC12026A	ECL	ECL	1.1 GHz Dual Modulus Prescaler	5	1100	SOIC-8
MC12080	ECL	ECL	1.1 GHz Prescaler	5	1100	SOIC-8
MC12093	ECL	ECL	1.1 GHz Prescaler, ÷2, ÷4, ÷8	3.3	1100	SOIC-8, DFN-8
MC12095	ECL	ECL	2.5 GHz Prescaler	3.3	3000	SOIC-8

BUFFERS

Device	V_{CC} Typ (V)	Input Level	Output Level	Output Level	t_{pd} Typ (ns)	$t_{skew(OO)}$ Max (ps)	t_R & t_F Max (ps)	Package
MC100LVEL12	3.3	ECL, CML	ECL	LVECL/LVPECL	0.445		550	TSSOP−8, SOIC−8, DFN−8
MC100EL12	5	ECL	ECL	ECL/PECL	0.29		550	TSSOP−8, SOIC−8
MC10EL12	5	ECL	ECL	ECL/PECL	0.29		550	TSSOP−8, SOIC−8
MC100E112	5	ECL	ECL	ECL/PECL	0.4	40	700	PLCC−28
MC10E112	5	ECL	ECL	ECL/PECL	0.4	40	700	PLCC−28
MC10E122	5	ECL	ECL	S.E.	0.35	75	800	PLCC−28
MC10H123	5	ECL	ECL	ECL/PECL	1.5		1700	PDIP−16, PLCC−20
MC10H188	5	ECL	ECL	ECL/PECL	1.3		2400	PDIP−16, PLCC−20, SOEIAJ−16
MC10H189	5	ECL	ECL	MECL	1.3		2400	PDIP−16, PLCC−20, SOEIAJ−16
NB4N316M	3.3	ECL, CML, CMOS, LVDS	CML	CML	0.55	20	300	TSSOP−8
NB4N527S	3.3	ECL, CML, CMOS, LVDS, HSTL	LVDS	LVDS	0.275	50	300	QFN−16
NB4N855S	3.3	ECL, CML, CMOS, LVDS, HSTL	LVDS	LVDS	0.47	25	140	Micro−10

CLOCK DRIVERS

Product	Outputs Per	Channels	Input Level	Output Level	V_{CC} Typ (V)	f_{Max} Typ (MHz)	$t_{skew(OO)}$ Max (ps)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC100E210	4+5	2	ECL	ECL	5	700	75	0.2	600	PLCC−28
MC100LVE210	4+5	2	ECL	ECL	3.3	700	75	0.2	600	PLCC−28
NB100LVEP224	24	1	ECL	ECL	2.5	1000	40	5	300	LQFP−64
NB100EP223	22	1	ECL, HSTL	HSTL	3.3	500	25	0.2	700	LQFP−64
NB4N121K	21	1	ECL, CML, CMOS, LVDS	HCSL	3.3	200	50	1	340	QFN−52
NB100LVEP221	20	1	ECL/PECL/HSTL	ECL	2.5	1000	20	1	300	QFN−52, LQFP−52
MC100LVE222	15	1	ECL	ECL	3.3	1500	50	0.2	600	LQFP−52
NB100LVEP222	15	1	CML, LVPECL, LVDS	ECL	2.5	1000	20	0.2	160	QFN−52, LQFP−52
MC100LVEP111	10	1	ECL, HSTL	ECL	2.5	3000	25	0.2	200	QFN−32, LQFP−32
NB4N111K	10	1	ECL, CML, LVDS	HCSL	3.3	400	100	1	700	QFN−32
NB7L111M	10	1	ECL, CML, CMOS, LVDS	CML	2.5	5500	20	0.2	75	QFN−52
MC100E111	9	1	ECL	ECL	5	800	50	0.2	600	PLCC−28
MC100EP809	9	1	ECL, CML, LVDS, HSTL	HSTL	3.3	750	15	1.4	600	LQFP−32
MC100H641	9	1	ECL	TTL	5	65	350		1700	PLCC−28
MC100LVE111	9	1	ECL	ECL	3.3	1500	20	0.2	600	PLCC−28

CLOCK DRIVERS

Product	Outputs Per	Channels	Input Level	Output Level	V_{CC} Typ (V)	f_{Max} Typ (MHz)	$t_{skew(OO)}$ Max (ps)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC10E111	9	1	ECL	ECL	5	800	50	0.2	600	PLCC–28
MC10E411	9	1	ECL	ECL	5	1000	50	0.2	600	PLCC–28
MC10H641	9	1	ECL	ECL	5	65	350		1700	PLCC–28
MC10H645	9	1	TTL	TTL	5		650		2500	PLCC–28
MC100E310	8	1	ECL	ECL	5	900	50	0.2	600	PLCC–28
MC100H640	8	1	ECL	TTL	5	135	500		2500	PLCC–28
MC100H641	8	1	ECL	TTL	5	80	350		1700	PLCC–28
MC100H642	8	1	ECL	TTL	5	100	500		2500	PLCC–28
MC100H643	8	1	ECL	TTL	5	80	500		1200	PLCC–28
MC100H646	8	1	ECL	TTL	5	80	350		1500	PLCC–28
MC100LVE310	8	1	ECL	ECL	3.3	1000	50	1.5	600	PLCC–28
MC10H640	8	1	ECL	TTL	5		500		2500	PLCC–28
MC10H642	8	1	ECL	TTL	5	100	500		2500	PLCC–28
MC10H643	8	1	ECL	TTL	5	80	500		1200	PLCC–28
MC10H646	8	1	ECL	TTL	5	80	350		1500	PLCC–28
MC100E211	6	1	ECL	ECL	5	700	75	0.2	400	PLCC–28
MC10E211	6	1	ECL	ECL	5	700	75	0.2	400	PLCC–28
NB7VQ1006M	6	1	ECL, CML, LVDS	CML	1.8	7500	1	0.2	65	QFN–24
MC100EL14	5	1	ECL	ECL	5	1000	50	0.2	500	SOIC–20
MC100EP14	5	1	ECL, HSTL	ECL	3.3	2000	45	0.2	270	TSSOP–20
MC100EP210S	5	2	ECL, LVDS	LVDS	3.3	1000	20	0.2	225	QFN–32, LQFP–32
MC100LVEL14	5	1	ECL	ECL	3.3	1000	50	0.2	500	SOIC–20
MC100LVEP14	5	1	ECL, HSTL	ECL	2.5	2000	25	0.2	250	TSSOP–20
MC100LVEP210	5	2	ECL, HSTL	ECL	2.5	3000	20	0.2	270	QFN–32, LQFP–32
NBSG14	5	1	ECL, CML, CMOS, LVDS	RSECL	2.5	12000	15	0.5	55	QFN–16, BGA–16
MC100EL15	4	1	ECL	ECL	5	1000	50	0.2	575	SOIC–16
MC10EL15	4	1	ECL	ECL	5	1000	50	0.2	575	SOIC–16
NB3L553	4	1	CMOS	CMOS	2.5	200	50		1000	SOIC–8, DFN–8
NB3N2304NZ	4	1	CMOS	CMOS	3.3	140	100		1500	TSSOP–8, DFN–8
NB3N551	4	1	CMOS	CMOS	3.3	180	160	2	1	SOIC–8, DFN–8
NB6HQ14M	4	1	CML, ECL, LVDS	CML	2.5	5000	3	0.2	0.03	QFN–16
NB6L14M	4	1	ECL, CML, CMOS, LVDS	CML	2.5	3000	20	0.2	150	QFN–16

CLOCK DRIVERS

Product	Outputs Per	Channels	Input Level	Output Level	V_{CC} Typ (V)	f_{Max} Typ (MHz)	$t_{skew(OO)}$ Max (ps)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
NB6L14	4	1	ECL, CML, CMOS, LVDS	ECL	2.5	3000	20	0.2	225	QFN−16
NB6N14S	4	1	ECL, CML, CMOS, LVDS	LVDS	3.3	2000	20	0.5	190	QFN−16
NB7HQ14M	4	1	CML, ECL, LVDS	CML	2.5	7000	15	0.2	45	QFN−16
NB7L14M	4	1	ECL, CML, CMOS, LVDS	CML	2.5	8000	15	0.5	60	QFN−16
MC100EL13	3	2	ECL	ECL	5	1000	50	0.2	500	SOIC−20
MC100LVEL13	3	2	ECL	ECL	3.3	1000	50	0.2	500	SOIC−20
NB4L6254	3	2	ECL, CML, CMOS, LVDS	ECL	2.5	3000	50	0.3	300	LQFP−32
MC100EL11	2	1	ECL	ECL	5	2000	5	0.2	350	SOIC−8, TSSOP−8
MC100EP11	2	1	ECL	ECL	3.3	3000	20	0.2	180	SOIC−8, TSSOP−8, DFN−8
MC100LVEL11	2	1	ECL	ECL	3.3	1000	20	0.2	180	SOIC−8, TSSOP−8, DFN−8
MC100LVEP11	2	1	ECL, CML, LVDS	ECL	2.5	3000	20	0.2	180	SOIC−8, TSSOP−8, DFN−8
MC10EL11	2	1	ECL	ECL	5	2000	5	0.2	350	SOIC−8, TSSOP−8
MC10EP11	2	1	ECL	ECL	3.3	3000	20	0.2	180	SOIC−8, TSSOP−8
MC10LVEP11	2	1	ECL	ECL	2.5	3000	20	0.2	180	SOIC−8, TSSOP−8
NB4L339	2	1	ECL, CML, LVDS	ECL	2.5	700	60	0.5	250	QFN−32
NB4N11M	2	1	ECL, CML, CMOS, LVDS	CML	3.3	2500	25	1	300	TSSOP−8
NB6L11	2	1	ECL, CML, CMOS, LVDS	ECL	2.5	6000	15	0.2	120	SOIC−8, TSSOP−8
NB6L11M	2	1	ECL, CML, CMOS, LVDS	CML	2.5	4000	15	0.15	120	QFN−16
NB6L11S	2	1	ECL, CML, CMOS, LVDS	LVDS	2.5	2000	25	0.5	170	QFN−16
NB6L572M	2	1	CML, ECL, LVDS	CML	2.5, 3.3	6000	15	0.2	50	QFN−32
NB6L611	2	1	ECL, CML, CMOS, LVDS	ECL	2.5	3000	15	0.2	200	QFN−16
NB6LQ572M	2	1	CML, ECL, LVDS	CML	2.5, 3.3	6000	15	0.2	50	QFN−32
NB6N11S	2	1	ECL, CML, CMOS, LVDS	LVDS	3.3	2000	30	0.5	120	QFN−16
NB7L11M	2	1	ECL, CML, CMOS, LVDS	CML	2.5	8000	15	0.2	60	QFN−16
NBSG11	2	1	ECL, CML, CMOS, LVDS	RSECL	2.5	12000	15	0.5	30	QFN−16, BGA−16
NB4N855S	1	1	ECL, CML, CMOS, LVDS, HSTL, SSTL	LVDS	3.3	1500	25	0.5	140	Micro−10
NB7L585R	6	1	CML, ECL, LVDS	RSECL	2.5	7000	20	0.2	70	QFN−32

CROSSPOINT SWITCHES

Device	V_{CC} Typ (V)	Input Level	Output Level	f_{Max} Max (V)	t_{Jitter} Max (ps)	t_{skew} Max (ps)	t_{pd} Max (ps)	Package
NBSG72A	2.5 / 1.8	ECL, CML, LVDS	ECL (with OLS)	7	1.5	25	255	QFN−16
NB7V72M	2.5 / 1.9	ECL, CML, LVDS	CML	5	0.8	30		QFN−16
NB4N840M	3.3	CML	CML	3.5	0.5	25	340	QFN−32
NB4L6254	2.5	CML, ECL, CMOS, LVDS	ECL	3	0.8	60	610	LQFP−32
NB4L858M	2.5	ECL, CML	CML	3	0.5	12	450	LQFP−32
NB6L72M	2.5	ECL, CML, CMOS, LVDS	CML	3	0.5	20	480	QFN−16
NB6L72	2.5	ECL, CML, CMOS, LVDS	ECL	3	1.0	20	525	QFN−16
NB4L7210	2.5	ECL, CML, CMOS, LVDS	ECL	1	0.19	10	875	QFN−52

FLIP−FLOPS

Device	Type	V_{CC} Typ (V)	Input Level	Output Level	f_{Toggle} Typ (MHz)	t_{pd} Typ (ns)	t_{su} Min (ns)	t_h Min (ns)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC100EP29	D−Type	3.3	ECL,CML	ECL	3000	0.42	0.1	0.1	0.2	300	TSSOP−20, QFN−20
MC10EP29	D−Type	3.3	ECL,CML	ECL	3000	0.42	0.1	0.1	0.2	300	TSSOP−20, QFN−20
MC100LVEL29	D−Type	3.3	ECL, LVDS	ECL	1100	0.58	0	0.1	1	550	SOIC−20
MC100EL29	D−Type	5	ECL	ECL	1100	0.58	0	0.1	1	550	SOIC−20
MC100LVEL30	D−Type	3.3	ECL	ECL	1200	0.45	0.15	0.2	1	550	SOIC−20
MC100EL30	D−Type	5	ECL	ECL	1200	0.45	0.15	0.2	1	550	SOIC−20
MC100EP31	D−Type	3.3	ECL,CML	ECL	3000	0.34	0.1	0.15	0.2	200	TSSOP−8, SOIC−8, DFN−8
MC10EP31	D−Type	3.3	ECL, CML	ECL	3000	0.34	0.1	0.15	0.2	200	TSSOP−8, SOIC−8
MC100LVEL31	D−Type	3.3	ECL	ECL	2900	0.475	0.15	0.25	1	320	TSSOP−8, SOIC−8
MC100EL31	D−Type	5	ECL	ECL	2800	0.475	0.15	0.25	1	350	TSSOP−8, SOIC−8
MC10EL31	D−Type	5	ECL	ECL	2800	0.475	0.15	0.25	1	350	TSSOP−8, SOIC−8
MC100EP51	D−Type	3.3	ECL,CML	ECL	3000	0.37	0.1	0.1	0.2	180	TSSOP−8, SOIC−8, DFN−8
MC10EP51	D−Type	3.3	ECL,CML	ECL	3000	0.375	0.1	0.1	0.2	180	TSSOP−8, SOIC−8, DFN−8
MC100LVEL51	D−Type	3.3	ECL	ECL	2800	0.475	0.15	0.25	1	320	TSSOP−8, SOIC−8, DFN−8
MC100EL51	D−Type	5	ECL	ECL	2800	0.475	0.15	0.25	1	350	TSSOP−8, SOIC−8
MC10EL51	D−Type	5	ECL	ECL	2800	0.475	0.15	0.25	1	350	TSSOP−8, SOIC−8

FLIP–FLOPS

Device	Type	V_{CC} Typ (V)	Input Level	Output Level	f_{Toggle} Typ (MHz)	t_{pd} Typ (ns)	t_{su} Min (ns)	t_h Min (ns)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
NB4L52	D–Type	2.5	ECL, CML, CMOS, LVDS	ECL	4000	0.33	0.1	0.05	1	200	QFN–16
MC100EP52	D–Type	3.3	ECL, CML	ECL	4000	0.33	0.05	0	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC10EP52	D–Type	3.3	ECL, CML	ECL	4000	0.33	0.05	0	1	180	TSSOP–8, SOIC–8, DFN–8
MC100EL52	D–Type	5	ECL	ECL	2800	0.365	0.125	0.15	1	350	TSSOP–8, SOIC–8
MC10EL52	D–Type	5	ECL	ECL	2800	0.365	0.125	0.15	1	350	TSSOP–8, SOIC–8
NBSG53A	D–Type	2.5	ECL, CML, CMOS, LVDS	200, 400, 600, 800 mV	10000	0.215	0.03	0.025	0.5	60	QFN–16, BGA–16
MC100EP131	D–Type	3.3	ECL, CML	ECL	3000	0.46	0.12	0.12	0.2	290	QFN–32, LQFP–32
MC10EP131	D–Type	3.3	ECL, CML	ECL	3000	0.46	0.12	0.12	0.2	290	QFN–32, LQFP–32
MC100E131	D–Type	5	ECL	ECL	1100	0.5	0.15	0.175	1	480	PLCC–28
MC10E131	D–Type	5	ECL	ECL	1100	0.5	0.15	0.175	1	480	PLCC–28
MC10H131	D–Type	5	ECL	ECL	250	1	0.7	0.8		2000	PDIP–16, PLCC–20, SOEIAJ–16
MC10H176	D–Type	5	ECL	ECL	250	1.7	1.5	0.9		1900	PDIP–16, PLCC–20, SOEIAJ–16
MC10H186	D–Type	5	ECL	ECL	250	1.7	1.5	1		2600	PDIP–16, PLCC–20
MC100E431	D–Type	5	ECL	ECL	1100	0.6	0.2	0.2	1	650	PLCC–28
MC10E431	D–Type	5	ECL	ECL	1100	0.6	0.2	0.2	1	650	PLCC–28
MC100EP35	JK–Type	3.3	ECL, CML	ECL	3000	0.41	0.15	0.15	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC10EP35	JK–Type	3.3	ECL, CML	ECL	3000	0.41	0.15	0.15	0.2	180	TSSOP–8, SOIC–8
MC100EL35	JK–Type	5	ECL	ECL	2200	0.525	0.15	0.25	1	350	TSSOP–8, SOIC–8
MC10EL35	JK–Type	5	ECL	ECL	2200	0.525	0.15	0.25	1	350	TSSOP–8, SOIC–8
MC10H135	JK–Type	5	ECL	ECL	250	1.5	1.5	1		2200	PDIP–16, PLCC–20, SOEIAJ–16

LATCHES AND REGISTERS

Device	V_{CC} Typ (V)	Input Level	Output Level	Type	Bits	t_{pd} Typ (ns)	t_{su} Min (ns)	t_h Min (ns)	t_{rec} Typ (ns)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC10H130	5	ECL	ECL	Latch	2	1	2.2	0.7			1700	PDIP−16, PLCC−20
MC100E150	5	ECL	ECL	Latch	6	0.8	0.2	0.2	0.75	1	450	PLCC−28
MC10E150	5	ECL	ECL	Latch	6	0.8	0.2	0.2	0.75	1	450	PLCC−28
MC100E175	5	ECL	ECL	Latch	9	0.6	0.275	0.175	0.85	1	800	PLCC−28
MC10E175	5	ECL	ECL	Latch	9	0.6	0.275	0.175	0.85	1	800	PLCC−28
MC10H175	5	ECL	ECL	Latch	5	1.2	1.5	0.8			1900	PDIP−16, PLCC−20, SOEIAJ−16
MC100E143	5	ECL	ECL	Register	9	0.8	0.05	0.3	0.9	1	800	PLCC−28
MC10E143	5	ECL	ECL	Register	9	0.8	0.05	0.3	0.9	1	800	PLCC−28
MC100E151	5	ECL	ECL	Register	6	0.65	0.15	0.35	0.75	1	450	PLCC−28
MC10E151	5	ECL	ECL	Register	6	0.65	0.15	0.35	0.75	1	450	PLCC−28
MC100EP451	3.3	ECL, CML	ECL	Register	6	0.45	0.08	0.08	0.25	0.2	260	QFN−32, LQFP−32
MC10EP451	3.3	ECL, CML	ECL	Register	6	0.45	0.08	0.08	0.25	0.2	260	QFN−32, LQFP−32
MC100E451	5	ECL	ECL	Register	6	0.65	0.15	0.35	0.75	1	800	PLCC−28
MC10E451	5	ECL	ECL	Register	6	0.65	0.15	0.35	0.75	1	800	PLCC−28
MC100E452	5	ECL	ECL	Register	5	0.6	0.175	0.225	0.75	1	650	PLCC−28
MC10E452	5	ECL	ECL	Register	5	0.6	0.175	0.225	0.75	1	650	PLCC−28
MC10E141	5	ECL	ECL	Shift Register	8	0.75	0.175	0.2	0.9	1	800	PLCC−28
MC10H141	5	ECL	ECL	Shift Register	4	1.5	1.5	1			2400	PDIP−16, PLCC−20
MC100EP142	3.3	ECL, CML	ECL	Shift Register	9	0.675	0.05	0.1	0.8	1	275	QFN−32, LQFP−32
MC10EP142	3.3	ECL, CML	ECL	Shift Register	9	0.675	0.05	0.1	0.8	1	275	QFN−32, LQFP−32
MC100E142	5	ECL	ECL	Shift Register	9	0.8	0.05	0.3	0.9	1	800	PLCC−28
MC10E142	5	ECL	ECL	Shift Register	9	0.8	0.05	0.3	0.9	1	800	PLCC−28
MC100E241	5	ECL	ECL	Shift Register	8	0.75	0.175	0.2	0.9	1	800	PLCC−28

LOGIC GATES

Device	V_{CC} Typ (V)	Input Level	Output Level	Type	Channels	f_{Toggle} Max (MHz)	t_{pd} Typ (ns)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
NB7L86M	2.5	ECL, CML, LVDS, CMOS	ECL	SmartGate	1	8000	0.09	0.2	60	QFN−16
NBSG86A	2.375−3.465	ECL, CML, CMOS, LVDS	200, 400, 600, 800 mV	SmartGate	1	8000	0.165	0.5	65	BGA−16, QFN−16
MC10H104	5	ECL	ECL	AND	4		1		1700	PDIP−16, PLCC−20, SOEIAJ−16
MC100E104	5	ECL	ECL	AND/NAND	5	2000	0.385	1	700	PLCC−28
MC100E404	5	ECL	ECL	AND/NAND	4	2000	0.475	1	400	PLCC−28
MC100EL04	5	ECL	ECL	AND/NAND	1	2000	0.24	1	350	TSSOP−8, SOIC−8
MC100EL05	5	ECL	ECL	AND/NAND	1	2000	0.275	1	350	TSSOP−8, SOIC−8
MC100EP05	3.3	ECL, CML	ECL	AND/NAND	1	3000	0.22	0.2	180	TSSOP−8, SOIC−8, DFN−8
MC100EP105	3.3	ECL, CML	ECL	AND/NAND	1	3000	0.22	0.2	180	QFN−32, LQFP−32
MC100LVEL05	3.3	ECL, CMLS, LVDS	ECL	AND/NAND	1	2000	0.34	1	320	TSSOP−8, SOIC−8
MC100LVEP05	2.5	ECL	ECL	AND/NAND		3000	0.22	0.2	200	TSSOP−8
MC10E104	5	ECL	ECL	AND/NAND	5	700	0.385	1	700	PLCC−28
MC10E404	5	ECL	ECL	AND/NAND	4	700	0.475	1	400	PLCC−28
MC10EL04	5	ECL	ECL	AND/NAND	1	2000	0.24	1	350	TSSOP−8, SOIC−8
MC10EL05	5	ECL	ECL	AND/NAND	1	2000	0.275	1	350	TSSOP−8, SOIC−8
MC10EP05	3.3	ECL, CML	ECL	AND/NAND	1	3000	0.22	0.2	180	TSSOP−8, SOIC−8
MC10EP105	3.3	ECL, CML	ECL	AND/NAND	1	3000	0.22	0.2	180	QFN−32, LQFP−32
MC10H100	5	ECL	ECL	NOR	4		1		2100	PDIP−16, SOEIAJ−16
MC10H102	5	ECL	ECL	NOR	4		1		1600	PDIP−16, PLCC−20, SOEIAJ−16
MC10H106	5	ECL	ECL	NOR	3		1		1800	PDIP−16, PLCC−20, SOEIAJ−16
MC10H211	5	ECL	ECL	NOR	2		1		2200	PDIP−16, PLCC−20, SOEIAJ−16
MC10H103	5	ECL	ECL	OR	4		1		1800	PDIP−16, PLCC−20, SOEIAJ−16
MC10H210	5	ECL	ECL	OR	2		1		1900	PDIP−16, PLCC−20, SOEIAJ−16
MC100E101	5	ECL	ECL	OR/NOR	4	2000	0.35	1	575	PLCC−28
MC100EL01	5	ECL	ECL	OR/NOR	1	2000	0.23	1	235	TSSOP−8, SOIC−8
MC100EP01	3.3	ECL, CML	ECL	OR/NOR	1	3000	0.27	0.2	180	TSSOP−8, SOIC−8, DFN−8

LOGIC GATES

Device	V_{CC} Typ (V)	Input Level	Output Level	Type	Channels	f_{Toggle} Max (MHz)	t_{pd} Typ (ns)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC100EP101	3.3	ECL, CML	ECL	OR/NOR	4	3000	0.3	0.2	220	QFN−32, LQFP−32
MC100LVEL01	3.3	ECL	ECL	OR/NOR	1	2000	0.37	1	320	TSSOP−8, SOIC−8
MC10E101	5	ECL	ECL	OR/NOR	4	700	0.35	1	575	PLCC−28
MC10EL01	5	ECL	ECL	OR/NOR	1	2000	0.23	1	235	TSSOP−8, SOIC−8
MC10EP01	3.3	ECL, CML	ECL	OR/NOR	1	3000	0.27	0.2	180	TSSOP−8, SOIC−8, DFN−8
MC10EP101	3.3	ECL, CML	ECL	OR/NOR	4	3000	0.3	0.2	220	QFN−32, LQFP−32
MC10H101	5	ECL	ECL	OR/NOR	4		1		2200	PDIP−16, PLCC−20, SOEIAJ−16
MC10H105	5	ECL	ECL	OR/NOR	3		1		1600	PDIP−16, PLCC−20, SOEIAJ−16
MC10H109	5	ECL	ECL	OR/NOR	2		1		2100	PDIP−16, PLCC−20, SOEIAJ−16
MC10H209	5	ECL	ECL	OR/NOR	2		0.75		1500	PLCC−20, SOEIAJ−16
MC10H117	5	ECL	ECL	OR−AND/OR−AND INV	2		1		1600	PDIP−16, PLCC−20, SOEIAJ−16
MC10H121	5	ECL	ECL	OR−AND/OR−AND INV	4		1		1800	PDIP−16, PLCC−20, SOEIAJ−16
MC10H113	5	ECL	ECL	XOR	4		1.3		1900	PDIP−16, PLCC−20, SOEIAJ−16
MC100E107	5	ECL	ECL	XOR/XNOR	5	2000	0.41	1	700	PLCC−28
MC100EL07	5	ECL	ECL	XOR/XNOR	1	2000	0.26	1	225	TSSOP−8, SOIC−8, DFN−8
MC100EP08	3.3	ECL, CML	ECL	XOR/XNOR	1	3000	0.25	0.2	180	TSSOP−8, SOIC−8
MC10E107	5	ECL	ECL	XOR/XNOR	5	700	0.41	1	700	PLCC−28
MC10EL07	5	ECL	ECL	XOR/XNOR	1	2000	0.26	1	225	TSSOP−8, SOIC−8
MC10EP08	3.3	ECL, CML	ECL	XOR/XNOR	1	3000	0.25	0.2	180	TSSOP−8, SOIC−8
MC10H107	5	ECL	ECL	XOR/XNOR	3		1		1600	PDIP−16, PLCC−20, SOEIAJ−16

MULTIPLEXERS

Device	V_{CC} Typ (V)	Input Level	Output Level	Mux Ratio	Channels	f_{Toggle} Typ (MHz)	t_{pd} Typ (ns)	$t_{skew(OO)}$ Max (ps)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC100EL58	5	ECL	ECL	2:1	1	1500	0.23		1	350	TSSOP−8, SOIC−8
MC100EP58	3.3	ECL, CML	ECL	2:1	1	3000	0.31		0.2	180	TSSOP−8, SOIC−8
MC100LVEL58	3.3	ECL	ECL	2:1	1	1500	0.44		1	320	TSSOP−8, SOIC−8, DFN−8
MC10EL58	5	ECL	ECL	2:1	1	1500	0.23		1	350	TSSOP−8, SOIC−8
MC10EP58	3.3	ECL, CML	ECL	2:1	1	3000	0.31		0.2	180	TSSOP−8, SOIC−8
NB7L86M	2.5	ECL, CML, CMOS, LVDS	CML	2:1	1	8000	0.09		0.2	60	QFN−16
NBSG86A	2.5	ECL, CML, CMOS, LVDS	200, 400, 600, 800 mV	2:1	1	8000	0.165	20	0.5	65	BGA−16, QFN−16
MC100EL56	5	ECL	ECL	2:1	2	1000	0.58	80	1	540	SOIC−20
MC100EP56	3.3	ECL, CML	ECL	2:1	2	3000	0.36	100	0.2	180	TSSOP−20, SOIC−20, QFN−20
MC100LVEL56	3.3	ECL, LVDS	ECL	2:1	2	1000	0.44	80	3	540	SOIC−20
MC10EP56	5	ECL, CML	ECL	2:1	2	3000	0.475	100	0.2	200	TSSOP−20, QFN−20
NB100LVEP56	2.5	ECL, CML	ECL	2:1	2	2500	0.7	50	0.2	170	TSSOP−20, QFN−24
MC100E457	5	ECL	ECL	2:1	3	1000	0.475	40	1	500	PLCC−28
MC100EL59	5	ECL	ECL	2:1	3	1000	0.5	100	1	540	SOIC−20
MC100LVEL59	3.3	ECL	ECL	2:1	3	1000	0.5	100	1	540	SOIC−20
MC10E457	5	ECL	ECL	2:1	3	1000	0.475	40	1	500	PLCC−28
MC100E157	5	ECL	ECL	2:1	4	1000	0.38	70	1	650	PLCC−28
MC10E157	5	ECL	ECL	2:1	4	1100	0.38	70	1	650	PLCC−28
MC10H158	5	ECL	ECL	2:1	4		1.5			2200	PDIP−16, PLCC−20, SOEIAJ−16
MC10H159	5	ECL	ECL	2:1	4		1.5			2200	PLCC−20, SOEIAJ−16
MC100E158	5	ECL	ECL	2:1	5	1000	0.385	60	1	650	PLCC−28
MC10E154	5	ECL	ECL	2:1	5	1100	0.5	50	1	800	PLCC−28
MC10E158	5	ECL	ECL	2:1	5	1100	0.385	60	1	650	PLCC−28
MC10E155	5	ECL	ECL	2:1	6	1100	0.5	75	1	800	PLCC−28
MC10E167	5	ECL	ECL	2:1	6	1400	0.65	75	1	800	PLCC−28

MULTIPLEXERS

Device	V_{CC} Typ (V)	Input Level	Output Level	Mux Ratio	Channels	f_{Toggle} Typ (MHz)	t_{pd} Typ (ns)	$t_{skew(OO)}$ Max (ps)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
NB4N7132	3.3	ECL, CML, LVDS	ECL	2:1		750	0.375		25	175	TSSOP−28
MC100EL57	5	ECL	ECL	4:1	1	1000	0.56	100	1	375	SOIC−16
MC100EP57	3.3	ECL, CML	ECL	4:1	1	3000	0.475	200	0.2	200	TSSOP−20, QFN−20
MC10EL57	5	ECL	ECL	4:1	1	1000	0.56	100	1	375	SOIC−16
MC10EP57	3.3	ECL, CML	ECL	4:1	1	3000	0.475	200	0.2	200	TSSOP−20, QFN−20
MC10H174	5	ECL	ECL	4:1	2		1.5			1600	PDIP−16, PLCC−20, SOEIAJ−16
MC100E171	5	ECL	ECL	4:1	3	1000	0.48	60	1	650	PLCC−28
MC10E156	5	ECL	ECL	4:1	3	1100	0.6	50	1	700	PLCC−28
MC10E171	5	ECL	ECL	4:1	3	1400	0.48	60	1	650	PLCC−28
MC10H164	5	ECL	ECL	8:1	1		1			1600	PDIP−16, PLCC−20, SOEIAJ−16
MC100E163	5	ECL	ECL	8:1	2	1000	0.55	40	1	575	PLCC−28
MC10E163	5	ECL	ECL	8:1	2	1100	0.55	40	1	575	PLCC−28
MC100E164	5	ECL	ECL	16:1	1	1000	0.6	50	1	550	PLCC−28
MC100LVE164	3.3	ECL	ECL	16:1	1	1000	0.6	50	1	550	LQFP−32
MC10E164	5	ECL	ECL	16:1	1	1100	0.6	50	1	550	PLCC−28
MC10H172	5	ECL	ECL		2		2			1800	PDIP−16, PLCC−20
NB4N1158	3.3	ECL, CMOS	ECL		3	1500	0.375		10	150	TSSOP−28
NB7L572	2.5	ECL, CML, CMOS	ECL								QFN−32
MC10H161	5	ECL	ECL	3 Bit to 1 of 8 Decode	1		1			1800	PDIP−16, PLCC−20, SOEIAJ−16
MC10H162	5	ECL	ECL	3 Bit to 1 of 8 decode	1		1			1900	PDIP−16, PLCC−20, SOEIAJ−16
MC10H165	5	ECL	ECL	8 Bit Priority Encode	1		2.2			2400	PDIP−16, PLCC−20
MC10H171	5	ECL	ECL	BIN 1:4 Decode	2		2			1800	PDIP−16, PLCC−20

RECEIVERS/DRIVERS

Device	Type	V_{CC} Typ (V)	Input Level	Output Level	f_{Toggle} Max (MHz)	t_{pd} Typ (ns)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC10EL89	Coaxial Cable Driver	5	ECL	2x ECL	1500	0.35		455	TSSOP–8, SOIC–8
MC10EP89	Coaxial Cable Driver	3.3	ECL, CML	2x ECL	2000	0.31		350	TSSOP–8, SOIC–8, DFN–8
MC10SX1189	Fibre Channel Coaxial Cable Driver	5	ECL	2x ECL	2500	0.425		250	SOIC–16
MC10SX1190	Fibre Channel Coaxial Cable Driver	3.3	ECL	2x ECL		0.425		250	TSSOP–20
MC10SX1130	LED Driver	5	ECL	LED	400	1.4		1260	SOIC–16
NBSG16	Signal Driver	2.5	ECL, TTL, CMLS, CML, LVDS	RSECL	12000	0.12	0.3	65	BGA–16, QFN–16
NBSG16M	Signal Driver	2.5	ECL, TTL, CMLS, CML, LVDS	CML	10000	0.12	0.2	53	QFN–16
NBSG16VS	Signal Driver	2.5	ECL, TTL, CMLS, CML, LVDS	RSECL	12000	0.125	0.8	55	BGA–16, QFN–16
NB6L16	Signal Driver	2.5	LVDS, ECL,, CML, CMOS, TTL	ECL	6000	0.13	0.2	120	TSSOP–8, SOIC–8
NB4L16M	Signal Driver	2.5	TTL, CMOS, LVDS, ECL, CML	CML	3500	0.265	0.2	90	QFN–16
MC100LVEP16	Signal Driver	3.3	ECL, CML, LVDS	ECL	4000	0.24	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC10LVEP16	Signal Driver	2.5	ECL, CML, LVDS	ECL	4000	0.24	0.2	180	TSSOP–8, SOIC–8
MC100EP16	Signal Driver	3.3	ECL, CML	ECL	4000	0.22	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC10EP16	Signal Driver	3.3	ECL, CML	ECL	4000	0.22	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC100LVEL16	Signal Driver	3.3	ECL, LVDS	ECL	2000	0.3	0.2	320	TSSOP–8, SOIC–8, DFN–8
MC100EL16	Signal Driver	5	ECL	ECL	2000	0.25	0.2	350	TSSOP–8, SOIC–8
MC10EL16	Signal Driver	5	ECL	ECL	2000	0.25	0.2	350	TSSOP–8, SOIC–8
MC100EP16F	Signal Driver	3.3	ECL, CML	ECL	3000	0.3	0.2	100	TSSOP–8, SOIC–8
MC100EP16T	Signal Driver	3.3	ECL, CML	ECL	3000	0.22	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC10EP16T	Signal Driver	3.3	ECL, CML	ECL	3000	0.22	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC100EP16VA	Signal Driver	3.3	ECL, CML	ECL	3000	0.27	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC10EP16VA	Signal Driver	3.3	ECL, CML	ECL	3000	0.27	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC100EP16VB	Signal Driver	3.3	ECL, CML	ECL	3000	0.3	0.2	240	TSSOP–8, SOIC–8
MC100EP16VC	Signal Driver	3.3	ECL, CML	ECL	3000	0.38	0.2	240	TSSOP–8, SOIC–8, DFN–8
MC100EP16VS	Signal Driver	3.3	ECL, CML	ECL	4000	0.22	0.2	180	TSSOP–8, SOIC–8
MC100EP16VT	Signal Driver	3.3	ECL, CML	ECL	4000	0.3	0.2	180	TSSOP–8, SOIC–8, DFN–8
NB100LVEP17	Signal Driver	2.5	ECL, CML, LVDS	ECL	2500	0.25	0.5	240	TSSOP–20, QFN–24

RECEIVERS/DRIVERS

Device	Type	V_{CC} Typ (V)	Input Level	Output Level	f_{Toggle} Max (MHz)	t_{pd} Typ (ns)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC100EP17	Signal Driver	3.3	ECL, CML	ECL	3000	0.22	0.2	230	TSSOP−20, SOIC−20, QFN−20
MC10EP17	Signal Driver	3.3	ECL, CML	ECL	3000	0.22	0.2	230	TSSOP−20, SOIC−20, QFN−20
MC100LVEL17	Signal Driver	3.3	ECL, LVDS	ECL	2000	0.425	0.2	550	SOIC−20
MC100EL17	Signal Driver	5	ECL	ECL	2000	0.425	0.2	550	SOIC−20
MC10H115	Signal Driver	5	ECL	ECL		1		1500	PDIP−16, PLCC−20, SOEIAJ−16
MC100EP116	Signal Driver	3.3	ECL, CML	ECL	3000	0.26	0.2	240	QFN−32, LQFP−32
MC10EP116	Signal Driver	3.3	ECL	ECL	3000	0.26	0.2	240	LQFP−32
MC100E116	Signal Driver	5	ECL	ECL	1200	0.3	0.2	575	PLCC−28
MC10E116	Signal Driver	5	ECL	ECL	800	0.3	0.2	575	PLCC−28
MC10H116	Signal Driver	5	ECL	ECL		1		1600	PDIP−16, SOIC−16, PLCC−20, SOEIAJ−16
NB7L216	Signal Driver	2.5	CMOS, TTL, LVDS, ECL, CML	RSECL	12000	0.18	0.1	45	QFN−16
NB4N316M	Signal Driver	3.3	CML, ECL, LVDS, CMOS, TTL	CML		0.55		300	TSSOP−8
MC10H330	Signal Driver	5	ECL	ECL		1.5		2000	PLCC−28
MC10H332	Signal Driver	5	ECL	ECL		1.5		2000	PDIP−20, PLCC−20
MC10H334	Signal Driver	5	ECL	ECL		1.6		2200	PLCC−20
MC100E416	Signal Driver	5	ECL	ECL	2000	0.35	0.2	350	PLCC−28
MC10E416	Signal Driver	5	ECL	ECL	2000	0.35	0.2	350	PLCC−28
MC100H680	Signal Driver	5	ECL	TTL		3.2		3400	PLCC−28
MC10H680	Signal Driver	5	ECL	TTL		3.2		3400	PLCC−28
NB4N855S	Signal Driver	3.3	LVDS, CML, ECL, HSTL, SSTL, CMOS, TTL	LVDS		0.47	0.5	140	Micro−10
NB7VQ1006M	Signal Driver	1.8	CML, ECL, LVDS	CML	7500	0.225	0.2	65	QFN−24

SERIAL/PARALLEL CONVERTERS

Device	V_{CC} Typ (V)	Input Level	Output Level	Type	Bits	f_{dr} Typ (Gb/sec)	t_{pd} Typ (ns)	t_{su} Min (ns)	t_h Min (ns)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC100EP445	3.3	ECL, CML	ECL	Serial/Parallel	8	2.5	1.3	–0.4	0.6	0.2	300	QFN–32, LQFP–32
MC10EP445	3.3	ECL, CML	ECL	Serial/Parallel	8	2.5	1.3	–0.4	0.6	0.2	300	LQFP–32
MC100E445	5	ECL	ECL	Serial/Parallel	4	2.0	1.8	–0.25	0.3	1	350	PLCC–28
MC10E445	5	ECL	ECL	Serial/Parallel	4	2.0	1.8	–0.25	0.3	1	350	PLCC–28
MC100EP446	3.3	ECL, CML	ECL	Parallel/Serial	8	3.4	0.8	–0.45	–0.6	0.2	170	QFN–32, LQFP–32
MC10EP446	3.3	ECL, CML	ECL	Parallel/Serial	8	3.4	0.8	–0.45	–0.6	0.2	170	QFN–32, LQFP–32
MC100E446	5	ECL	ECL	Parallel/Serial	4	1.6	1.2	–0.45	0.65	1	350	PLCC–28
MC10E446	5	ECL	ECL	Serial/Parallel	4	2.0	1.8	–0.25	0.3	1	350	PLCC–28

SKEW MANAGEMENT

Device	V_{CC} Typ (V)	Input Level	Output Level	f_{Max} Typ (MHz)	$t_{d(prog)}$ Min (ns)	$t_{d(prog)}$ Max (ns)	$t_{d(step)}$ Typ (ps)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC100E195	5	ECL, CML	ECL	1000	2.05	2.6	20	5	325	PLCC–28
MC100E196	5	ECL, CML	ECL	1000	2.05	2.6	20	5	325	PLCC–28
MC100EP195B	3.3	ECL, CML, LVDS	ECL	1200	2.2	12	10	3	300	QFN–32, LQFP–32
MC100EP195	3.3	ECL, CML	ECL	1200	2.2	12.2	10	3	300	QFN–32, LQFP–32
MC100EP196B	3.3	ECL, CML, LVDS	ECL	1200	8.95	12.11	11	1.2	165	QFN–32, LQFP–32
MC100EP196	3.3	ECL, CML	ECL	1200	2.2	12.2	10	3	210	LQFP–32
MC10E195	3.3	ECL, CML	ECL	1000	2.05	2.6	20	5	325	PLCC–28
MC10E196	3.3	ECL, CML	ECL	1000	2.05	2.6	20	5	325	PLCC–28
MC10EP195	3.3	ECL, CML	ECL	1200	2.2	12.2	10	3	300	QFN–32, LQFP–32
NB6L295M	2.5	ECL, CML	CML	1500	6.2	6.2	11	2.4	150	QFN–24

TRANSLATORS

Device	V_{CC} Typ (V)	Input Level	Output Level	Channels	f_{Max} Typ (MHz)	t_{pd} Typ (ns)	t_R & t_F Max (ps)	Package
MC100EPT20	3.3	CMOS	ECL	1	1000	0.37	180	TSSOP–8, SOIC–8, DFN–8
MC10EPT20	3.3	CMOS	ECL	1	1000	0.37	180	TSSOP–8, SOIC–8, DFN–8
MC100LVELT20	3.3	CMOS	ECL	1	1000	0.37	180	SOIC–8
MC100ELT20	5	CMOS	ECL	1	100	1.2	1500	TSSOP–8, SOIC–8
MC10ELT20	5	CMOS	ECL	1	100	1.2	1500	TSSOP–8, SOIC–8
MC100EPT21	3.3	ECL, CML, LVDS	TTL	1	350	1.4	500	TSSOP–8, SOIC–8, DFN–8
MC100ELT21	5	ECL, CML	TTL	1	100	3.5	750	TSSOP–8, SOIC–8
MC10ELT21	5	ECL, CML	TTL	1	100	3.5	750	TSSOP–8, SOIC–8
MC100EPT22	3.3	TTL, CMOS	ECL	2	1100	0.42	220	TSSOP–8, SOIC–8, DFN–8
MC100LVELT22	3.3	TTL, CMOS	ECL	2	2000	0.35	500	TSSOP–8, SOIC–8
MC100ELT22	5	TTL	ECL	2	100	1.2	1600	TSSOP–8, SOIC–8
MC10ELT22	5	TTL	ECL	2	100	1.2	1600	TSSOP–8, SOIC–8
MC100EPT23	3.3	ECL, CML, LVDS	TTL	2	350	1.5	600	TSSOP–8, SOIC–8, DFN–8
MC100LVELT23	3.3	CML, PECL, LVDS	TTL	2	180	1.7	600	TSSOP–8, SOIC–8, DFN–8
MC100ELT23	5	ECL, CML	TTL	2	100	3.5	1600	TSSOP–8, SOIC–8
NB100ELT23L	3.3	ECL, CML, LVDS	TTL	2	275	2.1	1300	TSSOP–8, SOIC–8
MC100EPT24	3.3	TTL, CMOS	LVNECL	1	1000	0.53	180	TSSOP–8, SOIC–8, DFN–8
MC100ELT24	5	TTL	NECL	1	400	0.95	1250	TSSOP–8, SOIC–8
MC10ELT24	5	TTL	NECL	1	400	0.95	1250	TSSOP–8, SOIC–8
MC100EPT25	3.3	LVNECL/NECL	TTL	1	275	1.1	1100	TSSOP–8, SOIC–8, DFN–8
MC100ELT25	5	NECL	TTL	1	100	2.6	2300	TSSOP–8, SOIC–8
MC100EPT26	3.3	ECL, LVDS	TTL	1	275	1.5	900	TSSOP–8, SOIC–8, DFN–8
MC100ELT28	5	TTL, ECL	ECL, TTL	2	100	1.2	1500	TSSOP–8, SOIC–8
MC10ELT28	5	TTL, ECL	ECL, TTL	2	100	1.2	1500	TSSOP–8, SOIC–8
MC100EP90	3.3	LVNECL/NECL	LVPECL, PECL	3	3000	0.26	180	TSSOP–20
MC100EL90	5	LVNECL/NECL	PECL	3	650	0.5	500	SOIC–20
NB100LVEP91	2.5	HSTL, CML, LVDS, ECL	LVNECL/NECL	3	2500	0.43	250	QFN–24, SOIC–20
MC100EP91	3.3	LVDS, HSTL, ECL, CML, TTL	NECL	3	2	0.55	150	QFN–24, SOIC–20
MC100EL91	5	ECL	NECL	3		0.67	400	SOIC–20

TRANSLATORS

Device	V_{CC} Typ (V)	Input Level	Output Level	Channels	f_{Max} Typ (MHz)	t_{pd} Typ (ns)	t_R & t_F Max (ps)	Package
MC100LVEL90	3.3	LVNECL, NECL	ECL	3	650	0.5	500	SOIC−20
MC100LVEL91	3.3	ECL	LVNECL	3	600	0.62	580	SOIC−20
MC100LVEL92	3.3	ECL	LVPECL	3	600	0.61	580	SOIC−20
MC10EP90	3.3	LVNECL/NECL	LVPECL/PECL	3	3000	0.26	180	TSSOP−20
MC100EPT622	3.3	LVTTL/LVCMOS	PECL	10	1500	0.45	250	QFN−32, LQFP−32
MC10H124	5	TTL	NECL	4			1600	PDIP−16, PLCC−20, SOEIAJ−16
MC10H125	5	NECL	TTL	4			1200	PDIP−16, PLCC−20, SOEIAJ−16
MC10H350	5	PECL	TTL	4		3.5	1600	PDIP−16, PLCC−20, SOEIAJ−16
MC10H351	5	TTL/NMOS	PECL	4		1.3	2000	PDIP−20, PLCC−20, SOEIAJ−20
MC10H352	5	CMOS	PECL	4		1.3	2000	PDIP−20, PLCC−20
MC10H424	5	TTL	ECL	4		1.5	2000	PDIP−16, PLCC−20
MC100H600	5	TTL	ECL	1		2300	1500	PLCC−28
MC10H600	5	TTL	ECL	1			1500	PLCC−28
MC100H601	5	ECL	TTL	1		3.45	3000	PLCC−28
MC10H601	5	ECL	TTL	1		3.45	3000	PLCC−28
MC100H602	5	TTL	ECL	1		2.5	1500	PLCC−28
MC10H602	5	TTL	ECL	1			1500	PLCC−28
MC100H603	5	ECL	TTL	1			3000	PLCC−28
MC10H603	5	ECL	TTL	1			3000	PLCC−28
MC100H604	5	TTL	ECL	6			2000	PLCC−28
MC10H604	5	TTL	ECL	6			2000	PLCC−28
MC100H605	5	ECL	TTL	6		5.2	1500	PLCC−28
MC10H605	5	ECL	TTL	6		5.2	1500	PLCC−28
MC100H606	5	TTL	ECL	6		3	2000	PLCC−28
MC10H606	5	TTL	ECL	6			2000	PLCC−28
MC100H607	5	PECL	TTL	6			2000	PLCC−28
MC10H607	5	ECL	TTL	6			2000	PLCC−28

Clock Generation

Clock Generation

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CRYSTAL OSCILLATORS

Device	V_{DD} Typ (V)	Input	Output Level	$f_{CLKOUT1}$ Typ (MHz)	$f_{CLKOUT2}$ Typ (MHz)	Δ_f (±PPM)	$t_{Jitter(\Phi)}$ Typ (ps)	t_R & t_F Typ (ps)	t_R & t_F Max (ps)	Duty Cycle Min (%)	Duty Cycle Typ (%)	Duty Cycle Max (%)	Package
NBXDBA009	3.3	Crystal, CMOS	ECL	75	150	50	0.4	250	400	48	50	52	CLCC–6
NBXDBA012	3.3	Crystal, CMOS	ECL	106.25	212.5	50	0.4	250	400	48	50	52	CLCC–6
NBXDBA014	3.3	Crystal, CMOS	ECL	62.5	125	50	0.4	380	620	48	50	52	CLCC–6
NBXDBA015	3.3	Crystal, CMOS	ECL	200	206.9	50	0.4	250	400	48	50	52	CLCC–6
NBXDBA017	3.3	Crystal, CMOS	ECL	156.25	312.5	50	0.4	250	400	48	50	52	CLCC–6
NBXDBA018	3.3	Crystal, CMOS	ECL	155.52	311.04	50	0.4	250	400	48	50	52	CLCC–6
NBXDBA019	3.3	Crystal, CMOS	ECL	125	250	50	0.4	250	400	48	50	52	CLCC–6
NBXDBB017	3.3	Crystal, CMOS	ECL	156.25	312.5	20	0.4	250	400	48	50	52	CLCC–6
NBXDBB018	3.3	Crystal, CMOS	ECL	155.52	311.04	20	0.4	250	400	48	50	52	CLCC–6
NBXDDA016	3.3	Crystal, CMOS	ECL	133.33	137.93	50	0.4	160	300	48	50	52	CLCC–6
NBXDPA012	2.5 – 3.3	CMOS	LVDS	106.25	212.5	50	0.4	115	400	48	50	52	CLCC–6
NBXDPA017	2.5 – 3.3	CMOS	LVDS	156.25	312.5	50	0.4	115	400	48	50	52	CLCC–6
NBXDPA018	2.5 – 3.3	CMOS	LVDS	155.52	311.04	50	0.5	115	400	48	50	52	CLCC–6
NBXDPA019	2.5 – 3.3	CMOS	LVDS	125	250	50	0.5	115	400	48	50	52	CLCC–6
NBXHBA017	3.3	Crystal, CMOS	ECL	156.25	–	50	0.4	250	400	48	50	52	CLCC–6
NBXHBA019	3.3	Crystal, CMOS	ECL	125	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA007	3.3	Crystal, CMOS	ECL	240	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA008	3.3	Crystal, CMOS	ECL	161.1328	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA010	3.3	Crystal, CMOS	ECL	100	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA017	3.3	Crystal, CMOS	ECL	312.5	–	50	0.4	250	400	48	50	52	CLCC–6

CRYSTAL OSCILLATORS

Device	V_{DD} Typ (V)	Input	Output Level	$f_{CLKOUT1}$ Typ (MHz)	$f_{CLKOUT2}$ Typ (MHz)	Δ_f (±PPM)	$t_{Jitter(\Phi)}$ Typ (ps)	t_R & t_F Typ (ps)	t_R & t_F Max (ps)	Duty Cycle Min (%)	Duty Cycle Typ (%)	Duty Cycle Max (%)	Package
NBXSBA019	3.3	Crystal, CMOS	ECL	250	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA020	3.3	Crystal, CMOS	ECL	280	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA021	3.3	Crystal, CMOS	ECL	266.667	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA022	3.3	Crystal, CMOS	ECL	187.5	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA023	3.3	Crystal, CMOS	ECL	400	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA024	2.5 – 3.3	CMOS	ECL	622.08	–	50	0.5	250	400	45	50	55	CLCC–6
NBXSBA025	2.5 – 3.3	CMOS	ECL	425	–	50	0.5	250	400	48	50	52	CLCC–6
NBXSBA030	2.5 – 3.3	CMOS	ECL	175	–	50	0.5	250	400	48	50	52	CLCC–6
NBXSBA031	2.5 – 3.3	CMOS	ECL	340	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA045	2.5 – 3.3	CMOS	ECL	345	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA046	2.5 – 3.3	CMOS	ECL	172.5	–	50	0.5	250	400	48	50	52	CLCC–6
NBXSPA008	2.5 – 3.3	CMOS	LVDS	161.1328	–	50	0.5	115	400	48	50	52	CLCC–6
NBXSPA022	2.5 – 3.3	CMOS	LVDS	187.5	–	50	0.4	115	400	48	50	52	CLCC–6

PHASE/FREQUENCY DETECTORS

Device	V_{CC} Typ (V)	Input Level	Output Level	f_{Toggle} Max (MHz)	t_{pd} Typ (ns)	t_{Jitter} Typ (ps)	t_R & t_F Max (ps)	Package
MC100EP140	3.3	ECL, CML	ECL	2000	0.475	0.2	200	SOIC–8
MC100EP40	3.3	ECL, CML	ECL	2000	0.55	0.2	150	TSSOP–20
MC100LVEL40	3.3	ECL, CML	ECL	250	1.35	0.2	475	SOIC–20
MCH12140	5	ECL, CML	ECL	800	0.44	0.2	350	SOIC–8
MCK12140	5	ECL, CML	ECL	800	0.44	0.2	350	SOIC–8
NB3N5573	3.3	ECL, CML	ECL	200	–	1.5	700	TSSOP–16

PLL CLOCK GENERATORS

Device	V_{CC} Typ (V)	Input	Output Level	f_{Max} Min (MHz)	f_{Max} Max (MHz)	t_{LOCK} Max (ms)	t_{Jitter} Typ (ps)	t_{su} Min (ns)	t_h Min (ns)	t_R & t_F Min (ps)	t_R & t_F Max (ps)	Package
NB3N3001	3.3	Crystal	ECL	Not Used	106.25 or 212.5 Typ	1	0.3	–	–	275	600	TSSOP−8
NB3N3002	3.3	Crystal, CMOS	HCSL	25	200	1	2	–	–	175	700	TSSOP−16
NB3N3011	3.3	Crystal	ECL	96	120	1	0.29	–	–	275	600	TSSOP−8
NB3N502	3	Crystal, CMOS	CMOS	10	190	1	15	–	–	1000	1000	SOIC−8
NB3N508S	3.3	Crystal, CMOS	LVDS	Not Used	216	2	88 dBc/Hz @ 1 kHz	–	–	380	500	TSSOP−16
NB4N441	3.3	Crystal, CMOS	CMOS	12.5	425	5	3.5	20	–	175	425	QFN−24
NB4N507A	3.3	Crystal, CMOS	ECL	50	200	1	10	–	–	50	70	SOIC−16
NBC12429A	3.3	Crystal, CMOS	ECL, CMOS	25	400	10	20	20	20	175	425	QFN−32, LQFP−32, PLCC−28
NBC12429	3.3	Crystal, CMOS	ECL, CMOS	25	400	10	20	20	20	175	425	LQFP−32, PLCC−28
NBC12430A	3.3	Crystal, CMOS	ECL, CMOS	50	800	10	20	20	20	175	425	QFN−32, LQFP−32, PLCC−28
NBC12430	3.3	Crystal, CMOS	ECL, CMOS	50	800	10	20	20	20	175	425	LQFP−32, PLCC−28
NBC12439A	3.3	Crystal, CMOS	ECL, CMOS	50	800	10	20	20	20	175	425	QFN−32, LQFP−32, PLCC−28
NBC12439	3.3	Crystal, CMOS	ECL, CMOS	50	800	10	20	20	20	175	425	LQFP−32, PLCC−28

SPREAD SPECTRUM EMI REDUCTION CLOCKS

Product	V_{DD} Typ (V)	f_{in} Typ (MHz)	f_{out} Typ (MHz)	Deviation Type	Features	T_A Min (°C)	T_A Max (°C)	Package
ASM3I2579AF−06OR	3.3	13	30	±1	SSON	−40	85	TSOP−6
ASM3I2669AF−06OR	2.5, 3.3	6−12, 6−13	6−12, 6−13	±1	PDB	−40	85	TSOP−6
ASM3I2779AF−06OR	2.5, 3.3	13−30	13−30	±1	PDB	−40	85	TSOP−6
ASM3P1819NF−08SR	3.3	20−40	20−40	−1.25	−	0	70	SOIC−8
ASM3P2107AF−08SR	5	12−22	12−22	Down	−	0	70	SOIC−8
ASM3P2108AF−08SR	5	25−45	25−45	−1.3	−	0	70	SOIC−8
ASM3P2111BG−08SR	3.3	25	48, 66	−1.7 @ 66.66 MHz	−	0	70	SOIC−8
ASM3P2180AF−08SR	3.3	6−30	6−30	Selectable Down	−	0	70	SOIC−8
ASM3P2180AF−08ST	3.3	6−30	6−30	Selectable Down	−	0	70	SOIC−8
ASM3P2274AF−06OR	2.5, 3.3	12−30	48−120	−1.5	PDB	0	70	TSOP−6
ASM3P2474AF−06OR	3.3	13−30	13−30, 26−60	−1.5	−	0	70	TSOP−6
ASM3P2598AF−06OR	2.5, 3.3	60−120	60−120	±1.5	SSON	0	70	TSOP−6
ASM3P2669AF−06OR	2.5, 3.3	6−12, 6−13	6−12, 6−13	±1	PDB	0	70	TSOP−6
ASM3P2760AF−06OR	2.5, 3.3	6−12, 6−13	6−12, 6−13	±0.65	PDB	0	70	TSOP−6
ASM3P2775AF−06OR	3.3	13−30	13−30	±1.8	PDB	0	70	TSOP−6
ASM3P2779AF−06OR	2.5, 3.3	13−30	13−30	±1	PDB	0	70	TSOP−6
ASM3P2780AF−06OR	2.5, 3.3	30−50	30−50	±0.75	PDB	0	70	TSOP−6
ASM3P2853AG−08SR	2.5	25	48, 50	±1	−	0	70	SOIC−8
ASM3P2863AF−06OR	2.5, 3.3	6−12, 6−13	6−12, 6−13	±0.5	REFOUT	0	70	TSOP−6
ASM3P2872AF−06OR	2.5, 3.3	13−30	13−30	−1.25	REFOUT	0	70	TSOP−6
P1708CF−08SR	3.3	50−110	50−110	Selectable Center Spread	SSON/OFF	0	70	SOIC−8
P1708CF−08TR	3.3	50−110	50−110	Selectable Center Spread	SSON/OFF	0	70	TSSOP−8
P1727AF−08SR	3.3	20−40	20−40	Selectable ±0.625% to −3.50%	−	0	70	SOIC−8
P3P18S19BF−08SR	3.3	20−40	20−40	−1.25% to −1.75%	Spread Deviation Selection	0	70	SOIC−8
P3P18S19BF−08ST	3.3	20−40	20−40	−1.25% to −1.75%	Spread Deviation Selection	0	70	SOIC−8
P3P73U00AG−08−ST	2.5, 3.3	10−60, 10−70	10−60, 10−70	Analog	MR Selection	0	70	SOIC−8
P3P73U00AG−08−TT	2.5, 3.3	10−60, 10−70	10−60, 10−70	Analog	MR Selection	0	70	TSSOP−8
P3P73U00AG−08CR	2.5, 3.3	10−60, 10−70	10−60, 10−70	Analog	MR Selection	0	70	WDFN−8
P3P73U00AG−08SR	2.5, 3.3	10−60, 10−70	10−60, 10−70	Analog	MR Selection	0	70	SOIC−8

SPREAD SPECTRUM EMI REDUCTION CLOCKS

Product	V_{DD} Typ (V)	f_{in} Typ (MHz)	f_{out} Typ (MHz)	Deviation Type	Features	T_A Min (°C)	T_A Max (°C)	Package
P3P73Z01BWG−08CR	2.5, 3.3	12−150, 15−175	12−150, 15−175	Analog	Analog Delay Control	0	70	WDFN−8
P3P73Z01BWG−08TR	2.5, 3.3	12−150, 15−175	12−150, 15−175	Analog	Analog Delay Control	0	70	TSSOP−8
P3P73Z01BWG−08TT	2.5, 3.3	12−150, 15−175	12−150, 15−175	Analog	Analog Delay Control	0	70	TSSOP−8
PCS3P2042BG−08TR	3.3	30−110	30−110	±0.23 to ±1.89	SSON/OFF	0	70	TSSOP−8
PCS3P2042BG−08TT	3.3	30−110	30−110	±0.23 to ±1.89	SSON/OFF	0	70	TSSOP−8
PCS3P2537AG−08CR	3.3	18−36	18−36	−0.25	SSON	0	70	WDFN−8
PCS3P25811AG08SR	3.3	4−32	4−32	−0.5 to −3.0, ±0.3 to ±1.4	−	0	70	SOIC−8
PCS3P7303AG−08CR	2.5, 3.3	10−70, 10−80	10−70, 10−80	Analog	−	0	70	WDFN−8
PCS3P7303AG−08TR	2.5, 3.3	10−70, 10−80	10−70, 10−80	Analog	−	0	70	TSSOP−8
PCS3P7303AG−08TT	2.5, 3.3	10−70, 10−80	10−70, 10−80	Analog	−	0	70	TSSOP−8
PCS3P73U00AG08TR	2.5, 3.3	10−60, 10−70	10−60, 10−70	Analog	MR Selection	0	70	TSSOP−8
PCS3P8504AG−08CR	2.5, 3.3	15−40, 15−50	15−40, 15−50	Analog	MR Selection	0	70	WDFN−8
PCS3PS550AG−08CR	2.5, 3.3	18−36	18−36	±0.4 to ±2.5	PDB	0	70	WDFN−8

VCOs

Device	Input Level	Output Level	Description	f_{Max} Typ (MHz)	V_{CC} Max (V)	Duty Cycle (%)	Package
FS6128−04	CMOS	CMOS	VCXO Clock Generator, 27 MHz Output	27	3.6	50	SOIC−14
FS6128−07	CMOS	CMOS	VCXO Clock Generator, 27 MHz Output	27	3.6	50	SOIC−14
FS6131	CMOS	CMOS	I2C Programmable 1−PLL Clock	230	5.5	50	SOIC−14
FS6370	CMOS	CMOS	EE Programmable 3−PLL Clock	150	5.5	50	SOIC−14
FS6377	CMOS	CMOS	I2C Programmable 3−PLL Clock	150	5.5	50	SOIC−14
FS7140	CMOS	CMOS	I2C Programmable 1−PLL Clock	300	3.6	50	SOIC−14, SSOP−16
FS7145	CMOS	CMOS	I2C Programmable 1−PLL Clock	300	3.6	50	SOIC−14
MC100EL1648	LRC tank	ECL	5 V ECL Voltage Controlled Oscillator	1100	5.5	50	SOIC−8, TSSOP−8, SOEIAJ−14, DFN−8
MC14046B	CMOS	CMOS	Phase Locked Loop	–	18	–	SOIC−16, SOEIAJ−16, PDIP−16
MC74HC4046A	CMOS	CMOS	Phase Locked Loop	–	6	–	SOIC−16, TSSOP−16, SOEIAJ−16, PDIP−16

ZERO DELAY BUFFERS

Device	Input Level	Output Level	Outputs Per	V_{DD} Typ (V)	t_{skew} Max (ps)	F Max (MHz)	t_{Jitter} Max (ps)	Package
NB2304A	CMOS	CMOS	4	3.3	200	133.3	100	SOIC−8
NB2305A	CMOS	CMOS	5	3.3	250	133.3	200	SOIC−8, TSSOP−8
NB2308A	CMOS	CMOS	8	3.3	200	133.3	100	SOIC−16, TSSOP−16
NB2309A	CMOS	CMOS	9	3.3	250	133.3	200	SOIC−16, TSSOP−16

Custom

Custom

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DIGITAL ASICs

STANDARD CELL PRODUCT FAMILIES

Product	Core Voltage	I/O Voltage	I/O Types	System Performance	Memory	Clock Management	FPGA Conversion Targets	Handling	Flow	Package Options
0.5 μm (SC5)	5 V	5 V, 3.3 V	PCI, TTL, LVTTL	75 MHz	SRAM, DPRAM, ROM	PPL	Legacy FPGAs/PLDs	Domestic fabrication, ITAR	QML	Full package offering
0.35 μm (SC3)	3.3 V / 2.5 V	5 V, 3.3 V, 5 V Tolerant	PCI, GTL, HSTL, SSTL, LVPECL, USB1.1	100 MHz	SRAM, DPRAM, ROM	DLL, PLL	XC4000XL, FLEX®, Spartan® XL, MAX®	Domestic fabrication, ITAR	QML	Full package offering
0.18 μm (ONC18)	1.8 V	3.3 V, 2.5 V, 1.8 V, 3.3 V / 5 V Tolerant	PCI, HSTL, SSTL, LVDS	266 MHz	SRAM, DPRAM, ROM	DLL, PLL	Virtex®–E, APEX™–E, Virtex II, Spartan IIE	Domestic fabrication, ITAR	QML	Full package offering
0.11 μm (SP110)	1.2 V	3.3 V, 2.5 V, 1.8 V, 1.5 V, 3.3 V Tolerant	PCI, PCI–X, GTL, HSTL, SSTL, LVPECL, LVDS	450 MHz	SRAM, DPRAM, ROM	DLL, PLL	Virtex–4, Spartan–3, APEX–II, Stratix®–II, Cyclone®	Domestic fabrication, ITAR	QML	Full package offering

STRUCTURED ASIC PRODUCT FAMILIES

Product	Core Voltage	I/O Voltage	I/O Types	System Performance	Memory	Clock Management	FPGA Conversion Targets	Handling	Flow	Package Options
XPressArray®–II (150 nm)	1.5 V	3.3 V, 2.5 V, 1.8 V, 1.5 V	PCI, PCI–X, GTL, HSTL, SSTL2, LVPECL, LVDS	210 MHz	SRAM, DPRAM, ROM	DLL, PPL	Virtex–4, Spartan–3, APEX–II, Stratix–II, Cyclone	TSMC–ON hybrid domestic process, ITAR	QML	Exclusive flip chip

CUSTOM FOUNDRY SERVICES

Process Name	Min Drawn Poly (μ)	No. Metal Layers	Wafer Size (in)	Maximum Operating Voltage (V)	Metal 1 Pitch	NVM	Linear Cap	N–Channel DMOS	P–Channel DMOS	Bi–polars	Trans Char	Other Devices
ONC18G/R	0.18	4–6	8	3.3	0.46	Y	MIM	–	–	–	Salicide	Resistors
ONC25	0.25	2–5	8	5	0.64	Y	MIM	–	–	Y	Salicide	Misc.
ONBCD25	0.25	2–5	8	40	0.64	Y	MIM	Y	–	Y	Salicide	Misc.
C3/D3	0.35	3–5	8	5	1.10	Y	PIP	–	–	–	Salicide	Resistors
I3T25	0.35	3–5	8	18	1.00	Y	MIM	Y	Y	Y	Salicide	Resistors
I3T50	0.35	3–5	6	40	1.00	Y	MIM	Y	Y	Y	Salicide	Misc.
I3T80	0.35	3–5	6	80	1.00	Y	MIM	Y	Y	Y	Salicide	Misc.
C5	0.6	2,3	8	20	1.50	Y	PIP	Y	Y	–	Poly	Misc.
I2T30 (E)	0.7	2,3	6	30	2.80	–	PIP	Y	Y	Y	Poly	
I2T100	0.7	2,3	6	100	2.80	–	PIP	Y	Y	Y	Poly	Misc

DC–DC Controllers, Converters, and Regulators

DC–DC Controllers, Converters, and Regulators

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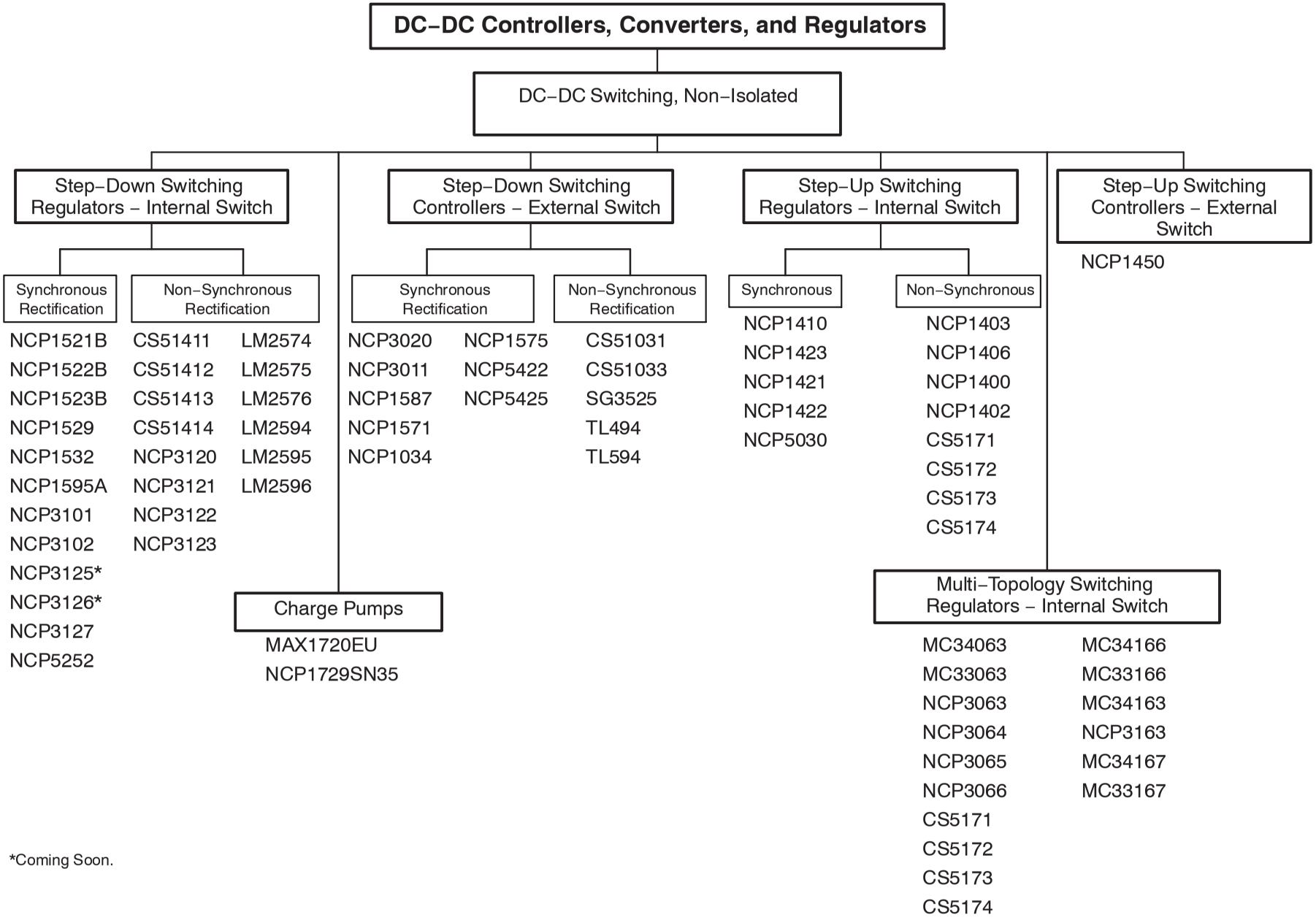

DC–DC Controllers, Converters, and Regulators
DC–DC Switching, Non–Isolated
Step–Down Switching Regulators – Internal Switch
Synchronous Rectification
NCP1521B
NCP1522B
NCP1523B
NCP1529
NCP1532
NCP1595A
NCP3101
NCP3102
NCP3125*
NCP3126*
NCP3127
NCP5252
Non–Synchronous Rectification
CS51411
CS51412
CS51413
CS51414
NCP3120
NCP3121
NCP3122
NCP3123
LM2574
LM2575
LM2576
LM2594
LM2595
LM2596
Step–Down Switching Controllers – External Switch
Synchronous Rectification
NCP3020
NCP3011
NCP1587
NCP1571
NCP1034
NCP1575
NCP5422
NCP5425
Non–Synchronous Rectification
CS51031
CS51033
SG3525
TL494
TL594
Charge Pumps
MAX1720EU
NCP1729SN35
Step–Up Switching Regulators – Internal Switch
Synchronous
NCP1410
NCP1423
NCP1421
NCP1422
NCP5030
Non–Synchronous
NCP1403
NCP1406
NCP1400
NCP1402
CS5171
CS5172
CS5173
CS5174
Step–Up Switching Controllers – External Switch
NCP1450
Multi–Topology Switching Regulators – Internal Switch
MC34063
MC33063
NCP3063
NCP3064
NCP3065
NCP3066
CS5171
CS5172
CS5173
CS5174
MC34166
MC33166
MC34163
NCP3163
MC34167
MC33167

*Coming Soon.

STEP–DOWN SWITCHING REGULATORS – INTERNAL SWITCH

Device	V_{IN} (V)		V_{OUT} Options (Adj Range)	I_{OUT} (A)	F_{SW} (kHz)	Mode	Enable	Soft–Start	Comments	Temp Range (°C)	Package
	Min	Max									
NCP3102	4.5	13.2	Down to 0.8 V	10 A	275	Voltage	√	√	Highly integrated 10 A output	–40 to +85	QFN–40
NCP3101	4.5	13.2	Down to 0.8 V	6.0 A	275	Voltage	√	√	Highly integrated 6 A output	–40 to +85	QFN–40
MC33167	7.0	40	Down to 5.0 V	5.0 A	72	Voltage			Large 5.0 A output capability	–40 to +85	D2PAK / TO–220
MC34167	7.0	40	Down to 5.0 V	5.0 A	72	Voltage			Standby Mode < 36 μA	0 to +70	D2PAK / TO–220
MC33166	7.5	40	Down to 5.0 V	3.0 A	72	Voltage			Internal thermal shutdown	–40 to +85	D2PAK / TO–220
MC34166	7.5	40	Down to 5.0 V	3.0 A	72	Voltage			Cycle–by–Cycle current limit	0 to +70	D2PAK / TO–220
LM2576	4.75	40	3.3,5,12,15, Adj(1.23 to 37 V)	3.0 A	52	Voltage	√		No external compensation required	–40 to +125	D2PAK / TO–220
NCP3121/ NCP3123	4.5	13.2	Down to 0.8 V	3.0/3.0 A	200–750 200–2200	Voltage	√	√	Auto tracking and sequencing; 180° Out–of–phase operation	–40 to +85	QFN–32
NCP3120/ NCP3122	4.5	13.2	Down to 0.8 V	2.0/2.0 A	200 – 750 200–2200	Voltage	√	√	Auto tracking and sequencing; 180° Out–of–phase operation	–40 to +85	QFN–32
NCP5252	4.5	13.2	Down to 0.6 V	2.0 A	333 – 1000	–	√	√	FPWM mode	–40 to +85	QFN–16
NCP1532	2.7	5.5	0.9 – 3.3 V	1.6	2250	Current	√	√	Dual buck auto PFM/PWM. Synchronous rectification.		Thin DFN–10
CS5171	2.7	30	1.276 to 40 V	1.5 A	280	Current		√	LT1372/1373 Compatible	–40 to +85	SO–8
CS5172	2.7	30	–2.5 to 40 V	1.5 A	280	Current		√	Flyback & SEPIC	–40 to +85	SO–8
CS5173	2.7	30	1.276 to 40 V	1.5 A	560	Current		√	Easy External Synchronization	–40 to +85	SO–8
CS5174	2.7	30	–2.5 to 40 V	1.5 A	560	Current		√	Negative feedback polarity	–40 to +85	SO–8
CS51411	4.5	40	Down to 1.276 V	1.5 A	260	Voltage	√	√	Sync capability;Pin–Compatible with LT1375 and LT1376	–40 to +85	SO–8 / DFN–8
CS51412	4.5	40	Down to 1.276 V	1.5 A	260	Voltage	√	√	External Bias; Pin–Compatible with LT1375 and LT1376	–40 to +85	SO–8 / DFN–8
CS51413	4.5	40	Down to 1.276 V	1.5 A	520	Voltage	√	√	Sync capability; Pin–Compatible with LT1375 and LT1376	–40 to +85	SO–8 / DFN–8
CS51414	4.5	40	Down to 1.276 V	1.5 A	520	Voltage	√	√	External Bias; Pin–Compatible with LT1375 and LT1376	–40 to +85	SO–8 / DFN–8
NCP1595A	4.0	5.5	Down to 0.8 V	1.5 A	1200	Current	√	√	Internal compensation; Synchronous Rectification	0 to +85	DFN–6
NCP5030	2.7	5.5	2.2–5.5 V	1.2 A	1000	Current	√	√	Buck/ Boost Converter – can supply either regulated current or regulated output voltage	–40 to +85	DFN–12
LM2575	4.75	40	3.3,5,12,15, Adj(1.23 to 37 V)	1.0 A	52	Voltage	√		No external compensation required	–40 to +125	D2PAK / TO–220
NCP1529	2.7	5.5	Adj(0.9–3.3 V)	1.0 A	1700	Current	√	√	Auto PWM/ PFM mode. Synchronous Rectification	–40 to +85	Thin SOT–23–5, Thin DFN–6
LM2574	4.75	40	3.3,5,12,15, Adj(1.23 to 37 V)	0.5 A	52	Voltage	√		No external compensation required	–40 to +125	D2PAK / TO–220
NCP1422	1.0	5.0	1.5–5.0 V	800 mA	1200	Current	√	√	PFM mode. Synchronous Rectification, True–cutoff, Low–battery detect	–40 to +85	DFN–10
NCP1421	1.0	5.0	1.5–5.0 V	600 mA	1200	Current	√	√	PFM Sync–rect, True–cutoff, Low–battery detect	–40 to +85	Micro8™
NCP1521B	2.7	5.5	0.9 – 3.3 V	600 mA	1500	Current	√	√	Auto PWM/ PFM mode. Synchronous Rectification	–40 to +85	Thin SOT–23–5, Thin DFN–6
NCP1522B	2.7	5.5	0.9 – 3.3 V	600 mA	3000	Voltage	√	√	Auto PWM/ PFM mode. Synchronous Rectification	–40 to +85	Thin SOT–23–5, Thin DFN–6

STEP–DOWN SWITCHING REGULATORS – INTERNAL SWITCH (CONTINUED)

Device	V_{IN} (V)		V_{OUT} Options (Adj Range)	I_{OUT} (A)	F_{SW} (kHz)	Mode	Enable	Soft–Start	Comments	Temp Range (°C)	Package
	Min	Max									
NCP1523B	2.7	5.5	0.9 – 3.3 V	600 mA	3000	Voltage	√	√	PWM mode. Synchronous Rectification	–40 to +85	Micro–Bump–8
NCP1423	0.8	V_{out}	1.8 – 5.5 V	400 mA	600	Current	√	√	PFM mode. Synchronous Rectification, True–cutoff, Low–battery detect	–40 to +85	Micro–10
NCP1410	1.0	5.5	V_{in} to 5.5 V	250 mA	600	Current	√		PFM mode. Synchronous Rectification, Low–battery detect	–40 to +85	Micro8™
NCP1402	0.8	5.5	1.8 – 5.0 V	200 mA	180	Voltage	√	√	PFM mode	–40 to +85	Thin SOT–23–5
NCP1400	0.8	5.5	1.9 – 5.0 V	100 mA	180	Voltage	√	√	PWM mode	–40 to +85	Thin SOT–23–5
NCP1403	1.2	5.5	up to 15 V	50 mA	300	Current	√	√	PFM mode	–40 to +85	Thin SOT–23–5
NCP1406	1.4	5.5	up to 25 V	50 mA	1000	Current	√	√	PFM mode	–40 to +85	Thin SOT–23–5
LM2594	4.75	40	3.3, 5, 12, 15 Adj (1.23 to 37 V)	0.5 A	52	Voltage	√		No external compensation required	–40 to +125	D^2PAK, TO–220
LM2595	4.75	40	3.3, 5, 12, 15 Adj (1.23 to 37 V)	1.0 A	52	Voltage	√		No external compensation required	–40 to +125	D^2PAK, TO–220
NCP3127	4.5	13.2	Down to 0.8 V	2.0 A	350	Voltage			High Efficiency	–40 to +85	SO–8
LM2596	4.75	40	3.3, 5, 12, 15 Adj (1.23 to 37 V)	3.0 A	52	Voltage	√		No external compensation required	–40 to +125	D^2PAK, TO–220
NCP3126	4.5	13.2	Down to 0.8 V	3.0 A	350	Voltage	√	√	High Efficiency	–40 to +85	SO–8
NCP3125	4.5	13.2	Down to 0.8 V	4.0 A	350	Voltage	√	√	High Efficiency	–40 to +85	SO–8

MULTI–TOPOLOGY (STEP–UP, STEP–DOWN, INVERTING) SWITCHING REGULATORS – INTERNAL SWITCH

Device	V_{IN} (V)		V_{OUT} Options (Adj Range)	I_{OUT} (A)	F_{SW} (kHz)	Enable	Mode	Step–Up	Step–Down	Step–Up/ Step–Down	Inv	Comments	Temp Range (°C)	Package
	Min	Max												
MC34063	3.0	40	Down to 1.25 V	1.5	up to 100	√	Hysteresis	√	√	√	√	Simple and flexible regulator	0 to +70	SO–8 / PDIP–8
MC33063	3.0	40	Down to 1.25 V	1.5	up to 100	√	Hysteresis	√	√	√	√	Minimal number of external components	–40 to +85	SO–8 / PDIP–8
NCP3063/ NCP3063B	3.0	40	Down to 1.25 V	1.5	up to 250	√	Hysteresis	√	√	√	√	Higher F_{SW} for optimized size and efficiency. NCP3064 includes ENABLE.	–40 to +85	PDIP/SO–8/ DFN–8/PDIP–8
NCP3064	3.0	40	Down to 1.25 V	1.5	up to 250	√	Hysteresis	√	√	√	√	Higher F_{SW} for optimized size and efficiency. NCP3064 includes ENABLE.	–40 to +85	PDIP/SO–8/ DFN–8/PDIP–8
NCP3065	3.0	40	Down to 0.2 V	1.5	up to 250	√	Hysteresis	√	√	√	√	Driver for HB–LED/constant current source. NCP3066 includes ENABLE.	–40 to +85	DFN–8 / SO–8 / PDIP–8
NCP3066	3.0	40	Down to 0.2 V	1.5	up to 250	√	Hysteresis	√	√	√	√	Driver for HB–LED/constant current source. NCP3066 includes ENABLE.	–40 to +85	DFN–8 / SO–8 / PDIP–8
CS5171	2.7	30	1.276 to 40 V	1.5	280		Current	√			√	LT1372/1373 Compatible	–40 to +85	SO–8
CS5172	2.7	30	–2.5 to 40 V	1.5	280		Current	√			√	Flyback and SEPIC	–40 to +85	SO–8
CS5173	2.7	30	1.276 to 40 V	1.5	560		Current	√			√	Easy External Synchronization	–40 to +85	SO–8
CS5174	2.7	30	–2.5 to 40 V	1.5	560		Current	√			√	Negative feedback polarity	–40 to +85	SO–8
MC34166	7.5	40	Down to 5.0 V	3.0	72		Voltage		√	√	√	Cycle–by–Cycle current limit	0 to +70	D2PAK / TO–220
MC33166	7.5	40	Down to 5.0 V	3.0	72		Voltage		√	√	√	Internal thermal shutdown	–40 to +85	D2PAK / TO–220
MC34163	2.5	40	Down to 1.25 V	3.4	up to 100	√	Hysteresis	√	√	√	√	Simple & Flexible regulator	0 to +70	SO–16W / PDIP
MC33163	2.5	40	Down to 1.25 V	3.4	up to 100	√	Hysteresis	√	√	√	√	Minimal number of external components	–40 to +85	SO–16W / PDIP
NCP3163	2.5	40	Down to 1.25 V	3.4	up to 300	√	Hysteresis	√	√	√	√	Higher F_{SW} for optimized size and efficiency	–40 to +85	SO–16WEP
MC34167	7.0	40	Down to 5.0 V	5.0	72		Voltage		√	√	√	Large 5.0A output capability	0 to +70	D2PAK/TO–220
MC33167	7.0	40	Down to 5.0 V	5.0	72		Voltage		√	√	√	Standby Mode < 36 μA	–40 to +85	D2PAK/TO–220

STEP–DOWN SWITCHING CONTROLLERS – EXTERNAL SWITCH

Device	V_{IN} (V)		V_{OUT} Options (Adj Range)	V_{OUT} Accuracy	F_{SW} (kHz)	Mode	Enable	Soft–Start	Synchronous	Comments	Temp Range (°C)	Package
	Min	Max										
CS51031	4.5	16	Down to 1.25 V	2%	200 – 700	Hysteresis		√		No compensation required ; PFET	–40 to +85	SO–8
CS51033	3.3	5.0	Down to 1.25 V	2%	200 – 700	Hysteresis		√		No compensation required ; PFET	–40 to +85	SO–8
SG3525	8.0	35	Down to 5.1 V	1%	100 – 400	Voltage	√	√		Flexible configurations	0 to +70	SO–16W
NCP1034	8.0	100	Down to 1.25 V	1.5%	25 – 500	Voltage	√	√	√	1 A Gate Drive, Sync	–40 to +125	SOIC–16
NCP1587	4.5	13.2	Down to 0.8 V	1.5%	250 –300	Voltage	√	√	√	0.7 A gate drive; Short Circuit Protection	–40 to +85	SO–8
NCP1571	2.0	12	Down to 0.980 V	1.0%	200	Voltage	√	√	√	12 V bias supply	0 to +125	SO–8
NCP1575	2.0	12	Down to 0.980 V	1.0%	200 – 500	Voltage		√	√	12 V bias supply	0 to +125	SO–8
NCP3011	4.7	28	Down to 0.8 V	1.0%	400	Voltage	√	√	√	External +1.25 V Ref PG. Sync	–40 to +85	TSSOP–14
NCP3020	4.7	28	Down to 0.6 V	1.0%	300/600	Voltage	–	√	√	Integrated Diode	–40 to +85	SO–8

DUAL STEP–DOWN SWITCHING CONTROLLERS – EXTERNAL SWITCH

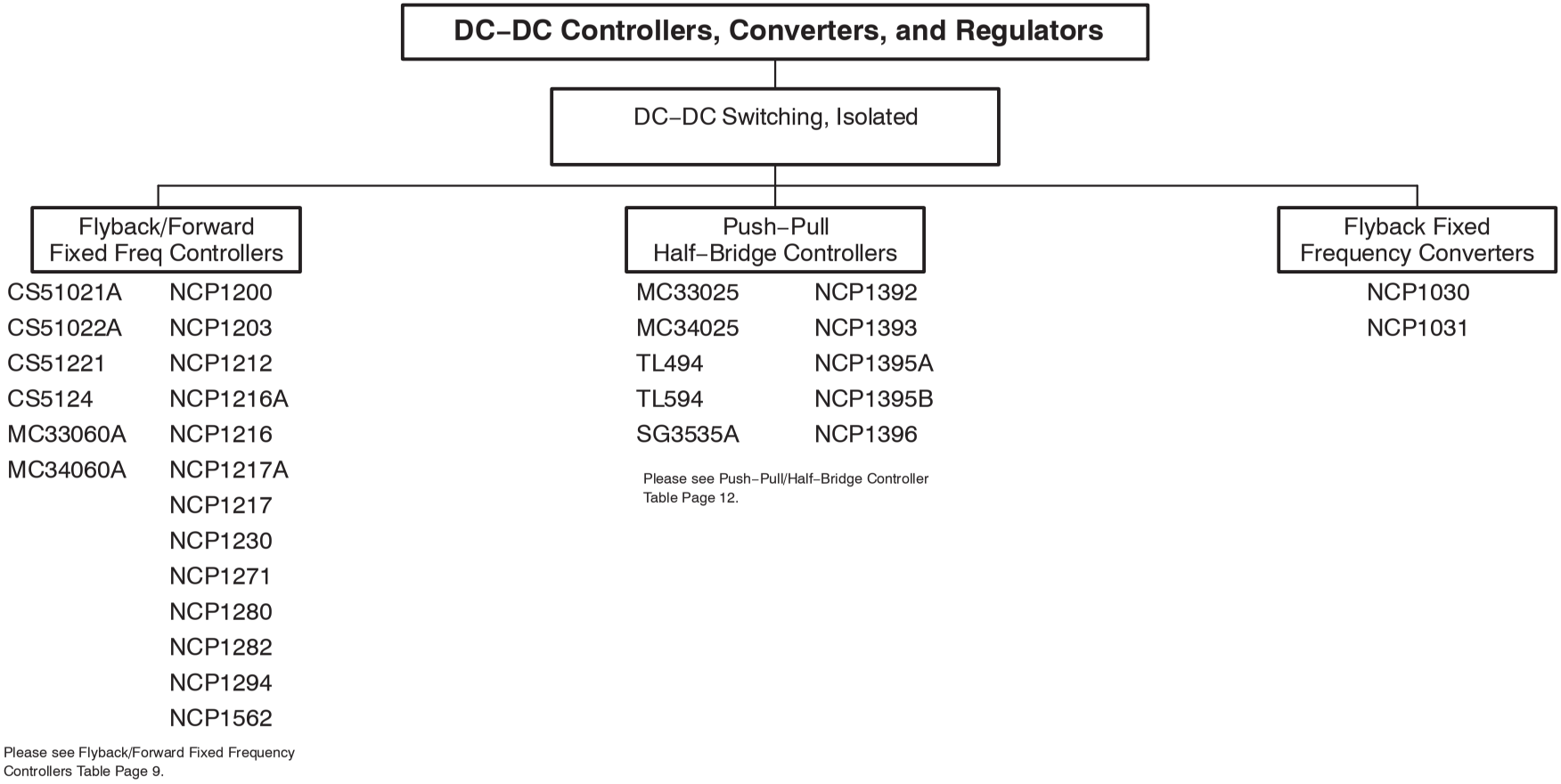
Device	V_{IN} (V)		V_{OUT} Options (Adj Range)	V_{OUT} Accuracy	F_{SW} (kHz)	Mode	Enable	Soft–Start	Synchronous	Comments	Temp Range (°C)	Package
	Min	Max										
NCP5422	10.8	13.2	Down to 1.0 V	2.0%	150 – 600	Voltage	√	√	√	Hiccup mode overcurrent protection	0 to +70	SO–16
NCP5425	4.6	13.2	Down to 0.8 V	1.0%	150 – 750	Voltage	√	√	√	1.5 A peak drive capability	0 to +125	TSSOP–20
TL494	7.0	40	0.3 V Ext Adj	5.0%	Up to 200	Voltage				Buck, boost, forward, flyback	–40 to +125	SOIC–16, PDIP–16
TL594	7.0	40	0.3 V Ext Adj	1.5%	Up to 300	Voltage				Buck, boost, forward, flyback	–40 to +85	SOIC–16, PDIP–16, TSSOP–16

STEP–UP SWITCHING CONTROLLERS – EXTERNAL SWITCH

Device	V_{IN} (V)		V_{OUT} Options (Adj Range)	V_{OUT} Accuracy	F_{SW} (kHz)	Mode	Enable	Soft–Start	Synchronous	Comments	Temp Range (°C)	Package
	Min	Max										
NCP1450	0.9	5.5	1.8–5.0 V (Factory Prefixed)	2.5%	180	Voltage	√	√		PFM mode	–40 to +85	Thin SOT–23–5

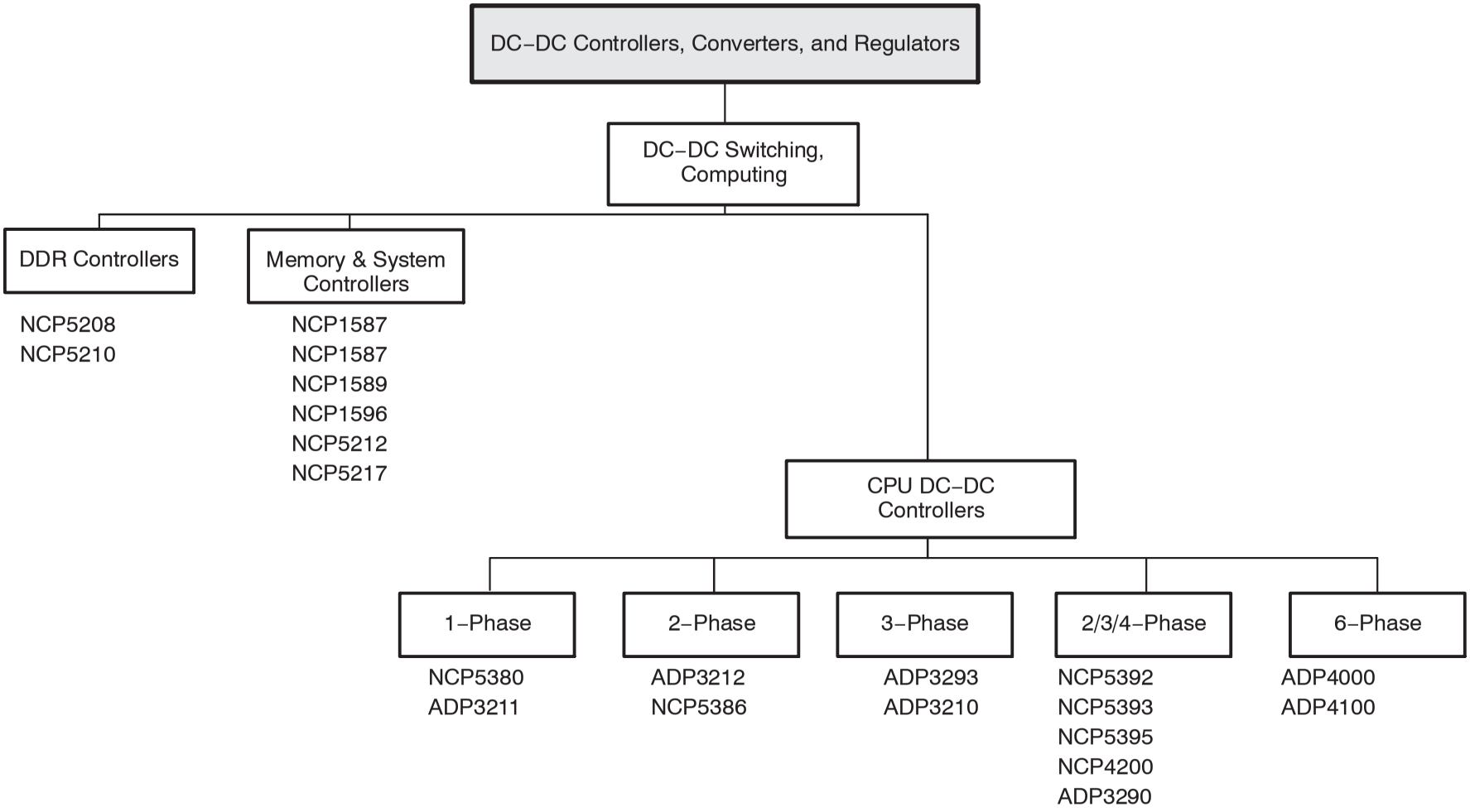
CHARGE PUMPS

Device	V_{in} Typ (V)	V_{out} Typ (V)	I_{out} Typ (mA)	I_{CC} Max (μA)	f_{OSC} Typ (kHz)	Shutdown Pin	Package
CAT3200TDI–GT3	2.7 to 4.5	5	100	–	2000	Yes	TSOT–23
CAT3200ZI–GT3	2.7 to 4.5	2.7 to 6 (adj)	100	–	2000	Yes	MSOP–8
CAT660ELA	3.0 to 5.5	–	100	–	80	No	PDIP–8
CAT660EVA	3.0 to 5.5	–	100	–	80	No	SOIC–8
CAT660EVA–T3	3.0 to 5.5	–	100	–	80	No	SOIC–8
CAT661ELA	3.0 to 5.5	–	100	–	135	No	PDIP–8
CAT661EVA	3.0 to 5.5	–	100	–	135	No	SOIC–8
CAT661EVA–T3	3.0 to 5.5	–	100	–	135	No	SOIC–8
MAX1720EUTG	1.15 to 5.5	$-V_{in}$ or 2 V_{in}	90	90	12	Yes	TSOP–6
NCP1729SN35T1G	1.15 to 5.5	$-V_{in}$ or 2 V_{in}	50	20	35	Yes	TSOP–6



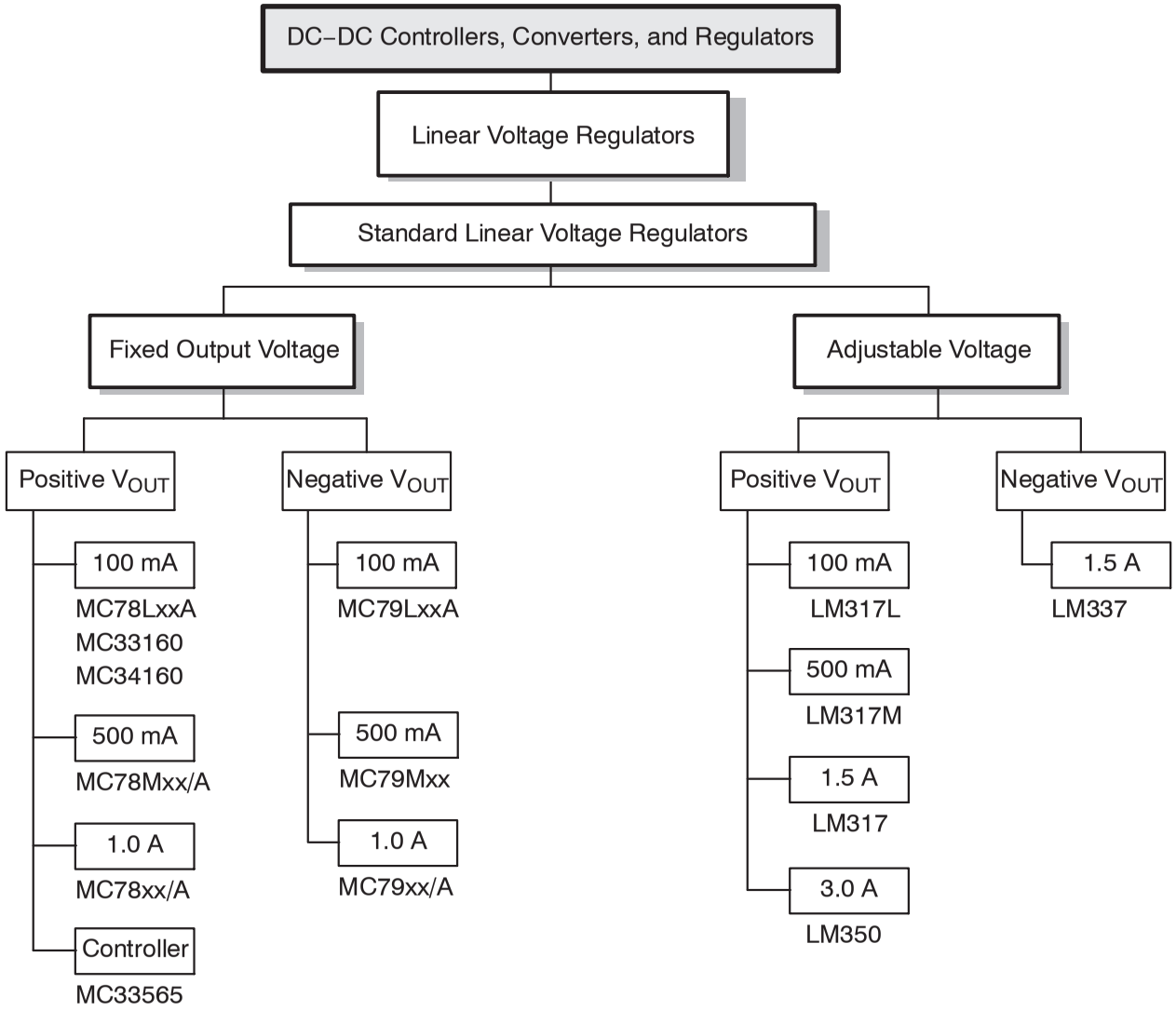
FLYBACK FIXED FREQUENCY CONVERTERS

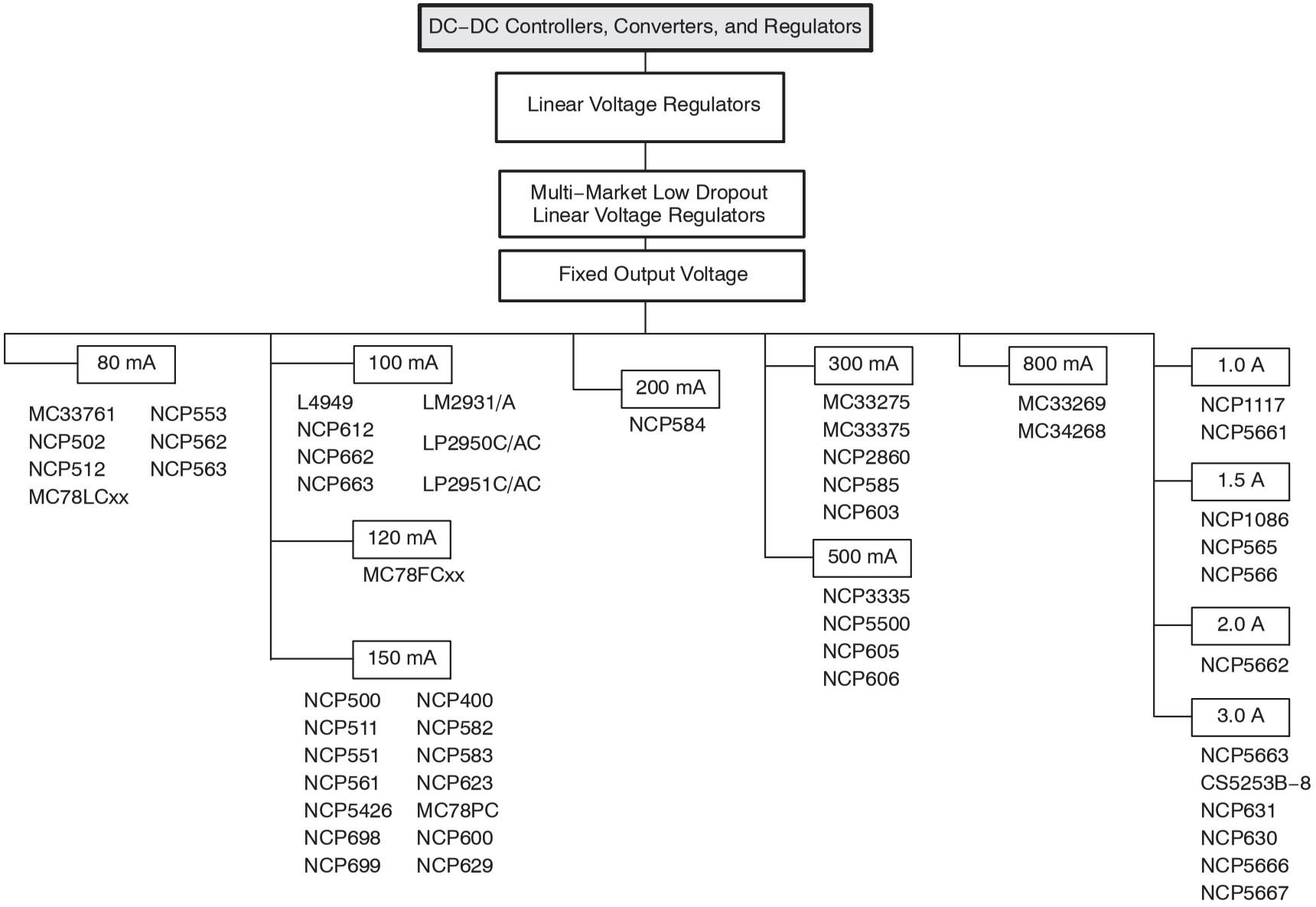
Device	V_{IN} (V) Min	V_{IN} (V) Max	V_{OUT} Options (Adj Range)	V_{OUT} Accuracy	F_{SW} (kHz)	Mode	Enable	Soft–Start	Synchronous	Comments	Temp Range (°C)	Package
NCP1030	10	200	2.5 up to V_{IN}	2%	up to 1000	Voltage Mode	√	√		PoE applications; Integrated Switch	–40 to +125	Micro8™
NCP1031	10	200	2.5 up to V_{IN}	2%	up to 1000	Voltage Mode	√	√		PoE applications; Integrated Switch	–40 to +125	SO–8, DFN–8

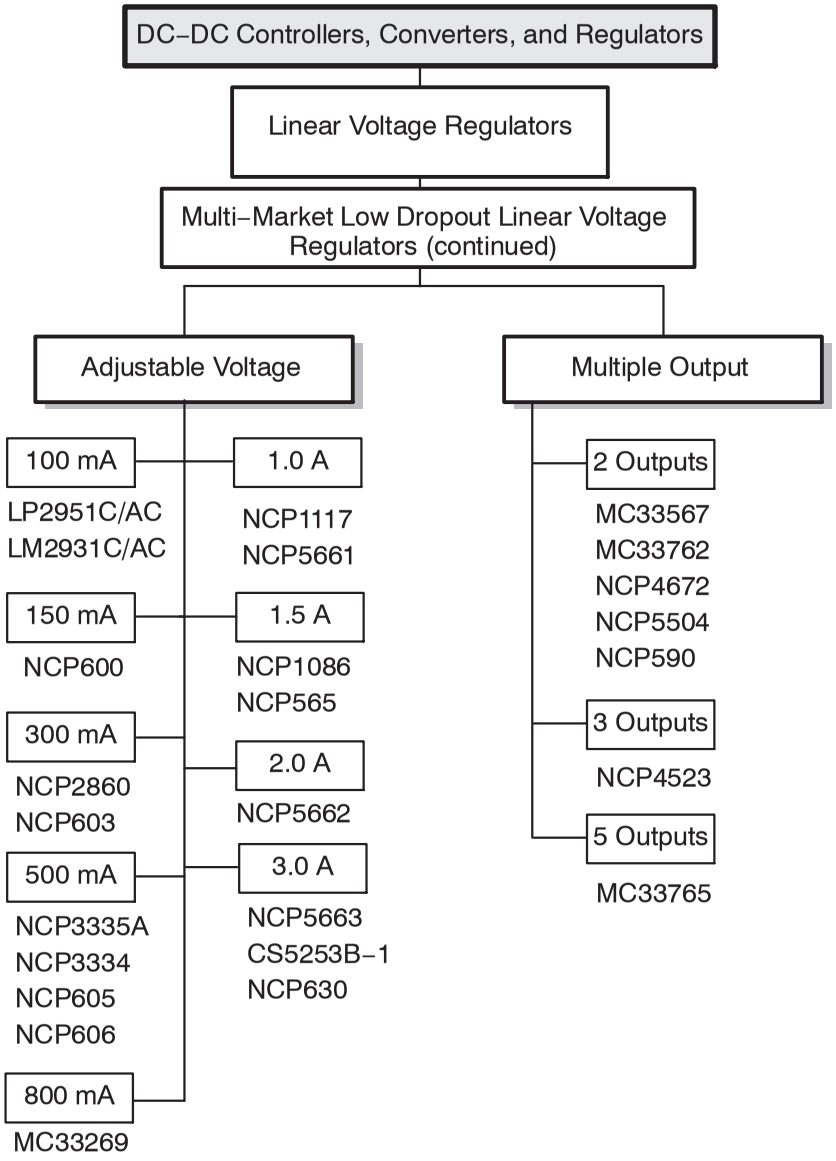

DC–DC Controllers, Converters, and Regulators
DC–DC Switching, Computing
DDR Controllers
NCP5208
NCP5210
Memory & System Controllers
NCP1587
NCP1587
NCP1589
NCP1596
NCP5212
NCP5217
CPU DC–DC Controllers
1–Phase
NCP5380
ADP3211
2–Phase
ADP3212
NCP5386
3–Phase
ADP3293
ADP3210
2/3/4–Phase
NCP5392
NCP5393
NCP5395
NCP4200
ADP3290
6–Phase
ADP4000
ADP4100

DC–DC SWITCHING, COMPUTING

Device	Description	Phases	Mode	V_{CC} Min (V)	V_{CC} Max (V)	f_{SW} Typ (kHz)	Package
ADP3290	VR11.1 4–Phase Solution	2/3/4	Current/Voltage Mode	6	14.5	100 – 1000	LFCSP–40
ADP3293	VR11.1 8–Bit, Programmable 2– to 3–Phase Synchronous Buck Controller	2/3	Current/Voltage Mode	6	14.5	100 – 1000	LFCSP–40
ADP4000	6–Phase VR11.1 Controller with PMbus	4/5/6	Current/Voltage Mode	4.7	5.75	250 – 9000	LFCSP–48
ADP4100	6–Phase VR11.1 Controller	4/5/6	Current/Voltage Mode	4.7	5.75	250 – 9000	LFCSP–48
NCP1587	Buck Controller	1	Voltage Mode	4.5	13.2	250 – 300	SOIC–8
NCP1587A	Buck Controller	1	Voltage Mode	4.5	13.2	180 – 220	SOIC–8
NCP5208	DDR–I/II Termination Regulator	1	Voltage Mode	1.7	5.5	–	SOIC–8
NCP5210	3–in–1 DDR Memory Controller	1	Voltage Mode	4.5	13.2	250	DFN–20
NCP5386	1/2 Phase Controller	1/2	Current/Voltage Mode	4.75	7	100 – 1000	QFN–32
NCP5392	VR11.1 4 Phase Controller	2/3/4	Current/Voltage Mode	4.75	5.25	100 – 10000	QFN–40


DC–DC Controllers, Converters, and Regulators
Linear Voltage Regulators
Standard Linear Voltage Regulators
Fixed Output Voltage
Adjustable Voltage
Positive VOUT
Negative VOUT
Positive VOUT
Negative VOUT
100 mA
MC78LxxA
MC33160
MC34160
500 mA
MC78Mxx/A
1.0 A
MC78xx/A
Controller
MC33565
100 mA
MC79LxxA
500 mA
MC79Mxx
1.0 A
MC79xx/A
100 mA
LM317L
500 mA
LM317M
1.5 A
LM317
3.0 A
LM350
1.5 A
LM337


DC–DC Controllers, Converters, and Regulators
Linear Voltage Regulators
Multi–Market Low Dropout Linear Voltage Regulators
Fixed Output Voltage
80 mA
MC33761
NCP502
NCP512
MC78LCxx
NCP553
NCP562
NCP563
100 mA
L4949
NCP612
NCP662
NCP663
LM2931/A
LP2950C/AC
LP2951C/AC
120 mA
MC78FCxx
150 mA
NCP500
NCP511
NCP551
NCP561
NCP5426
NCP698
NCP699
NCP400
NCP582
NCP583
NCP623
MC78PC
NCP600
NCP629
200 mA
NCP584
300 mA
MC33275
MC33375
NCP2860
NCP585
NCP603
500 mA
NCP3335
NCP5500
NCP605
NCP606
800 mA
MC33269
MC34268
1.0 A
NCP1117
NCP5661
1.5 A
NCP1086
NCP565
NCP566
2.0 A
NCP5662
3.0 A
NCP5663
CS5253B–8
NCP631
NCP630
NCP5666
NCP5667


DC–DC Controllers, Converters, and Regulators
Linear Voltage Regulators
Multi–Market Low Dropout Linear Voltage Regulators (continued)
Adjustable Voltage
Multiple Output
100 mA
LP2951C/AC
LM2931C/AC
150 mA
NCP600
300 mA
NCP2860
NCP603
500 mA
NCP3335A
NCP3334
NCP605
NCP606
800 mA
MC33269
1.0 A
NCP1117
NCP5661
1.5 A
NCP1086
NCP565
2.0 A
NCP5662
3.0 A
NCP5663
CS5253B–1
NCP630
2 Outputs
MC33567
MC33762
NCP4672
NCP5504
NCP590
3 Outputs
NCP4523
5 Outputs
MC33765

SINGLE OUTPUT LOW DROPOUT LINEAR VOLTAGE REGULATORS

Device	Iout (mA)	Dropout* (Typ, mV)	Iq** (Typ, μA)	PSRR**** (dB)	Absolute Max Input Voltage (V)	Package(s)–Pins	Vout	Features
NCP698	150	370	2.5	–	6	SC82AB–4	1.3, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3, 3.5, 5 V	Enable, Ultra Low Iq
NCP699	150	320	40	55	6	SOT–23–5	1.3, 1.4, 1.5, 1.8, 2.5, 2.8, 3, 3.1, 3.3, 5 V	Enable
NCP5426	150	150	120	70 (@ 30 mA)	12	SOT–23–5	1.3 V	Enable, Vibrator driver
NCP584	200	100	3.5	75	6.5	SOT–23–5	0.9, 1.2, 1.5, 1.8, 2.5, 2.6,2.8, 3, 3.1, 3.3 V	Enable, Tri–mode
MC33275	300	260	125	75	13	SO–8, DPAK–3, SOT–223–3, 4x4 DFN–8	2.5, 3, 3.3, 5 V	Tight line & load Reg.
MC33375	300	260	125	75	13	SO–8, SOT–223–3	1.8, 2.5, 3, 3.3, 5 V	Enable
NCP585	300	230	3.5	75 (@ 50 mA)	6.5	SOT–23–5, HSON–6	0.9, 1.0, 1.2, 1.25, 1.5, 1.8, 2.5, 2.8, 3, 3.3 V	Enable, Tri–mode
NCP2860	300	150	355	70	6	Micro8	Adj, 2.77 V	Low noise, Enable, Flag
NCP603	300	157	145	62	6.5	TSOP–5	Adj, 1.3, 1.5, 1.8, 2.8, 3, 3.3, 3.5, 5 V	Enable
NCP5500	500	230	300	75 (@ 100 mA)	18	DPAK–5, SO–8	Adj, 1.5, 3.3, 5 V	Enable, low noise
NCP5501	500	230	300	75 (@ 100 mA)	18	DPAK–3	1.5, 3.3, 5 V	Low noise
NCP3334	500	340 (max)	190 (max)	75	16	SO–8	Adj	Enable, High accuracy
NCP3335A	500	340 (max)	190 (max)	75	16	Micro8, 3x3 DFN–10	Adj, 1.5, 1.8, 2.5, 2.8, 2.85, 3.0, 3.3, 5 V	Enable, Ultra High accuracy
NCP605	500	170	145 (@ 500mA)	62	6.5	3x3.3 DFN–6	Adj, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3, 5 V	Enhanced ESD protection
NCP606	500	170	145 (@ 500mA)	62	6.5	3x3.3 DFN–6	Adj, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3, 5 V	Enable, Enhanced ESD protection
MC33269	800	1.1 V	5.5 mA	55	20	SO–8, DPAK–3, SOT–223–3, TO–220–3	Adj, 3.3, 5, 12 V	Current limit protection
MC34268	800	950 (@ 490 mA)	3.0 mA	55 (min)	15	SO–8, DPAK–3, SOT–223–3	2.85 V	SCSI–2 Active Terminator
NCP1117	1.0 A	1.07 V (@ 800 mA)	3.6 mA	64 (@ 500 mA)	20	DPAK–3, SOT–223–3	Adj, 1.5, 1.8, 1.9, 2, 2.5, 2.85, 3.3, 5, 12 V	Current limit protection
NCP5661	1.0 A	1.0 V	1.3 mA (@ 1 A)	70	18	DPAK–5, 3x3.3 DFN–6	Adj, 1.2, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3 V	Enable, fast transient, flag
NCP565	1.5 A	900	1.5 mA (@ 1.5 A)	85	18	D2PAK–3/5, SOT–223–3, 3x3.3 DFN–6	Adj, 1.2, 1.5, 2.8, 3.0, 3.3 V	Fast transient, Ultra High PSRR

Bold Denotes NEW Products, Packages, and/or Voltage Options

Contact an ON Semiconductor Sales Representative for other voltage options or for automotive grade regulators.

2. These electrical characteristics are determined by an exteral MOSFET used in conjunction with the LDO controller.

*Voltage dropout was measured at full load for V_{out} = 3.3 V where applicable unless noted.

** Iq was measured at 0 or 0.1 mA load unless noted

**** PSRR was measured at f = 120 Hz for V_{out} = 3.3 @ full load unless otherwise noted.

SINGLE OUTPUT LOW DROPOUT LINEAR VOLTAGE REGULATORS (CONTINUED)

Device	Iout (mA)	Dropout* (Typ, mV)	Iq** (Typ, μA)	PSRR**** (dB)	Absolute Max Input Voltage (V)	Package(s)–Pins	Vout	Features
NCP566	1.5 A	900	1.5 mA (@ 1.5 A)	85	9	SOT–223–3	1.2, 1.8, 2.5 V	Fast transient, Ultra High PSRR
NCP1086	1.5 A	1.05 V	5 mA (@ 10 mA)	80	7	D2PAK–3, TO–220–3, SOT–223–3	Adj, 3.3 V	Fast transient,Ultra High Accuracy
NCP5662	2.0 A	1.0 V	1.3 mA (@ 2 A)	70	18	D2PAK–5, 4x4 DFN–8	Adj, 1.2, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3 V	Enable, fast transient, flag
CS5253/CS5253B	3.0 A	400	–	80	13	D2PAK–5	Adj, 2.5 V	Control, Sense, Ultra High PSRR
NCP630	3.0 A	1.0 V	0.4 mA (@ 300 mA)	88	12	D2PAK–5	Adj, 3.47 V	Enable, Fast transient, Ultra High PSRR
NCP631	3.0 A	1.0 V	0.4 mA (@ 300 mA)	76	9	D2PAK–5	3.47 V	Enable, Soft–Start
NCP5663	3.0 A	1.0 V	1.3 mA (@ 3 A)	70	18	D2PAK–5	Adj, 1.5, 1.8 V	Enable, fast transient, flag
NCP5666	3.0 A	1.0 V	1.8 mA (@ 3 A)	70	18	D2PAK–5	2.5, 5 V	Enable, Fast transient
NCP5667	3.0 A	1.0 V	2.4 mA (@ 3 A)	70	18	D2PAK–3	5 V	Enhanced ESD protection
NCP102 (Controller)	Note 2	Note 2	1.4 mA (@ Vcc = 5 V)	50 (min)	15	TSOP–6	Adj down to 0.8 V	Enable, MLCC and POSCAP Compatible
NCP3520 (Controller)	Note 2	Note 2	1.25 mA	72	7	Micro8	1.2 V	Controller, Enable, NRCS
NCP3521 (Controller)	Note 2	Note 2	1.25 mA	72	7	Micro8	1.5 V	Controller, Enable, NRCS

Bold Denotes NEW Products, Packages, and/or Voltage Options

Contact an ON Semiconductor Sales Representative for other voltage options or for automotive grade regulators.

2. These electrical characteristics are determined by an exteral MOSFET used in conjunction with the LDO controller.

*Voltage dropout was measured at full load for V_{out} = 3.3 V where applicable unless noted.

** Iq was measured at 0 or 0.1 mA load unless noted

**** PSRR was measured at f = 120 Hz for V_{out} = 3.3 @ full load unless otherwise noted.

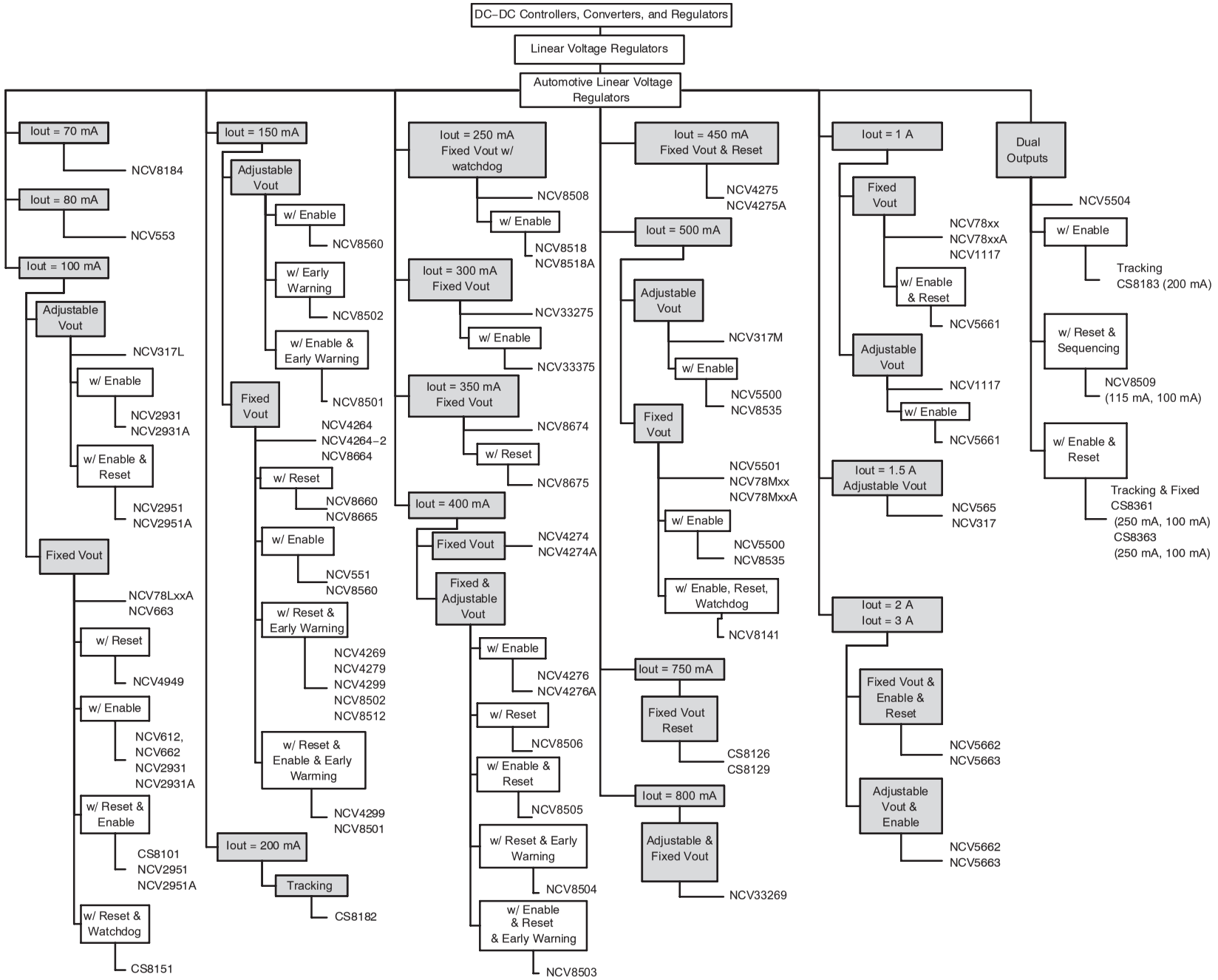
MULTIPLE OUTPUT LOW DROPOUT LINEAR VOLTAGE REGULATORS

Device	Iout (mA)	Dropout* (Typ, mV)	Iq** (Typ)	Max Input Voltage (V)	Package	Vout	Features
MC33567 (Dual Controller)	Note 3	Note 3	6.3 mA	12.5	SO–8	1.8/1.5, 2.5/2.5, 2.3/1.2 V	Controller, Enable, Undervoltage detection
NCP4672 (Dual)	30, 80	150, –– (@ 20mA)	1.0 mA	18	SO–8	3.5/1.8 V	Programmable delay, Reset
MC33762 (Dual)	80, 80	160, 160	180	12	Micro8	2.5/2.5, 2.8/2.8, 3/3 V	Enable, Fast off to on, low noise
NCP4523 (Triple)	150, 80, 80	220, 160, 160	210	7	SSOP–8	2.8/2.8/2.8, 3/3/3, 2.35/2.8/2.8 V	Tight line & load Reg., High PSSR
MC33765 (5 Outputs)	30, 40, 50, 150, 60	110, 110, 110, 170, 110	470	5.3	TSSOP–16	5 x 2.8 V	Enable, Byp Pin, Ultra Low noise
NCP5504 (Dual)	250, 250	250, 250	370	18	DPAK–5	3.3 / Adj V	Low noise, High PSSR
NCP590 (Dual)	300, 300	165, 165	115	5.5	2x2 DFN–8	Combinations ranging from 0.8 to 5V	Enable, Ultra High Accuracy, Ultra Low Dropout

3. These electrical characteristics are determined by an exteral MOSFET used in conjunction with the LDO controller.

*Voltage dropout was measured at full load for V_{out} = 3.3 V where applicable unless noted.

** Iq was measured at 0 or 0.1 mA load unless noted


DC–DC Controllers, Converters, and Regulators
Linear Voltage Regulators
Automotive Linear Voltage Regulators
Iout = 70 mA
NCV8184
Iout = 80 mA
NCV553
Iout = 100 mA
Adjustable Vout
NCV317L
w/ Enable
NCV2931
NCV2931A
w/ Enable & Reset
NCV2951
NCV2951A
Fixed Vout
NCV78LxxA
NCV663
w/ Reset
NCV4949
w/ Enable
NCV612,
NCV662
NCV2931
NCV2931A
w/ Reset & Enable
CS8101
NCV2951
NCV2951A
w/ Reset & Watchdog
CS8151
Iout = 150 mA
Adjustable Vout
w/ Enable
NCV8560
w/ Early Warning
NCV8502
w/ Enable & Early Warning
NCV8501
Fixed Vout
NCV4264
NCV4264–2
NCV8664
w/ Reset
NCV8660
NCV8665
w/ Enable
NCV551
NCV8560
w/ Reset & Early Warning
NCV4269
NCV4279
NCV4299
NCV8502
NCV8512
w/ Reset & Enable & Early Warming
NCV4299
NCV8501
Iout = 200 mA
Tracking
CS8182
Iout = 250 mA
Fixed Vout w/ watchdog
NCV8508
w/ Enable
NCV8518
NCV8518A
Iout = 300 mA
Fixed Vout
NCV33275
w/ Enable
NCV33375
Iout = 350 mA
Fixed Vout
NCV8674
w/ Reset
NCV8675
Iout = 400 mA
Fixed Vout
NCV4274
NCV4274A
Fixed & Adjustable Vout
w/ Enable
NCV4276
NCV4276A
w/ Reset
NCV8506
w/ Enable & Reset
NCV8505
w/ Reset & Early Warning
NCV8504
w/ Enable & Reset & Early Warning
NCV8503
Iout = 450 mA
Fixed Vout & Reset
NCV4275
NCV4275A
Iout = 500 mA
Adjustable Vout
NCV317M
w/ Enable
NCV5500
NCV8535
Fixed Vout
NCV5501
NCV78Mxx
NCV78MxxA
w/ Enable
NCV5500
NCV8535
w/ Enable, Reset, Watchdog
NCV8141
Iout = 750 mA
Fixed Vout Reset
CS8126
CS8129
Iout = 800 mA
Adjustable & Fixed Vout
NCV33269
Iout = 1 A
Fixed Vout
NCV78xx
NCV78xxA
NCV1117
w/ Enable & Reset
NCV5661
Adjustable Vout
NCV1117
w/ Enable
NCV5661
Iout = 1.5 A Adjustable Vout
NCV565
NCV317
Iout = 2 A
Iout = 3 A
Fixed Vout & Enable & Reset
NCV5662
NCV5663
Adjustable Vout & Enable
NCV5662
NCV5663
Dual Outputs
NCV5504
w/ Enable
Tracking
CS8183 (200 mA)
w/ Reset & Sequencing
NCV8509
(115 mA, 100 mA)
w/ Enable & Reset
Tracking & Fixed
CS8361
(250 mA, 100 mA)
CS8363
(250 mA, 100 mA)

SINGLE AUTOMOTIVE LINEAR VOLTAGE REGULATORS

Device	Output Voltage (V)	Tolerance	Output Current	Dropout (Max)	Sleepmode Current (Max)	Quiescent Current (Max) @ Low Load (Load)	Enable	Reset (♦♦ = Adjustable)	Delay	Early Warning Flag/Monitor	Watchdog	Wakeup	Current Limit	Overvoltage	Overtemperature	Peak Transient	Packages
NCV8184	Tracking	±3 mV	70 mA	0.6 V	20 μA	70 μA (100 μA)	♦						♦		♦	42 V	DPAK–5, SOIC–8, SOIC–8 ePad
NCV553	5	±3%	80 mA	0.8 V	–	6 μA (1 mA)							♦		♦	12 V	SC–82
CS8101	5	±2%	100 mA	0.6 V	50 μA	140 μA (100 μA)	♦	♦					♦	♦	♦	60 V	SOIC–8, SOIC–20 Fused
CS8151	5	±2%	100 mA	0.6 V	–	750 μA (200 μA)		♦	♦		♦	♦	♦	♦	♦	74 V	SOIC–14, SOIC–16, D2PAK–7
NCV317L	Adj	±4%	100 mA	1.9 V (Typ)	–	–							♦		♦	40 V	SOIC–8, TO–92
NCV2931	Adj, 5	±5%	100 mA	0.6 V	1 mA	1 mA (10 mA)	♦						♦	♦	♦	60 V	SOIC–8, D2PAK–3, DPAK–3
NCV2931A	Adj, 5	±3.8%	100 mA	0.6 V	1 mA	1 mA (10 mA)	♦						♦	♦	♦	60 V	SOIC–8, SOT–223, DPAK–3
NCV2951	Adj, 5	±2.4%	100 mA	0.45 V	–	120 μA (100 μA)	♦	♦					♦		♦	32 V	SOIC–8
NCV2951A	Adj, 3.3, 5	±1.5%	100 mA	0.45 V	–	120 μA (100 μA)	♦	♦					♦		♦	32 V	SOIC–8
NCV4949	5	±2%	100 mA	0.5 V	–	260 μA (300 μA)		♦	♦	♦			♦		♦	40 V	SOIC–20, SOIC–8, SOIC–8 ePad
NCV612	1.5, 1.8, 2.5, 2.7, 2.8, 3.0, 3.1, 3.3, 5.0	±3%	100 mA	0.3 V	1 μA	90 μA (1 mA)	♦						♦		♦	6 V	SC–70
NCV662	1.5, 1.8, 2.5, 2.7, 2.8, 3.0, 3.3, 5.0	±4%	100 mA	0.3 V	1 μA	6 μA (1 mA)	♦						♦		♦	6 V	SC–82
NCV663	1.5, 1.8, 2.5, 2.7, 2.8, 3.0, 3.3, 5.0	±4%	100 mA	0.3 V	–	6 μA (1 mA)							♦		♦	6 V	SC–82
NCV78LxxA	5, 8, 12, 15, 24	±4%	100 mA	1.7 V (Typ)	–	–							♦		♦	30 V	SOIC–8, TO–92
NCV551	1.4, 1.5, 1.8, 2.5, 2.7, 2.8, 3.0, 3.1, 3.2, 3.3, 5	±3%	150 mA	0.22 V	1 μA	8 μA (1 mA)	♦						♦		♦	12 V	TSOP–5
NCV4264	3.3, 5	±2%	150 mA	0.5 V	–	400 μA (1 mA)							♦		♦	45 V	SOT–223
NCV4264–2	3.3, 5	±2%	150 mA	0.5 V	–	70 μA (100 μA)							♦		♦	45 V	SOT–223
NCV4269	5	±2%	150 mA	0.5 V	–	250 μA (1 mA)		♦♦	♦	♦			♦		♦	60 V	SOIC–8, SOIC–8 ePad, SOIC–20 Fused, SOIC–14 Fused
NCV4279	5	±2%	150 mA	0.5 V	–	250 μA (1 mA)		♦♦	♦	♦			♦		♦	60 V	SOIC–8, SOIC–14 Fused
NCV4299	3.3, 5	±2%	150 mA	0.5 V	1 μA	105 μA (1 mA)	♦	♦♦	♦	♦			♦		♦	60 V	SOIC–8, SOIC–14 Fused
NCV8501	Adj, 2.5, 3.3, 5, 8, 10	±2%	150 mA	0.6 V	30 μA	75 μA (100 μA)	♦	♦	♦	♦			♦		♦	60 V	SOIC–8, SOIC–16 ePad
NCV8502	Adj, 2.5, 3.3, 5, 8, 10	±2%	150 mA	0.6 V	–	75 μA (100 μA)		♦♦	♦	♦			♦		♦	60 V	SOIC–8, SOIC–16 ePad
NCV8512	5	±2%	150 mA	0.6 V	–	200 μA (100 μA)		♦♦	♦	♦			♦		♦	60 V	SOIC–16 ePad

NOTE: All devices in this table are AEC–Qualified and PPAP–Capable. Contact ON Semiconductor for details. * See datasheet for details.

SINGLE AUTOMOTIVE LINEAR VOLTAGE REGULATORS (CONTINUED)

Device	Output Voltage (V)	Tolerance	Output Current	Dropout (Max)	Sleepmode Current (Max)	Quiescent Current (Max) @ Low Load (Load)	Enable	Reset (♦♦ = Adjustable)	Delay	Early Warning Flag/Monitor	Watchdog	Wakeup	Current Limit	Overvoltage	Overtemperature	Peak Transient	Packages
NCV8560	Adj, 1.3, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3,3.5, 5.0	±2%	150 mA	0.125 V	1 μA	180 μA (150 mA)	♦						♦		♦	6 V	DFN–6 3x3, TSOP–5
NCV8660	3.3, 5	±2%	150 mA	0.6 V	–	40 μA (150 mA)		♦	♦				♦		♦	40 V	SOIC–8 Fused, DPAK–5
NCV8664	3.3, 5	±2%	150 mA	0.6 V	–	30 μA (100 μA)							♦		♦	45 V	SOIC–8 Fused, DPAK–3, SOT–223
NCV8665	5	±2%	150 mA	0.6 V	–	40 μA (100 μA)		♦	♦				♦		♦	45 V	SOIC–8 Fused, D2PAK–5
CS8182	Tracking	±5 mV	200 mA	0.6 V	55 μA	150 μA (100 μA)	♦						♦		♦	45 V	DPAK–5, D2PAK–5, SOIC–8 Fused
NCV8508	5	±3%	250 mA	0.9 V	–	150 μA (150 mA)		♦	♦		♦	♦	♦		♦	60 V	D2PAK–7, SOIC–16 Fused, SOIC–8 ePad
NCV8518A	5	±2%	250 mA	0.75 V	1 μA	150 μA (150 mA)	♦	♦	♦		♦	♦	♦		♦	45 V	SOIC–8 ePad, SOIC–16 ePad
NCV33275	3.3, 5	±2%	300 mA	0.5 V	–	200 μA (0 μA)							♦		♦	13 V	SOT–223
NCV33375	1.8	±2%	300 mA	0.5 V	4 μA	200 μA (0 μA)	♦						♦		♦	13 V	SOT–223
NCV8674	5, 12	±2%	350 mA	0.6 V	–	38 μA (100 μA)							♦		♦	45 V	D2PAK–3
NCV8675	3.3, 5	±2%	350 mA	0.6 V	–	50 μA (100 μA)		♦	♦				♦		♦	45 V	D2PAK–5
NCV8503	Adj, 2.5, 3.3, 5	±2%	400 mA	0.6 V	1 μA	350 μA (100 μA)	♦	♦♦	♦	♦			♦		♦	60 V	SOIC–16 ePad
NCV8504	Adj, 2.5, 3.3, 5	±2%	400 mA	0.6 V	–	150 μA (100 μA)		♦♦	♦	♦			♦		♦	60 V	SOIC–16 ePad
NCV8505	Adj, 2.5, 3.3, 5	±2%	400 mA	0.6 V	1 μA	350 μA (100 μA)	♦	♦	♦				♦		♦	60 V	D2PAK–7
NCV8506	Adj, 2.5, 3.3, 5	±2%	400 mA	0.6 V	–	150 μA (100 μA)		♦	♦				♦		♦	60 V	D2PAK–7
NCV4274	2.5, 3.3, 5	±4%	400 mA	0.5 V	–	250 μA (1 mA)							♦		♦	60 V	DPAK–3, D2PAK–3, SOT–223
NCV4274A	2.5, 3.3, 5	±2%	400 mA	0.5 V	–	250 μA (1 mA)							♦		♦	60 V	DPAK–3, D2PAK–3, SOT–223
NCV4276	Adj, 1.8, 2.5, 3.3, 5	±4%	400 mA	0.5 V	10 μA	220 μA (1 mA)	♦						♦		♦	45 V	DPAK–5, D2PAK–5
NCV4276A	Adj, 3.3, 5	±2%	400 mA	0.5 V	10 μA	220 μA (1 mA)	♦						♦		♦	45 V	DPAK–5, D2PAK–5
NCV4275A	3.3, 5	±2%	450 mA	0.5 V	–	200 μA (1 mA)		♦	♦				♦		♦	45 V	DPAK–5, D2PAK–5
NCV317M	Adj	±4%	500 mA	2.2 V (Typ)	–	–							♦		♦	40 V	DPAK–3
NCV5500	Adj, 1.5, 3.3, 5	±4.9%	500 mA	0.7 V	50 μA	500 μA (100 μA)	♦						♦		♦	18 V	SOIC–8, DPAK–5
NCV5501	1.5, 3.3, 5	±4.9%	500 mA	0.7 V	–	500 μA (100 μA)							♦		♦	18 V	DPAK–3
NCV78Mxx	5, 8, 12, 15	±4%	500 mA	*	–	*							♦		♦	35 V	TO–220, DPAK–3
NCV78MxxA	5	±5%	500 mA	*	–	*							♦		♦	35 V	DPAK–3
NCV8141	5	±3%	500 mA	1.5 V	50 μA	*	♦	♦	♦		♦		♦	♦	♦	60 V	D2PAK–7
NCV8535	Adj, 1.5, 1.8, 2.5, 2.8, 2.85, 3.0, 3.3, 5	±1.5%	500 mA	0.34 V	1 μA	190 μA (100 μA)	♦						♦		♦	16 V	DFN–10 3x3

NOTE: All devices in this table are AEC–Qualified and PPAP–Capable. Contact ON Semiconductor for details. * See datasheet for details.

SINGLE AUTOMOTIVE LINEAR VOLTAGE REGULATORS (CONTINUED)

Device	Output Voltage (V)	Tolerance	Output Current	Dropout (Max)	Sleepmode Current (Max)	Quiescent Current (Max) @ Low Load (Load)	Enable	Reset (♦ ♦ = Adjustable)	Delay	Early Warning Flag/Monitor	Watchdog	Wakeup	Current Limit	Overvoltage	Overtemperature	Peak Transient	Packages
CS8126	5	±3%	750 mA	0.6 V	–	–		♦	♦				♦	♦	♦	60 V	D2PAK–7
CS8129	5	±3%	750 mA	0.6 V	–	–		♦	♦				♦	♦	♦	60 V	SOIC–16
NCV33269	Adj, 3.3, 5, 12	±2%	800 mA	1.35 V	–	–							♦		♦	20 V	DPAK–3
NCV78xxA	5, 12	±4%	1 A	*	–	–							♦		♦	35 V	D2PAK–3, TO–220
NCV78xx	5, 8, 12, 15	5%	1 A	*	–	–							♦		♦	35 V	TO–220, DPAK–3, D2PAK–3
NCV5661	Adj, 1.2, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3	±2%	1 A	1.3 V	300 μA	–	♦	♦					♦		♦	18 V	DPAK–5, DFN–6 3x3
NCV1117	Adj, 1.5, 1.8, 2, 2.5, 3.3, 5, 12	±2%	1 A	1.2 V	–	–							♦		♦	20 V	DPAK–3, SOT–223
NCV317	Adj	±4%	1.5 A	2.25 V Typ	–	–							♦		♦	40 V	TO–220, D2PAK–3
NCV565	Adj	±3%	1.5 A	1.3 V	–	–							♦		♦	18 V	D2PAK–5
NCV5662	Adj, 1.5	±2%	2 A	1.3 V	300 μA	–	♦	♦					♦		♦	18 V	D2PAK–5
NCV5663	Adj, 1.5	±2%	3 A	1.3 V	300 μA	–	♦	♦					♦		♦	18 V	D2PAK–5

NOTE: All devices in this table are AEC–Qualified and PPAP–Capable. Contact ON Semiconductor for details. * See datasheet for details.

DUAL AUTOMOTIVE LINEAR VOLTAGE REGULATORS

Device	Output Voltage	Tolerance	Output Current	Dropout (Max)	Sleepmode Current (Max)	Quiescent Current (Max) @ Low Load (Load)	Enable	Reset	Delay	Sequenced	Current Limit	Overvoltage	Overtemperature	Peak Transient	Package(s)
CS8361	5 V Tracking	±2% 25 mV	100 mA 250 mA	0.6 V 0.7 V	200 μA	200 μA (300 μA)	♦	♦			♦	♦	♦	60 V	D2PAK–7, SOIC–16 Fused
NCV8509	5.0, 5.0, 3.3 V 2.6, 2.5, 1.8 V	±2% ±2%	115 mA 100 mA	0.6 V –	–	175 μA (200 μA)		♦	♦	♦	♦		♦	50 V	SOIC–16 ePad
NCV5504	Adj, 3.3 V	±2% ±2%	250 mA 250 mA	0.4 V 0.4 V	–	450 μA (0 μA)					♦		♦	18 V	DPAK–5

NOTE: All devices in this table are AEC–Qualified and PPAP–Capable. Contact ON Semiconductor for details.

BATTERY CHARGE CONTROLLER

Device	Description	Type	Number of Cells Charged	V_{CC} Min (V)	V_{CC} Max (V)	I_D Max (μA)	Features	Packages
MC33341	Power Supply Battery Charger Regulation Control Circuit	–	Flexible	2.3	15	–	CCCV	SOIC–8, PDIP–8
NCP1835B	One–Cell Lithium–ion/Polymer Battery Charger	Li–Ion/Polymer	1	2.8	–	3	CCCV	DFN–10

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Product	# of Pots	# of Taps	Type	Control Interface	Resistance Typ (kΩ)	V_H Max (V)	Wiper Position Memory	V_{DD} Max (V)	Package
CAT5120SDI−10	1	16	Potentiometer	Up/Down	10	VCC	No	5.5	SC−70
CAT5120TBI−10	1	16	Potentiometer	Up/Down	10	VCC	No	5.5	SOT−23
CAT5121SDI−10	1	16	Rheostat	Up/Down	10	VCC	No	5.5	SC−70
CAT5121TBI−10	1	16	Rheostat	Up/Down	10	VCC	No	5.5	SOT−23
CAT5122SDI−10	1	16	Rheostat	Up/Down	10	VCC	No	5.5	SC−70
CAT5122TBI−10	1	16	Rheostat	Up/Down	10	VCC	No	5.5	SOT−23
CAT5120SDI−50	1	16	Potentiometer	Up/Down	50	VCC	No	5.5	SC−70
CAT5120TBI−50	1	16	Potentiometer	Up/Down	50	VCC	No	5.5	SOT−23
CAT5121SDI−50	1	16	Rheostat	Up/Down	50	VCC	No	5.5	SC−70
CAT5121TBI−50	1	16	Rheostat	Up/Down	50	VCC	No	5.5	SOT−23
CAT5122SDI−50	1	16	Rheostat	Up/Down	50	VCC	No	5.5	SC−70
CAT5122TBI−50	1	16	Rheostat	Up/Down	50	VCC	No	5.5	SOT−23
CAT5110SDI−10	1	32	Potentiometer	Up/Down	10	VCC	No	5.5	SC−70
CAT5110TBI−10	1	32	Potentiometer	Up/Down	10	VCC	No	5.5	SOT−23
CAT5112LI−10	1	32	Potentiometer	Up/Down	10	VCC	Yes	6	PDIP−8
CAT5112VI−10	1	32	Potentiometer	Up/Down	10	VCC	Yes	6	SOIC−8
CAT5112YI−10	1	32	Potentiometer	Up/Down	10	VCC	Yes	6	TSSOP−8
CAT5112ZI−10	1	32	Potentiometer	Up/Down	10	VCC	Yes	6	MSOP−8
CAT5114LI−10	1	32	Potentiometer	Up/Down	10	VCC	Yes	6	PDIP−8
CAT5114VI−10	1	32	Potentiometer	Up/Down	10	VCC	Yes	6	SOIC 8
CAT5114VP2I−10	1	32	Potentiometer	Up/Down	10	VCC	Yes	6	TDFN−8
CAT5114YI−10	1	32	Potentiometer	Up/Down	10	VCC	Yes	6	TSSOP−8
CAT5114ZD7I10	1	32	Potentiometer	Up/Down	10	VCC	Yes	6	TDFN−8
CAT5114ZI−10	1	32	Potentiometer	Up/Down	10	VCC	Yes	6	MSOP−8
CAT5115LI−10	1	32	Potentiometer	Up/Down	10	VCC	No	6	PDIP−8
CAT5115VI−10	1	32	Potentiometer	Up/Down	10	VCC	No	6	SOIC 8
CAT5115YI−10	1	32	Potentiometer	Up/Down	10	VCC	No	6	TSSOP−8
CAT5115ZI−10	1	32	Potentiometer	Up/Down	10	VCC	No	6	MSOP−8

DIGITALLY PROGRAMMABLE POTENTIOMETERS

Product	# of Pots	# of Taps	Type	Control Interface	Resistance Typ (kΩ)	V_H Max (V)	Wiper Position Memory	V_{DD} Max (V)	Package
CAT5115ZI10	1	32	Potentiometer	Up/Down	10	VCC	No	6	MSOP−8
CAT5126VP2I10	1	32	Potentiometer	Up/Down	10	VCC	OTP	5.5	TDFN−8
CAT5126ZI−10	1	32	Potentiometer	Up/Down	10	VCC	OTP	5.5	MSOP−8
CAT5128TBI−10	1	32	Potentiometer	Up/Down	10	VCC	No	5.5	SOT−23
CAT5118SDI−10	1	32	Rheostat	Up/Down	10	VCC	No	5.5	SC−70
CAT5118TBI−10	1	32	Rheostat	Up/Down	10	VCC	No	5.5	SOT−23
CAT5119SDI−10	1	32	Rheostat	Up/Down	10	VCC	No	5.5	SC−70
CAT5119TBI−10	1	32	Rheostat	Up/Down	10	VCC	No	5.5	SOT−23
CAT5123TBI−10	1	32	Rheostat	Up/Down	10	VCC	No	5.5	SOT−23
CAT5125TBI−10	1	32	Rheostat	Up/Down	10	VCC	No	5.5	SOT−23
CAT5127ZD7I10	1	32	Rheostat	Up/Down	10	VCC	Yes	5.5	TDFN−8
CAT5127ZI−10	1	32	Rheostat	Up/Down	10	VCC	Yes	5.5	MSOP−8
CAT5127ZI10	1	32	Rheostat	Up/Down	10	VCC	Yes	5.5	MSOP−8
CAT5129TDI−10	1	32	Rheostat	Up/Down	10	VCC	Yes	5.5	TSOT−23
CAT5110SDI−50	1	32	Potentiometer	Up/Down	50	VCC	No	5.5	SC−70
CAT5110TBI−50	1	32	Potentiometer	Up/Down	50	VCC	No	5.5	SOT−23
CAT5112LI−50	1	32	Potentiometer	Up/Down	50	VCC	Yes	6	PDIP−8
CAT5112VI−50	1	32	Potentiometer	Up/Down	50	VCC	Yes	6	SOIC−8
CAT5112YI−50	1	32	Potentiometer	Up/Down	50	VCC	Yes	6	TSSOP−8
CAT5112ZI−50	1	32	Potentiometer	Up/Down	50	VCC	Yes	6	MSOP−8
CAT5114LI−50	1	32	Potentiometer	Up/Down	50	VCC	Yes	6	PDIP−8
CAT5114VI−50	1	32	Potentiometer	Up/Down	50	VCC	Yes	6	SOIC 8
CAT5114VP2I50	1	32	Potentiometer	Up/Down	50	VCC	Yes	6	TDFN−8
CAT5114YI−50	1	32	Potentiometer	Up/Down	50	VCC	Yes	6	TSSOP−8
CAT5114ZD7I50	1	32	Potentiometer	Up/Down	50	VCC	Yes	6	TDFN−8
CAT5114ZI−50	1	32	Potentiometer	Up/Down	50	VCC	Yes	6	MSOP−8
CAT5115LI−50	1	32	Potentiometer	Up/Down	50	VCC	No	6	PDIP−8

DIGITALLY PROGRAMMABLE POTENTIOMETERS

Product	# of Pots	# of Taps	Type	Control Interface	Resistance Typ (kΩ)	V_H Max (V)	Wiper Position Memory	V_{DD} Max (V)	Package
CAT5115VI−50	1	32	Potentiometer	Up/Down	50	VCC	No	6	SOIC 8
CAT5115YI−50	1	32	Potentiometer	Up/Down	50	VCC	No	6	TSSOP−8
CAT5115ZI−50	1	32	Potentiometer	Up/Down	50	VCC	No	6	MSOP−8
CAT5115ZI50	1	32	Potentiometer	Up/Down	50	VCC	No	6	MSOP−8
CAT5126ZI−50	1	32	Potentiometer	Up/Down	50	VCC	OTP	5.5	MSOP−8
CAT5128TBI−50	1	32	Potentiometer	Up/Down	50	VCC	No	5.5	SOT−23
CAT5118SDI−50	1	32	Rheostat	Up/Down	50	VCC	No	5.5	SC−70
CAT5118TBI−50	1	32	Rheostat	Up/Down	50	VCC	No	5.5	SOT−23
CAT5119SDI−50	1	32	Rheostat	Up/Down	50	VCC	No	5.5	SC−70
CAT5119TBI−50	1	32	Rheostat	Up/Down	50	VCC	No	5.5	SOT−23
CAT5124TBI−50	1	32	Rheostat	Up/Down	50	VCC	No	5.5	SOT−23
CAT5110SDI−00	1	32	Potentiometer	Up/Down	100	VCC	No	5.5	SC−70
CAT5110TBI−00	1	32	Potentiometer	Up/Down	100	VCC	No	5.5	SOT−23
CAT5112LI−00	1	32	Potentiometer	Up/Down	100	VCC	Yes	6	PDIP−8
CAT5112VI−00	1	32	Potentiometer	Up/Down	100	VCC	Yes	6	SOIC−8
CAT5112YI−00	1	32	Potentiometer	Up/Down	100	VCC	Yes	6	TSSOP−8
CAT5114LI−00	1	32	Potentiometer	Up/Down	100	VCC	Yes	6	PDIP−8
CAT5114VI−00	1	32	Potentiometer	Up/Down	100	VCC	Yes	6	SOIC 8
CAT5114VP2I00	1	32	Potentiometer	Up/Down	100	VCC	Yes	6	TDFN−8
CAT5114YI−00	1	32	Potentiometer	Up/Down	100	VCC	Yes	6	TSSOP−8
CAT5114ZD7I00	1	32	Potentiometer	Up/Down	100	VCC	Yes	6	TDFN−8
CAT5114ZI−00	1	32	Potentiometer	Up/Down	100	VCC	Yes	6	MSOP−8
CAT5115LI−00	1	32	Potentiometer	Up/Down	100	VCC	No	6	PDIP−8
CAT5115VI−00	1	32	Potentiometer	Up/Down	100	VCC	No	6	SOIC 8
CAT5115YI−00	1	32	Potentiometer	Up/Down	100	VCC	No	6	TSSOP−8
CAT5115ZI−00	1	32	Potentiometer	Up/Down	100	VCC	No	6	MSOP−8
CAT5115ZI00	1	32	Potentiometer	Up/Down	100	VCC	No	6	MSOP−8

DIGITALLY PROGRAMMABLE POTENTIOMETERS

Product	# of Pots	# of Taps	Type	Control Interface	Resistance Typ (kΩ)	V_H Max (V)	Wiper Position Memory	V_{DD} Max (V)	Package
CAT5126ZI−00	1	32	Potentiometer	Up/Down	100	VCC	OTP	5.5	MSOP−8
CAT5118SDI−00	1	32	Rheostat	Up/Down	100	VCC	No	5.5	SC−70
CAT5118TBI−00	1	32	Rheostat	Up/Down	100	VCC	No	5.5	SOT−23
CAT5119SDI−00	1	32	Rheostat	Up/Down	100	VCC	No	5.5	SC−70
CAT5119TBI−00	1	32	Rheostat	Up/Down	100	VCC	No	5.5	SOT−23
CAT5113LI−01	1	100	Potentiometer	Up/Down	1	VCC	Yes	6	PDIP−8
CAT5113VI−01	1	100	Potentiometer	Up/Down	1	VCC	Yes	6	SOIC−8
CAT5113YI−01	1	100	Potentiometer	Up/Down	1	VCC	Yes	6	TSSOP−8
CAT5113ZI−01	1	100	Potentiometer	Up/Down	1	VCC	Yes	6	MSOP−8
CAT5113ZI01	1	100	Potentiometer	Up/Down	1	VCC	Yes	6	MSOP−8
CAT5111LI−10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	PDIP−8
CAT5111VI−10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	SOIC−8
CAT5111VI−10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	SOIC−8
CAT5111YI−10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	TSSOP−8
CAT5111YI−10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	TSSOP−8
CAT5111ZI−10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	MSOP−8
CAT5111ZI10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	MSOP−8
CAT5113LI−10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	PDIP−8
CAT5113VI−10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	SOIC−8
CAT5113YI−10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	TSSOP−8
CAT5113ZI−10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	MSOP−8
CAT5113ZI10	1	100	Potentiometer	Up/Down	10	VCC	Yes	6	MSOP−8
CAT5116LI	1	100	Potentiometer	Up/Down	32	VCC	Yes	5.5	PDIP−8
CAT5116VI	1	100	Potentiometer	Up/Down	32	VCC	Yes	5.5	SOIC−8
CAT5116YI	1	100	Potentiometer	Up/Down	32	VCC	Yes	5.5	TSSOP−8
CAT5116ZI	1	100	Potentiometer	Up/Down	32	VCC	Yes	5.5	MSOP−8
CAT5111LI−50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	PDIP−8

DIGITALLY PROGRAMMABLE POTENTIOMETERS

Product	# of Pots	# of Taps	Type	Control Interface	Resistance Typ (kΩ)	V_H Max (V)	Wiper Position Memory	V_{DD} Max (V)	Package
CAT5111VI−50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	SOIC−8
CAT5111VI−50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	SOIC−8
CAT5111YI−50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	TSSOP−8
CAT5111YI−50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	TSSOP−8
CAT5111ZI−50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	MSOP−8
CAT5111ZI50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	MSOP−8
CAT5113LI−50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	PDIP−8
CAT5113VI−50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	SOIC−8
CAT5113YI−50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	TSSOP−8
CAT5113ZI−50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	MSOP−8
CAT5113ZI50	1	100	Potentiometer	Up/Down	50	VCC	Yes	6	MSOP−8
CAT5111LI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	PDIP−8
CAT5111VI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	SOIC−8
CAT5111VI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	SOIC−8
CAT5111YI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	TSSOP−8
CAT5111YI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	TSSOP−8
CAT5111ZI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	MSOP−8
CAT5111ZI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	MSOP−8
CAT5111ZI00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	MSOP−8
CAT5113LI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	PDIP−8
CAT5113VI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	SOIC−8
CAT5113YI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	TSSOP−8
CAT5113ZI−00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	MSOP−8
CAT5113ZI00	1	100	Potentiometer	Up/Down	100	VCC	Yes	6	MSOP−8
CAT5132ZI−10	1	128	Potentiometer	I^2C	10	16	Yes	5.5	MSOP−10
CAT5133ZI−10	1	128	Potentiometer	Up/Down	10	16	Yes	5.5	MSOP−10
CAT5132ZI−50	1	128	Potentiometer	I^2C	50	16	Yes	5.5	MSOP−10

DIGITALLY PROGRAMMABLE POTENTIOMETERS

Product	# of Pots	# of Taps	Type	Control Interface	Resistance Typ (kΩ)	V_H Max (V)	Wiper Position Memory	V_{DD} Max (V)	Package
CAT5132ZI−00	1	128	Potentiometer	I^2C	100	16	Yes	5.5	MSOP−10
CAT5140ZI−50	1	256	Potentiometer	I^2C	50	VCC	Yes	5.5	MSOP−8
CAT5171TBI−50	1	256	Potentiometer	I^2C	50	VCC	No	5.5	SOT−23
CAT5172TBI−50	1	256	Potentiometer	SPI	50	VCC	No	5.5	SOT−23
CAT5140ZI−00	1	256	Potentiometer	I^2C	100	VCC	Yes	5.5	MSOP−8
CAT5172TBI−00	1	256	Potentiometer	SPI	100	VCC	No	5.5	SOT−23
CAT5221WI−25	2	64	Potentiometer	I^2C	2.5	VCC	Yes	6	SOIC−20
CAT5221WI25	2	64	Potentiometer	I^2C	2.5	VCC	Yes	6	SOIC−20
CAT5221YI−25	2	64	Potentiometer	I^2C	2.5	VCC	Yes	6	TSSOP−20
CAT5221YI25	2	64	Potentiometer	I^2C	2.5	VCC	Yes	6	TSSOP−20
CAT5411WI−25	2	64	Potentiometer	SPI	2.5	VCC	Yes	6	SOIC−24
CAT5411WI25	2	64	Potentiometer	SPI	2.5	VCC	Yes	6	SOIC−24
CAT5411YI−25	2	64	Potentiometer	SPI	2.5	VCC	Yes	6	TSSOP−24
CAT5411YI25	2	64	Potentiometer	SPI	2.5	VCC	Yes	6	TSSOP−24
CAT5419WI−25	2	64	Potentiometer	I^2C	2.5	VCC	Yes	6	SOIC−24
CAT5419WI25	2	64	Potentiometer	I^2C	2.5	VCC	Yes	6	SOIC−24
CAT5419YI−25	2	64	Potentiometer	I^2C	2.5	VCC	Yes	6	TSSOP−24
CAT5419YI25	2	64	Potentiometer	I^2C	2.5	VCC	Yes	6	TSSOP−24
CAT5221WI−10	2	64	Potentiometer	I^2C	10	VCC	Yes	6	SOIC−20
CAT5221WI10	2	64	Potentiometer	I^2C	10	VCC	Yes	6	SOIC−20
CAT5221YI−10	2	64	Potentiometer	I^2C	10	VCC	Yes	6	TSSOP−20
CAT5221YI10	2	64	Potentiometer	I^2C	10	VCC	Yes	6	TSSOP−20
CAT5411WI−10	2	64	Potentiometer	SPI	10	VCC	Yes	6	SOIC−24
CAT5411WI10	2	64	Potentiometer	SPI	10	VCC	Yes	6	SOIC−24
CAT5411YI−10	2	64	Potentiometer	SPI	10	VCC	Yes	6	TSSOP−24
CAT5411YI10	2	64	Potentiometer	SPI	10	VCC	Yes	6	TSSOP−24
CAT5419WI−10	2	64	Potentiometer	I^2C	10	VCC	Yes	6	SOIC−24

DIGITALLY PROGRAMMABLE POTENTIOMETERS

Product	# of Pots	# of Taps	Type	Control Interface	Resistance Typ (kΩ)	V_H Max (V)	Wiper Position Memory	V_{DD} Max (V)	Package
CAT5419YI−10	2	64	Potentiometer	I^2C	10	VCC	Yes	6	TSSOP−24
CAT5419YI10	2	64	Potentiometer	I^2C	10	VCC	Yes	6	TSSOP−24
CAT5221WI−50	2	64	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−20
CAT5221WI50	2	64	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−20
CAT5221YI−50	2	64	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−20
CAT5221YI50	2	64	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−20
CAT5411WI−50	2	64	Potentiometer	SPI	50	VCC	Yes	6	SOIC−24
CAT5411WI50	2	64	Potentiometer	SPI	50	VCC	Yes	6	SOIC−24
CAT5411YI−50	2	64	Potentiometer	SPI	50	VCC	Yes	6	TSSOP−24
CAT5411YI50	2	64	Potentiometer	SPI	50	VCC	Yes	6	TSSOP−24
CAT5419WI−50	2	64	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−24
CAT5419WI50	2	64	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−24
CAT5419YI−50	2	64	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−24
CAT5419YI50	2	64	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−24
CAT5221WI−00	2	64	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−20
CAT5221WI00	2	64	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−20
CAT5221YI−00	2	64	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−20
CAT5221YI00	2	64	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−20
CAT5411WI−00	2	64	Potentiometer	SPI	100	VCC	Yes	6	SOIC−24
CAT5411WI00	2	64	Potentiometer	SPI	100	VCC	Yes	6	SOIC−24
CAT5411YI−00	2	64	Potentiometer	SPI	100	VCC	Yes	6	TSSOP−24
CAT5411YI00	2	64	Potentiometer	SPI	100	VCC	Yes	6	TSSOP−24
CAT5419WI−00	2	64	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−24
CAT5419WI00	2	64	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−24
CAT5419YI−00	2	64	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−24
CAT5419YI00	2	64	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−24
CAT5261WI−50	2	256	Potentiometer	SPI	50	VCC	Yes	6	SOIC−24

DIGITALLY PROGRAMMABLE POTENTIOMETERS

Product	# of Pots	# of Taps	Type	Control Interface	Resistance Typ (kΩ)	V_H Max (V)	Wiper Position Memory	V_{DD} Max (V)	Package
CAT5261WI50	2	256	Potentiometer	SPI	50	VCC	Yes	6	SOIC−24
CAT5261YI−50	2	256	Potentiometer	SPI	50	VCC	Yes	6	TSSOP−24
CAT5261YI50	2	256	Potentiometer	SPI	50	VCC	Yes	6	TSSOP−24
CAT5269WI−50	2	256	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−24
CAT5269WI50	2	256	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−24
CAT5269YI50	2	256	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−24
CAT5270YI−50	2	256	Potentiometer	I^2C	50	VCC	No	6	TSSOP−14
CAT5271ZI−50	2	256	Potentiometer	I^2C	50	VCC	No	6.5	MSOP−10
CAT5261WI−00	2	256	Potentiometer	SPI	100	VCC	Yes	6	SOIC−24
CAT5261WI00	2	256	Potentiometer	SPI	100	VCC	Yes	6	SOIC−24
CAT5261YI−00	2	256	Potentiometer	SPI	100	VCC	Yes	6	TSSOP−24
CAT5261YI00	2	256	Potentiometer	SPI	100	VCC	Yes	6	TSSOP−24
CAT5269WI−00	2	256	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−24
CAT5269WI00	2	256	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−24
CAT5269YI−00	2	256	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−24
CAT5269YI00	2	256	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−24
CAT5270YI−00	2	256	Potentiometer	I^2C	100	VCC	No	6	TSSOP−14
CAT5271ZI−00	2	256	Potentiometer	I^2C	100	VCC	No	6.5	MSOP−10
CAT5241WI−25	4	64	Potentiometer	I^2C	2.5	VCC	Yes	6	SOIC−20
CAT5241WI25	4	64	Potentiometer	I^2C	2.5	VCC	Yes	6	SOIC−20
CAT5241YI−25	4	64	Potentiometer	I^2C	2.5	VCC	Yes	6	TSSOP−20
CAT5241YI25	4	64	Potentiometer	I^2C	2.5	VCC	Yes	6	TSSOP−20
CAT5401WI−25	4	64	Potentiometer	SPI	2.5	VCC	Yes	6	SOIC−24
CAT5401WI25	4	64	Potentiometer	SPI	2.5	VCC	Yes	6	SOIC−24
CAT5401YI−25	4	64	Potentiometer	SPI	2.5	VCC	Yes	6	TSSOP−24
CAT5401YI25	4	64	Potentiometer	SPI	2.5	VCC	Yes	6	TSSOP−24
CAT5409WI−25	4	64	Potentiometer	I^2C	2.5	VCC	Yes	6	SOIC−24

DIGITALLY PROGRAMMABLE POTENTIOMETERS

Product	# of Pots	# of Taps	Type	Control Interface	Resistance Typ (kΩ)	V_H Max (V)	Wiper Position Memory	V_{DD} Max (V)	Package
CAT5409YI−25	4	64	Potentiometer	I^2C	2.5	VCC	Yes	6	TSSOP−24
CAT5409YI25	4	64	Potentiometer	I^2C	2.5	VCC	Yes	6	TSSOP−24
CAT5241WI−10	4	64	Potentiometer	I^2C	10	VCC	Yes	6	SOIC−20
CAT5241WI10	4	64	Potentiometer	I^2C	10	VCC	Yes	6	SOIC−20
CAT5241YI−10	4	64	Potentiometer	I^2C	10	VCC	Yes	6	TSSOP−20
CAT5241YI10	4	64	Potentiometer	I^2C	10	VCC	Yes	6	TSSOP−20
CAT5401WI−10	4	64	Potentiometer	SPI	10	VCC	Yes	6	SOIC−24
CAT5401WI10	4	64	Potentiometer	SPI	10	VCC	Yes	6	SOIC−24
CAT5401YI−10	4	64	Potentiometer	SPI	10	VCC	Yes	6	TSSOP−24
CAT5401YI10	4	64	Potentiometer	SPI	10	VCC	Yes	6	TSSOP−24
CAT5409WI−10	4	64	Potentiometer	I^2C	10	VCC	Yes	6	SOIC−24
CAT5409WI10	4	64	Potentiometer	I^2C	10	VCC	Yes	6	SOIC−24
CAT5409YI−10	4	64	Potentiometer	I^2C	10	VCC	Yes	6	TSSOP−24
CAT5409YI10	4	64	Potentiometer	I^2C	10	VCC	Yes	6	TSSOP−24
CAT5241WI−50	4	64	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−20
CAT5241WI50	4	64	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−20
CAT5241YI−50	4	64	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−20
CAT5241YI50	4	64	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−20
CAT5401WI−50	4	64	Potentiometer	SPI	50	VCC	Yes	6	SOIC−24
CAT5401WI50	4	64	Potentiometer	SPI	50	VCC	Yes	6	SOIC−24
CAT5401YI−50	4	64	Potentiometer	SPI	50	VCC	Yes	6	TSSOP−24
CAT5401YI50	4	64	Potentiometer	SPI	50	VCC	Yes	6	TSSOP−24
CAT5409WI−50	4	64	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−24
CAT5409WI50	4	64	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−24
CAT5409YI−50	4	64	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−24
CAT5409YI50	4	64	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−24
CAT5241WI−00	4	64	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−20

DIGITALLY PROGRAMMABLE POTENTIOMETERS

Product	# of Pots	# of Taps	Type	Control Interface	Resistance Typ (kΩ)	V_H Max (V)	Wiper Position Memory	V_{DD} Max (V)	Package
CAT5241WI00	4	64	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−20
CAT5241YI−00	4	64	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−20
CAT5241YI00	4	64	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−20
CAT5401WI−00	4	64	Potentiometer	SPI	100	VCC	Yes	6	SOIC−24
CAT5401WI00	4	64	Potentiometer	SPI	100	VCC	Yes	6	SOIC−24
CAT5401YI−00	4	64	Potentiometer	SPI	100	VCC	Yes	6	TSSOP−24
CAT5401YI00	4	64	Potentiometer	SPI	100	VCC	Yes	6	TSSOP−24
CAT5409WI−00	4	64	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−24
CAT5409WI00	4	64	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−24
CAT5409YI−00	4	64	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−24
CAT5409YI00	4	64	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−24
CAT5251WI−50	4	256	Potentiometer	SPI	50	VCC	Yes	6	SOIC−24
CAT5251WI50	4	256	Potentiometer	SPI	50	VCC	Yes	6	SOIC−24
CAT5251YI−50	4	256	Potentiometer	SPI	50	VCC	Yes	6	TSSOP−24
CAT5251YI50	4	256	Potentiometer	SPI	50	VCC	Yes	6	TSSOP−24
CAT5259WI−50	4	256	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−24
CAT5259WI50	4	256	Potentiometer	I^2C	50	VCC	Yes	6	SOIC−24
CAT5259YI−50	4	256	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−24
CAT5259YI50	4	256	Potentiometer	I^2C	50	VCC	Yes	6	TSSOP−24
CAT5251WI−00	4	256	Potentiometer	SPI	100	VCC	Yes	6	SOIC−24
CAT5251WI00	4	256	Potentiometer	SPI	100	VCC	Yes	6	SOIC−24
CAT5251YI−00	4	256	Potentiometer	SPI	100	VCC	Yes	6	TSSOP−24
CAT5251YI00	4	256	Potentiometer	SPI	100	VCC	Yes	6	TSSOP−24
CAT5259WI−00	4	256	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−24
CAT5259WI00	4	256	Potentiometer	I^2C	100	VCC	Yes	6	SOIC−24
CAT5259YI−00	4	256	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−24
CAT5259YI00	4	256	Potentiometer	I^2C	100	VCC	Yes	6	TSSOP−24

Diodes

Diodes

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TUNING AND SWITCHING DIODES

ABRUPT JUNCTION TUNING DIODES

Device	V_R Volts	C_T @ V_R = 4.0 V, 1.0 MHz			Cap Ratio Min	Q @ 4.0 V 50 MHz Typ	Package
		pF Min	pF Nominal	pF Max			
MV2105	30	13.5	15	16.5	2.5	400	TO–226AC, TO–92 2–Lead Case 182–06
MMBV2105L	30	13.5	15	16.5	2.5	400	TO–236AB, SOT–23 Case 318–08
MMBV3102L	30	20	–	25	4.5	200	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

HYPER–ABRUPT JUNCTION TUNING DIODES

Device	V_R Volts	C_T (f = 1.0 MHz)			Cap Ratio			Q 3.0 V Min	Type	Package
		pF Min	pF Max	Volts	Min	Max	Volts			
MMBV105GL	30	1.5	2.8	25	4.0	6.5	3.0/25	200	Single	TO–236AB, SOT–23 Case 318–08
MMBV609L	20	26	32	3.0	1.8	2.4	3/8	250	Dual Common Cathode	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

TUNING AND SWITCHING DIODES (continued)

SCHOTTKY DIODES

Device	V_R Volts	C_T @ V		V_F Volts Max	I_R @ V		Type	Package
		pF Max	Volts		nA Max	Volts		
MBD301	30	1.5	15	0.6	200	25	Single	TO–226AC, TO–92 2–Lead Case 182–06
MMSD701	70	1.0	20	1.0	200	35	Single	SOD–123 Case 425–04
BAT54	30	10	1.0	0.4	2000	25	Single	
MMSD301	30	1.5	15	0.6	200	25	Single	
MMDL770	70	1.0	20	1.0	200	35	Single	SOD–323 Case 477–02
BAT54H	30	10	1.0	0.4	2000	25	Single	
MMDL301	30	1.5	15	0.6	200	25	Single	
NSR0240H	40	–	–	0.71	550	10	Single	
NSR0340H	40	–	–	0.59	1000	10	Single	
NSR1020MW2	20	29	5	0.44	40000	10	Single	
NSRLV20MW2	20	29	5	0.27	50000	10	Single	
RB751V40	30	2.5	1.0	0.37	500	30	Single	
MMDL101	7.0	1.0	0	0.6	250	3.0	Single	
NSR0320MW2	20	29	5.0	0.27	50000	15	Single	
BAS70L	70	2.0	0	0.75	100	50	Single	TO–236AB, SOT–23 Case 318–08
BAS70–04L	70	2.0	0	0.75	100	50	Dual Series	
MMBD701L	70	1.0	20	1.0	200	35	Single	
BAS40L	40	5.0	1.0	0.5	1000	25	Single	
BAS40–04L	40	5.0	1.0	0.5	1000	25	Dual Series	
BAS40–06L	40	5.0	1.0	0.5	1000	25	Dual Common Anode	
BAT54CL	30	10	1.0	0.4	2000	25	Dual Common Cathode	
BAT54L	30	10	1.0	0.4	2000	25	Single	
BAT54AL	30	10	1.0	0.4	2000	25	Dual Common Anode	
BAT54SL	30	10	1.0	0.4	2000	25	Dual Series	
MMBD301L	30	1.5	15	0.6	200	25	Single	
MMBD452L	30	1.5	15	0.6	200	25	Dual Series	
MMBD101L	7.0	1.0	0	0.6	250	3.0	Single	
MMBD352L	7.0	1.0	0	0.6	250	3.0	Dual Series	
MMBD353L	7.0	1.0	0	0.6	250	3.0	Dual Series	
MMBD354L	7.0	1.0	0	0.6	250	3.0	Dual Common Cathode	
MMBD355L	7.0	1.0	0	0.6	250	3.0	Dual Common Anode	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

TUNING AND SWITCHING DIODES (continued)

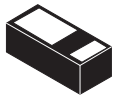
SCHOTTKY DIODES (continued)

Device	V_R Volts	C_T @ V pF Max	C_T @ V Volts	V_F Volts Max	I_R @ V nA Max	I_R @ V Volts	Type	Package
MMBD770	70	1.0	20	1.0	200	35	Single	**SC−70, SOT−323 Case 419−04**
BAT54AW	30	10	1.0	0.4	2000	25	Dual Common Anode	
BAT54CW	30	10	1.0	0.4	2000	25	Dual Common Cathode	
BAT54W	30	10	1.0	0.4	2000	25	Single	
BAT54SW	30	10	1.0	0.4	2000	25	Dual Series	
MMBD330	30	1.5	15	0.6	200	25	Single	
MMBD717L	20	2.5	1.0	0.37	1000	10	Dual Common Anode	
MMBD352W	7.0	1.0	0	0.6	250	3.0	Dual Series	
BAT54CT	30	10	1.0	0.4	2000	25	Dual Common Cathode	**SOT−416, SC−75, SC−90 Case 463−01**
MBD770DW	70	1.0	0	0.5	200	35	Dual Isolated	**SC−88, SOT−363 Case 419B−02**
MBD54DW	30	1.0	0	0.32	2000	25	Dual Isolated	
MBD330DW	30	1.5	0	0.4	200	25	Dual Isolated	
NSR0320XV6	23	35	5.0	0.27	50000	15	Single	**SOT−563 Case 463A−01**
BAT54CXV3	30	10	1.0	0.4	2000	25	Dual Common Cathode	**SC−89 Case 463C−03**
NSR0240V2	40	–	–	0.39	2000	25	Single	**SOD−523 Case 502−01**
NSR0340V2	40	–	–	0.35	3000	25	Single	
RB751S40	40	2.5	1.0	0.37	500	30	Single	
BAT54XV2	30	10	1.0	0.4	2000	25	Single	
NSRLL30XV2	30	–	–	0.60	1000	10	Single	
RB520S30	30	–	–	0.5	1000	10	Single	
RB521S30	30	–	–	0.6	30000	10	Single	
NSR0520V2	20	–	–	0.32	30000	10	Single	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

TUNING AND SWITCHING DIODES (continued)

SCHOTTKY DIODES (continued)

Device	V_R Volts	C_T @ V		V_F Max	I_R @ V		Type	Package
		pF Max	Volts	Volts	nA Max	Volts		
NSR0230M2	30	–	–	0.325	10000	10	Single	SOD−723 Case 509AA
NSR30CM3	30	10	1.0	0.8	2.0	25	Dual Common Cathode	SOT−723 Case 631AA−01
MMBD301M3	30	1.5	15	0.6	200	25	Single	
BAT54M3	30	10	1	0.4	2000	25	Single	
NSR0130P2	30	–	–	0.385	350	10	Single	SOD−923 Case 514AA−01
NSR0140P2	40	2.5	1.0	0.350	500	30	Single	
NSR0170P2	70	–	–	0.64	90	50	Single	
NSR0240P2	40	–	–	0.5	5000	40	Single	
NSR0340P2	40	–	–	0.56	5000	10	Single	
NSR0530P2	30	–	–	0.46	10000	10	Single	
NSR0620P2	20	–	–	0.52	10000	10	Single	
NSR0230P2	20	–	–	0.325	10000	10	Single	
NSR20F30NX	30	–	–	0.480	20000	10	Single	DSN2 (0603) Case 152AB−01
NSR20F20NX	20	–	–	0.490	30000	10	Single	
NSR10F40NX	40	–	–	0.490	10000	10	Single	 DSN2 (0502) Case 152AD−01
NSR10F30NX	30	–	–	0.480	20000	10	Single	
NSR10F20NX	20	–	–	0.460	20000	10	Single	
NSR05F40NX	40	–	–	0.44	15000	10	Single	DSN2 (0402) Case 152AC−01
NSR05F30NX	30	–	–	0.430	15000	10	Single	
NSR05F20NX	20	–	–	0.430	15000	10	Single	
NSR02L30NX	30	–	–	0.4	200	10	Single	DSN2 (0201) Case 152AA−01
NSR02F30NX	30	–	–	0.37	7000	10	Single	
NSR01L30NX	30	–	–	0.4	200	10	Single	
NSR01F30NX	30	–	–	0.37	700	10	Single	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

TUNING AND SWITCHING DIODES (continued)

PIN SWITCHING DIODES

Device	V_R Volts Min	C_T @ V pF Max	C_T @ V Volts	Resistance Ω Max	I_R μA Max	Type	Package
MMBV3700L	200	1.0	20	1.0	0.1	Single	TO–236AB, SOT–23 Case 318–08
MMBV3401L	35	1.0	20	0.7	0.1	Single	
MMVL3401	35	1.0	20	0.7	0.1	Single	SOD–323 Case 477–02

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

TUNING AND SWITCHING DIODES (continued)

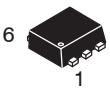
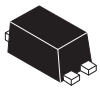
GENERAL PURPOSE SIGNAL AND SWITCHING DIODES

Device	V_R Min Volts	I_R Max μA	V_F Min Volts	V_F Max Volts	C_T Max pF	t_{rr} Max ns	Type	Package
BAV23CL	250	0.1	–	1.25	5	150	Dual Common Cathode	TO–236AB, SOT–23 Case 318–08
BAS21L	250	0.1	–	1.0	5.0	50	Single	
BAS21SL	250	0.1	–	1.0	5.0	50	Dual Series	
MMBD914L	100	5.0	–	1.0	4.0	4.0	Single	
BAS16L	75	1.0	–	1.0	2.0	6.0	Single	
MMBD6050L	70	0.1	0.85	1.1	2.5	4.0	Single	
BAL99L	70	2.5	–	1.0	1.5	6.0	Single	
BAS116L	75	0.005	–	0.9	2.0	3000	Single	
MMBD7000L	100	1.0	0.75	1.1	1.5	4.0	Dual Series	
MMBD2836L	75	0.1	–	1.0	4.0	4.0	Dual Common Anode	
MMBD2838L	75	0.1	–	1.0	4.0	4.0	Dual Common Cathode	
BAV70L	70	5.0	–	1.0	1.5	6.0	Dual Common Cathode	
BAV99L	70	2.5	–	1.0	1.5	4.0	Dual Series	
BAW56L	70	2.5	–	1.0	2.0	6.0	Dual Common Anode	
MMBD6100L	70	0.1	0.85	1.1	2.5	4.0	Dual Common Cathode	
BAV74L	50	0.1	–	1.0	2.0	4.0	Dual Common Cathode	
MMBD2835L	35	0.1	–	1.0	4.0	4.0	Dual Common Anode	
MMBD2837L	35	0.1	–	1.0	4.0	4.0	Dual Common Cathode	
BAV199L	70	0.005	–	0.9	2.0	3000	Dual Series	
BAS20L	200	0.1	–	1.0	5.0	50	Single	
BAS19L	120	0.1	–	1.0	5.0	50	Single	
M1MA151K	40	0.1	–	1.2	2.0	3.0	Single	SC–59 Case 318D–04
M1MA152K	80	0.1	–	1.2	2.0	3.0	Single	
M1MA151WA	40	0.1	–	1.2	15	10	Dual Common Anode	
M1MA151WK	40	0.1	–	1.2	2.0	3.0	Dual Common Cathode	
M1MA152WA	80	0.1	–	1.2	15	10	Dual Common Anode	
M1MA152WK	80	0.1	–	1.2	2.0	3.0	Dual Common Cathode	
BAS16W	75	1.0	–	1.25	2.0	6.0	Single	SC–70, SOT–323 Case 419–04
M1MA141K	40	0.1	–	1.2	2.0	3.0	Single	
M1MA142WK	80	0.1	–	1.2	2.0	3.0	Dual Common Cathode	
M1MA142WA	80	0.1	–	1.2	15	10	Dual Common Anode	
BAW56W	70	2.5	–	1.0	2.0	6.0	Dual Common Anode	
BAV70W	70	5.0	–	1.0	1.5	6.0	Dual Common Cathode	
BAV99W	70	2.5	–	1.0	1.5	6.0	Dual Series	
BAV99RW	70	2.5	–	1.0	1.5	6.0	Dual Series	
M1MA141WA	40	0.1	–	1.2	15	10	Dual Common Anode	
MMSD914	100	5.0	–	1.0	4.0	4.0	Single	SOD–123 Case 425–04
MMSD103	250	100	–	1.0	5.0	50	Single	
MMSD4148	100	5.0	–	1.0	4.0	4.0	Single	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

TUNING AND SWITCHING DIODES (continued)

GENERAL PURPOSE SIGNAL AND SWITCHING DIODES

Device	V_R Min Volts	I_R Max μA	V_F Min Volts	V_F Max Volts	C_T Max pF	t_{rr} Max ns	Type	Package
BAS16H	75	1.0	–	1.0	2.0	6.0	Single	SOD–323 Case 477–02
BAS20H	200	0.1			5.0	50	Single	
BAS21AH	250	0.04	–	1.0	5.0	50	Single	
BAS21H	250	0.1	–	1.0	5.0	50	Single	
MMDL914	100	5.0	–	1.0	4.0	4.0	Single	
MMDL6050	70	0.1	0.85	1.1	2.5	4.0	Single	
BAS16T	75	1.0	–	1.0	2.0	6.0	Single	SOT–416, SC–75, SC–90 Case 463–01
DA121T	80	1.0			2.0	6.0	Single	
DAP222	80	0.1	–	1.2	3.5	4.0	Dual Common Anode	
BAW56T	70	2.5	–	1.0	2.0	6.0	Dual Common Anode	
DAN222	80	0.1	–	1.2	3.5	4.0	Dual Common Cathode	
BAV70T	70	5.0	–	1.0	1.5	6.0	Dual Common Cathode	
HN2D02FUTW1	85	0.1	–	1.2	2.0	3.0	Triple Isolated	SC–88 Case 419B–02
BAS21DW5	250	0.1	–	1.0	5.0	50	Dual Isolated	SC–88A Case 419A–02
1SS400	100	0.1	–	1.2	3.0	4.0	Single	SOD–523 Case 502–01
BAS16XV2	75	1.0	–	1.0	2.0	6.0	Single	
NSD914XV2	100	–	–	1.0	4.0	4.0	Single	
NSDEMP11XV6	70	0.01	–	1.2	3.5	4.0	Two Dual Common Anode	 SOT–563 Case 463A–01
BAS16DXV6	75	0.001	–	1.25	2.0	6.0	Dual Isolated	
BAV70M3	75	2.5	–	1.25	1.5	6	Dual Common Cathode	SOT–723 Case 631AA–01
BAW56M3	75	2.5	–	1.25	2	6	Dual Common ANode	
DAN222M3	80	0.1	–	1.2	3.5	4.0	Dual Common Cathode	
DAP222M3	80	0.1	–	1.2	3.5	4.0	Dual Common Anode	
BAS21M3	250	0.1	–	1.25	5	50	Single	
NSD16F3	75	1	–	1.25	2	6	Single	 SOT–1123 Case 631AA–01
NSD914F3	100	5	–	1	4	4	Single	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

ZENER DIODES – REGULATION IN AXIAL LEADS

Axial Leaded – 3, 5 W

Nominal Zener Breakdown Voltage	3 Watt Cathode = Polarity Band	5 Watt Cathode =Polarity Band
Volts	 Plastic Surmetic 30 Case 59-10 (DO-41)	 Plastic Surmetic 40 Case 17
3.3	1N5913B	1N5333B
3.6		1N5334B
3.9		1N5335B
4.3		1N5336B
4.7	1N5917B	1N5337B
5.1		1N5338B
5.6	1N5919B	1N5339B
6.0		1N5340B
6.2	1N5920B	1N5341B
6.8	1N5921B	1N5342B
7.5		1N5343B
8.2	1N5923B	1N5344B
8.7		1N5345B
9.1	1N5924B	1N5346B
10	1N5925B	1N5347B
11		1N5348B
12	1N5927B	1N5349B
13		1N5350B
14		1N5351B
15	1N5929B	1N5352B
16		1N5353B
17		1N5354B
18	1N5931B	1N5355B
19		1N5356B
20	1N5932B	1N5357B
22		1N5358B
24	1N5934B	1N5359B

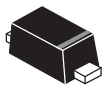
ZENER DIODES – REGULATION IN AXIAL LEADS (continued)

Axial Leaded – 3, 5 W

Nominal Zener Breakdown Voltage	3 Watt Cathode = Polarity Band	5 Watt Cathode =Polarity Band
Volts	 Plastic Surmetic 30 Case 59-10 (DO-41)	 Plastic Surmetic 40 Case 17
25		1N5360B
27	1N5935B	1N5361B
28		1N5362B
30		1N5363B
33	1N5937B	1N5364B
36	1N5938B	1N5365B
39		1N5366B
43	1N5940B	1N5367B
47	1N5941B	1N5368B
51	1N5942B	1N5369B
56		1N5370B
60		1N5371B
62		1N5372B
68		1N5373B
75	1N5946B	1N5374B
82		1N5375B
87		
91	1N5948B	1N5377B
100		1N5378B
110		
120		1N5380B
130		1N5381B
140		
150	1N5953B	1N5383B
160		1N5384B
170		
180	1N5955B	1N5386B
190		1N5387
200	1N5956B	1N5388B

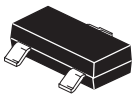
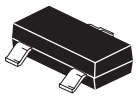
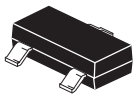
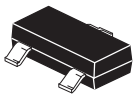
ZENER DIODES – REGULATION IN SURFACE MOUNT

Surface Mount Packages – 200 mW

Nominal Zener Breakdown Voltage	Standard Tolerance SOD–923	Tight Tolerance SOD–923	Standard Tolerance SOD–523	Tight Tolerance SOD–523	Standard Tolerance SOD–323	Tight Tolerance SOD–323
Volts	 Case 514AB	Case 514AB	Case 502	Case 502	Case 477 Style 1	Case 477 Style 1
2.4	NZ9F2V4	NZ9F2V4S	MM5Z2V4	MM5Z2V4S	MM3Z2V4	
2.7	NZ9F2V7	NZ9F2V7S	MM5Z2V7		MM3Z2V7	
3.0	NZ9F3V0	NZ9F3V0S	MM5Z3V0		MM3Z3V0	
3.3	NZ9F3V3	NZ9F3V3S	MM5Z3V3		MM3Z3V3	MM3Z3V3S
3.6	NZ9F3V6	NZ9F3V6S	MM5Z3V6		MM3Z3V6	
3.9	NZ9F3V9	NZ9F3V9S			MM3Z3V9	MM3Z3V9S
4.3	NZ9F4V3	NZ9F4V3S			MM3Z4V3	MM3Z4V3S
4.7	NZ9F4V7	NZ9F4V7S	MM5Z4V7	MM5Z4V7S	MM3Z4V7	MM3Z4V7S
5.1	NZ9F5V1	NZ9F5V1S	MM5Z5V1	MM5Z5V1S	MM3Z5V1	MM3Z5V1S
5.6	NZ9F5V6	NZ9F5V6S	MM5Z5V6	MM5Z5V6S	MM3Z5V6	MM3Z5V6S
6.2	NZ9F6V2	NZ9F6V2S	MM5Z6V2	MM5Z6V2S	MM3Z6V2	MM3Z6V2S
6.8	NZ9F6V8	NZ9F6V8S	MM5Z6V8	MM5Z6V8S	MM3Z6V8	MM3Z6V8S
7.5	NZ9F7V5	NZ9F7V5S	MM5Z7V5		MM3Z7V5	MM3Z7V5S
8.2	NZ9F8V2	NZ9F8V2S	MM5Z8V2	MM5Z8V2S	MM3Z8V2	MM3Z8V2S
9.1	NZ9F9V1	NZ9F9V1S	MM5Z9V1	MM5Z9V1S	MM3Z9V1	MM3Z9V1S
10	NZ9F10V	NZ9F10VS	MM5Z10V		MM3Z10V	MM3Z10VS
11	NZ9F11V	NZ9F11VS			MM3Z11V	
12	NZ9F12V	NZ9F12VS	MM5Z12V		MM3Z12V	MM3Z12VS
13	NZ9F13V	NZ9F13VS			MM3Z13V	
15	NZ9F15V	NZ9F15VS	MM5Z15V		MM3Z15V	MM3Z15V5
16	NZ9F16V	NZ9F16VS	MM5Z16V		MM3Z16V	MM3Z16VS
18	NZ9F18V	NS9F18VS	MM5Z18V		MM3Z18V	MM3Z18VS
20	NZ9F20V		MM5Z20V		MM3Z20V	
22	NZ9F22V				MM3Z22V	MM3Z22VS
24	NZ9F24V		MM5Z24V		MM3Z24V	
27			MM5Z27V		MM3Z27V	MM3Z27VS
30			MM5Z30V			
36			MM5Z36V		MM3Z36V	MM3Z33VS
39					MM3Z39V	
43					MM3Z43V	

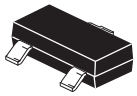
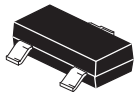
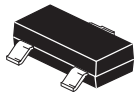
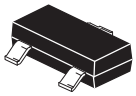
ZENER DIODES – REGULATION IN SURFACE MOUNT (continued)

Surface Mount Packages – 225 mW

Nominal Zener Breakdown Voltage	Standard Tolerance SOT–23	Tight Tolerance SOT–23	Standard Tolerance SOT–23	Energy Rated SOT–23
Volts	 Case 318	 Case 318	 Case 318	 Case 318
2.4	BZX84C2V4L		MMBZ5221BL	
2.5			MMBZ5222BL	
2.7	BZX84C2V7L		MMBZ5223BL	
3.0	BZX84C3V0L		MMBZ5225BL	
3.3	BZX84C3V3L		MMBZ5226BL	
3.6	BZX84C3V6L		MMBZ5227BL	
3.9	BZX84C3V9L		MMBZ5228BL	
4.3	BZX84C4V3L		MMBZ5229BL	
4.7	BZX84C4V7L		MMBZ5230BL	
5.1	BZX84C5V1L	BZX84B5V1L	MMBZ5231BL	MMBZ5231EL
5.6	BZX84C5V6L	BZX84B5V6L	MMBZ5232BL	MMBZ5232EL
6.0			MMBZ5233BL	
6.2	BZX84C6V2L	BZX84B6V2L	MMBZ5234BL	MMBZ5234EL
6.8	BZX84C6V8L	BZX84B6V8L	MMBZ5235BL	
7.5	BZX84C7V5L	BZX84B7V5L	MMBZ5236BL	
8.2	BZX84C8V2L	BZX84B8V2L	MMBZ5237BL	MMBZ5237EL
8.7			MMBZ5238BL	
9.1	BZX84C9V1L	BZX84B9V1L	MMBZ5239BL	MMBZ5239EL
10	BZX84C10L		MMBZ5240BL	MMBZ5240EL
11	BZX84C11L		MMBZ5241BL	
12	BZX84C12L	BZX84B12L	MMBZ5242BL	MMBZ5242EL
13	BZX84C13L		MMBZ5243BL	MMBZ5243EL
14			MMBZ5244BL	
15	BZX84C15L	BZ84B15L	MMBZ5245BL	MMBZ5245EL
16	BZX84C16L	BZX84B16L	MMBZ5246BL	MMBZ5246EL
17			MMBZ5247BL	
18	BZX84C18L	BZX84B18L	MMBZ5248BL	MMBZ5248EL
19			MMBZ5249BL	
20	BZX84C20L		MMBZ5250BL	MMBZ5250EL
22	BZX84C22L	BZX84B22L	MMBZ5251BL	
24	BZX84C24L	BZX84B24L	MMBZ5252BL	MMBZ5252EL
25			MMBZ5253BL	MMBZ5253EL
27	BZX84C27L		MMBZ5254BL	
28			MMBZ5255BL	
30	BZX84C30L		MMBZ5256BL	
33	BZX84C33L		MMBZ5257BL	MMBZ5257EL
36	BZX84C36L		MMBZ5258BL	
39	BZX84C39L		MMBZ5259BL	

ZENER DIODES – REGULATION IN SURFACE MOUNT (continued)

Surface Mount Packages – 225 mW

Nominal Zener Breakdown Voltage	Standard Tolerance SOT–23	Tight Tolerance SOT–23	Standard Tolerance SOT–23	Energy Rated SOT–23
Volts	 Case 318	 Case 318	 Case 318	 Case 318
43	BZX84C43L		MMBZ5260BL	
47	BZX84C47L		MMBZ5261BL	MMBZ5261EL
51	BZX84C51L			
56	BZX84C56L		MMBZ5263BL	
60			MMBZ5264BL	
62	BZX84C62L			
68	BZX84C68L			
75	BZX84C75L			
82			MMBZ5268BL	
91			MMBZ5270BL	

ZENER DIODES – REGULATION IN SURFACE MOUNT (continued)

Surface Mount Packages – 500 mW

Nominal Zener Breakdown Voltage	Standard Tolerance SOD–123	Standard Tolerance SOD–123	Standard Tolerance SOD–123	Energy Rated SOD–123
Volts	Case 425	Case 425	Case 425	Case 425
1.8		MMSZ4678		
2.0		MMSZ4679		
2.2		MMSZ4680		
2.4	MMSZ2V4	MMSZ4681	MMSZ5221B	MMSZ5221E
2.5			MMSZ5222B	
2.7	MMSZ2V7	MMSZ4682	MMSZ5223B	MMSZ5223E
3.0	MMSZ3V0	MMSZ4683	MMSZ5225B	
3.3	MMSZ3V3	MMSZ4684	MMSZ5226B	MMSZ5226E
3.6	MMSZ3V6	MMSZ4685	MMSZ5227B	
3.9	MMSZ3V9	MMSZ4686	MMSZ5228B	
4.3	MMSZ4V3	MMSZ4687	MMSZ5229B	
4.7	MMSZ4V7	MMSZ4688	MMSZ5230B	
5.1	MMSZ5V1	MMSZ4689	MMSZ5231B	
5.6	MMSZ5V6	MMSZ4690	MMSZ5232B	
6.0			MMSZ5233B	
6.2	MMSZ6V2	MMSZ4691	MMSZ5234B	
6.8	MMSZ6V8	MMSZ4692	MMSZ5235B	MMSZ5235E
7.5	MMSZ7V5	MMSZ4693	MMSZ5236B	
8.2	MMSZ8V2	MMSZ4694	MMSZ5237B	MMSZ5237E
8.7			MMSZ5238B	
9.1	MMSZ9V1	MMSZ4696	MMSZ5239B	
10	MMSZ10	MMSZ4697	MMSZ5240B	MMSZ5240E
11	MMSZ11	MMSZ4698	MMSZ5241B	
12	MMSZ12	MMSZ4699	MMSZ5242B	MMSZ5242E
13	MMSZ13	MMSZ4700	MMSZ5243B	
14		MMSZ4701	MMSZ5244B	MMSZ5244E
15	MMSZ15	MMSZ4702	MMSZ5245B	MMSZ5245E
16	MMSZ16	MMSZ4703	MMSZ5246B	MMSZ5246E
17		MMSZ4704	MMSZ5247B	
18	MMSZ18	MMSZ4705	MMSZ5248B	MMSZ5248E
19		MMSZ4706	MMSZ5249B	
20	MMSZ20	MMSZ4707	MMSZ5250B	MMSZ5250E
22	MMSZ22	MMSZ4708	MMSZ5251B	MMSZ5251E
24	MMSZ24	MMSZ4709	MMSZ5252B	MMSZ5252E
25		MMSZ4710	MMSZ5253B	

ZENER DIODES – REGULATION IN SURFACE MOUNT (continued)

Surface Mount Packages – 500 mW (continued)

Nominal Zener Breakdown Voltage	Standard Tolerance SOD–123	Standard Tolerance SOD–123	Standard Tolerance SOD–123	Energy Rated SOD–123
Volts	Case 425	Case 425	Case 425	Case 425
27	MMSZ27	MMSZ4711	MMSZ5254B	MMSZ5254E
28	MMSZ30		MMSZ5255B	
30		MMSZ4713	MMSZ5256B	MMSZ5256E
33	MMSZ33	MMSZ4714	MMSZ5257B	MMSZ5257E
36	MMSZ36	MMSZ4715	MMSZ5258B	
39	MMSZ39		MMSZ5259B	MMSZ5259E
43	MMSZ43	MMSZ4717	MMSZ5260B	
47	MMSZ47		MMSZ5261B	
51	MMSZ51		MMSZ5262B	
56	MMSZ56		MMSZ5263B	
60			MMSZ5264B	
62			MMSZ5265B	
68			MMSZ5266B	
75			MMSZ5267B	
82			MMSZ5268B	
87				
91			MMSZ5270B	
100				
110			MMSZ5272B	

ZENER DIODES – REGULATION IN SURFACE MOUNT (continued)

Surface Mount Packages – 1.5, 3 W

Nominal Zener Breakdown Voltage	1.5 Watt SMA	3 Watt SMB
Volts	 Plastic Case 403B Cathode = Notch	 Plastic Case 403A
3.3	1SMA5913B	1SMB5913B
3.6	1SMA5914B	1SMB5914B
3.9	1SMA5915B	1SMB5915B
4.3	1SMA5916B	1SMB5916B
4.7	1SMA5917B	1SMB5917B
5.1	1SMA5918B	1SMB5918B
5.6	1SMA5919B	1SMB5919B
6.2	1SMA5920B	1SMB5920B
6.8	1SMA5921B	1SMB5921B
7.5	1SMA5922B	1SMB5922B
8.2	1SMA5923B	1SMB5923B
9.1	1SMA5924B	1SMB5924B
10	1SMA5925B	1SMB5925B
11		1SMB5926B
12	1SMA5927B	1SMB5927B
13	1SMA5928B	1SMB5928B
15	1SMA5929B	1SMB5929B
16	1SMA5930B	1SMB5930B
18	1SMA5931B	1SMB5931B
20	1SMA5932B	1SMB5932B
22	1SMA5933B	1SMB5933B
24	1SMA5934B	1SMB5934B
27	1SMA5935B	1SMB5935B
30	1SMA5936B	1SMB5936B
33	1SMA5937B	1SMB5937B
36	1SMA5938B	1SMB5938B
39	1SMA5939B	1SMB5939B
43	1SMA5940B	1SMB5940B
47	1SMA5941B	1SMB5941B
51	1SMA5942B	1SMB5942B
56	1SMA5943B	1SMB5943B
62		1SMB5944B
68	1SMA5945B	1SMB5945B
75		1SMB5946B

ZENER DIODES – REGULATION IN SURFACE MOUNT (continued)

Surface Mount Packages – 1.5, 3 W (continued)

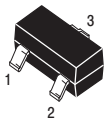
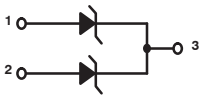
Nominal Zener Breakdown Voltage	1.5 Watt SMA	3 Watt SMB
Volts	 Plastic Case 403B Cathode = Notch	 Plastic Case 403A
82		1SMB5947B
91		1SMB5948B
100		1SMB5949B
120		1SMB5951B
130		1SMB5952B
150		1SMB5953B
160		1SMB5954B
180		1SMB5955B
200		1SMB5956B

DUAL ZENERS – DUALS IN SURFACE MOUNT

MMBZ15VDLT1 – Common Cathode Series

SOT–23 Dual Common Cathode Zener; 40 W Peak Power (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Bidirectional (Circuit tied to Pins 1 and 2)

Device	Breakdown Voltage				Reverse Voltage Working Peak	Reverse Leakage Current	Reverse Surge Current	Reverse Voltage @ I_{PP} (Clamping Voltage)	Temperature Coefficient of
	V_{BR} (Note 1) (V)			@ I_T (mA)	V_{RWM} (V)	I_R (nA)	I_{PP} (A)	V_C (V)	V_{BR} (mV/°C)
	Min	Nom	Max						
	 CASE 318–08 TO–236AB LOW PROFILE SOT–23								
MMBZ15VDL	14.3	15	15.8	1.0	12.8	100	1.9	21.2	12
MMBZ27VCL	25.65	27	28.35	1.0	22	50	1.0	38	26

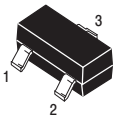
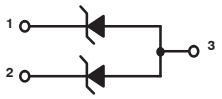
1. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

DUAL ZENERS – SURFACE MOUNT (continued)

MMBZ5V6ALT1 – Common Anode Series

SOT–23 Dual Common Anode Zener; 24 W Peak Power (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional (Circuit tied to Pins 1 and 3 or Pins 2 and 3)
(V_F = 0.9 V Max @ I_F = 10 mA)

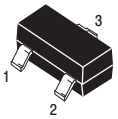
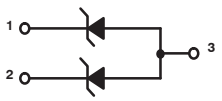
Device	Breakdown Voltage				Max Reverse Leakage Current		Max Zener Impedance (Note 3)			Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Max Temp Coefficient of V_{BR}
	V_{BR} (Note 2) (V)			@ I_T (mA)	I_R @ V_R		Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}		I_{PP}	V_C	(mV/°C)
	Min	Nom	Max		(μA)	(V)	(Ω) (mA)	(Ω) (mA)		(A)	(V)	
 CASE 318–08 STYLE 12 LOW PROFILE SOT–23 PLASTIC 												
MMBZ5V6AL	5.32	5.6	5.88	20	5.0	3.0	11	1600	0.25	3.0	8.0	1.26
MMBZ6V2AL	5.89	6.2	6.51	1.0	0.5	3.0	–	–	–	2.76	8.7	2.80
MMBZ6V8AL	6.46	6.8	7.14	1.0	0.5	4.5	–	–	–	2.5	9.6	3.40
MMBZ9V1AL	8.65	9.1	9.56	1.0	0.3	6.0	–	–	–	1.7	14	7.50

2. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.
3. Z_{ZT} and Z_{ZK} are measured by dividing the AC voltage drop across the device by the AC current supplied. The specified limits are $I_{Z(AC)}$ = 0.1 $I_{Z(DC)}$, with AC frequency = 1 kHz.

MMBZ5V6ALT1 – Common Anode Series

SOT–23 Dual Common Anode Zener; 40 W Peak Power (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional (Circuit tied to Pins 1 and 3 or Pins 2 and 3)
(V_F = 0.9 V Max @ I_F = 10 mA)

Device	Breakdown Voltage				Reverse Voltage Working Peak	Max Reverse Leakage Current	Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Maximum Temperature Coefficient of V_{BR}
	V_{BR} (Note 4) (V)			@ I_T (mA)	V_{RWM} (V)	I_R (nA)	I_{PP} (A)	V_C (V)	(mV/°C)
	Min	Nom	Max						
 CASE 318–08 STYLE 12 LOW PROFILE SOT–23 PLASTIC 									
MMBZ12VAL	11.40	12	12.60	1.0	8.5	200	2.35	17	7.50
MMBZ15VAL	14.25	15	15.75	1.0	12.0	50	1.9	21	12.30
MMBZ18VAL	17.10	18	18.90	1.0	14.5	50	1.6	25	15.30
MMBZ20VAL	19.00	20	21.00	1.0	17.0	50	1.4	28	17.20
MMBZ27VAL	25.65	27	28.35	1.0	22.0	50	1.0	40	24.30
MMBZ33VAL	31.35	33	34.65	1.0	26.0	50	0.87	46	30.40

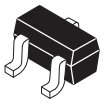
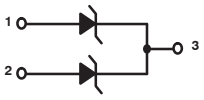
4. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

DUAL ZENERS – SURFACE MOUNT (continued)

MMBZ27VCW – Common Cathode Series

SC–70 Dual Common Cathode Zener; 40 W Peak Power (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Bidirectional (Circuit tied to Pins 1 and 2)

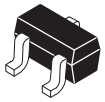
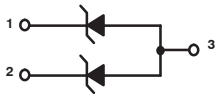
Device	Breakdown Voltage				Reverse Voltage Working Peak	Reverse Leakage Current	Reverse Surge Current	Reverse Voltage @ I_{PP} (Clamping Voltage)	Temperature Coefficient of
	V_{BR} (Note 1) (V)			@ I_T	V_{RWM}	I_R	I_{PP}	V_C	V_{BR}
	Min	Nom	Max	(mA)	(V)	(nA)	(A)	(V)	(mV/°C)
 CASE 419–04 SC–70 									
MMBZ27VCL	25.65	27	28.35	1.0	22	50	1.0	38	26

1. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

MMBZ27VAW – Common Anode Series

SC–70 Dual Common Anode Zener; 40 W Peak Power (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Bidirectional (Circuit Tied to Pins 1 and 2)

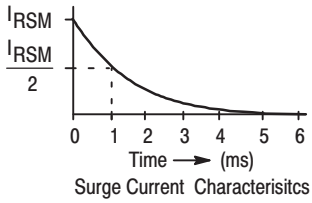
Device	Breakdown Voltage				Reverse Leakage Current		Reverse Surge Current	Reverse Voltage @ I_{PP} (Clamping Voltage)	Temp Coefficient of
	V_{BR} (Note 2) (V)			@ I_T (mA)	I_R @ V_R		I_{PP} (A)	V_C (V)	V_{BR} (mV/°C)
	Min	Nom	Max		(μA) (V)				
 CASE 419–04 SC–70 									
MMBZ27VAW	25.65	27	28.35	1.0	50	22	1.0	40	24.3

2. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

TVS – IN AXIAL LEADS

Peak Power Dissipation, 500 W @ 1 ms Surge (10 x 1000 μs) Case 59 (MiniMOSORB™)

CASE 59 (MiniMOSORB™)
PLASTIC
Cathode = Polarity Band



Surge Current Characterisitcs

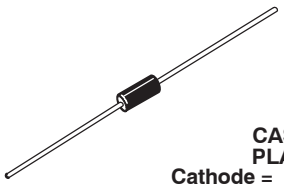
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) V_F = 3.5 V Max, I_F = 35 A Pulse

Working Peak Reverse Voltage V_{RWM} (V) (Note 1)	Device	Breakdown Voltage V_{BR} (V) Min (Note 2)	Breakdown Voltage V_{BR} (V) Max	@ I_T Pulse (mA)	Maximum Reverse Leakage @ V_{RWM} I_R (μA)	Maximum Reverse Surge Current I_{RSM} (A) (Note 3)	Maximum Reverse Voltage @ I_{RSM} (Clamping Voltage) V_{RSM} (V)
5	SA5.0A	6.4	7	10	600	54.3	9.2
6	SA6.0A	6.67	7.37	10	600	48.5	10.3
7	SA7.0A	7.78	8.6	10	150	41.7	12
10	SA10A	11.1	12.3	1	1	29.4	17
12	SA12A	13.3	14.7	1	1	25.1	19.9
13	SA13A	14.4	15.9	1	1	23.2	21.5
15	SA15A	16.7	18.5	1	1	20.6	24.4
16	SA16A	17.8	19.7	1	1	19.2	26
17	SA17A	18.9	20.9	1	1	18.1	27.6
18	SA18A	20	22.1	1	1	17.2	29.2
20	SA20A	22.2	24.5	1	1	15.4	32.4
24	SA24A	26.7	29.5	1	1	12.8	38.9
26	SA26A	28.9	31.9	1	1	11.9	42.1
28	SA28A	31.1	34.4	1	1	11	45.4
30	SA30A	33.3	36.8	1	1	10.3	48.4
33	SA33A	36.7	40.6	1	1	9.4	53.3
36	SA36A	40	44.2	1	1	8.6	58.1

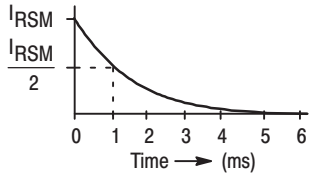
1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.

TVS – IN AXIAL LEADS (continued)

Peak Power Dissipation, 600 W @ 1 ms Surge (10 x 1000 μs) Case 17 – SURMETIC® 40 (continued)



CASE 17
PLASTIC
Cathode = Polarity Band



Surge Current Characterisitcs

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) V_F = 3.5 V Max, I_F = 50 A Pulse (except bidirectional devices).

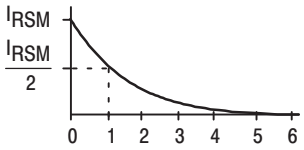
Breakdown Voltage (Note 2)			**Working Peak Reverse Voltage V_{RWM} (V)** (Note 1)	**Maximum Reverse Leakage @ V_{RWM} I_R (μA)**	**Maximum Reverse Surge Current I_{RSM} (A)** (Note 3)	**Maximum Reverse Voltage @ I_{RSM} (Clamping Voltage) V_{RSM} (V)**
V_{BR} (V)	**@ I_T Pulse (mA)**	**Device**				
Nom						
6.8	10	P6KE6.8A	5.8	1000	57	10.5
7.5	10	P6KE7.5A	6.4	500	53	11.3
10	1	P6KE10A	8.55	10	41	14.5
12	1	P6KE12A	10.2	5	36	16.7
13	1	P6KE13A	11.1	5	33	18.2
15	1	P6KE15A	12.8	5	28	21.2
16	1	P6KE16A	13.6	5	27	22.5
18	1	P6KE18A	15.3	5	24	25.2
20	1	P6KE20A	17.1	5	22	27.7
22	1	P6KE22A	18.8	5	20	30.6
24	1	P6KE24A	20.5	5	18	33.2
27	1	P6KE27A	23.1	5	16	37.5
30	1	P6KE30A	25.6	5	14.4	41.4
33	1	P6KE33A	28.2	5	13.2	45.7
36	1	P6KE36A	30.8	5	12	49.9
39	1	P6KE39A	33.3	5	11.2	53.9
43	1	P6KE43A	36.8	5	10.1	59.3
47	1	P6KE47A	40.2	5	9.3	64.8
51	1	P6KE51A	43.6	5	8.6	70.1
56	1	P6KE56A	47.8	5	7.8	77
62	1	P6KE62A	53	5	7.1	85
68	1	P6KE68A	58.1	5	6.5	92
75	1	P6KE75A	64.1	5	5.8	103
82	1	P6KE82A	70.1	5	5.3	113
100	1	P6KE100A	85.5	5	4.4	137
150	1	P6KE150A	128	5	2.9	207
160	1	P6KE160A	136	5	2.7	219
180	1	P6KE180A	154	5	2.4	246
200	1	P6KE200A	171	5	2.2	274

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.

TVS – IN AXIAL LEADS (continued)

Peak Power Dissipation, 1500 W @ 1 ms Surge (10 x 1000 μs) Case 41A – MOSORB

CASE 41A
PLASTIC
Cathode = Polarity Band



Surge Current Characterisitcs

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) V_F = 3.5 V Max, I_F = 100 A Pulse

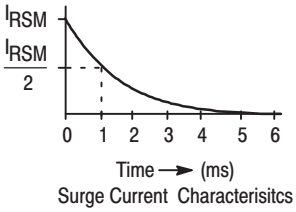
Breakdown Voltage (Note 2)							
V_{BR} V	@ I_T Pulse (mA)	JEDEC Device	Device	Working Peak Reverse Voltage V_{RWM} (V) (Note 1)	Maximum Reverse Leakage @ V_{RWM} I_R (μA)	Maximum Reverse Surge Current I_{RSM} (A) (Note 3)	Maximum Reverse Voltage @ I_{RSM} (Clamping Voltage) V_{RSM} (V)
Nom							
6.8	10	1N6267A	1.5KE6.8A	5.8	1000	143	10.5
7.5	10		1.5KE7.5A	6.4	500	132	11.3
8.2	10		1.5KE8.2A	7.02	200	124	12.1
10	1	1N6271A	1.5KE10A	8.55	10	103	14.5
11	1		1.5KE11A	9.4	5	96	15.6
12	1		1.5KE12A	10.2	5	90	16.7
13	1	1N6274A	1.5KE13A	11.1	5	82	18.2
15	1	1N6275A	1.5KE15A	12.8	5	71	21.2
16	1	1N6276A	1.5KE16A	13.6	5	67	22.5
18	1	1N6277A	1.5KE18A	15.3	5	59.5	25.2
20	1	1N6278A	1.5KE20A	17.1	5	54	27.7
22	1	1N6279A		18.8	5	49	30.6
24	1	1N6280A	1.5KE24A	20.5	5	45	33.2
27	1	1N6281A	1.5KE27A	23.1	5	40	37.5
30	1	1N6282A	1.5KE30A	25.6	5	36	41.4
33	1	1N6283A	1.5KE33A	28.2	5	33	45.7
36	1	1N6284A	1.5KE36A	30.8	5	30	49.9
39	1	1N6285A	1.5KE39A	33.3	5	28	53.9
43	1	1N6286A	1.5KE43A	36.8	5	25.3	59.3
47	1	1N6287A	1.5KE47A	40.2	5	23.2	64.8
51	1	1N6288A	1.5KE51A	43.6	5	21.4	70.1
56	1	1N6289A	1.5KE56A	47.8	5	19.5	77
62	1	1N6290A	1.5KE62A	53	5	17.7	85
68	1	1N6291A	1.5KE68A	58.1	5	16.3	92
75	1	1N6292A	1.5KE75A	64.1	5	14.6	103
82	1		1.5KE82A	70.1	5	13.3	113
91	1	1N6294A	1.5KE91A	77.8	5	12	125
100	1	1N6295A		85.5	5	11	137

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.

TVS – IN SURFACE MOUNT

1PMT Series Unidirectional Overvoltage Transient Suppressors, 200 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_L = 30°C unless otherwise noted) (V_F = 1.25 V @ 200 mA)

Device	Marking	V_{RWM} (V) (Note 1)	V_{BR} @ I_T (V) (Note 2) Min	Nom	Max	I_T (mA)	I_R @ V_{RWM} (μA)	V_C @ I_{PP} (V)	I_{PP} (A) (Note 3)
POWERMITE® CASE 457 PLASTIC  Surge Current Characterisitcs									
1PMT5.0A	MKE	5.0	6.4	6.7	7.0	10	800	9.2	19
1PMT7.0A	MKM	7.0	7.78	8.2	8.6	10	500	12	14.6
1PMT12A	MLE	12	13.3	14	14.7	1.0	5.0	19.9	8.8
1PMT16A	MLP	16	17.8	18.75	19.7	1.0	5.0	26	7.0
1PMT22A	MLX	22	24.4	25.6	26.9	1.0	5.0	35.5	4.9
1PMT26A	MME	26	28.9	30.4	31.9	1.0	5.0	42.1	4.2
1PMT33A	MMM	33	36.7	38.7	40.6	1.0	5.0	53.3	3.3

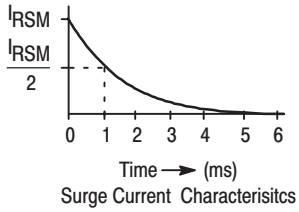
1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.

TVS – IN SURFACE MOUNT (continued)

SMF Series Unidirectional Overvoltage Transient Suppressors, 200 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_L = 30°C unless otherwise noted) (V_F = 1.25 V @ 200 mA)

Device	Marking	V_{RWM} (V) (Note 1)	V_{BR} @ I_T (V) (Note 2) Min	Nom	Max	I_T (mA)	I_R @ V_{RWM} (μA)	V_C @ I_{PP} (V)	I_{PP} (A) (Note 3)
SOD−123FL CASE 498 PLASTIC									
SMF5.0A	KE	5.0	6.4	6.7	7.0	10	400	9.2	16.3
SMF6.0A	KG	6.0	6.67	7.02	7.37	10	400	10.3	14.6
SMF7.0A	KM	7.0	7.78	8.2	8.6	10	100	12	12.5
SMF7.5A	KP	7.5	8.33	8.77	9.21	1.0	50	12.9	11.6
SMF8.0A	KR	8.0	8.89	9.36	9.83	1.0	25	13.6	11
SMF9.0A	KV	9.0	10	10.55	11.1	1.0	5.0	15.4	9.7
SMF10A	KX	10	11.1	11.7	12.3	1.0	2.5	17	8.8
SMF11A	KZ	11	12.2	12.85	13.5	1.0	2.5	18.2	8.2
SMF12A	LE	12	13.3	14	14.7	1.0	2.5	19.9	7.5
SMF13A	LG	13	14.4	15.15	15.9	1.0	1.0	21.5	7.0
SMF14A	LK	14	15.6	16.4	17.2	1.0	1.0	23.2	6.5
SMF15A	LM	15	16.7	17.6	18.5	1.0	1.0	24.4	6.1
SMF18A	LT	18	20	21	22.1	1.0	1.0	29.2	5.1
SMF20A	LV	20	22.2	23.35	24.5	1.0	1.0	32.4	4.6
SMF22A	LX	22	24.4	25.6	26.9	1.0	1.0	35.5	4.2
SMF24A	LZ	24	26.7	28.1	29.5	1.0	1.0	38.9	3.9
SMF26A	ME	26	28.9	30.4	31.9	1.0	1.0	42.1	3.6
SMF28A	MG	28	31.1	32.8	34.4	1.0	1.0	45.4	3.3
SMF30A	MK	30	33.3	35.1	36.8	1.0	1.0	48.4	3.1
SMF33A	MM	33	36.7	38.7	40.6	1.0	1.0	53.3	2.8
SMF36A	MP	36	40	42.1	44.2	1.0	1.0	58.1	2.6



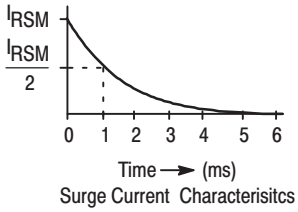
Surge Current Characterisitcs

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform. TVS – in Surface Mount (continued)

TVS – IN SURFACE MOUNT (continued)

1SMA Series Unidirectional Overvoltage Transient Suppressors; 400 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (V_F = 3.5 Volts @ I_F = 40 A for all types) (Note 4)

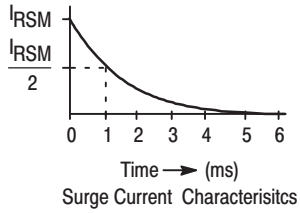
Device	Working Peak Reverse Voltage V_{RWM} (V) (Note 1)	Breakdown Voltage V_{BR} (V) (Min) (Note 2)	Breakdown Voltage I_T mA	Maximum Reverse Voltage @ I_{RSM} (Clamping Voltage) V_C (V)	Maximum Reverse Surge Current I_{PP} (A) (Note 3)	Maximum Reverse Leakage @ V_{RWM} I_R (μA)	Device Marking
		SMA CASE 403B PLASTIC		 Surge Current Characterisitcs			
1SMA5.0A	5.0	6.4	10	9.2	43.5	400	QE
1SMA6.0A	6.0	6.67	10	10.3	38.8	400	QG
1SMA6.5A	6.5	7.22	10	11.2	35.7	250	QK
1SMA8.0A	8.0	8.89	1	13.6	29.4	25	QR
1SMA8.5A	8.5	9.44	1	14.4	27.8	5.0	QT
1SMA9.0A	9.0	10	1	15.4	26.0	2.5	QV
1SMA10A	10	11.1	1	17.0	23.5	2.5	QX
1SMA11A	11	12.2	1	18.2	22.0	2.5	QZ
1SMA12A	12	13.3	1	19.9	20.1	2.5	RE
1SMA13A	13	14.4	1	21.5	18.6	2.5	RG
1SMA15A	15	16.7	1	24.4	16.4	2.5	RM
1SMA16A	16	17.8	1	26.0	15.4	2.5	RP
1SMA17A	17	18.9	1	27.6	14.5	2.5	RR
1SMA18A	18	20	1	29.2	13.7	2.5	RT
1SMA20A	20	22.2	1	32.4	12.3	2.5	RV
1SMA22A	22	24.4	1	35.5	11.3	2.5	RX
1SMA24A	24	26.7	1	38.9	10.3	2.5	RZ
1SMA26A	26	28.9	1	42.1	9.5	2.5	SE
1SMA28A	28	31.1	1	45.4	8.8	2.5	SG
1SMA30A	30	33.3	1	48.4	8.3	2.5	SK
1SMA33A	33	36.7	1	53.3	7.5	2.5	SM
1SMA36A	36	40	1	58.1	6.9	2.5	SP
1SMA40A	40	44.4	1	64.5	6.2	2.5	SR
1SMA43A	43	47.8	1	69.4	5.8	2.5	ST
1SMA45A	45	50	1	72.2	5.5	2.5	SV
1SMA48A	48	53.3	1	77.4	5.2	2.5	SX
1SMA54A	54	60	1	87.1	4.6	2.5	TE
1SMA58A	58	64.4	1	93.6	4.8	2.5	TG
1SMA70A	70	77.8	1	113.0	3.5	2.5	TP

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute.

TVS – IN SURFACE MOUNT (continued)

1SMA Series Bidirectional Zener Overvoltage Transient Suppressors; 400 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Device	Working Peak Reverse Voltage V_{RWM} (V) (Note 1)	Breakdown Voltage		Maximum Reverse Voltage @ I_{RSM} (Clamping Voltage) V_C (V)	Maximum Reverse Surge Current I_{PP} (A) (Note 3)	Maximum Reverse Leakage @ V_{RWM} I_R (μA)	Device Marking
		V_{BR} (V) (Min) (Note 2)	I_T mA				
	SMA CASE 403B PLASTIC				 Surge Current Characterisitcs		
1SMA10CA	10	11.1	1	17.0	23.5	2.5	QXC
1SMA12CA	12	13.3	1	19.9	20.1‘	2.5	REC
1SMA13CA	13	14.4	1	21.5	18.6	2.5	RGC
1SMA15CA	15	16.7	1	24.4	16.4	2.5	RMC
1SMA16CA	16	17.8	1	26.0	15.4	2.5	RPC
1SMA18CA	18	20	1	29.2	13.7	2.5	RTC
1SMA20CA	20	22.2	1	32.4	12.3	2.5	RVC
1SMA24CA	24	26.7	1	38.9	10.3	2.5	RZC
1SMA26CA	26	28.9	1	42.1	9.5	2.5	SEC
1SMA28CA	28	31.1	1	45.4	8.8	2.5	SGC
1SMA30CA	30	33.3	1	48.4	8.3	2.5	SKC
1SMA33CA	33	36.7	1	53.3	7.5	2.5	SMC
1SMA36CA	36	40	1	58.1	6.9	2.5	SPC
1SMA40CA	40	44.4	1	64.5	6.2	2.5	SRC
1SMA48CA	48	53.3	1	77.4	5.2	2.5	SXC
1SMA58CA	58	64.4	1	93.6	4.3	2.5	TGC
1SMA60CA	60	66.7	1	96.8	4.1	2.5	TKC
1SMA70CA	70	77.8	1	113.0	3.5	2.5	TPC
1SMA78CA	78	86.7	1	126.0	3.2	2.5	TSC

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.

TVS – IN SURFACE MOUNT (continued)

1SMB Series Unidirectional Overvoltage Transient Suppressors; 600 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (V_F = 3.5 V Max @ I_F = 30 A) (Note 4)

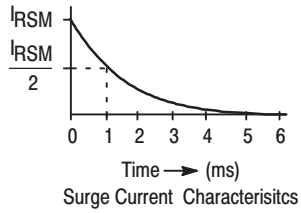
Device	Working Peak Reverse Voltage V_{RWM} (Vo) (Note 1)	Breakdown Voltage V_{BR} @ I_T (V) (Min) (Note 2)	mA	Maximum Clamping Voltage V_C @ I_{pp} (V)	Peak Pulse Current I_{pp} (A) (Note 3)	Maximum Reverse Leakage @ V_R I_R (μA)	Device Marking
		SMB CASE 403A PLASTIC		Surge Current Characterisitcs			
1SMB5.0A	5.0	6.40	10	9.2	65.2	800	KE
1SMB6.0A	6.0	6.67	10	10.3	58.3	800	KG
1SMB6.5A	6.5	7.22	10	11.2	53.6	500	KK
1SMB7.0A	7.0	7.78	10	12.0	50.0	200	KM
1SMB7.5A	7.5	8.33	1.0	12.9	46.5	100	KP
1SMB8.0A	8.0	8.89	1.0	13.6	44.1	50	KR
1SMB8.5A	8.5	9.44	1.0	14.4	41.7	10	KT
1SMB9.0A	9.0	10.0	1.0	15.4	39.0	5.0	KV
1SMB10A	10	11.1	1.0	17.0	35.3	5.0	KX
1SMB11A	11	12.2	1.0	18.2	33.0	5.0	KZ
1SMB12A	12	13.3	1.0	19.9	30.2	5.0	LE
1SMB13A	13	14.4	1.0	21.5	27.9	5.0	LG
1SMB14A	14	15.6	1.0	23.2	25.8	5.0	LK
1SMB15A	15	16.7	1.0	24.4	24.0	5.0	LM
1SMB16A	16	17.8	1.0	26.0	23.1	5.0	LP
1SMB17A	17	18.9	1.0	27.6	21.7	5.0	LR
1SMB18A	18	20.0	1.0	29.2	20.5	5.0	LT
1SMB20A	20	22.2	1.0	32.4	18.5	5.0	LV
1SMB22A	22	24.4	1.0	***35.5***	16.9	5.0	LX
1SMB24A	24	26.7	1.0	38.9	15.4	5.0	LZ
1SMB26A	26	28.9	1.0	42.1	14.2	5.0	ME
1SMB28A	28	31.1	1.0	45.4	13.2	5.0	MG
1SMB30A	30	33.3	1.0	48.4	12.4	5.0	MK
1SMB33A	33	36.7	1.0	53.3	11.3	5.0	MM
1SMB36A	36	40.0	1.0	58.1	10.3	5.0	MP
1SMB40A	40	44.4	1.0	64.5	9.3	5.0	MR
1SMB43A	43	47.8	1.0	69.4	8.6	5.0	MT
1SMB45A	45	50.0	1.0	72.7	8.3	5.0	MV
1SMB48A	48	53.3	1.0	77.4	7.7	5.0	MX
1SMB51A	51	56.7	1.0	82.4	7.3	5.0	MZ
1SMB54A	54	60.0	1.0	87.1	6.9	5.0	NE
1SMB58A	58	64.4	1.0	93.6	6.4	5.0	NG
1SMB60A	60	66.7	1.0	96.8	6.2	5.0	NK
1SMB64A	64	71.1	1.0	103	5.8	5.0	NM
1SMB70A	70	77.8	1.0	113	5.3	5.0	NP
1SMB75A	75	83.3	1.0	121	4.9	5.0	NR
1SMB85A	85	94.4	1.0	137	4.4	5.0	NV
1SMB90A	90	100	1.0	146	4.1	5.0	NX
1SMB100A	100	111	1.0	162	3.7	5.0	NZ

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute.

TVS – IN SURFACE MOUNT (continued)

1SMB Series Unidirectional Overvoltage Transient Suppressors; 600 W Peak Power @ 1 ms Surge (10 x 1000 μs) (continued)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (V_F = 3.5 V Max @ I_F = 30 A) (Note 4)

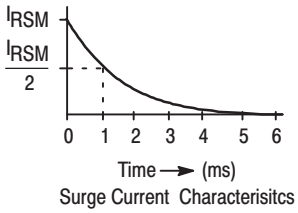
Device	Working Peak Reverse Voltage V_{RWM} (V) (Note 1)	Breakdown Voltage V_{BR} @ I_T (V) (Min) (Note 2)	Breakdown Voltage V_{BR} @ I_T mA	Maximum Clamping Voltage V_C @ I_{pp} (V)	Peak Pulse Current I_{pp} (A) (Note 3)	Maximum Reverse Leakage @ V_R I_R (μA)	Device Marking
SMB CASE 403A PLASTIC				 Surge Current Characterisitcs			
1SMB110A	110	122	1.0	177	3.4	5.0	PE
1SMB120A	120	133	1.0	193	3.1	5.0	PG
1SMB130A	130	144	1.0	209	2.9	5.0	PK
1SMB150A	150	167	1.0	243	2.5	5.0	PM
1SMB160A	160	178	1.0	259	2.3	5.0	PP
1SMB170A	170	189	1.0	275	2.2	5.0	PR

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute.

TVS – IN SURFACE MOUNT (continued)

1SMB Series Bidirectional Overvoltage Transient Suppressors; 600 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted).

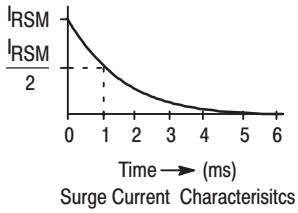
Device	Working Peak Reverse Voltage V_{RWM} (V) (Note 1)	Breakdown Voltage V_{BR} @ I_T (V) (Min) (Note 2)	Breakdown Voltage V_{BR} @ I_T (mA)	Maximum Clamping Voltage V_C @ I_{pp} (V)	Peak Pulse Current I_{pp} (A) (Note 3)	Maximum Reverse Leakage @ V_R I_R (μA)	Device Marking
		SMB CASE 403A PLASTIC		 Surge Current Characterisitcs			
1SMB10CA	10	11.1	1.0	17.0	35.3	5.0	KXC
1SMB11CA	11	12.2	1.0	18.2	33.0	5.0	KZC
1SMB12CA	12	13.3	1.0	19.9	30.2	5.0	LEC
1SMB13CA	13	14.4	1.0	21.5	27.9	5.0	LGC
1SMB14CA	14	15.6	1.0	23.2	25.8	5.0	LKC
1SMB15CA	15	16.7	1.0	24.4	24.0	5.0	LMC
1SMB16CA	16	17.8	1.0	26.0	23.1	5.0	LPC
1SMB17CA	17	18.9	1.0	27.6	21.7	5.0	LRC
1SMB18CA	18	20.0	1.0	29.2	20.5	5.0	LTC
1SMB20CA	20	22.2	1.0	32.4	18.5	5.0	LVC
1SMB22CA	22	24.4	1.0	35.5	16.9	5.0	LXC
1SMB24CA	24	26.7	1.0	38.9	15.4	5.0	LZC
1SMB26CA	26	28.9	1.0	42.1	14.2	5.0	MEC
1SMB28CA	28	31.1	1.0	45.4	13.2	5.0	MGC
1SMB30CA	30	33.3	1.0	48.4	12.4	5.0	MKC
1SMB33CA	33	36.7	1.0	53.3	11.3	5.0	MMC
1SMB36CA	36	40.0	1.0	58.1	10.3	5.0	MPC
1SMB40CA	40	44.4	1.0	64.5	9.3	5.0	MRC
1SMB43CA	43	47.8	1.0	69.4	8.6	5.0	MTC
1SMB45CA	45	50.0	1.0	72.7	8.3	5.0	MVC
1SMB48CA	48	53.3	1.0	77.4	7.7	5.0	MXC
1SMB51CA	51	56.7	1.0	82.4	7.3	5.0	MZC
1SMB54CA	54	60.0	1.0	87.1	6.9	5.0	NEC
1SMB58CA	58	64.4	1.0	93.6	6.4	5.0	NGC
1SMB60CA	60	66.7	1.0	96.8	6.2	5.0	NKC
1SMB64CA	64	71.1	1.0	103	5.8	5.0	NMC
1SMB75CA	75	83.3	1.0	121	4.9	5.0	NRC

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.

TVS – IN SURFACE MOUNT (continued)

P6SMB Series Unidirectional Overvoltage Transient Suppressors; 600 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (V_F = 3.5 V Max, I_F = 50 A for all types) (Note 4)

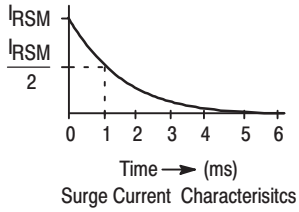
Device	Breakdown Voltage V_{BR} @ I_T (V) (Note 2) Min	Nom	Max	(mA)	Working Peak Reverse Voltage V_{RWM} (V) (Note 1)	Maximum Reverse Leakage @ V_{RWM} I_R (μA)	Maximum Reverse Surge Current I_{PP} (A) (Note 3)	Maximum Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Temperature Coefficient of V_{BR} %/°C	Device Marking
SMB CASE 403A PLASTIC							 Surge Current Characterisitcs			
P6SMB6.8A	6.45	6.8	7.14	10	5.8	1000	57	10.5	0.057	6V8A
P6SMB7.5A	7.13	7.5	7.88	10	6.4	500	53	11.3	0.061	7V5A
P6SMB8.2A	7.79	8.2	8.61	10	7.02	200	50	12.1	0.065	8V2A
P6SMB9.1A	8.65	9.1	9.55	1	7.78	50	45	13.4	0.068	9V1A
P6SMB10A	9.5	10	10.5	1	8.55	10	41	14.5	0.073	10A
P6SMB12A	11.4	12	12.6	1	10.2	5	36	16.7	0.078	12A
P6SMB13A	12.4	13	13.7	1	11.1	5	33	18.2	0.081	13A
P6SMB15A	14.3	15	15.8	1	12.8	5	28	21.2	0.084	15A
P6SMB16A	15.2	16	16.8	1	13.6	5	27	22.5	0.086	16A
P6SMB18A	17.1	18	18.9	1	15.3	5	24	25.2	0.088	18A
P6SMB20A	19	20	21	1	17.1	5	22	27.7	0.09	20A
P6SMB22A	20.9	22	23.1	1	18.8	5	20	30.6	0.092	22A
P6SMB24A	22.8	24	25.2	1	20.5	5	18	33.2	0.094	24A
P6SMB27A	25.7	27	28.4	1	23.1	5	16	37.5	0.096	27A
P6SMB30A	28.5	30	31.5	1	25.6	5	14.4	41.4	0.097	30A
P6SMB33A	31.4	33	34.7	1	28.2	5	13.2	45.7	0.098	33A
P6SMB36A	34.2	36	37.8	1	30.8	5	12	49.9	0.099	36A
P6SMB39A	37.1	39	41	1	33.3	5	11.2	53.9	0.1	39A
P6SMB43A	40.9	43	45.2	1	36.8	5	10.1	59.3	0.101	43A
P6SMB47A	44.7	47	49.4	1	40.2	5	9.3	64.8	0.101	47A
P6SMB51A	48.5	51	53.6	1	43.6	5	8.6	70.1	0.102	51A
P6SMB56A	53.2	56	58.8	1	47.8	5	7.8	77	0.103	56A
P6SMB62A	58.9	62	65.1	1	53	5	7.1	85	0.104	62A
P6SMB68A	64.6	68	71.4	1	58.1	5	6.5	92	0.104	68A
P6SMB75A	71.3	75	78.8	1	64.1	5	5.8	103	0.105	75A
P6SMB82A	77.9	82	86.1	1	70.1	5	5.3	113	0.105	82A
P6SMB91A	86.5	91	95.5	1	77.8	5	4.8	125	0.106	91A
P6SMB100A	95	100	105	1	85.5	5	4.4	137	0.106	100A
P6SMB120A	114	120	126	1	102	5	3.6	165	0.107	120A
P6SMB130A	124	130	137	1	111	5	3.3	179	0.107	130A
P6SMB150A	143	150	158	1	128	5	2.9	207	0.108	150A
P6SMB160A	152	160	168	1	136	5	2.7	219	0.108	160A
P6SMB180A	171	180	189	1	154	5	2.4	246	0.108	180A
P6SMB200A	190	200	210	1	171	5	2.2	274	0.108	200A

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute.

TVS – IN SURFACE MOUNT (continued)

P6SMB Series Bidirectional Overvoltage Transient Suppressors; 600 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

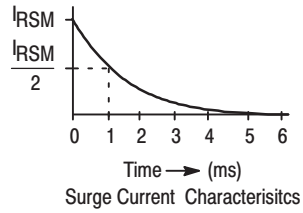
Device	Breakdown Voltage V_{BR} @ I_T Volts (Note 2) Min	Nom	Max	mA	Working Peak Reverse Voltage V_{RWM} Volts (Note 1)	Maximum Reverse Leakage @ V_{RWM} I_R μA	Maximum Reverse Surge Current I_{PP} Amps (Note 3)	Maximum Reverse Voltage @ I_{PP} (Clamping Voltage) V_C Volts	Temperature Coefficient of V_{BR} %/°C	Device Marking
SMB CASE 403A PLASTIC							 Surge Current Characterisitcs			
P6SMB11CA	10.5	11	11.6	1	9.4	5	38	15.6	0.075	11C
P6SMB12CA	11.4	12	12.6	1	10.2	5	36	16.7	0.078	12C
P6SMB15CA	14.3	15	15.8	1	12.8	5	28	21.2	0.084	15C
P6SMB16CA	15.2	16	16.8	1	13.6	5	27	22.5	0.086	16C
P6SMB18CA	17.1	18	18.9	1	15.3	5	24	25.2	0.088	18C
P6SMB20CA	19	20	21	1	17.1	5	22	27.7	0.09	20C
P6SMB22CA	20.9	22	23.1	1	18.8	5	20	30.6	0.092	22C
P6SMB24CA	22.8	24	25.2	1	20.5	5	18	33.2	0.094	24C
P6SMB27CA	25.7	27	28.4	1	23.1	5	16	37.5	0.096	27C
P6SMB30CA	28.5	30	31.5	1	25.6	5	14.4	41.4	0.097	30C
P6SMB33CA	31.4	33	34.7	1	28.2	5	13.2	45.7	0.098	33C
P6SMB36CA	34.2	36	37.8	1	30.8	5	12	49.9	0.099	36C
P6SMB39CA	37.1	39	41	1	33.3	5	11.2	53.9	0.1	39C
P6SMB43CA	40.9	43	45.2	1	36.8	5	10.1	59.3	0.101	43C
P6SMB47CA	44.7	47	49.4	1	40.2	5	9.3	64.8	0.101	47C
P6SMB51CA	48.5	51	53.6	1	43.6	5	8.6	70.1	0.102	51C
P6SMB56CA	53.2	56	58.8	1	47.8	5	7.8	77	0.103	56C
P6SMB62CA	58.9	62	65.1	1	53	5	7.1	85	0.104	62C
P6SMB68CA	64.6	68	71.4	1	58.1	5	6.5	92	0.104	68C
P6SMB82CA	77.9	82	86.1	1	70.1	5	5.3	113	0.105	82C

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.

TVS – IN SURFACE MOUNT (continued)

SMBJ12AON Series Bidirectional Overvoltage Transient Suppressors; 600 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

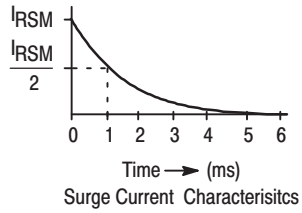
Device	Breakdown Voltage V_{BR} @ I_T Volts (Note 2) Min	Nom	Max	mA	Working Peak Reverse Voltage V_{RWM} Volts (Note 1)	Maximum Reverse Leakage @ V_{RWM} I_R μA	Maximum Reverse Surge Current I_{PP} Amps (Note 3)	Maximum Reverse Voltage @ I_{PP} (Clamping Voltage) V_C Volts
SMB CASE 403A PLASTIC  Surge Current Characterisitcs								
SMBJ12AON	13.2	13.75	14.3	1	12	5	17.5	15.6

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.

TVS – IN SURFACE MOUNT (continued)

1SMC Series Unidirectional Overvoltage Transient Suppressors; 1500 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (V_F = 3.5 V Max @ I_F = 100 A) (Note 4)

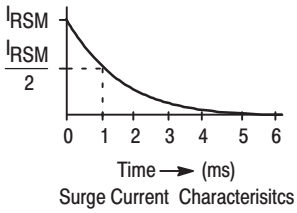
Device	Working Peak Reverse Voltage V_R Volts (Note 1)	Breakdown Voltage V_{BR} @ I_T Volts (Min) (Note 2)	Breakdown Voltage V_{BR} @ I_T mA	Maximum Clamping Voltage V_C @ I_{pp} Volts	Peak Pulse Current I_{pp} Amps (Note 3)	Maximum Reverse Leakage @ V_R I_R μA	Device Marking
		SMC CASE 403B PLASTIC		 Surge Current Characterisitcs			
1SMC5.0A	5.0	6.40	10	9.2	163.0	1000	GDE
1SMC6.0A	6.0	6.67	10	10.3	145.6	1000	GDG
1SMC6.5A	6.5	7.22	10	11.2	133.9	500	GDK
1SMC7.0A	7.0	7.78	10	12.0	125.0	200	GDM
1SMC7.5A	7.5	8.33	1.0	12.9	116.3	100	GDP
1SMC8.0A	8.0	8.89	1.0	13.6	110.3	50	GDR
1SMC9.0A	9.0	10.0	1.0	15.4	97.4	10	GDV
1SMC10A	10	11.1	1.0	17.0	88.2	5.0	GDX
1SMC12A	12	13.3	1.0	19.9	75.3	5.0	GEE
1SMC13A	13	14.4	1.0	21.5	69.7	5.0	GEG
1SMC14A	14	15.6	1.0	23.2	64.7	5.0	GEK
1SMC15A	15	16.7	1.0	24.4	61.5	5.0	GEM
1SMC16A	16	17.8	1.0	26.0	57.7	5.0	GEP
1SMC17A	17	18.9	1.0	27.6	53.3	5.0	GER
1SMC18A	18	20.0	1.0	29.2	51.4	5.0	GET
1SMC20A	20	22.2	1.0	32.4	46.3	5.0	GEV
1SMC22A	22	24.4	1.0	35.5	42.2	5.0	GEX
1SMC24A	24	26.7	1.0	38.9	38.6	5.0	GEZ
1SMC26A	26	28.9	1.0	42.1	35.6	5.0	GFE
1SMC28A	28	31.1	1.0	45.4	33.0	5.0	GFG
1SMC30A	30	33.3	1.0	48.4	31.0	5.0	GFK
1SMC33A	33	36.7	1.0	53.3	28.1	5.0	GFM
1SMC36A	36	40.0	1.0	58.1	25.8	5.0	GFP
1SMC40A	40	44.4	1.0	64.5	23.2	5.0	GFR
1SMC43A	43	47.8	1.0	69.4	21.6	5.0	GFT
1SMC48A	48	53.3	1.0	77.4	19.4	5.0	GFX
1SMC51A	51	56.7	1.0	82.4	18.2	5.0	GFZ
1SMC54A	54	60.0	1.0	87.1	17.2	5.0	GGE
1SMC58A	58	64.4	1.0	93.6	16.0	5.0	GGG
1SMC60A	60	66.7	1.0	96.8	15.5	5.0	GGK
1SMC64A	64	71.1	1.0	103	14.6	5.0	GGM
1SMC70A	70	77.8	1.0	113	13.3	5.0	GGP
1SMC75A	75	83.3	1.0	121	12.4	5.0	GGR
1SMC78A	78	86.7	1.0	126	11.4	5.0	GGT

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute.

TVS – IN SURFACE MOUNT (continued)

1.5 SMC Series Unidirectional Overvoltage Transient Suppressors; 1500 W Peak Power @ 1 ms Surge (10 x 1000 μs)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (V_F = 3.5 V Max, I_F = 100 A for all types) (Note 4)

Device	Breakdown Voltage V_{BR} @ I_T Volts (Note 2) Min	Nom	Max	mA	Working Peak Reverse Voltage V_{RWM} Volts (Note 1)	Maximum Reverse Leakage @ V_{RWM} I_R μA	Maximum Reverse Surge Current I_{PP} Amps (Note 3)	Maximum Reverse Voltage @ I_{PP} (Clamping Voltage) V_C Volts	Temperature Coefficient of V_{BR} %/°C	Device Marking
SMC CASE 403 PLASTIC							 Surge Current Characterisitcs			
1.5SMC6.8A	6.45	6.8	7.14	10	5.8	1000	143	10.5	0.057	6V8A
1.5SMC7.5A	7.13	7.5	7.88	10	6.4	500	132	11.3	0.061	7V5A
1.5SMC10A	9.5	10	10.5	1	8.55	10	103	14.5	0.073	10A
1.5SMC12A	11.4	12	12.6	1	10.2	5	90	16.7	0.078	12A
1.5SMC13A	12.4	13	13.7	1	11.1	5	82	18.2	0.081	13A
1.5SMC15A	14.3	15	15.8	1	12.8	5	71	21.2	0.084	15A
1.5SMC16A	15.2	16	16.8	1	13.6	5	67	22.5	0.086	16A
1.5SMC18A	17.1	18	18.9	1	15.3	5	59.5	25.2	0.088	18A
1.5SMC20A	19	20	21	1	17.1	5	54	27.7	0.09	20A
1.5SMC22A	20.9	22	23.1	1	18.8	5	49	30.6	0.092	22A
1.5SMC24A	22.8	24	25.2	1	20.5	5	45	33.2	0.094	24A
1.5SMC27A	25.7	27	28.4	1	23.1	5	40	37.5	0.096	27A
1.5SMC30A	28.5	30	31.5	1	25.6	5	36	41.4	0.097	30A
1.5SMC33A	31.4	33	34.7	1	28.2	5	33	45.7	0.098	33A
1.5SMC36A	34.2	36	37.8	1	30.8	5	30	49.9	0.099	36A
1.5SMC39A	37.1	39	41	1	33.3	5	28	53.9	0.1	39A
1.5SMC43A	40.9	43	45.2	1	36.8	5	25.3	59.3	0.101	43A
1.5SMC47A	44.7	47	49.4	1	40.2	5	23.2	64.8	0.101	47A
1.5SMC51A	48.5	51	53.6	1	43.6	5	21.4	70.1	0.102	51A
1.5SMC56A	53.2	56	58.8	1	47.8	5	19.5	77	0.103	56A
1.5SMC62A	58.9	62	65.1	1	53	5	17.7	85	0.104	62A
1.5SMC68A	64.6	68	71.4	1	58.1	5	16.3	92	0.104	68A
1.5SMC75A	71.3	75	78.8	1	64.1	5	14.6	103	0.105	***75A***
1.5SMC82A	77.9	82	86.1	1	70.1	5	13.3	113	0.105	82A
1.5SMC91A	86.5	91	95.5	1	77.8	5	12	125	0.106	91A

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
3. 10 x 1000 μs exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute.

TVS/ESD PROTECTION – One Line

ESD11N5 – One Line Low Cap

Single Line TVS/ESD in 0201 DSN; Meets IEC61000–4–2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
BIDIRECTIONAL

Device	Breakdown Voltage V_{BR} (Note 5) (V) Min	Breakdown Voltage @ I_T (mA)	Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	V_C (V) @ I_{PP} = 1 A	Typical Capacitance (pF) Pin 1 to 2 @ 0 V
CASE 152AA DSN2						
ESD11N5.0ST5G	5.8	1.0	5.0	1.0	12.0	0.6

5. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

ESD11B5 – One Line

Single Line TVS/ESD in 0201 DSN; Meets IEC61000–4–2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
BIDIRECTIONAL

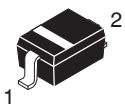
Device	Breakdown Voltage V_{BR} (Note 6) (V) Min	Breakdown Voltage @ I_T (mA)	Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	V_C (V) @ I_{PP} = 1 A	Typical Capacitance (pF) Pin 1 to 2 @ 0 V
CASE 152AA DSN2						
ESD11B5.0ST5G	5.8	1.0	5.0	1.0	10.0	12.0

6. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

SD05 Series

Single Line TVS/ESD in SOD–323; 350 W Peak Power (8 x 20 μs); Meets IEC61000–4–2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

Device	Breakdown Voltage V_{BR} (Note 7) (V) Min	Nom	Max	@ I_T (mA)	Reverse Voltage Working Peak V_{RWM} (Volts)	Max Reverse Leakage Current I_R (μA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
 CASE 477 STYLE 1 SOD–323									
SD05	6.2	6.75	7.3	1.0	5.0	10	24	14.5	350
SD12	13.3	14.5	15.75	1.0	12	1.0	15	25	150

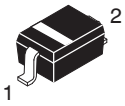
7. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

TVS/ESD PROTECTION – One Line (continued)

SD12C

Single Line TVS/ESD in SOD−323; 350 W Peak Power (8 x 20 μs); Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Bidirectional

Device	Breakdown Voltage V_{BR} (Note 8) (V) Min	Nom	Max	@ I_T (mA)	Reverse Voltage Working Peak V_{RWM} (Volts)	Max Reverse Leakage Current I_R (μA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
 CASE 477 STYLE 1 SOD−323									
SD12C	13.3	–	–	1.0	12	1.0	15	24	64

8. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

ESD5Z Series

Single Line TVS/ESD in SOD−523; 200 W Peak Power (8 x 20 μs); Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

Device	Breakdown Voltage V_{BR} (Note 9) (V) Min	Nom	Max	@ I_T (mA)	Reverse Voltage Working Peak V_{RWM} (Volts)	Max Reverse Leakage Current I_R (μA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
CASE 502 SOD−523									
ESD5Z2.5	4.0	–	–	1.0	2.5	6.0	11	10.9	145
ESD5Z3.3	5.0	–	–	1.0	3.3	0.05	11.2	14.1	105
ESD5Z5.0	6.2	–	–	1.0	5.0	0.05	9.4	18.6	80
ESD5Z6.0	6.8	–	–	1.0	6.0	0.01	8.8	20.5	70
ESD5Z7.0	7.5	–	–	1.0	7.0	0.01	8.8	22.7	65
ESD5Z12	14.1	–	–	1.0	12	0.01	9.6	25	55

9. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

TVS/ESD PROTECTION – One Line (continued)

ESD5B

Single Line TVS/ESD in SOD−523; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Bidirectional

Device	Breakdown Voltage			Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (V) @ I_T (Note 10)		@ I_T (mA)					
	Min	Max						
CASE 502 SOD−523								
ESD5B5.0S	5.8	–	1.0	5.0	1.0	–	–	32

10. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

ESD9X Series

Single Line TVS/ESD in SOD−923; 100 W Peak Power (8 x 20 μs); Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (V) @ I_T (Note 11)	@ I_T (mA)					
	Min						
CASE 514AA SOD−923							
ESD9X3.3S	5.0	1.0	3.3	2.5	9.8	10.4	80
ESD9X5.0S	6.2	1.0	5.0	1.0	8.7	12.3	65
ESD9X12S	13.5	1.0	12	1.0	5.9	23.7	30

11. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

ESD9B Series

Single Line TVS/ESD in SOD−923; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Bidirectional

Device	Breakdown Voltage			Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	V_C (V) @ I_{PP} = 1 A	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (V) @ I_T (Note 11)		@ I_T (mA)				
	Min	Max					
CASE 514AB SOD−923							
ESD9B3.3	5.0	7.0	1.0	3.3	1.0	10.5	15
ESD9B5.0	5.8	7.8	1.0	5.0	1.0	12.5	15

12. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

TVS/ESD PROTECTION – One Line (continued)

ESD9C Series

Single Line TVS/ESD in SOD−923; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

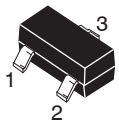
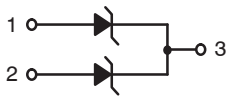
Device	Breakdown Voltage		Reverse Voltage Working Peak	Max Reverse Leakage Current	Typical Capacitance (pF)
	V_{BR} (V) @ I_T (Note 11)	@ I_T			
	Min	(mA)	V_{RWM} (V)	I_R (μA)	Pin 1 to 2 @ 0 Volts
CASE 514AB SOD−923					
ESD9C3.3	5.0	1.0	3.3	1.0	12.8
ESD9C5.0	11.0	1.0	5.0	0.5	6.0

13. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

NUP1105L – LIN Bus Protector

Single Line TVS/ESD in SOT−23; 350 W Peak Power (8 x 20 μs); Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Bidirectional

Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Peak Power Rating (8x20 μsec) (Note 14)
		V_{BR} (V)		@ I_T	I_R	V_{RWM}					
	Min	Nom	Max	(mA)	(μA)	(V)	Typ	Max	I_{PP} (A)	V_C (V)	
 CASE 318 STYLE 27 SOT−23 											
NUP1105L	25.7	–	28.4	1.0	0.1	24	–	30	8.0	44	350

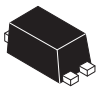
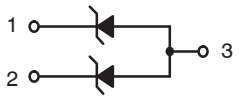
14. Surge waveform 8 x 20 μsec.

TVS/ESD PROTECTION – Two Line

ESD11A3.3 Series – Two Line

Duel Line TVS/ESD in SOT−1123; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

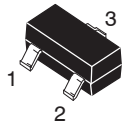
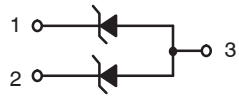
Device	Breakdown Voltage V_{BR} (Note 15) (V) Min	Breakdown Voltage @ I_T (mA)	Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	V_C (V) @ I_{PP} = 1 A	Typical Capacitance (pF) Pin 1 to 2 @ 0 V
 CASE 524 SOT−1123 						
ESD11A3.3DT5G	5.2	1.0	3.3	1.0	7.8	25.0
ESD11A5.0DT5G	6.2	1.0	5.0	0.1	9.5	20.0

15. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

SM05 – Common Anode Series

Two Line TVS/ESD in SOT−23; 300 W Peak Power (8 x 20 μs); Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

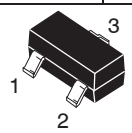
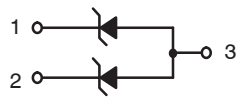
Device	Breakdown Voltage V_{BR} (Note 16) (V) Min	Nom	Max	@ I_T (mA)	Reverse Voltage Working Peak V_{RWM} (Volts)	Max Reverse Leakage Current I_R (μA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 3 @ 0 Volts
 CASE 318 STYLE 12 LOW PROFILE SOT−23 PLASTIC 									
SM05	6.2	6.75	7.3	1.0	5.0	10	17	9.8	225
SM12	13.3	14.5	15.75	1.0	12	1.0	12	19	95

16. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

MA3075WAL

Two Line TVS/ESD in SOT−23; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

Device	Breakdown Voltage V_{BR} (Note 17) (V) Min	Nom	Max	@ I_T (mA)	Max Reverse Leakage Current I_R (μA @ 5 V)	Maximum Temperature Coefficient of V_{BR} (mV/°C)
 CASE 318 STYLE 12 LOW PROFILE SOT−23 PLASTIC 						
MA3075WAL	7.2	7.5	7.9	5.0	1.0	5.3

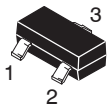
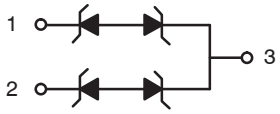
17. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

TVS/ESD PROTECTION – Two Line (continued)

NUP2105L – CAN Bus Protector

Two Line TVS/ESD in SOT–23; 350 W Peak Power (8 x 20 μs); Meets IEC61000–4–2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Bidirectional

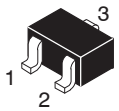
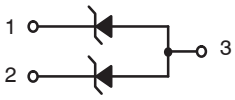
Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Peak Power Rating (8x20 μsec) (Note 18)
		V_{BR} (V)		@ I_T	I_R	V_{RWM}					
	Min	Nom	Max	(mA)	(μA)	(V)	Typ	Max	I_{PP} (A)	V_C (V)	Watts
 CASE 318 SOT–23 											
NUP2105L	26.2	–	32	1.0	0.1	24	30	–	8.0	44	350

18. Surge waveform 8 x 20 μsec.

DF3A6.8FU

Two Line TVS/ESD in SC–70; 150 W Peak Power (8 x 20 μs); Meets IEC61000–4–2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

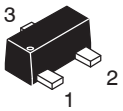
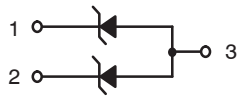
Device	Breakdown Voltage				Max Reverse Leakage Current		Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)
	V_{BR} (Note 19) (V)			@ I_T	I_R @ V_R		I_{PP}	V_C
	Min	Nom	Max	(mA)	(μA)	(V)	(A)	(V)
 CASE 419 SC–70 (SOT–323) 								
DF3A6.8FU	6.4	6.8	7.2	5.0	0.5	5.0	2.0	9.6

19. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

NZL5V6AXV Series

Two Line ESD Protection in SC–89; Meets IEC61000–4–2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

Device	Breakdown Voltage				Max Reverse Leakage Current	
	V_{BR} (Note 20) (V)			@ I_T	I_R @ V_R	
	Min	Nom	Max	(mA)	(μA)	(V)
 CASE 463C SC–89 						
NZL5V6AXV3	5.32	5.6	5.88	5.0	5.0	3.0
NZL6V8AXV3	6.46	6.8	7.14	5.0	1.0	4.5
NZL7V5AXV3	7.12	7.5	7.88	5.0	1.0	5.0

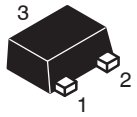
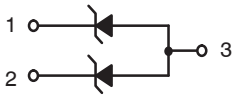
20. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

TVS/ESD PROTECTION – Two Line (continued)

μESD3.3D Series

Two Line ESD Protection in SOT−723; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

Device	Breakdown Voltage				Max Reverse Leakage Current
	V_{BR} (Note 21) (V)			@ I_T	I_R
	Min	Nom	Max	(mA)	(μA) @ V_{RWM})
 CASE 631AA STYLE 4 SOT−723 					
μESD3.3D	5.0	–	–	1.0	1.0
μESD5.0D	6.2	–	–	1.0	0.1
μESD6.0D	7.0	–	–	1.0	0.1

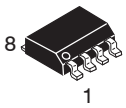
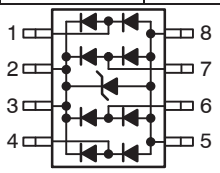
21. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

TVS/ESD PROTECTION – Four Line

NUP4000DR2G – Four Line

Four Line TVS/ESD in SO−8; Meets IEC610000−4−C, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Bidirectional

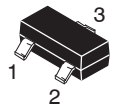
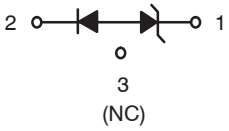
Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	V_C (V) @ I_{PP} = 1 A	V_C (V) @ I_{PP} = 5 A	Typical Capacitance (pF) Pin 1 to 2 @ 0 V
	V_{BR} (Note 22) (V)						
	Min	@ I_T (mA)					
 CASE 751 SO−8 							
NUP4000DR2G	16.7	1.0	15.0	1.0	24.0	30.0	75.0

22. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

LOW CAPACITANCE TVS/ESD PROTECTION – One Line

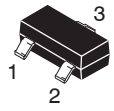
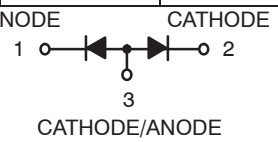
SL05 Series

Single Line Low Cap TVS/ESD in SOT–23; 300 W Peak Power (8 x 20 μs); Meets IEC61000–4–2, Level 4

Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Peak Power Rating (8x20 μsec)
		V_{BR} (V)		@ I_T	I_R	V_{RWM}					
	Min	Nom	Max	(mA)	(μA)	(V)	Typ	Max	I_{PP} (A)	V_C (V)	Watts
	 CASE 318 STYLE 26 SOT–23										
SL05	6.0	–	8.0	1.0	20	5.0	3.5	5.0	17	11	300
SL12	13.3	–	15.0	1.0	1.0	12	3.5	5.0	12	24	300
SL15	16.7	–	18.5	1.0	1.0	15	3.5	5.0	10	30	300
SL24	26.7	–	29	1.0	1.0	24	3.5	5.0	5.0	55	300

NUP1301ML

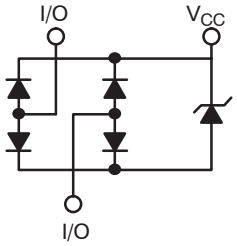
Single Line Low Capacitance TVS/ESD in SOT–23; Meets IEC61000–4–2, Level 4

Device	Breakdown Voltage		Forward Voltage		Capacitance* (pF) @ 0 V, 1.0 MHz	
	V_{BR} (V)	@ I_{br}	V_f (V)	I_f		
	Min	μA	Max	mA	Typ	Max
	 CASE 318 SOT–23					
USB 2.0						
NUP1301ML3	70	100	0.855	10	–	0.9

*C_j = Between I/O pin and ground.

NUP2114UC

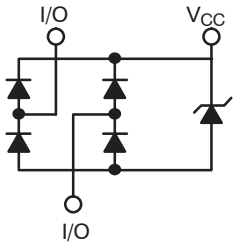
NUP2114UC: Low Capacitance TVS/ESD Protection

Device	V_{RWM} (V)	Breakdown Voltage	I_R (mA) @ V_{RWM} = 5 V	C (pF)		Clamping Voltage V_C @ I_{PP} = 1 A (V)
	Max	Min	Max	Typ	Max	Max
	CASE 318G TSSOP–6					
NUP2114UC	5.0	6.0	1.0	0.8	1.0	12

LOW CAPACITANCE TVS/ESD PROTECTION – One Line (continued)

NUP2114UP

NUP2114UP: Low Capacitance TVS/ESD Protection

Device	V_{RWM} (V)	Breakdown Voltage	I_R (mA) @ V_{RWM} = 5 V	C (pF)		Clamping Voltage V_C @ I_{PP} = 1 A (V)
	Max	Min	Max	Typ	Max	Max
CASE 463B SOT−553						
NUP2114UP	5.0	6.0	1.0	0.8	1.0	9.1

ESD9L Series

Single Line Unidirectional TVS/ESD in SOD−923; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (V) @ I_T (Note 11)	@ I_T (mA)			
	Min				
CASE 514AB SOD−923					
ESD9L3.3S	4.8	1.0	3.3	1.0	0.5
ESD9L5.0S	4.4	1.0	5.0	1.0	0.5

23. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

ESD9R Series

Single Line Low Leakage Unidirectional TVS/ESD in SOD−923; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (nA)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (V) @ I_T (Note 11)	@ I_T (mA)			
	Min				
CASE 514AB SOD−923					
ESD9R3.3S	4.8	1.0	3.3	1	0.5

24. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

LOW CAPACITANCE TVS/ESD PROTECTION – One Line (continued)

ESD9M Series

Single Line Unidirectional TVS/ESD in SOD−923; Meets IEC61000−4−2, Level 4

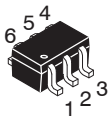
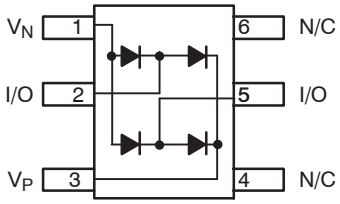
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	Max Capacitance (pF) Pin 1 to 2 @ 0 V
	V_{BR} (V) @ I_T (Note 11)				
	Min	@ I_T (mA)			
CASE 514AB SOD−923					
ESD9M5.0S	5.8	1.0	5.0	1.0	2.5

25. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

TVS PROTECTION – Low Capacitance Surface Mount for USB 2.0 and 1.1

ESD Protection Meeting IEC 61000−4−2, 4−4, 4−5

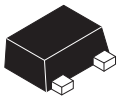
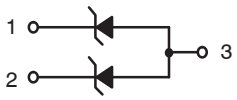
Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance* (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Peak Power Rating (8x20 μsec)
		V_{BR} (V)		@ I_T	I_R	V_{RWM}					
	Min	Nom	Max	(mA)	(μA)	(V)	Typ	Max	I_{PP} (A)	V_C (V)	Watts
 CASE 419B SC−88 											
USB 2.0											
NUP2301MW6	70	–	–	–	0.1	2.5	0.8	1.5	–	–	–

LOW CAPACITANCE TVS/ESD PROTECTION – Two Line

ESD7L Series – Common Anode Series

Two Line TVS/ESD in SOT−723; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

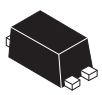
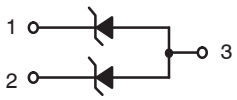
Device	Breakdown Voltage		Reverse Voltage Working Peak	Max Reverse Leakage Current	Typical Capacitance (pF)
	V_{BR} (Note 16) (V) Min	@ I_T (mA)	V_{RWM} (Volts)	I_R (μA)	Pin 1 to 2 @ 0 V
 CASE 631AA SOT−723 					
ESD7L5.0	5.4	1.0	5.0	8.4	0.25

26. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

ESD11L – Common Anode Series

Two Line TVS/ESD in SOT−1123; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

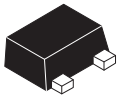
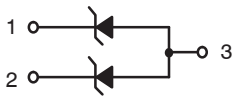
Device	Breakdown Voltage		Reverse Voltage Working Peak	Max Reverse Leakage Current	Typical Capacitance (pF)
	V_{BR} (Note 16) (V) Min	@ I_T (mA)	V_{RWM} (Volts)	I_R (μA)	Pin 1 to 2 @ 0 V
 CASE 524AA SOT−1123 					
ESD11L5.0	5.4	1.0	5.0	1.0	0.25

27. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

ESD7M Series – Common Anode Series

Two Line TVS/ESD in SOT−723; Meets IEC61000−4−2, Level 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)
Unidirectional

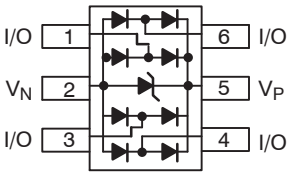
Device	Breakdown Voltage		Reverse Voltage Working Peak	Max Reverse Leakage Current	V_C (V) @ I_{PP} = 1 A	Max Capacitance (pF)
	V_{BR} (Note 16) (V) Min	@ I_T (mA)	V_{RWM} (Volts)	I_R (μA)		Pin 1 to 3 @ 0 V
 CASE 631AA SOT−723 						
ESD7M5.0	5.4	1.0	5.0	1.0	8.4	2.4

28. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.

LOW CAPACITANCE TVS/ESD PROTECTION – Two Line (continued)

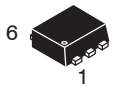
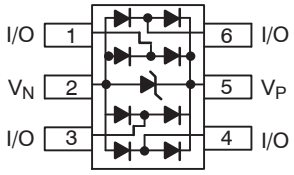
NUP4114H

NUP4114H – Low Capacitance TVS/ESD Protection; Meets IEC6100–4–2, Level 4

Device	Max Reverse Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@ I_T (mA)	Max Reverse Leakage Current I_R (μA)	Max Clamping Voltage @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) @ 0 V
CASE 318G TSOP–6 STYLE 12 								
NUP4114H	5.0	6.0	7.5		1.0	1.0	12.1	0.8

NUP4114UP

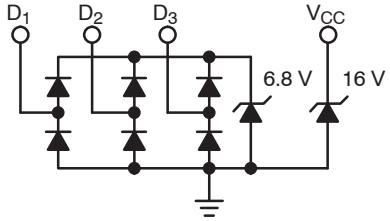
NUP4114UP – Low Capacitance TVS/ESD Protection; Meets IEC6100–4–2, Level 4

Device	Max Reverse Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@ I_T (mA)	Max Reverse Leakage Current I_R (μA)	Max Clamping Voltage @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) @ 0 V
 CASE 463A SOT–563 								
NUP4114UP	5.0	6.0			1.0	1.0	11.2	0.4

LOW CAPACITANCE TVS/ESD PROTECTION – Three Line

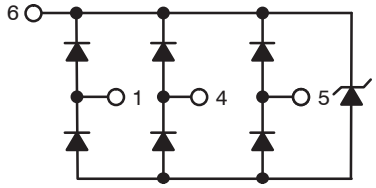
NUP31115UP

NUP3115UP – Low Capacitance TVS/ESD Protection; Meets IEC6100–4–2, Level 4

Device	Max Reverse Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@ I_T (mA)	Max Reverse Leakage Current I_R (μA)	Typ Clamping Voltage @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) @ 0 V
CASE 517AP UDFN6 1.6x1.6								
NUP3115UP	5.5	6.4	6.8	8.0	1.0	1.0	9.4	0.8

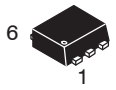
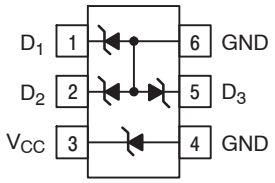
ESDR0502N

ESDR0502N – Ultra–Low Capacitance TVS/ESD Protection; Meets IEC61000–4–2, Level 4

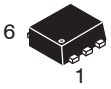
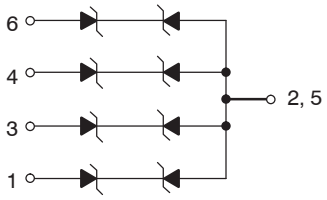
Device	Max Reverse Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@ I_T (mA)	Max Reverse Leakage Current I_R (μA)	Max Clamping Voltage @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) @ 0 V
CASE 517AA UDFN6								
ESDR0502N	5.5	6.0			1.0	1.0		0.3

LOW CAPACITANCE TVS/ESD PROTECTION – Four Line

Four Line Low Cap TVS/ESD Protection in SOT−563; Meets IEC61000−4−2, Level 4

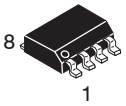
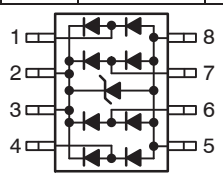
Device	Breakdown Voltage (D_1, D_2, and D_3)				Breakdown Voltage (V_{CC})				Working Peak Reverse Voltage (D_1, D_2, and D_3)	Max Reverse Leakage Current (D_1, D_2, and D_3)		Max Reverse Leakage Current (V_{CC})		Capacitance (pF) @ 3.0 V, 1.0 MHz		Peak Power Rating (8x20 μsec) (D_1, D_2, and D_3)	Peak Power Rating (8x20 μsec) (V_{CC})
		V_{BR} (V)		@ I_T		V_{BR} (V)		@ I_T	V_{RWM}	I_R	V_{RWM}	I_R	V_R				
	Min	Nom	Max	(mA)	Min	Nom	Max	(mA)	(V)	(μA)	(V)	(μA)	(V)	Typ	Max	Watts	(mW)
	 CASE 463A SOT−563																
NUP4060AXV6	6.2	6.8	7.2	1.0	15.3	16	17.1	5.0	5.0	0.5	3.0	0.05	11	7.0	10	20	200

Four Line Low Cap Bidirectional TVS/ESD Protection in SOT−563; Meets IEC61000−4−2, Level 4

Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance* (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Peak Power Rating (8x20 μsec)
		V_{BR} (V)		@ I_T	nA	V_{RWM}					
	Min	Nom	Max	(mA)	(μA)	(V)	Typ	Max	I_{PP} (A)	V_C (V)	Watts
	 CASE 463A SOT−563										
NUP4102XV6	13.6	–	17.8	1.0	100	12	13	15	3.0	25	75

*C_j = Between I/O pin and ground.

Four Line Low Cap TVS/ESD Protection; Meets IEC61000−4−2, Level 4

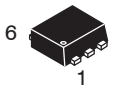
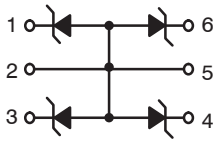
Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance* (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Peak Power Rating (8x20 μsec)
		V_{BR} (V)		@ I_T	I_R	V_{RWM}					
	Min	Nom	Max	(mA)	(μA)	(V)	Typ	Max	I_{PP} (A)	V_C (V)	Watts
	 CASE 751 SO−8										
USB 2.0											
NUP4201DR2	6.0	–	–	1.0	10	5.0	5.0	10	10	12	500
SRDA05−4R2	6.0	–	–	1.0	10	5.0	10	15	10	12	500

*C_j = Between I/O pin and ground.

LOW CAPACITANCE TVS/ESD PROTECTION – Four Line (continued)

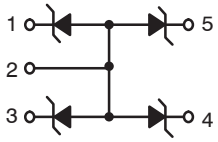
NUP4112P

NUP4112P – Quad Low Capacitance TVS/ESD Protection; Meets IEC6100–4–2, Level 4

Device	Max Reverse Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@ I_T (mA)	Max Reverse Leakage Current I_R (μA)	Max Clamping Voltage @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) @ 0 V
	CASE 463A SOT–563							
NUP4012P	4.0	5.2	5.5		1.0	1.0	9.5	0.7

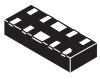
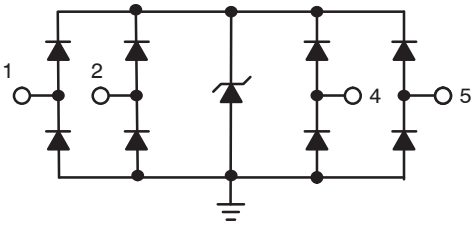
NUP4016

NUP4016 – Quad Ultra–Low Capacitance TVS/ESD Protection; Meets IEC6100–4–2, Level 4, 15 kV Contact Discharge

Device	Max Reverse Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@ I_T (mA)	Max Reverse Leakage Current I_R (μA)	Max Clamping Voltage @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) @ 0 V
	CASE 527AE SOT–953							
NUP4016	5.0	6.0			1.0	1.0		0.5

ESDR0524P

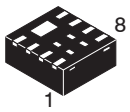
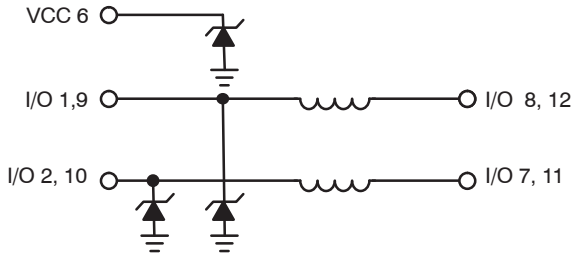
ESDR0524P – Quad Low Capacitance TVS/ESD Protection; Meets IEC6100–4–2, Level 4

Device	Max Reverse Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@ I_T (mA)	Max Reverse Leakage Current I_R (μA)	Max Clamping Voltage @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) @ 0 V
	CASE 517BB UDFN10							
ESDR0524P	5.0	6.0			1.0	1.0		0.5

INTEGRATED COMMON MODE CHOKE WITH TVS/ESD PROTECTION

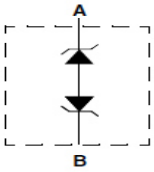
NUC2401

NUC2401 – Single Pair Common Mode Choke and TVS/ESD Protection; Meets IEC61000–4–2, Level 4, 12 kV discharge

Device	Max Reverse Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@ I_T (mA)	Max Reverse Leakage Current I_R (μA)	Common Mode Cut–Off Freq f_{3dB}	Typical Capacitance (pF) @ 0 V
 CASE 506BL DFN8 								
NUC2401	5.0	6.0	7.6	8.6	1.0	2.0	40 MHz	0.8

TVS/ESD PROTECTION, COMMON ANODE – One Line

CM1242 – Single Line TVS/ESD; Meets IEC61000–4–2, Level 4,
19 kV contact discharge for CM1242–07CP
30 kV contact discharge for CM1242–33CP

Device	Number of lines	Typ Breakdown Voltage @ 10 mA (V)	Max Channel Leakage Current I_{Leak} (μA)	Small Signal Clamping Voltage (+ve Clamp) @ I_{PP} = 10 mA V_C (V)	Small Signal Clamping Voltage (–ve Clamp) @ I_{PP} = 10 mA V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
							
CM1242–07CP	1	7.6	0.5	9.0	–9.0	5.8	CSP
CM1242–33CP	1	7.6	0.5	8.6	–8.6	55	CSP

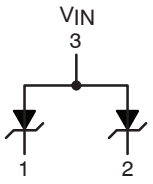
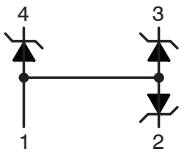
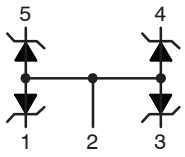
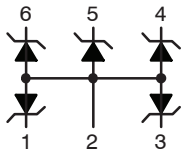
TVS/ESD PROTECTION, COMMON ANODE – Two to Five Lines

CM1218 – Common Anode Series; Meets IEC61000–4–2, Level 4, 15 kV contact discharge

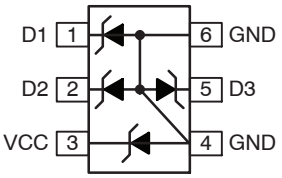
Device	Number of lines	Min Reverse Stand–off Voltage @ 1 mA (V)	Max Reverse Leakage Current I_R (μA)	Small Signal Clamping Voltage (+ve Clamp) @ I_{PP} = 10 mA V_C (V)	Small Signal Clamping Voltage (–ve Clamp) @ I_{PP} = 10 mA V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
CM1218–02 V_{IN} 3 1 2		**CM1218–03** 4 3 1 2 V_{IN}		**CM1218–04** 5 4 1 2 3 V_{IN}	**CM1218–F4** V_{IN} 6 5 4 1 2 3 V_{IN}	**CM1218–05** 6 5 4 1 2 3 V_{IN}	
CM1218–02SO	2	6.1	1.0	6.8	–0.8	7	SOT23–3
CM1218–02S7	2	6.1	1.0	6.8	–0.8	7	SC70–3
CM1218–03SR	3	6.1	1.0	6.8	–0.8	7	SOT143
CM1218–04SO	4	6.1	1.0	6.8	–0.8	7	SOT23–5
CM1218–04SE	4	6.1	1.0	6.8	–0.8	7	SOT–553
CM1218–04S7	4	6.1	1.0	6.8	–0.8	7	SC70–5
CM1218–F4SE	4	6.1	1.0	6.8	–0.8	7	SOT–563
CM1218–C4SE	4	6.1	1.0	6.8	–0.8	7	SOT553
CM1218–H4SE	4	6.1	1.0	6.8	–0.8	7	SOT–563
CM1218–05SO	5	6.1	1.0	6.8	–0.8	7	SOT23–6
CM1218–05SE	5	6.1	1.0	6.8	–0.8	7	SOT–563
CM1218–05S7	5	6.1	1.0	6.8	–0.8	7	SC70–6

TVS/ESD PROTECTION, COMMON ANODE – Two to Five Lines (continued)

CM1219 – Common Anode Series; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

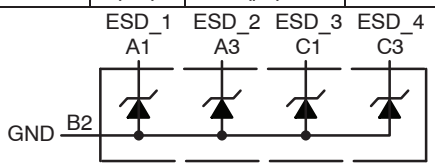
Device	Number of lines	Min Reverse Stand–off Voltage @ 1 mA (V)	Max Reverse Leakage Current I_R (μA)	Small Signal Clamping Voltage (+ve Clamp) @ I_{PP} = 10 mA V_C (V)	Small Signal Clamping Voltage (–ve Clamp) @ I_{PP} = 10 mA V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
CM1219–02  SOT23–3 SC70–3		**CM1219–03**  SOT–143		**CM1219–04**  SOT23–5/SOT–553 SC70–5		**CM1219–05**  SOT23–6/SOT–563 SC70–6	
CM1219–02SO	2	6.1	1.0	6.8	–0.8	4	SOT23–3
CM1219–02S7	2	6.1	1.0	6.8	–0.8	4	SC70–3
CM1219–03SR	3	6.1	1.0	6.8	–0.8	4	SOT143
CM1219–04SO	4	6.1	1.0	6.8	–0.8	4	SOT23–5
CM1219–04SE	4	6.1	1.0	6.8	–0.8	4	SOT–553
CM1219–04S7	4	6.1	1.0	6.8	–0.8	4	SC70–5
CM1219–05SO	5	6.1	1.0	6.8	–0.8	4	SOT23–6
CM1219–05SE	5	6.1	1.0	6.8	–0.8	4	SOT–563
CM1219–05S7	5	6.1	1.0	6.8	–0.8	4	SC70–6

CM1240 – Common Anode Series ESD Protection for USB; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

Device	Number of lines	Max Reverse Leakage Current LV diode I_R (μA)	Small Signal Clamping Voltage (+ve Clamp) @ I_{PP} = 10 mA V_C (V)	Small Signal Clamping Voltage (–ve Clamp) @ I_{PP} = 10 mA V_C (V)	Typical Capacitance HV diode @ 3 V (pF)	Typical Capacitance LV diode @ 3 V (pF)	Package Type
 							
CM1240–F4SE	3	0.4	6.8	–0.8	25	6	SOT–563

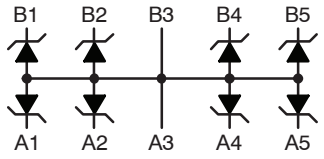
TVS/ESD PROTECTION, COMMON ANODE – Four or Eight Lines

CM1204 – Common Anode Series; Meets IEC61000–4–2, Level 4, 15 kV contact discharge for CM1204 30 kV contact discharge for CM1244

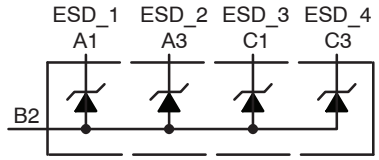
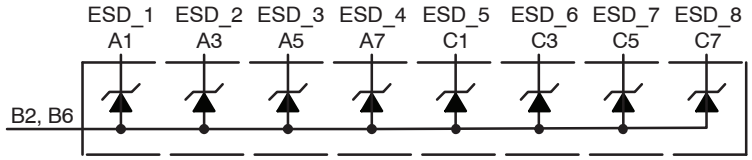
Device	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@I_T (mA)	Max Reverse Leakage Current I_R (μA)	Signal Clamping Voltage (+ve Clamp) @ I_{PP} = 10 mA V_C (V)	Signal Clamping Voltage (–ve Clamp) @ I_{PP} = 10 mA V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V
 **CSP–5**								
CM1204–03CP		6.0		0.01	0.1	6.8	–0.8	27
CM1244–04CP	5.5			0.01	0.1	6.8	–0.8	27

TVS/ESD PROTECTION, COMMON ANODE – Four or Eight Lines (continued)

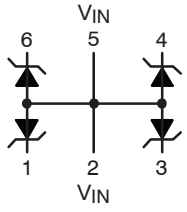
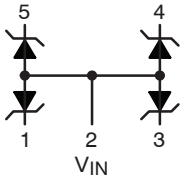
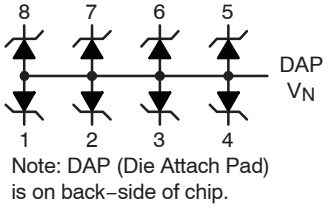
CM1205 – Common Anode Series; Meets IEC61000–4–2, Level 4, 25 kV contact discharge

Device	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@I_T (mA)	Reverse Voltage V_{RWM} (V)	Max Reverse Leakage Current I_R(μA)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
 CSP–10								
CM1205	5.6	6.8	8	10	6	0.1	12	39

CM1220 – Common Anode Series; Meets IEC61000–4–2, Level 4, 15 kV contact discharge

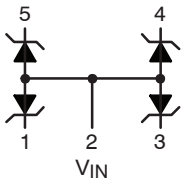
Device	Number of lines	Typical Diode Stand–off Voltage @ 10 μA (V)	Max Reverse Leakage Current I_R (μA)	Small Signal Clamping Voltage (+ve Clamp) @ I_{PP} = 10 mA V_C (V)	Small Signal Clamping Voltage (–ve Clamp) @ I_{PP} = 10 mA V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
 CM1220–04  CM1220–08							
CM1220–04CP	4	6.0	1.0	6.8	–0.8	14	CSP–5
CM1220–08CP	8	6.0	1.0	6.8	–0.8	14	CSP–10

CM1248 – Common Anode Series; Meets IEC61000–4–2, Level 4, 15 kV contact discharge

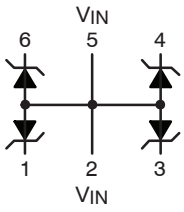
Device	Number of lines	Min Diode Stand–off Voltage @ 10 μA (V)	Max Leakage Current I_R (μA)	Small Signal Clamping Voltage (+ve Clamp) @ I_{PP} = 10 mA V_C (V)	Small Signal Clamping Voltage (–ve Clamp) @ I_{PP} = 10 mA V_C (V)	Typical Channel Capacitance (pF) @ 0 V	Package Type
CM1248–04QG  CM1248–04S9  CM1248–08DE  Note: DAP (Die Attach Pad) is on back–side of chip.							
CM1248–04QG	4	5.5	0.75	6.8	–0.89	10	superDFN
CM1248–04S9	4	5.5	0.75	6.8	–0.89	10	SOT–953
CM1248–08DE	8	5.5	0.75	6.8	–0.89	10	uDFN

TVS/ESD PROTECTION, COMMON ANODE – Four or Eight Lines (continued)

CM1249 – Common Anode Series; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

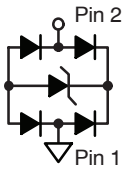
Device	Number of lines	Max Leakage Current I_R (μA)	Small Signal Clamping Voltage (+ve Clamp) @ I_{PP} = 5 mA V_C (V)	Small Signal Clamping Voltage (–ve Clamp) @ I_{PP} = 5 mA V_C (V)	Typical Channel Capacitance (pF) @ 0 V	Package Type
CM1249–04 						
CM1249–04S9	4	0.75	8.5 (max)	–0.4	5	SOT–953

CM1250 – Common Anode Series; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

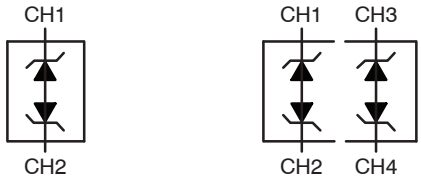
Device	Number of lines	Max Leakage Current I_R (μA)	Small Signal Clamping Voltage (+ve Clamp) @ I_{PP} = 5 mA V_C (V)	Small Signal Clamping Voltage (–ve Clamp) @ I_{PP} = 5 mA V_C (V)	Typical Channel Capacitance (pF) @ 0 V	Package Type
						
CM1250–04QG	4	0.1	8.5 (max)	–0.4 (max)	5	superDFN

PicoGuard®: LOW CAPACITANCE TVS/ESD PROTECTION – One to Four Lines

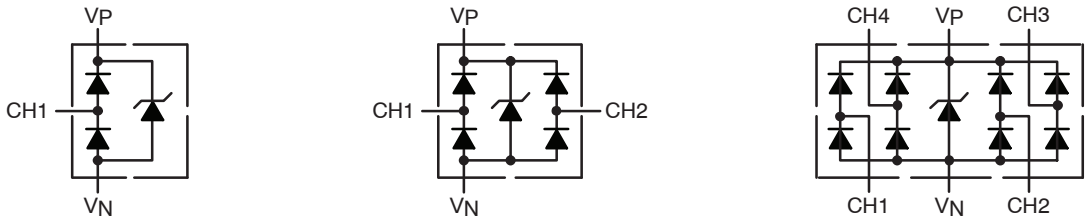
CM1282 – Low Capacitance Single Line TVS/ESD Protection; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

Device	Breakdown Voltage V_{BR} (V) Min	Nom	Max	@ I_T (mA)	Max Reverse Leakage Current I_{LEAK} (μA)	Typical Clamping Voltage @ I_{PP} = 1 A V_{CL} (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V
							
CM1282–01D1	7.5	9.0	11.0	10	1.0	11	0.5

CM1214A series – AC Signal ESD Protection; Meets IEC61000–4–2, Level 4

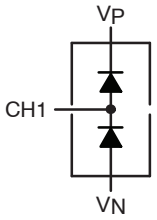
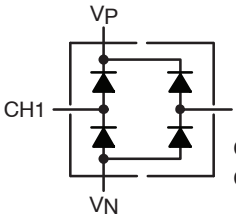
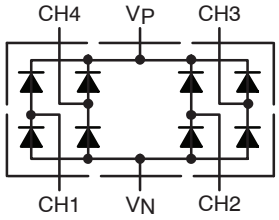
Device	Number of lines	Operating Supply Voltage (V) Nom	Max	Max Reverse Leakage Current I_R (μA)	Channel Clamping Voltage @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
 **CM1214A–01SO** **CM1214A–02MR**							
CM1214A–01SO	1	7		1.0	11.3	0.6	SOT23
CM1214A–02MR	2	7		1.0	11.3	0.6	MSOP

CM1213A series – Including Vp and Vn Connections; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

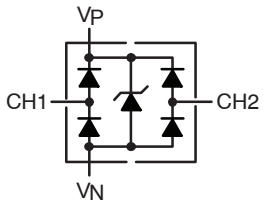
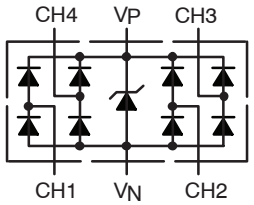
Device	Number of lines	Operating Supply Voltage (V) Nom	Max	Max Operating Current (μA)	Max Reverse Leakage Current I_R (μA)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V))	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
 **CM1213A–01SO** **CM1213A–02SR** **CM1213A–02SO** **CM1213A–04SO** **CM1213A–04MR** **CM1213A–04S7**									
CM1213A–01SO	1	3.3	5.5	8.0	1.0	10	–1.7	0.85	SOT23–3
CM1213A–02SR	2	3.3	5.5	8.0	1.0	10	–1.7	0.85	SOT143–4
CM1213A–02SO	2	3.3	5.5	8.0	1.0	10	–1.7	0.85	SOT23–5
CM1213A–04SO	4	3.3	5.5	8.0	1.0	10	–1.7	0.85	SOT23–6
CM1213A–04S7	4	3.3	5.5	8.0	1.0	10	–1.7	0.85	SC70–6
CM1213A–04MR	4	3.3	5.5	8.0	1.0	10	–1.7	0.85	MSOP–10

PicoGuard®: LOW CAPACITANCE TVS/ESD PROTECTION – One to Four Lines
(continued)

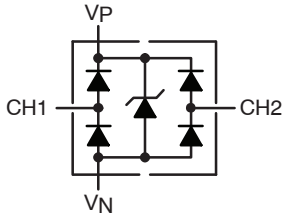
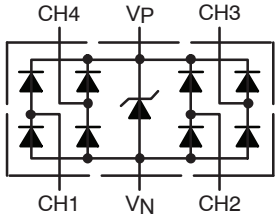
CM1215 series – Including Vp and Vn Connections; Meets IEC61000–4–2, Level 4, 15 kV contact discharge

Device	Number of lines	Operating Supply Voltage (V) Nom	Operating Supply Voltage (V) Max	Max Operating Current (μA)	Max Reverse Leakage Current I_R (μA)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
 **CM1215–01SO**									
 **CM1215–02SR** **CM1215–02SO**									
 **CM1215–04SO**									
CM1215–01SO	1	3.3	5.5	8	1.0	V_P+1.5	V_N–1.5	1.6	SOT23–3
CM1215–02SR	2	3.3	5.5	8	1.0	V_P+1.5	V_N–1.5	1.6	SOT143
CM1215–02SO	2	3.3	5.5	8	1.0	V_P+1.5	V_N–1.5	1.6	SOT23–5
CM1215–04SO	4	3.3	5.5	8	1.0	V_P+1.5	V_N–1.5	1.6	SOT23–6

CM1224 series – Including Vp and Vn Connections; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

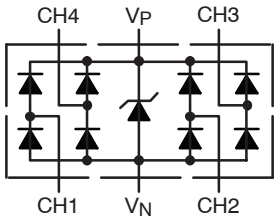
Device	Number of lines	Operating Supply Voltage (V) Nom	Operating Supply Voltage (V) Max	Max Operating Current (μA)	Max Reverse Leakage Current I_R (μA)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
 **CM1224–02SR**									
 **CM1224–04SO** **CM1224–04MR**									
CM1224–02SR	2	3.3	5.5	8	1.0	10.0	–1.8	0.7	SOT143–4
CM1224–04SO	4	3.3	5.5	8	1.0	10.0	–1.8	0.7	SOT23–6
CM1224–04MR	4	3.3	5.5	8	1.0	10.0	–1.8	0.7	MSOP–10

CM1293A series – Including Vp and Vn Connections; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

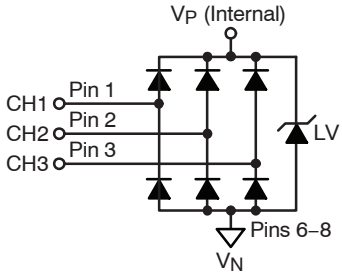
Device	Number of lines	Operating Supply Voltage (V) Nom	Operating Supply Voltage (V) Max	Max Operating Current (μA)	Max Reverse Leakage Current I_R (μA)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V)	Max Capacitance (pF) @ 0 V	Package Type
 **CM1293A–02SO** **CM1293A–02SR**									
 **CM1293A–04SO** **CM1293A–04MR**									
CM1293A–02SR	2	3.3	5.5	8	1.0	9.9	–1.6	2.0	SOT143–4
CM1293A–02SO	4	3.3	5.5	8	1.0	9.9	–1.6	2.0	SOT23–5
CM1293A–04SO	2	3.3	5.5	8	1.0	9.9	–1.6	2.0	SOT23–6
CM1293A–04MR	4	3.3	5.5	8	1.0	9.9	–1.6	2.0	MSOP–10

PicoGuard®: LOW CAPACITANCE TVS/ESD PROTECTION – One to Four Lines
(continued)

CM1225 series – Including Vn Connection; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

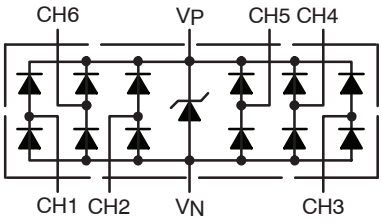
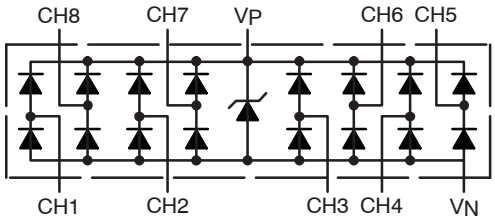
Device	Number of lines	Operating Supply Voltage (V) Nom	Operating Supply Voltage (V) Max	Max Reverse Leakage Current I_R (μA)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
 **CM1224–04DE**								
CM1225–04DE	4		5.5	1.0	10.0	–4.5	0.8	uUDFN–10

CM1241 – Dual–Voltage ESD Protection Including Vp and Vn Connections; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

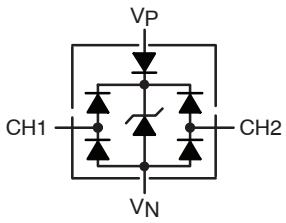
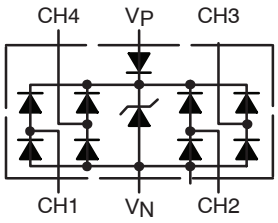
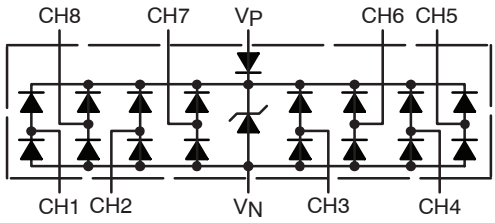
Device	Number of lines	Max Reverse Leakage Current LV diode I_R(μA)	Small Signal Clamping Voltage (+ve Clamp) @ I_{PP} = 1 A V_C (V)	Small Signal Clamping Voltage (–ve Clamp) @ I_{PP} = 1 A V_C (V)	Typical Capacitance HV diode @ 3 V (pF)	Typical Capacitance LV diode @ 3 V (pF)	Package Type
 Note: Pins 5 and 6 to 8 are connected to a common substrate.							
CM1241–04D4	3	0.1	9.64	–1.75	53	1.2	TDFN–8

PicoGuard®: LOW CAPACITANCE TVS/ESD PROTECTION – Two, Four, Six or Eight Lines

CM1216 series – Including Vp and Vn Connections; Meets IEC61000–4–2, Level 4, 15 kV contact discharge

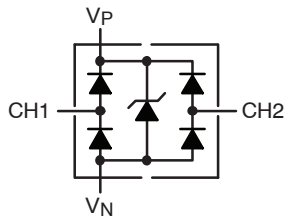
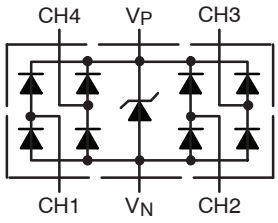
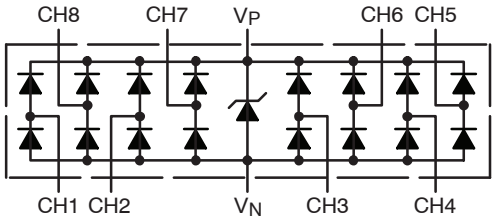
Device	Number of lines	Operating Supply Voltage (V) Nom	Operating Supply Voltage (V) Max	Max Operating Current (μA)	Max Reverse Leakage Current I_R (μA)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
 **CM1216–06MR** **CM1216–06SM**									
 **CM1216–08MR**									
CM1216–06SM	6	3.3	5.5	8	1.0	9.0	–1.5	1.6	SOIC
CM1216–06MR	6	3.3	5.5	8	1.0	9.0	–1.5	1.6	MSOP
CM1216–08MR	8	3.3	5.5	8	1.0	9.0	–1.5	1.6	MSOP

CM1223 series – Including Vp and Vn with Backdrive Protection; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

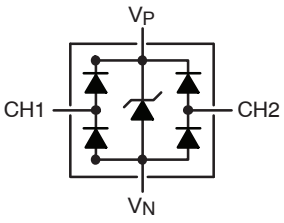
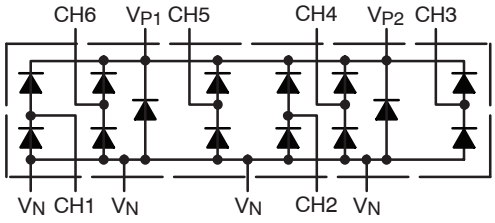
Device	Number of lines	Operating Supply Voltage (V) Nom	Operating Supply Voltage (V) Max	Max Operating Current (μA)	Max Reverse Leakage Current I_R (μA)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
 **CM1223–02SO** **CM1223–02SR**									
 **CM1223–04SO** **CM1223–04MR**									
 **CM1223–08MR**									
CM1223–02SO	2	3.3	5.5	8.0	1.0	8.8	–1.4	1.0	SOT23–5
CM1223–02SR	2	3.3	5.5	8.0	1.0	8.8	–1.4	1.0	SOT143–4
CM1223–04SO	4	3.3	5.5	8.0	1.0	8.8	–1.4	1.0	SOT23–6
CM1223–04MR	4	3.3	5.5	8.0	1.0	8.8	–1.4	1.0	MSOP–10
CM1223–08MR	8	3.3	5.5	8.0	1.0	8.8	–1.4	1.0	MSOP–10

PicoGuard®: LOW CAPACITANCE TVS/ESD PROTECTION – Two, Four, Six or Eight Lines

CM1230 series – Including Vp and Vn Connections; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

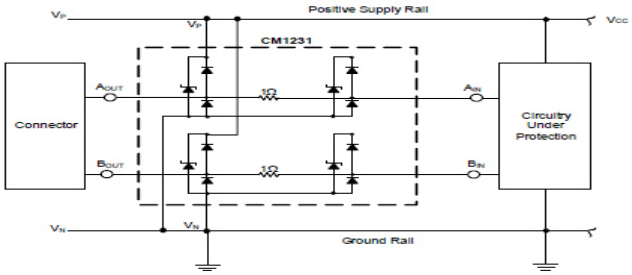
Device	Number of lines	Operating Supply Voltage (V) Nom	Operating Supply Voltage (V) Max	Max Operating Current (μA)	Max Reverse Leakage Current I_R (μA)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
 **CM1230–02CS/CP**									
 **CM1230–04CS/CP**									
 **CM1230–08CS/CP**									
CM1230–02CS	2	3.3	5.5	8.0	1.0	9.8	–1.8	0.8	CSP–4
CM1230–04CS	4	3.3	5.5	8.0	1.0	9.8	–1.8	0.8	CSP–6
CM1230–08CS	8	3.3	5.5	8.0	1.0	9.8	–1.8	0.8	CSP–10

CM1263 series – Including Vp and Vn Connections; Meets IEC61000–4–2, Level 4, 15 kV contact discharge

Device	Number of lines	Operating Supply Voltage (V) Nom	Operating Supply Voltage (V) Max	Max Operating Current (μA)	Max Reverse Leakage Current I_R (μA)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
 **CM1263–02SE**									
 **CM1263–06DE**									
CM1263–02SE	2	3.3	5.5	8	1.0	9.96	–1.6	0.85	SOT553
CM1263	6	3.3	5.5	8	1.0	9.96	–1.6	0.88	uDFN–12

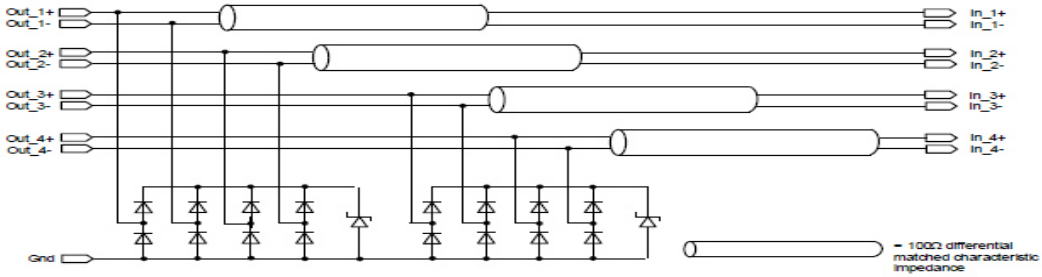
PicoGuard–XP®: LOW CAPACITANCE TVS/ESD CLAMP PROTECTION – Two Lines

CM1231 series – ESD Clamp Protection Array; Meets IEC61000–4–2, Level 4, 12 kV contact discharge

Device	Number of lines	Operating Supply Voltage (V) Nom	Operating Supply Voltage (V) Max	Max Operating Current (μA)	Typical Series Resistance (Ω)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 V	Package Type
									
CM1231–02SO	2	5	5.5	1.0	1	9.0	–1.4	1.5	SOT23–6

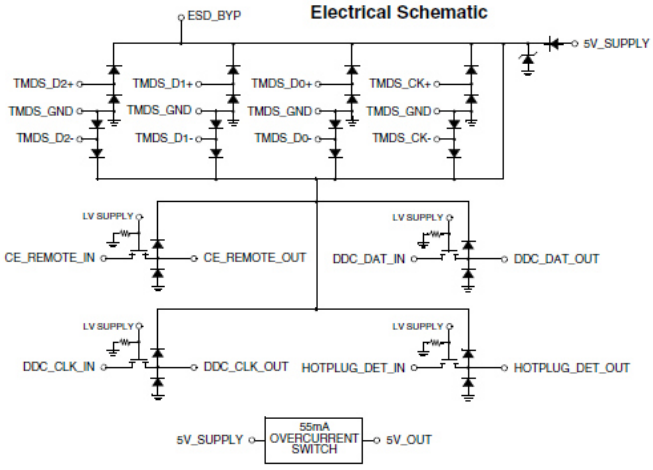
PicoGuard–XS®: LOW CAPACITANCE TVS/ESD CLAMP PROTECTION – Four Pairs of Differential lines

CM123x series – ESD Clamp Protection Array; Meets IEC61000–4–2, Level 4,
8 kV contact discharge for CM1233, CM1234, CM1235, CM1236
20 kV contact discharge for CM1238

Device	Number of Pairs of Differential lines	Operating Supply Voltage (V) Min	Operating Supply Voltage (V) Max	Channel Leakage Current (μA)	Individual Channel Single–ended Impedance (Ω)	Differential Channels Pair Impedance (Ω)	Channel Clamping Voltage (+ve Transient) @ I_{PP} = 1 A V_C (V)	Channel Clamping Voltage (–ve Transient) @ I_{PP} = 1 A V_C (V)	TDFN–16 Package Size (mm x mm)
									
CM1233–08DE	4	–0.5	5.5	1	50	100	10.0	–1.8	4.0 x 6.0
CM1234–08DE	4	–0.5	5.5	1	50	100	9	–1.5	4.0 x 6.0
CM1235–08DE	4	–0.5	5.5	1	50	100	9.2	–1.6	1.7 x 4.0
CM1236–08DE	4	–0.5	5.5	1	50	100	9.2	–1.6	4.0 x 6.0
CM1238–08DE	4	–0.5	5.5	1	50	100	10.0	–1.9	1.6 X 4.0

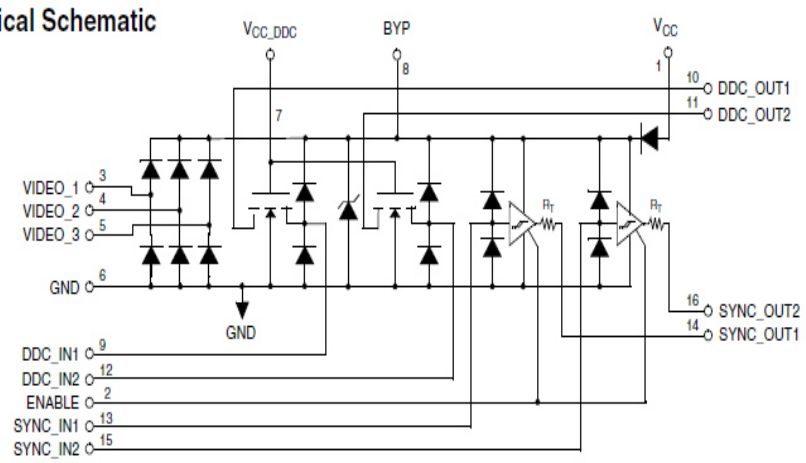
MediaGuard®: HDMI PORT PROTECTION AND INTERFACE DEVICES

CM20xx series – HDMI Port Source and Sink
Protection and Interface Devices; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

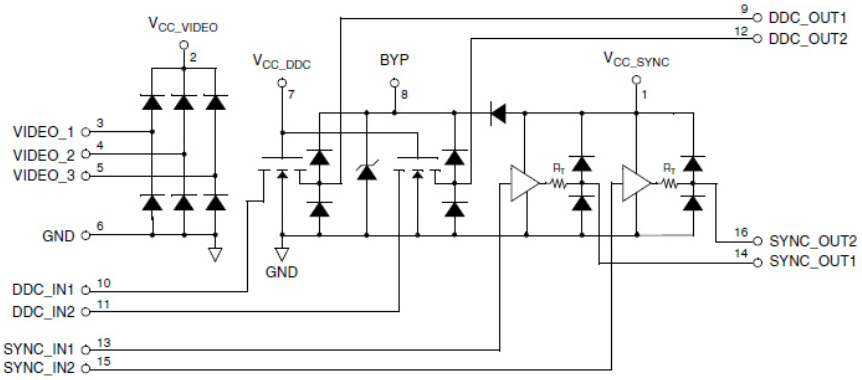
Device	HDMI (Source or Sink ?)	# of pairs of Data Channel	# of pairs of Clock Channel	DDC Active Pull–up	CEC Slew Rate control	Backdrive Protection	Level Shifters	Package Type
Electrical Schematic 								
CM2020–00TR	Source	3	1	No	No	Yes	Yes	38–TSSOP
CM2020–01TR	Source	3	1	No	No	Yes	Yes	38–TSSOP
CM2021–02TR	Sink	3	1	No	No	Yes	Yes	38–TSSOP
CM2030–A0TR	Source	3	1	Yes	Yes	Yes	Yes	38–TSSOP
CM2031–A0TR	Sink	3	1	Yes	Yes	Yes	Yes	38–TSSOP

VGA PORT PROTECTION AND INTERFACE DEVICES

CM2006 – VGA and DVI–I Port Companion Circuit for TVs and Monitors; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

Device	VGA	# of Video Lines	# of Sync Lines	DDC Data & CLK	CEC Slew Rate control	Backdrive Protection	Level Shifters	Package Type
Electrical Schematic 								
CM2006–02QR	Monitors & TVs	3	2	Yes	No	Yes	Yes	16–QSOP

CM2009 – VGA and DVI–I Port Companion Circuit for PCs, Graphics Cards and Set Top Boxes; Meets IEC61000–4–2, Level 4, 8 kV contact discharge

Device	VGA	# of Video Lines	# of Sync Lines	DDC Data & CLK	Backdrive Protection	Level Shifters	R_{OUT}	Package Type
Electrical Schematic 								
CM2009–00QR	PCs, Graphics Cards & Set Top Boxes	3	2	Yes	Yes	Yes	65 Ω	16–QSOP
CM2009–02QR	PCs, Graphics Cards & Set Top Boxes	3	2	Yes	Yes	Yes	15 Ω	16–QSOP

Drivers

Drivers

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DISPLAY/LED DRIVERS

Device	Topology	V_I Min (V)	V_I Max (V)	V_O Max (V)	I_O Max (mA)	f_{SW} Typ (kHz)	LEDs in Series, Max #	LEDs in Parallel, Max #	Package
CAT310W	Linear	3	5.5	40	500			10	SOIC–20
CAT3224HV3	Charge Pump	2.5	5.5		4000	800	1	2	TQFN–16
CAT32TDI	Step–Up Boost		5.5	20	25	1200	4		TSOT–23
CAT32ZD4	Step–Up Boost		5.5	20	25	1200	4		TDFN–8
CAT3604HV4	Charge Pump	3	5.5		120	1000		4	TQFN–16
CAT3604VHV4	Charge Pump	2.5	5.5		120	1000		4	TQFN–16
CAT3606HV4	Charge Pump	3	5.5		180	1000		6	TQFN–16
CAT3612HV2	Charge Pump	3	5.5		300	1000		2	TQFN–12
CAT3614HV2	Charge Pump	3	5.5		124	1000		4	TQFN–12
CAT3616HV4	Charge Pump	3	5.5		186	1000		6	TQFN–16
CAT3626HV4	Charge Pump	3	5.5		192	1000		6	TQFN–16
CAT3636HV3	Charge Pump	2.5	5.5		192	1000		6	TQFN–16
CAT3637HV3	Charge Pump	2.5	5.5		180	1000		6	TQFN–16
CAT3643HV2	Charge Pump	2.5	5.5		90	1000		3	TQFN–12
CAT3643HV3	Charge Pump	2.5	5.5		90	1000		3	TQFN–16
CAT3644HV3	Charge Pump	2.5	5.5		100	1000		4	TQFN–16
CAT3647HV3	Charge Pump	2.5	5.5		100	1000		3	TQFN–16
CAT3648HV3	Charge Pump	2.5	5.5		100	1000		4	TQFN–16
CAT37TDI	Step–Up Boost	2	5.5	20	25	1000			TSOT–23
CAT4004VP2	Linear	2.4	5.5		100		4		TDFN–8
CAT4004VP2	Linear	2.4	5.5		100		4		TDFN–8
CAT4008V	Linear	3	5.5		800		8		SOIC–16
CAT4008W	Linear	3	5.5		800		8		SOIC–16
CAT4008Y	Linear	3	5.5		800		8		TSSOP–16
CAT4016HV6	Linear	3	5.5		1600		16		WQFN–24
CAT4016VS	Linear	3	5.5		1600		16		QSOP–24
CAT4016VSR	Linear	3	5.5		1600		16		QSOP–24

DISPLAY/LED DRIVERS

Device	Topology	V_I Min (V)	V_I Max (V)	V_O Max (V)	I_O Max (mA)	f_{SW} Typ (kHz)	LEDs in Series, Max #	LEDs in Parallel, Max #	Package
CAT4016W	Linear	3	5.5		1600		16		SOIC−24
CAT4016Y	Linear	3	5.5		1600		16		TSSOP−24
CAT4026V		4.5	5.5						SOIC−28
CAT4101TV	Linear	3	5.5		1000		8		TO−263
CAT4103V	Linear	3	5.5		525		8	3	SOIC−16
CAT4104V	Linear	3	5.5		700		8	4	SOIC−8
CAT4104VP2	Linear	3	5.5		700		8	4	TDFN−8
CAT4106HV4	Step−Up Boost	3	5.5	40	175	1000	10	4	TQFN−16
CAT4106YP	Step−Up Boost	3	5.5	40	175	1000	10	4	TSSOP−16
CAT4109V	Linear	3	25		525		7	3	SOIC−16
CAT4134HV2	Step−Up Boost	2.8	5.5	16	500	1000	3	2	TDFN−12
CAT4137TD	Step−Up Boost	2.2	5.5	24	30	1000	5		TSOT−23
CAT4139TD	Step−Up Boost	2.2	5.5	24	350	1000	5		TSOT−23
CAT4201TD	Step−Down Buck	7	36		350		7		TSOT−23
CAT4237TD	Step−Up Boost	2.8	5.5	30	100	1000	8		TSOT−23
CAT4238TD	Step−Up Boost	2	5.5	38	100	1000	10		TSOT−23
CAT4240TD	Step−Up Boost	2	5.5	38	350	1000	10		TSOT−23
NCL30000D	Flyback						72		SOIC−8
NCP5005SN	Step−Up	2.7	20	22	50	1200	5		TSOP−5
NCP5006SN	Step−Up	2.7	20	22		1200	5		TSOP−5
NCP5007SN	Step−Up	2.7	20	22	50	1200	5		TSOP−5
NCP5021MU									UQFN−16
NCP5030MT	Step−Up/Step−Down	2.7	5.5	5.5	1200	700	1		WDFN−12
NCP5050MT		2.7	5.5	20	1200	1700	5		WDFN−10
NCP5602MU	Charge Pump	2.7	5.5	5.5	60	1000		2	LLGA−12
NCP5603MN	Charge Pump	2.7	5.5	5.5	350	650	1	10	DFN−10
NCP5604AMT	Charge Pump	2.7	5.5		120	1000	1	4	QFN−16

DISPLAY/LED DRIVERS

Device	Topology	V_I Min (V)	V_I Max (V)	V_O Max (V)	I_O Max (mA)	f_{SW} Typ (kHz)	LEDs in Series, Max #	LEDs in Parallel, Max #	Package
NCP5604BMT	Charge Pump	2.7	5.5		120	1000	1	3	QFN−16
NCP5612MU	Charge Pump		5.5	5.5	60	1000		2	LLGA−12
NCP5623BMU	Charge Pump	2.7	5.5	5.5	80	1000000		3	LLGA−12
NCP5623CMU	Charge Pump				90	1000		3	LLGA−12
NCP5623DTB									TSSOP−14
NCP5680MU					500	1000			UQFN−24
NCP5890MU		2.7	5.5	34	25	1300	10	10	UQFN−16
NLSF595DT	Linear	1.8	7	5.5	8		1	8	TSSOP−16
NLSF595MN	Linear	1.8	7	5.5	8		1	8	QFN−16
NSI45020A	Linear		45		20		80		SOD−123
NSI45020	Linear		45		20		80		SOD−123
NSI45025A	Linear		45		25		80		SOD−123
NSI45025AZ	Linear		45		25		80		SOT−223
NSI45025	Linear		45		25		80		SOD−123
NSI45025Z	Linear		45		25		80		SOT−223
NSI45030A	Linear		45		30		80		SOD−123
NSI45030AZ	Linear		45		30		80		SOT−223
NSI45030	Linear		45		30		80		SOD−123
NSI45030Z	Linear		45		30		80		SOT−223
NSI50010Y	Linear		50		10		80		SOD−123
NUD4001D	Linear	3.6	30	28	500		8		SOIC−8
NUD4011D	Linear	3.6		200	70		100		SOIC−8

LOAD DRIVERS – DARLINGTON TRANSISTOR ARRAYS

Device	Number of Drivers	V_{CC} Max (V)	$V_{(BR)GSS}$ Max (V)	$V_{(BR)DSS}$ Max (V)	I_D Max (A)	$r_{DS(on)}$ Max (Ω)	T_j Max (°C)	Package
MC1413BD	7	50	30	50	0.5	4.6	150	SOIC−16
MC1413BP	7	50	30	50	0.5	4.6	150	PDIP−16
MC1413D	7	50	30	50	0.5	4.6	150	SOIC−16
MC1413P	7	50	30	50	0.5	4.6	150	PDIP−16
NCV1413BD	7	50	30	50	0.5	4.6	150	SOIC−16
ULN2003AD	7	50	–	–	–	4.6	150	SOIC−16
ULQ2003AD	7	50	–	–	–	4.6	150	SOIC−16

RELAY DRIVERS

Device	Type	Number of Drivers	V_{CC} Max (V)	$V_{(BR)GSS}$ Max (V)	$V_{(BR)DSS}$ Max (V)	I_D Max (A)	$r_{DS(on)}$ Max (Ω)	T_j Max (°C)	Package
MDC3105D	Dual 5 V	2	6	6	6.6	0.4	0.64	150	SC−74
MDC3105	Single 5 V	1	6	6	6.6	0.4	0.64	150	SOT−23
NUD3105D	Dual 5 V	2	6	6	6	0.5	0.9	150	SC−74
NUD3105	Single 5 V	1	6	6	6	0.5	0.9	150	SOT−23
NUD3112D	Dual 12 V	2	14	6	14	0.5	0.9	150	SC−74
NUD3112	Single 12 V	1	14	6	14	0.5	0.9	150	SOT−23
NUD3124D	Dual 24 V	2	28	12	28	0.15	0.8	150	SC−74
NUD3124	Single 24 V	1	28	12	28	0.15	0.8	150	SOT−23
NUD3160D	Dual 60 V	2	60	12	60	0.15	1.8	150	SC−74
NUD3160	Single 60 V	1	60	12	60	0.15	1.8	150	SOT−23

MOSFET/IGBT DRIVERS

Device	Configuration	Number of Drivers	V_{CC} Max (V)	Drive Source/ Sink Typ (mA)	Rise Time (ns)	Fall Time (ns)	t_p Max (ns)	Package
ADP3110A	Dual	2	13.2	1000 / 1000	40	20	65	DFN–8, SOIC–8
ADP3120A	Dual	2	13.2	1500 / 1500	20	16	70	DFN–8, SOIC–8
ADP3121	Dual	2	13.2	–	20	20	45	LFCSP–8, SOIC–8
ADP3419	Dual Synchronous	2	6	1000 / 1000	14	11	70	MSOP–10
ADP3611	Dual	–	–	–	–	–	–	DFN–8, Micro–10
MC33151	Dual Inverting	2	18	1500 / 1500	14	16	100	SOIC–8, PDIP–8
MC33152	Dual Non–Inverting	2	18	1500 / 1500	14	15	120	SOIC–8, PDIP–8
MC33153	Single	1	20	1000 / 2000	17	17	300	SOIC–8, PDIP–8
MC34151	Dual Inverting	2	18	1500 / 1500	14	16	100	SOIC–8, PDIP–8
MC34152	Dual Non–Inverting	2	18	1500 / 1500	14	15	120	SOIC–8, PDIP–8
NCP1392B	Half–Bridge	2	16	500/1000	40	20	500	SOIC–8
NCP1393B	Half–Bridge	2	16	500/1000	40	20	500	SOIC–8
NCP3420	Dual	2	13.2	–	16	11	45	DFN–8, SOIC–8
NCP5104	Single	2	20	250 / 500	85	35	170	SOIC–8, PDIP–8
NCP5106A	Dual	2	23	250 / 500	85	35	170	SOIC–8, PDIP–8
NCP5106B	Dual	2	23	250 / 500	85	35	170	SOIC–8, PDIP–8
NCP5111	Single	2	23	250 / 500	85	35	170	SOIC–8, PDIP–8
NCP5181	Dual	2	20	1400 / 2200	40	40	170	SOIC–8, PDIP–8
NCP5304	Dual	2	23	250 / 500	85	35	170	SOIC–8, PDIP–8
NCP5351	Dual	2	6.3	1400 / 2200	10	14	80	SOIC–8, DFN–10
NCP5359	Dual	2	15	1500 / 1500	16	11	35	SOIC–8, DFN–10
NCP5359A	Dual	2	13.2	1500/1500	16	15	30	DFN–8, SOIC–8
NCV7513	Hex Low–Side	6	5.25	1	1400	1400	1000	LQFP–32
NCV7517	Hex Low–Side	6	5.25	100 / 100	277	277	1000	LQFP–32
NCV7702B	Dual H–Bridge	4	16	1000 / 1000	10000	10000	10000	SOIC–24
NCV7703	Triple Half–Bridge	6	40	1500 / 1500	5000	2000	7500	SOIC–14
NCV7708B	Half–Bridge	–	5.25	–	–	–	–	SOIC–28
NCV33152	Dual Non–Inverting	2	18	1500 / 1500	15	36	120	SOIC–8

MOTOR DRIVERS

Device	Type	V_{CC} Min (V)	V_{CC} Max (V)	P_D Max (W)	I_O Max (A)	Package
AMIS30521	Stepper Motor Driver	6	40	1.28	1.6	NQFP−32
AMIS30522	Stepper Motor Driver	6	40	1.28	1.6	NQFP−32
AMIS30532	Stepper Motor Driver	6	30	2.27	3.2	NQFP−32
AMIS30542	Stepper Motor Driver	–	–	–	3.2	NQFP−32
AMIS30621	Stepper Motor Driver	–	–	–	–	NQFP−32, SOIC−20
AMIS30622	Stepper Motor Driver	6	40	0.32	0.8	NQFP−32, SOIC−20
AMIS30623	Stepper Motor Driver and Controller with LIN	6	40	0.32	0.8	SOIC−20, NQFP−32
AMIS30624	Stepper Motor Driver and Controller with I2C	6	40	0.32	0.8	SOIC−20, NQFP−32
CS3351	Alternator Voltage Regulator Darlington Driver	–	27	–	–	SOIC−14
CS3361	Alternator Voltage Regulator FET Driver	–	27	–	–	SOIC−14
CS8190	Precision Air−Core Tach/Speedo Driver with RTZ	8.5	15	–	0.01	SOIC−20, PDIP−16
MC33030	DC Servo Motor Controller	8	36	0.691	1	SOIC−16, PDIP−16
MC33033	Brushless DC 3−Phase Motor Controller	10	30	0.619	0.1	SOIC−20, PDIP−20
MC33035	Brushless DC 3−Phase Motor Controller	10	30	0.65	0.1	SOIC−24, PDIP−24
MC33039	Closed−Loop Brushless Motor Adapter	5.5	9	0.65	0.02	SOIC−8, PDIP−8
NCV33033	Brushless DC 3−Phase Motor Controller	10	30	0.619	0.1	SOIC−20
NCV33035	Brushless DC 3−Phase Motor Controller	10	30	0.65	0.1	SOIC−24
NCV33039	Closed−Loop Brushless Motor Adapter	5.5	9	0.65	0.02	SOIC−8
NCV70521	Stepper Motor Driver	6	40	0.104	1.5	NQFP−32
NCV70522	Stepper Motor Driver	–	–	–	–	NQFP−32
TDA1085C	Universal Motor Controller	15	16	1	0.2	PDIP−16

DSP Systems

DSP Systems

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AUDIO DSP SYSTEMS

Device	Type	DSP Core (bits)	Coprocessor Type	MIPS	Dynamic Range (dB)	RAM (kB)	$I_{standby}$ Typ (μA)	Audio Inputs	Audio Outputs	Package
0W588–002–XUP	BelaSigna® 200	16	WOLA	40	83	42	250	2	2	WLCSP–40
0W633–001–XTP	BelaSigna® 250	16	WOLA	60	88	42	50	2	2	LFBGA–57
0W888–002–XTP	BelaSigna® 250	16	WOLA	60	88	42	50	2	2	LFBGA–64
B250W48A106XXG	BelaSigna® 250	16	WOLA	60	88	42	50	2	2	WLCSP–48
B300W35A102XYG	BelaSigna® 300	24	HEAR	240	110	110	40	4	1	WLCSP–35

EMI/RFI Filters

EMI/RFI Filters

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AUDIO FILTERS

Device	Description	R Typ (Ω)	C Typ (pF)	IR Max (μA)	V(BR) Typ (V)	VRWM Max (V)	Package
NUF2114MN	2 Line Audio EMI Filter with ESD Protection	8.4	60	0.1	15.7	12	DFN−8
NUF2116MN	2 Line Audio EMI Filter with ESD Protection	64	50	0.1	15.7	12	DFN−8
NUF2441FC	Integrated Passive Filter with ESD Protection	0.28	250	0.1	15	12	Flip−Chip−6
NUF2450MU	2 Line EMI Filter with ESD Protection	1.3	240	0.1	7	5	UDFN−8
NUF4220MN	4 Line Audio EMI Filter with ESD Protection	0.85	205	0.1	7	5	DFN−8
Device	**Description**	**Architecture**	**F_{CO} (MHz)**	**Component Values**			**Package**
CM1418−02CP	Audio Filter, Very Low Insertion Loss	C−L−C	22	100 pF – 3 nH – 100 pF			CSP
CM1483−02DE	Audio Filter, Very Low Insertion Loss	C−L−C	22	100 pF – 3 nH – 100 pF			TDFN
CM1411	Audio Filter, Speaker	C−R−C	31	100 pF – 10 Ω – 100 pF			CSP
CM1412	Audio Filter, Microphone	C−R−C	60	100 pF – 68 Ω – 100 pF			CSP

DATA FILTERS

Device	Description	R Typ (Ω)	C Typ (pF)	I_R Max (μA)	V_{BR} Typ (V)	VRWM Max (V)	Package
NUC2401MN	Integrated Common Mode Choke with ESD Protection	2.2	0.8	2	7.6	5	DFN−8
NUF2042XV6	USB Upstream Terminator with ESD Protection	22	42	0.01	6.8	5.25	SOT−563
NUF2101M	USB 1.1 Down Stream EMI Filter with ESD Protection	30	55	0.1	7	5.25	TSOP−6
NUF2221W1	Zener USB Upstream Terminator with ESD Protection	22	42	0.1	6.8	5.25	SC−88
NUF2222FC	2 Line USB 1.1 Upstream EMI Filter	33	36	0.1	7.6	5.6	Fllip−Chip−8
NUF2230XV6	2 Line EMI Filter with ESD Protection	100	16	1	7	5	SOT−563
NUF3101FC	3 Line EMI Filter	47	18	0.1	7	5.6	Flip−Chip−8
NUF3102MU	Low Capacitance 3 Line EMI Filter	100	13	1	7	5	UDFN−8
NUF4000MU	4 Channel, 100 Ω, 17 pF	100	15	0.1	7	5	UDFN−8
NUF4001MU	Low Capacitance 4 Line EMI Filter with ESD Protection	100	13	0.1	7	5	UDFN−8
NUF4010MU	4 Channel, 100 Ω, 8.5 pF	100	7	0.1	7	5	UDFN−8
NUF4107FC	4 Channel EMI Pi−Filter Array with Full USB Filter	22	60	0.1	6.8	3.3	Flip−Chip−17
NUF4211MN	Low Capacitance 4 Line EMI Filter with ESD Protection	100	8.5	0.1	7	5	DFN−8
NUF4310MN	4 Channel EMI Filter with ESD Protection	100	18	0.1	7	5	WDFN−8
NUF4401MN	4 Line EMI Filter with ESD Protection	200	15	0.1	7	5	DFN−8
NUF4402MN	4 Line EMI Filter with ESD Protection	100	12	0.1	7	5	DFN−8

DATA FILTERS

Device	Description	R Typ (Ω)	C Typ (pF)	I_R Max (μA)	V_{BR} Typ (V)	VRWM Max (V)	Package
NUF4403MN	4 Line EMI Filter with ESD Protection	100	17	0.1	7	5	DFN−8
NUF6001MU	6 Line EMI Filter with ESD Protection	100	17	0.1	7	5	UDFN−12
NUF6005MU	6 channel, 100 Ω, 12 pF	100	10	0.1	7	5	UDFN−12
NUF6010MU	6 Line EMI Filter with ESD Protection	100	7	0.1	6.8	5	UDFN−12
NUF6105FC	6 Channel EMI Pi−Filter Array with ESD Protection	100	53	0.1	7	3.3	Flip−Chip−15
NUF6106FC	6 Channel EMI Pi−Filter Array with ESD Protection	100	21	0.1	7	3.3	Flip−Chip−15
NUF6107MN	4 Channel Data Line EMI Filter	100	30	0.1	6.8	5	DFN−12
NUF6400MN	6 line EMI Filter	100	50	0.1	7	5	DFN−12
NUF6401MN	6 Line EMI Filter with ESD Protection	100	17	1	7	5	DFN−12
NUF6402MN	4 Line EMI Filter with ESD Protection	100	17	1	7	5	DFN−12
NUF6406MN	6 Line EMI Filter with ESD Protection	100	13	1	7	5	DFN−12
NUF6410MN	6 Line EMI Filter with ESD Protection	100	7	0.1	6.8	5	DFN−12
NUF8001MU	Low Capacitance 8 Line EMI Filter with ESD Protection	100	12	0.1	7	5	UDFN−16
NUF8010MU	8 Channel − Low Capacitance	100	7	0.1	7	5	UDFN−16
NUF8152MU	8 Line EMI Filter with ESD Protection	28	20	0.1	7	5	UDFN−16
NUF8401MN	Low Capacitance 8 Line EMI Filter with ESD Protection	100	12	0.1	7	5	DFN−16
NUF8402MN	8 Line EMI Filter with ESD Protection	100	17	0.1	7	5	DFN−16
NUF8410MN	Low Capacitance 8 Line EMI Filter with ESD Protection	100	8.5	0.1	7	5	DFN−16
NUF8600MN	8 Line EMI Filter with ESD	50	17	0.1	7	5	DFN−16
NUF8610MN	8 Line EMI Filter with ESD	50	8.5	0.1	7	6	DFN−16
NUF9001FC	10 Line EMI Filter	200	45	0.1	7	5	Flip−Chip−25
NUF9002FC	Low Capacitance 10 Line EMI Filter with ESD Protection	100	28	0.5	7	5	Flip−Chip−25
NZF220DF	EMI Filter with 6 V TVS Array, 2−Line	100	22	1	7	3	SC−88A
NZF220T	EMI Filter with 6 V TVS Array, 1−Line	100	22	1	7	3	SC−75
STF202−22	Upstream USB Port Filter & 6 V TVS Array, 2−Line	22	68	1	7	5.25	TSOP−6

RC PARALLEL INTERFACE FILTERS

Device	Description	R Typ (Ω)	C Typ (pF) (@ 2.5 V)	I_R Max (μA)	V_{BR} Typ (V)	V_{CC} (V)	Package
CM1430−04DE	4 Channel EMI Filter Low Cap	100	17	0.1	6.8	5	TDFN
CM1430−06DE	6 Channel EMI Filter Low Cap	100	17	0.1	6.8	5	TDFN
CM1430−08DE	8 Channel EMI Filter Low Cap	100	17	0.1	6.8	5	TDFN
CM1431−04DE	4 Channel EMI Filter Display and Camera	100	30	0.1	6.8	5	TDFN
CM1431−06DE	4 Channel EMI Filter Display and Camera	100	30	0.1	6.8	5	TDFN
CM1431−08DE	4 Channel EMI Filter Display and Camera	100	30	0.1	6.8	5	TDFN
CM1436−04DE	4 Channel EMI Filter Display and Camera	200	30	0.1	6.8	5	TDFN
CM1436−06DE	4 Channel EMI Filter Display and Camera	200	30	0.1	6.8	5	TDFN
CM1436−08DE	4 Channel EMI Filter Display and Camera	200	30	0.1	6.8	5	TDFN
CM1630−04DE	4 Channel EMI Filter Low Cap	100	17	0.1	6.8	5	UDFN
CM1630−06DE	6 Channel EMI Filter Low Cap	100	17	0.1	6.8	5	UDFN
CM1630−08DE	8 Channel EMI Filter Low Cap	100	17	0.1	6.8	5	UDFN
CM1631−04DE	4 Channel EMI Filter Display and Camera	100	30	0.1	6.8	5	UDFN
CM1631−06DE	4 Channel EMI Filter Display and Camera	100	30	0.1	6.8	5	UDFN
CM1631−08DE	4 Channel EMI Filter Display and Camera	100	30	0.1	6.8	5	UDFN
CM1636−04DE	4 Channel EMI Filter Display and Camera	200	30	0.1	6.8	5	UDFN
CM1636−06DE	4 Channel EMI Filter Display and Camera	200	30	0.1	6.8	5	UDFN
CM1636−08DE	4 Channel EMI Filter Display and Camera	200	30	0.1	6.8	5	UDFN
CM1442−04CP	4 Channel EMI Filter Display and Camera	100	30	0.1	6.8	5	CSP
CM1442−06CP	4 Channel EMI Filter Display and Camera	100	30	0.1	6.8	5	CSP
CM1442−08CP	4 Channel EMI Filter Display and Camera	100	30	0.1	6.8	5	CSP
CM1443−04CP	4 Channel EMI Filter Low Cap	100	17	0.1	6.8	5	CSP
CM1443−06CP	6 Channel EMI Filter Low Cap	100	17	0.1	6.8	5	CSP
CM1443−08CP	8 Channel EMI Filter Low Cap	100	17	0.1	6.8	5	CSP

LC PARALLEL INTERFACE FILTERS

Device	Description	L Typ (nH)	C Typ (pF) (@ 2.5 V)	F_{CO} (MHz)	Rise/Fall Time (ns)	V_{CC} (V)	Package
CM1693−04DE	LC EMI Filter 700 MHz Stopband	26	22	350	< 4	5	UDFN
CM1693−06DE	LC EMI Filter 700 MHz Stopband	26	22	350	< 4	5	UDFN
CM1693−08DE	LC EMI Filter 700 MHz Stopband	26	22	350	< 4	5	UDFN
CM1692−04DE	LC EMI Filter 800 MHz Stopband	17	24	250	< 5	5	UDFN
CM1692−06DE	LC EMI Filter 800 MHz Stopband	17	24	250	< 5	5	UDFN
CM1692−08DE	LC EMI Filter 800 MHz Stopband	17	24	250	< 5	5	UDFN
CM1690−04DE	LC EMI Filter 800 MHz Stopband	12	32	330	< 7	5	UDFN
CM1690−06DE	LC EMI Filter 800 MHz Stopband	12	32	330	< 7	5	UDFN
CM1690−08DE	LC EMI Filter 800 MHz Stopband	12	32	330	< 7	5	UDFN
CM1460−04DE	LC EMI Filter 800 MHz Stopband	17	30	350	< 8	5	TDFN
CM1460−06DE	LC EMI Filter 800 MHz Stopband	17	30	350	< 8	5	TDFN
CM1460−08DE	LC EMI Filter 800 MHz Stopband	17	30	350	< 8	5	TDFN
CM1461−04DE	LC EMI Filter 800 MHz Stopband	17	20	400	< 6	5	TDFN
CM1461−08DE	LC EMI Filter 800 MHz Stopband	17	20	400	< 6	5	TDFN
CM1461−08DE	LC EMI Filter 800 MHz Stopband	17	20	400	< 6	5	TDFN
CM1457−04CP	LC EMI Filter 700 MHz Stopband	17	15	320	< 4	5	CSP
CM1457−06CP	LC EMI Filter 700 MHz Stopband	17	15	320	< 4	5	CSP
CM1457−08CP	LC EMI Filter 700 MHz Stopband	17	15	320	< 4	5	CSP
CM1453−04CP	LC EMI Filter 800 MHz Stopband	20	18	300	< 4	5	CSP
CM1457−06CP	LC EMI Filter 800 MHz Stopband	20	18	300	< 4	5	CSP
CM1457−08CP	LC EMI Filter 800 MHz Stopband	20	18	300	< 4	5	CSP

APPLICATION SPECIFIC FILTERS

Device	Description	π Filter Structure	F_{CO} (MHz)	Rise/Fall Time (ns)	V_{CC} (V)	Package
CM1624−08DE	uSD High Capacity Interface	10 pF – 40 Ω – 20 nH – 10 pF	320	< 4	5	UDFN
CM6304	SIM Card EMI w/ESD	20 pF – 100/47 Ω – 20 pF	–	< 9	5	CSP
CM6300	SIM Card EMI w/ESD	20 pF – 100/47 Ω – 20 pF	–	< 9	5	CSP

IGBTs and FETs

IGBTs and FETs

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IGBTs

Product	$V_{(BR)CES}$ Typ (V)	I_C Max (A)	$V_{CE(sat)}$ Typ (V)	E_{AS} Typ (μJ)	t_{sc} Min (ms)	P_D Max (W)	Package
NGB15N41CL	410	15	1.9	250000	–	107	D2PAK
NGD15N41CL	410	15	1.9	250000	250	107	DPAK
NGP15N41CL	410	15	1.9	250000	–	107	TO−220
NGB8202N	400	20	1.3	250000	–	150	D2PAK
NGD8201N	400	20	1.3	250000	–	125	DPAK
NGB8204N	400	18	1.8	400000	5	115	D2PAK
NGB18N40CLB	400	18	1.8	400000	0.0015	–	D2PAK
NGD18N40CLB	400	18	1.8	400000	0.04	115	DPAK
NGB8207AN	365	20	1.75	500000	–	165	D2PAK
NGB8207N	365	20	1.5	500000	–	165	D2PAK
NGB8206N	350	20	1.3	250000	–	150	D2PAK
NGD8205N	350	20	1.3	250000	–	125	DPAK

JFETs

HIGH–FREQUENCY AMPLIFIERS

N–Channel	$R_e\|Y_{fs}\|$ mmho Min	$R_e\|Y_{os}\|$ μmho Max	C_{iss} pF Max	C_{rss} pF Max	NF dB Max	V_{GSS} V_{GDO} Volts Min	$V_{GS(off)}$ Volts		I_{DSS} mA		Package
							Min	Max	Min	Max	
J310	12 (Typ)	250 (Typ)	7.5	2.5	1.5 (Typ)	25	2.0	6.5	24	60	**TO–226AA, TO–92 Case 29–11**
MMBFJ309L	10	250	5.0	2.5	4.0	25	1.0	4.0	12	30	**TO–236AB, SOT–23 Case 318–08**
MMBFJ310L	8.0	250	5.0	2.5	4.0	25	2.0	6.5	24	60	
MMBFU310L	10	250	5.0	2.5	4.0	25	2.5	6.0	24	60	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

SWITCHES AND CHOPPERS

N–Channel	P–Channel	$R_{DS(on)}$ Ω Max	C_{iss} pF Max	C_{rss} pF Max	V_{GSS} V_{GDO} Volts Min	$V_{GS(off)}$ Volts		I_{DSS} mA		t_{on} ns Max	t_{off} ns Max	Package
						Min	Max	Min	Max			
J112	–	50	28	5.0	35	1.0	5.0	5.0	–	–	–	
MPF4393	–	100	10	3.5	30	–	12 (Typ)	5.0	30	15	55	**TO–226AA, TO–92 Case 29–11**
MMBF4391L	–	30	10	3.5	30	4.0	10	50	150	–	–	
MMBF4392L	–	60	10	3.5	30	2.0	5.0	25	75	–	–	
MMBF4393L	–	100	10	3.5	30	0.5	3.0	5.0	30	–	–	
–	***MMBFJ175L***	125	11	5.5	30	3.0	6.0	7.0	60	–	–	**TO–236AB, SOT–23 Case 318–08**
–	***MMBFJ177L***	300	–	–	30	0.8	2.5	1.5	20	–	–	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

MOSFETs

MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
SOT−963 CASE 527AD									
Complementary									
20		1.5 / 5.0	2.0 / 6.0	3.0 / 7.0		0.16	0.13	**NTUD3169C**	C
N−Channel									
20		1.500	2.000	3.000		0.22	0.13	**NTUD3170N**	D
P−Channel									
20		5.000	6.000	7.000		0.20	0.13	**NTUD3171P**	D
SOT−723 CASE 631AA									
N−Channel									
20		0.550	0.700	0.900	1.50	0.81	0.28	**NTK3134N**	S
		8.000	13.000	20.000	1.50	0.18	0.31	**NTK3043N**	S
P−Channel									
20		0.900	1.200	2.000	1.50	0.54	0.28	**NTK3139P**	S
		3.400	5.300	10.000	1.50	0.26	0.28	**NTK3142P**	S
SC−75 CASE 463									
N−Channel									
20		0.230	0.275	0.070	1.82	0.92	0.30	**NTA4153N**	S
		3.000	3.500			0.24	0.30	**NTA4001N**	S
30		7.000	7.500			0.15	0.30	**NTA7002N**	S
P−Channel									
20		0.360	0.450	1.000	2.10	0.76	0.30	**NTA4151P**	S
SC−89 CASE 463C									
N−Channel									
20		0.230	0.275	0.700	1.82	0.92	0.31	**NTE4153N**	S
P−Channel									
20		0.360	0.450	1.000	2.10	0.76	0.31	**NTE4151P**	S
SOT−563 CASE 463A									
Complementary									
20		0.55/0.9	0.7/1.2	0.9/2.0	1.5/1.7	0.54 / 0.43	0.28	**NTZD3155C**	C
		0.55/0.9	0.7/1.2	0.9/2.0	1.5/1.7	0.54 / 0.43	0.28	**NTZD3156C**	C
N−Channel									
20		0.550	0.070	0.900	1.50	0.54	0.25	**NTZD3154N**	D
60		1.500			0.50	0.35	0.25	**NTZD5110N**	D
P−Channel									
20		0.900	1.200	2.000	1.70	0.43	0.28	**NTZD3152P**	D
		0.150	0.200	0.240	5.60	0.86	0.21	**NTZS3151P**	S
SC−70 CASE 419									
N−Channel									
20	1.000	1.400			1.40	0.30	0.15	**MMBF2201N**	S
25		0.350	0.400		1.20	0.75	0.28	**NTS4409N**	S

MOSFETs

MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
SC−70 CASE 419									
N−Channel									
30		1.500	2.000		0.90	0.27	0.33	**NTS4001N**	S
60	1.000	1.500			0.50	0.35	0.33	**2N7002W**	S
P−Channel									
8		0.100	0.140	0.210	6.40	1.40	0.33	**NTS2101P**	S
20	2.200	3.500			2.70	0.30	0.15	**MMBF2202P**	S
		0.120	0.160		6.40	1.37	0.33	**NTS4101P**	S
30	0.200	0.200	0.280			1.20	0.29	**NTS4173P**	S
SC−88 (SOT−363) CASE 419B									
Complementary									
20 / 8		0.375 / 0.3	0.455 / 0.46	0.900	1.3 / 2.2	0.63 / 0.755	0.27	**NTJD4105C**	C
20 / 20		0.375 / 0.260	0.445 / 0.5		3.00	0.63 / 0.82	0.27	**NTJD3158C**	C
30 / 20		1.5 / 0.260	2.5 / 0.500		0.9 / 2.2	0.25 / 0.88	0.27	**NTJD4158C**	C
N−Channel									
20		0.375	0.445		1.30	0.63	0.27	**NTJD4401N**	D
		0.060	0.070	0.085	6.90	3.20	1.00	**NTJS3157N**	S
25		0.350	0.040		0.75	1.00	0.63	**NTJS4405N**	S
30		1.500	2.500		0.90	0.25	0.27	**NTJD4001N**	D
	0.060	0.085			2.75	2.60	0.62	**NTJS4160N**	S
60	1.600	2.500			0.70	0.32	0.27	**NTJD5121N**	D
P−Channel									
8		0.300	0.460	0.900	2.20	0.78	0.27	**NTJD2152P**	D
12		0.060	0.090	0.160	8.60	3.30	0.63	**NTJS3151P**	S
20		0.260	0.500	1.000	2.20	0.88	0.35	**NTJD4152P**	D
		0.060	0.085	0.205	10.00	4.20	1.00	**NTJS4151P**	S
P−Channel Load Switch									
8		0.175	0.220	0.320		1.30	0.40	**NTJD1155L**	L
SC−74 (SC−59ML) 6 LEAD CASE 318F−05									
P−Channel									
8	0.055				55.00	3.30	0.83	**NTGD1100L**	D
UDFN6, 1.6x1.6, 0.5P CASE 517AT									
N−Channel									
30	0.200				1.40	1.50	0.80	**NTLUF4189NZ**	D
P−Channel									
20	0.085				5.50	3.40	1.50	**NTLUS3192PZ**	S
	0.250				2.30	1.70	1.00	**NTLUD3191PZ**	D
30	0.095				3.10	3.00	0.60	**NTLUS4195PZ**	S

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MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
WDFN6 2*2*.75 (μCool™) CASE 506AN									
Complementary									
20	0.065				3.70	4.60	2.30	**NTLJD3119C**	C
	0.100				4.60	3.20	1.50	**NTLJD3183CZ**	C
N−Channel									
30	0.070	0.070	0.090	0.125	5.40	3.70	0.71	**NTLJD4116N**	D
	0.070				5.40	4.00	2.08	**NTLJF4156N**	F
		0.035	0.045	0.055	8.50	7.80	1.92	**NTLJS4114N**	S
P−Channel									
8		0.036			15.70	8.10	3.30	**NTLJS1102P**	S
12		0.040			12.80	7.70	1.90	**NTLJS2103P**	S
	0.100					0.60	0.96	**NUS1204MN**	D
20		0.040			13.00	7.70	3.30	**NTLJS3113P**	S
		0.100	0.135	0.200	5.50	3.30	1.47	**NTLJD3115P**	D
	0.100				5.50	4.10	2.30	**NTLJF3117P**	F
TSOP−6 CASE 318G									
Complementary									
20		0.06 / 0.11	0.09 / 0.145	0.15/0. 22	5.20	3.5/2.7	1.10	**NTGD3149C**	C
30		0.09 / 0.17	0.125 / 0.3		3.70	2.9/2.2	1.10	**NTGD4167C**	C
N−Channel									
20		0.045	0.055		8.00	5.10	1.00	**NTGS3446**	S
		0.070	0.100		3.80	3.50	1.10	**NTGD3148N**	D
		0.024	0.032		13.20	6.20	1.40	**NTGS3130N**	S
30	0.025	0.035			12.00	7.00	1.00	**NTGS4141N**	S
P−Channel									
12	0.075				7.00	3.30	2.00	**NTGS3433**	S
20		0.033	0.040	0.051	18.00	5.80	1.60	**NTGS3136P**	S
		0.090	0.135		6.20	3.30	1.00	**NTGS3441**	S
		0.110	0.165		3.25	3.16	0.98	**NTGS3441P**	S
		0.065	1.000		7.50	4.40	1.00	**NTGS3443**	S
30	0.160	0.280			5.60	2.30	1.30	**NTGD4161P**	D
	0.100	0.170			9.00	3.50	1.00	**NTGS3455**	S
	0.060	0.110			15.25	4.70	1.25	**NTGS4111P**	S
60	0.110	0.142			18.10	2.90	1.40	**NTGS5120P**	S

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MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
SOT−23 CASE 318									
N−Channel									
20	0.090	0.130			6.00	0.75	0.40	**MGSF1N02L**	S
		0.085	0.115		3.50	2.80	1.25	**MGSF2N02EL**	S
	1.100	1.400			1.40	0.30	0.23	**MMBF0201NL**	S
		0.080	0.105		2.40	3.20	1.25	**NTR4501N**	S
		0.050	0.063	0.087	7.30	4.00	1.25	**NTR3161N**	S
30	0.100	0.145			6.00	2.10	0.73	**MGSF1N03L**	S
		1.500	2.000		1.15	0.56	0.83	**NTR4003N**	S
	0.110	0.140			3.60	2.50	0.73	**NTR4503N**	S
	0.055	0.070	0.110		4.76	4.00	1.25	**NTR4170N**	S
50		3.500	10.000			0.20	0.23	**BSS138L**	S
60	7.500	7.500				0.12	0.23	**2N7002L**	S
	1.600	2.500			0.70	0.38	0.42	**2N7002K**	S
	2.500	3.000			0.81	0.31	0.30	**2N7002E**	S
	5.000					0.50	0.23	**MMBF170L**	S
100	6.000					0.17	0.23	**BSS123L**	S
P−Channel									
8		0.052	0.072	0.120	12.00	3.70	0.96	**NTR2101P**	S
20	0.800	1.100			2.18	0.40	0.23	**NTR0202PL**	S
	0.180	0.280			2.50	1.00	0.40	**NTR1P02**	S
		0.200	0.350		5.50	1.30	0.40	**NTR1P02L**	S
		0.850	0.120	0.210	7.50	3.20	1.25	**NTR4101P**	S
		0.070	0.095	0.120	10.30	3.60	1.25	**NTR3162P**	S
30	0.075	0.110	0.150		15.60	3.50	1.25	**NTR4171P**	S
	0.200	0.350			6.00	1.95	1.25	**NTR4502P**	S
50		10.000			6.00	0.13	0.23	**BSS84L**	S
ChipFET™ CASE 1206A									
Complementary									
20		0.08 / 0.115	0.115 / 0.240		2.6/3.0	3.1 / 2.1	1.13	**NTHC5513**	C
		0.080	0.115 / 0.110		2.3/7.4	3.9 / 4.4	1.13	**NTHD3100C**	C
		0.045 / 0.080	0.050 / 0.110	0.070 / 0.15	7.9/8.9	5.5 / 4.2	1.13	**NTHD3102C**	C
N−Channel									
20		0.075	0.115		2.60	4.10	1.13	**NTHD4508N**	D
		0.065	0.105		4.00	4.50	1.13	**NTHD5904N**	D
		0.030	0.045		12.00	7.20	1.30	**NTHS5404**	S
30	0.022	0.077			9.20	4.80	1.50	**NTHS4166N**	S
	0.085	0.140			3.60	3.90	1.13	**NTHD4502N**	D

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MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
ChipFET™ CASE 1206A									
P–Channel									
8		0.058	0.085	0.160	8.00	4.60	1.13	**NTHD2102P**	D
		0.025	0.036	0.048	15.00	7.50	1.30	**NTHS2101P**	S
20		0.080	0.110	0.170	7.60	4.10	1.13	**NTHD4102P**	D
		0.155	0.240		3.00	2.10	1.13	**NTHD4401P**	D
		0.034	0.040	0.052	25.00	6.70	1.30	**NTHS4101P**	S
		0.046	0.070		9.70	5.30	1.30	**NTHS5441**	S
		0.065	0.110		7.50	4.90	1.30	**NTHS5443**	S
FETKY® P–Channel									
20		0.080	0.110	0.170	7.40	4.40	2.10	**NTHD3133P**	F
		0.080	0.110	0.170	7.40	4.40	1.13	**NTHD3101F**	F
		0.155	0.240		3.00	4.40	1.13	**NTHD4P02F**	F
Micro8™ CASE 846A									
FETKY® P–Channel									
20		0.090	0.150		10.00	3.30	1.42	**NTTD4401FR**	F
DFN 6 3*3*.85 (μCool™) CASE 506									
N–Channel									
20		0.060			2.90	4.30	1.74	**NTLGD3502N**	D
P–Channel									
20		0.140	0.225		3.80	3.90	1.60	**NTLGF3402P**	F
SOT–223 CASE 318E									
N–Channel									
60	1.700				3.20	0.30	0.80	**MMFT960**	S
	0.110				10.60	3.00	2.10	**NTF3055100**	S
		0.120			7.60	3.00	2.10	**NTF3055L108**	S
		0.175			5.10	2.00	2.10	**NTF3055L175**	S
P–Channel									
20		0.050	0.070		15.00	10.00	8.30	**NTF6P02**	S
30	0.100	0.150			15.00	5.20	3.13	**NTF5P03**	S
60	0.170				14.30	2.60	2.30	**NTF2955**	S
SO–8 (MiniMOS™) CASE 751									
Complementary									
30	0.070 / 0.200	0.075 / 0.300			11.5 / 14.2	4.10	2.00	**MMDF2C03HD**	C
N–Channel									
20	0.090	0.100			12.50	3.80	2.00	**MMDF3N02HD**	D
		0.035	0.048		12.00	6.50	2.00	**NTMD6N02**	D
	0.023	0.028			26.00	6.50	2.50	**NTMS7N03**	S
25	0.100	0.200			10.60	3.60	2.00	**MMDF2N02E**	D
28	0.008	0.010			23.00	14.00	2.50	**NTMS4503N**	S

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MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
SO–8 (MiniMOS™) CASE 751									
N–Channel									
30	0.004	0.006			36.00	15.00	1.66	**NTMS4802N**	S
	0.004	0.006			26.30	17.00	2.12	**NTMS4920N**	S
	0.005	0.006			45.00	18.00	2.50	**NTMS4107N**	S
	0.005	0.007			23.30	16.00	2.10	**NTMS4935N**	S
	0.006	0.008			24.00	9.80	1.55	**NTMS4807N**	S
	0.007	0.009			17.40	13.60	2.00	**NTMS4937N**	S
	0.008	0.011			12.40	12.50	2.00	**NTMS4939N**	S
	0.009	0.013			12.20	9.90	1.41	**NTMS4801N**	S
	0.010	0.016			9.20	7.20	1.37	**NTMS4816N**	S
	0.014	0.017			10.00	6.40	1.49	**NTMS4872N**	S
	0.020	0.027			7.70	5.10	1.28	**NTMD4820N**	D
	0.020	0.027			7.70	6.40	1.29	**NTMS4800N**	S
	0.024	0.036			5.20	4.40	1.14	**NTMD4840N**	D
40	0.080	0.100			13.90	3.40	2.00	**MMDF3N04HD**	D
	0.034	0.043			20.00	5.80	2.00	**NTMD6N04R2**	D
50	0.300	0.500			12.50	2.00	2.00	**MMDF1N05E**	D
80	0.215	0.245			5.00	1.20	1.00	**NTMD6601N**	D
P–Channel									
16		0.100	0.150		10.00	3.85	2.00	**NTMD2P01**	D
20	0.160	0.180			15.00	3.30	2.00	**MMDF2P02HD**	D
	0.075	0.095			33.00	5.60	2.50	**MMSF3P02HD**	S
		0.033	0.050		20.00	7.80	2.00	**NTMD6P02**	D
		0.014	0.020		48.00	10.00	2.50	**NTMS10P02**	S
		0.033	0.048		20.00	7.00	2.50	**NTMS5P02**	S
30	0.018	0.030			17.00	5.80	1.44	**NTMS4176P**	S
	0.012	0.019			29.00	7.10	1.52	**NTMS4177P**	S
	0.035	0.050	35.000		37.90	7.00	2.50	**MMSF7P03HD**	S
FETKY® N–Channel									
30	0.032	0.040			19.00	6.00	2.00	**NTMD6N03**	F
	0.032	0.040			19.00	6.00	2.00	**NTMSD6N303**	F
	0.048	0.070			2.80	3.80	1.60	**NTMD4884N**	F
	0.012	0.015			10.50	7.20	1.39	**NTMS4873N**	F
FETKY® P–Channel									
30	0.095	0.165			2.80	2.60	1.60	**NTMD4184P**	F
	0.085	0.125			16.00	3.86	2.00	**NTMSD3P303**	F

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MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
WDFN8 3.3 x 3.3, 0.65P (U8FL) CASE 511AB									
N−Channel									
30	0.004	0.006			20.00	79.00	2.20	**NTTFS4932N**	S
	0.005	0.007			15.70	75.00	4.60	**NTTFS4937N**	S
	0.005	0.008			12.60	69.00	2.20	**NTTFS4824N**	S
	0.006	0.009			12.40	56.00	4.48	**NTTFS4939N**	S
	0.006	0.011			10.10	46.00	4.42	**NTTFS4941N**	S
	0.007	0.011			10.50	57.00	2.10	**NTTFS4821N**	S
	0.007	0.011			9.20	41.00	4.35	**NTTFS4943N**	S
	0.009	0.013			7.70	34.00	4.30	**NTTFS4945N**	S
	0.011	0.018			6.50	50.00	2.10	**NTTFS4823N**	S
	0.012	0.015			15.00	37.00	2.70	**NTTFS5820NL**	S
	0.020	0.025			7.70	32.00	2.04	**NTTFS4800N**	S
	0.024	0.036			5.20	26.00	2.04	**NTTFS4840N**	S
SO−8FL CASE 488									
N−Channel									
30	0.002	0.003			39.00	191.00	125.00	**NTMFS4833N**	S
	0.002	0.003			34.30	155.00	86.20	**NTMFS4852N**	S
	0.002	0.003			47.00	35.00	6.30	**NTMFS4108N**	S
	0.003	0.004			25.60	5.80	2.27	**NTMFS4845N**	S
	0.003	0.004			32.00	130.00	86.20	**NTMFS4834N**	S
	0.003	0.006			20.00	90.00	55.60	**NTMFS4836N**	S
	0.003	0.004			22.90	93.00	48.00	**NTMFS4935N**	S
	0.003	0.005			21.80	20.30	2.25	**NTMFS4846N**	S
	0.004	0.005			37.00	30.00	6.10	**NTMFS4119N**	S
	0.004	0.005			22.00	104.00	62.50	**NTMFS4835N**	S
	0.004	0.006			15.50	79.00	43.00	**NTMFS4936N**	S
	0.004	0.006			19.20	18.00	2.21	**NTMFS4847N**	S
	0.005	0.007			15.90	70.00	43.00	**NTMFS4937N**	S
	0.005	0.008			14.20	74.00	47.20	**NTMFS4837N**	S
	0.005	0.008			15.00	16.10	2.17	**NTMFS4849N**	S
	0.005	0.007			24.00	29.00	6.60	**NTMFS4121N**	S

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MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
SO−8FL CASE 488									
N−Channel									
30	0.006	0.010			13.00	66.00	41.70	**NTMFS4839N**	S
	0.006	0.800			12.70	53.00	30.00	**NTMFS4939N**	S
	0.006	0.009			13.50	15.00	2.16	**NTMFS4851N**	S
	0.006	0.009			11.30	47.00	25.50	**NTMFS4941N**	S
	0.007	10.800			10.70	58.50	5.60	**NTMFS4921N**	S
	0.007	0.001			10.70	10.00	2.14	**NTMFS4821N**	S
	0.007	0.011			11.50	57.00	41.70	**NTMFS4841N**	S
	0.007	0.011			9.20	41.00	22.30	**NTMFS4943N**	S
	0.009	0.013			7.80	35.00	19.80	**NTMFS4945N**	S
	0.010	0.014			10.00	11.00	2.20	**NTMFS4744N**	S
	0.011	0.018			6.00	30.00	32.50	**NTMFS4823N**	S
N−Channel with Integrated Schottky									
30	0.002	0.003			39.60	171.00	125.00	**NTMFS4897NF**	F
	0.003	0.005			25.60	117.00	74.00	**NTMFS4898NF**	F
	0.005	0.008			15.00	75.00	7.18	**NTMFS4899NF**	F
DPAK (TO252) CASE 369X *									
N−Channel									
24	0.005	0.006			23.60	32.00	110.00	**NTD110N02**	S
	0.005	0.008			21.00	32.00	86.00	**NTD95N02R**	S
	0.005	0.007			17.70	32.00	78.10	**NTD85N02R**	S
	0.006	0.009			30.00	80.00	75.00	**NTD80N02**	S
25	0.005	0.007			18.00	16.80	2.14	**NTD4856N**	S
	0.006	0.008			16.00	15.00	2.10	**NTD4857N**	S
	0.006	0.008			25.50	78.00	64.00	**NTD78N03**	S
	0.006	0.009			12.80	14.00	2.00	**NTD4858N**	S
	0.008	0.011			11.00	13.00	2.00	**NTD4860N**	S
	0.008	0.013			13.20	32.00	62.50	**NTD70N03R**	S
	0.009	0.014			9.00	11.30	1.95	**NTD4863N**	S
	0.011	0.013			9.50	32.00	58.00	**NTD60N02R**	S
	0.011	0.017			7.20	10.50	1.92	**NTD4865N**	S
	0.017	0.023			5.78	32.00	50.00	**NTD40N03R**	S
	0.043	0.006			21.80	18.00	2.24	**NTD4855N**	S
	0.045	0.060			3.76	17.10	22.30	**NTD23N03R**	S
	0.095	0.130			1.80	14.00	20.80	**NTD14N03R**	S

MOSFETs

MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
DPAK (TO252) CASE 369X *									
N−Channel									
30	0.004	0.006			18.80	79.00	52.00	**NTD4904N**	S
	0.004	0.006			30.00	117.00	93.75	**NTD4804N**	S
	0.005	0.007			14.00	67.00	44.00	**NTD4905N**	S
	0.005	0.007			20.50	88.00	66.00	**NTD4805N**	S
	0.006	0.008			11.00	54.00	37.50	**NTD4906N**	S
	0.006	0.009			15.00	76.00	60.00	**NTD4806N**	S
	0.008	0.012			11.30	63.00	54.60	**NTD4808N**	S
	0.008	0.012			7.60	41.00	29.40	**NTD4909N**	S
	0.008	0.013			11.00	55.00	35.70	**NTD4960N**	S
	0.009	0.014			10.70	58.00	52.00	**NTD4809N**	S
	0.009	0.013			12.50	58.00	52.00	**NTD4809NH**	S
	0.009	0.013			6.80	37.00	27.30	**NTD4910N**	S
	0.010	0.016			9.00	44.00	35.70	**NTD4963N**	S
	0.010	0.013			55.00	68.00	75.00	**NTD4302**	S
	0.010	0.016			9.00	54.00	50.00	**NTD4810N**	S
	0.010	0.017			8.90	54.00	50.00	**NTD4810NH**	S
	0.011	0.015			6.20	32.00	24.00	**NTD4913N**	S
	0.013	0.024			6.90	40.00	35.30	**NTD4813N**	S
	0.013	0.026			7.10	40.00	35.30	**NTD4813NH**	S
	0.015	0.025			6.00	35.00	32.60	**NTD4815N**	S
	0.015	0.028			6.40	35.00	32.60	**NTD4815NH**	S
	0.031	0.027			13.80	20.00	74.00	**NTD20N03L27**	S
40	0.004	0.008			75.00	78.00	93.75	**NTD5802N**	S
	0.007	0.010			51.00	75.00	83.00	**NTD5803N**	S
	0.009	0.012			45.00	69.00	71.00	**NTD5804N**	S
	0.010	0.016			33.00	51.00	47.00	**NTD5805N**	S
	0.010	0.017			45.00	70.00	100.00	**NTD5406N**	S
	0.019	0.026			17.00	33.00	39.00	**NTD5806N**	S
	0.026	0.040			20.00	38.00	75.00	**NTD5407N**	S
	0.031	0.370			12.60	23.00	33.00	**NTD5807N**	S

MOSFETs

MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
DPAK (TO252) CASE 369X *									
N−Channel									
60	0.060				15.30	18.00	55.00	**NTD18N06**	S
		0.065			11.00	18.00	55.00	**NTD18N06L**	S
	0.046				21.20	20.00	60.00	**NTD20N06**	S
		0.048			16.60	20.00	60.00	**NTD20N06L**	S
	0.042				24.00	24.00	62.50	**NTD24N06**	S
		0.045			16.00	24.00	62.50	**NTD24N06L**	S
	0.094				10.90	12.00	48.00	**NTD3055094**	S
	0.150				7.10	9.00	28.80	**NTD3055150**	S
		0.104			7.40	12.00	48.00	**NTD3055L104**	S
		0.170			4.70	9.00	28.50	**NTD3055L170**	S
	0.026				35.00	30.00	68.00	**NTD5413N**	S
	0.037				25.00	24.00	55.00	**NTD5414N**	S
	0.039				10.00	19.00	30.00	**NTD5867NL**	S
		0.028			23.00	32.00	93.75	**NTD32N06L**	S
	0.750					1.00	40.00	**MLD1N06CL**	S
62	0.400					2.00	40.00	**MLD2N06CL**	S
65	0.210					11.00	2.50	**NID6002N**	S
100	0.037				40.00	32.00	100.00	**NTD6414AN**	S
	0.052	0.056			20.00	23.00	83.00	**NTD6415ANL**	S
	0.055				29.00	23.00	83.00	**NTD6415AN**	S
	0.074	0.080			25.00	19.00	71.00	**NTD6416ANL**	S
	0.081				20.00	17.00	71.00	**NTD6416AN**	S
	0.165				14.00	12.00	53.60	**NTD12N10**	S
		0.146			11.30	12.00	56.60	**NTD6600N**	S
150	0.300				15.00	6.00	20.00	**MTD6N15**	S
200	0.700				13.70	6.00	50.00	**MTD6N20E**	S
500	1.500				18.50	4.70	83.00	**NDD05N50Z**	S
600	4.800				10.10	2.20	57.00	**NDD02N60Z**	S
	3.600				12.00	2.60	61.00	**NDD03N60Z**	S
	2.000				19.00	4.00	28.00	**NDD04N60Z**	S
P−Channel									
30		0.072			13.00	25.00	75.00	**NTD25P03L**	S
60	0.450				12.00	5.00	40.00	**MTD5P06V**	S
		0.150			15.00	15.50	54.00	**NTD20P06L**	S
	0.180				15.00	12.00	55.00	**NTD2955**	S
D2PAK (TO264) CASE 418B									
N−Channel									
20	0.006	0.009			29.00	90.00	85.00	**NTB90N02**	S
30	0.008	0.013			13.20	75.00	74.40	**NTB75N03R**	S
		0.008			57.00	75.00	125.00	**NTB75N03L09**	S

MOSFETs

MOSFET SURFACE MOUNT

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
D2PAK (TO264) CASE 418B									
N–Channel									
40	4.500	7.000			125.00	136.00	167.00	**NTB5404N**	S
	5.800	8.000			88.00	116.00	150.00	**NTB5405N**	S
60	0.010				92.00	80.00	166.00	**NTB5411N**	S
	0.014				66.00	60.00	125.00	**NTB5412N**	S
		0.100			7.30	15.00	48.40	**NTB18N06L**	S
		0.046			16.00	30.00	88.20	**NTB30N06L**	S
	0.026				33.00	45.00	125.00	**NTB45N06**	S
		0.028			23.00	45.00	125.00	**NTB45N06L**	S
	0.014				62.00	60.00	150.00	**NTB60N06**	S
		0.016			43.20	60.00	150.00	**NTB60N06L**	S
	0.095				92.00	75.00	214.00	**NTB75N06**	S
100	0.001				120.00	76.00	188.00	**NTB6410AN**	S
	0.014				100.00	72.00	188.00	**NTB6411AN**	S
	0.018				73.00	58.00	187.00	**NTB6412AN**	S
	0.028				51.00	42.00	136.00	**NTB6413AN**	S
	0.030				72.00	52.00	178.00	**NTB52N10**	S
150	0.050				70.00	37.00	178.00	**NTB35N15**	S
200	0.081				75.00	30.00	214.00	**NTB30N20**	S
P–Channel									
30			25.000			50.00	125.00	**MTB50P03HDL**	S
60			80.000			30.00	125.00	**MTB30P06V**	S
	0.075				33.00	27.50	120.00	**NTB25P06**	S
		0.140			13.00	18.50	88.00	**NTB5605P**	S
500			6.000			2.00	2.50	**MTB2P50E**	S
ICEPAK CASE 145AX *									
N–Channel									
25	0.002	0.002			51.30	160.00	65.00	**NTMKE4894N**	S
	0.003	0.004			29.50	129.00	65.00	**NTMKE4891N**	S
	0.005	0.008			13.10	90.00	65.00	**NTMKB4893N**	S
30	0.002	0.002			51.70	147.00	65.00	**NTMKC4890N**	S
	0.002	0.002			51.70	147.00	65.00	**NTMKE4890N**	S
	0.003	0.005			31.90	126.00	65.00	**NTMKE4892N**	S
	0.007	0.011			10.00	82.00	65.00	**NTMKB4895N**	S
	0.008	0.012			10.90	70.00	65.00	**NTMKB4896N**	S

MOSFETs

MOSFET THROUGH HOLE

V_{DSS} (V)	$R_{DS(on)}$ MAX (Ω) @ V_{GS} = 10 V	4.5 V / 5.0 V	2.5 V / 2.7 V	1.8 V / 1.65 V	Qg Typ (nC) @ V_{GS} = 4.5 V (5.0 V) / 10 V	Max Rating I_D (A)	Max Rating P_D (W)	Device	Config.
TO−92 CASE 29									
N−Channel									
60	5.000	6.000				0.20	0.35	**2N7000**	S
	5.000					0.50	0.35	**BS170**	S
	7.500					0.15	0.40	**VN2222LL**	S
200	14.000		28.000			0.25	0.35	**BS107**	S
	6.000					0.25	0.35	**BS107A**	S
			10.000			0.25	0.35	**BS108**	S
240	10.000					0.20	0.35	**VN2410L**	S
TO−220AB CASE 221A									
N−Channel									
40	4.500				125.00	136.00	167.00	**NTP5404NR**	S
60	6.000				150.00	120.00	214.00	**NTP5426N**	S
	10.000				92.00	80.00	166.00	**NTP5411N**	S
	14.000				66.00	60.00	125.00	**NTP5412N**	S
100	13.000				120.00	76.00	188.00	**NTP6410AN**	S
	14.000				100.00	72.00	188.00	**NTP6411AN**	S
	18.200				73.00	58.00	167.00	**NTP6412AN**	S
	28.000				51.00	42.00	136.00	**NTP6413AN**	S
150	0.050				70.00	37.00	178.00	**NTP35N15**	S
	0.130				39.10	20.00	112.00	**MTP20N15E**	S
P−Channel									
30		0.025			74.00	50.00	125.00	**MTP50P03HDL**	S
60	0.196				14.00	12.00	62.50	**NTP2955**	S
500	6.000				19.00	2.00	75.00	**MTP2P50E**	S
TO−220FP CASE 221D									
N−Channel									
500	0.850				31.00	7.50	31.00	**NDF08N50ZG**	S
	1.500				18.50	5.00	28.00	**NDF05N50ZG**	S
600	0.750				47.00	10.00	36.00	**NDF10N60ZG**	S
	1.200				31.00	6.00	31.00	**NDF06N60ZG**	S
	2.000				19.00	4.00	28.00	**NDF04N60ZG**	S
	3.600				12.00	3.00	24.00	**NDF03N60ZG**	S
	4.800				10.10	2.40	23.00	**NDF02N60ZG**	S
620	2.000				19.00	4.40	28.00	**NDF04N62ZG**	S
TO−247 CASE 340K									
N−Channel									
200	0.075				85.0	32.00	180.00	**MTW32N20E**	S

PROTECTED MOSFETS

Product	Channel Polarity	$V_{(BR)DSS}$ Min (V)	I_D Typ (A)	$R_{DS(on)}$ Max (mΩ)	P_D Max (W)	Package
MLD1N06CL	N Channel	60		750	40	DPAK–4
NCV8401D	N Channel	42	33	23	1.56	DPAK–4
NCV8402D	N Channel	42	2	165	1.62	SOIC–8
NCV8402	N Channel	42	2	165	8.9	SOT–223
NCV8403	N Channel	42	15	53	1.9	DPAK–4, SOT–223
NCV8405	N Channel	42	6	100	1.7	SOT–223
NCV8440	N Channel	52	2.6	95	1.69	SOT–223
NCV8450	–	45	0.8	1000	1.7	SOT–223
NID5004N	N Channel	36	6.5	130	2.5	DPAK–4
NID6002N	N Channel	65	6.5	210	2.5	DPAK–4
NID9N05CL	N Channel	52	9	181	28.8	DPAK–4
NIF9N05CL	N Channel	52	2.6	125	1.69	SOT–223
NILMS4501N	N Channel	24	9.5	13	2.7	PLLP–4
NIMD6001N	N Channel	60	3	130		SOIC–8
NUD4700SN	–	–	–	–	–	POWERMITE

Interfaces

Interfaces

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DATA TRANSMITTERS AND TRANSCEIVERS

HART AND MAU

Device	Description	Data Transmission Standard	V_{CC} Min (V)	V_{CC} Max (V)	t_{PLH} Max (μs)	I_O Max (μA)	I_{IH} Max (mA)	Package
A5191HRT	Industrial HART−Protocol Modem	HART	3	5.5	0.02	670	0.0005	LQFP−32
AMIS−49200	Fieldbus Phys Layer Medium Access Unit (MAU)	MAU	4.75	6.2	4.7	30000	0.001	LQFP−44
AMIS−49250	Fieldbus Phys Layer Medium Access Unit (MAU)	MAU	4.75	6.2	4.7	30000	0.001	NQPP−44

LIN AND CAN TRANSCEIVERS

Device	Description	Data Transmission Standard	V_{CC} Min (V)	V_{CC} Max (V)	t_{PLH} Max (μs)	I_O Max (μA)	I_{IH} Max (mA)	Package
AMIS−30600	LIN Transceiver	LIN	7.3	18	50	40000	0.7	SOIC−8
AMIS−30660	CAN High−Speed Transceiver	CAN	4.75	5.25	1	45000	8	SOIC−8
AMIS−30663	CAN High−Speed Transceiver	CAN	4.75	5.25	1	45000	8	SOIC−8
AMIS−41682	Fault Tolerant CAN Transceiver	CAN	4.75	5.25	8	45000	6.3	SOIC−14
AMIS−41683	Fault Tolerant CAN Transceiver	CAN	4.75	5.25	8	45000	6.3	SOIC−14
AMIS−42665	High−Speed Low Power CAN Transceiver	CAN	4.75	5.25	1	45000	8	SOIC−14
AMIS−42670	High−Speed CAN Transceiver for Long Networks	CAN	4.75	5.25	1	45000	8	SOIC−8
AMIS−42671	High−Speed CAN Transceiver for Long Networks	CAN	4.75	5.25	1	45000	8	SOIC−8
AMIS−42673	High−Speed CAN Transceiver for Long Networks	CAN	4.75	5.25	1	45000	8	SOIC−8
AMIS−42675	High−Speed Low Power CAN Transceiver	CAN	4.75	5.25	1	45000	8	SOIC−8
AMIS−42770	Dual High−Speed Can Transceiver for Long Networks	CAN	4.75	5.25	1	45000	19.5	SOIC−20
NCV7321	Stand Alone LIN Transceiver	LIN	5	27	–	–	–	SOIC−8
NCV7341	High−Speed, Low Power CAN Transceiver	CAN	4.75	5.25	–	–	–	SOIC−14
NCV7356D1	Single Wire CAN	CAN	−0.3	18	6.3	350000	0.05	SOIC−8, SOIC−14
NCV7361A	Voltage Regulator with Integrated LIN Transceiver	LIN	5.25	18	6	120000	0.11	SOIC−8
NCV7420D23	LIN Transceiver with 3.3 V Voltage Regulator	LIN	–	–	–	–	–	SOIC−14
NCV7420D25	LIN Transceiver with 5.0 V Voltage Regulator	LIN	–	–	–	–	–	SOIC−14

DATA TRANSMITTERS AND TRANSCEIVERS (continued)

EIA TRANSCEIVERS

Device	Data Transmission Standard	Number of Drivers	Number of Receivers	V_{CC} Min (V)	V_{CC} Max (V)	t_{PLH} Max (μs)	I_O Max (μA)	I_{IH} Max (mA)	Package
MC1488D	EIA–232D	4	–	9	15	0.35	12000	0.01	SOIC–14
MC1488M	EIA–232D	4	–	9	15	0.35	12000	0.01	SOEIAJ–14
MC1488P	EIA–232D	4	–	9	15	0.35	12000	0.01	PDIP–14
MC1489AD	EIA–232D	–	4	2.5	10	0.085	4000	8.3	SOIC–14
MC1489AM	EIA–232D	–	4	2.5	10	0.083	4000	8.3	SOEIAJ–14
MC1489AP	EIA–232D	–	4	2.5	10	0.085	4000	8.3	PDIP–14
MC1489D	EIA–232D	–	4	2.5	10	0.085	4000	8.3	SOIC–14
MC1489M	EIA–232D	–	4	2.5	10	0.085	4000	8.3	SOEIAJ–14
MC1489P	EIA–232D	–	4	2.5	10	0.085	4000	8.3	PDIP–14
MC26LS30D	EIA–422/423	–	4	–0.5	7	0.01	65000	0.04	SOIC–16
MC3488AD	EIA–423 / EIA–232D	2	–	10.8	13.2	140	150000	0.1	SOIC–8
MC3488AP1	EIA–423 / EIA–232D	2	–	10.8	13.2	140	150000	0.1	PDIP–8
MC75172BDW	EIA–485	4	–	4.75	5.25	0.03	65000	0.02	SOIC–20
MC75174BDW	EIA–485	4	–	4.75	5.25	0.03	65000	0.02	SOIC–20
MC75174BP	EIA–485	4	–	4.75	5.25	0.03	65000	0.02	PDIP–16

I/O EXPANDERS

Product	I/O	Cascadable	V_{CC} Min (V)	V_{CC} Max (V)	Interrupt Output	I/O Pullups	LED Blink/PWM	I_O Min (mA)	Package
CAT9532HV6I	16	8 Slave ID Addresses	2.3	5.5	No	No	Yes	25	TQFN−24
CAT9532WI	16	8 Slave ID Addresses	2.3	5.5	No	No	Yes	25	SOIC−24
CAT9532YI	16	8 Slave ID Addresses	2.3	5.5	No	No	Yes	25	TSSOP−24
CAT9534HV4I	8	8 Slave ID Addresses	2.3	5.5	Yes	No	No	10	TQFN−16
CAT9534WI	8	8 Slave ID Addresses	2.3	5.5	Yes	No	No	10	SOIC−16
CAT9534YI	8	8 Slave ID Addresses	2.3	5.5	Yes	No	No	10	TSSOP−16
CAT9552HV6I	16	8 Slave ID Addresses	2.3	5.5	No	No	Yes	25	TQFN−24
CAT9552WI	16	8 Slave ID Addresses	2.3	5.5	No	No	Yes	25	SOIC−24
CAT9552YI	16	8 Slave ID Addresses	2.3	5.5	No	No	Yes	25	TSSOP−24
CAT9554AHV4I	8	8 Slave ID Addresses	2.3	5.5	Yes	Yes	No	10	TQFN−16
CAT9554AWI	8	8 Slave ID Addresses	2.3	5.5	Yes	Yes	No	10	SOIC−16
CAT9554AYI	8	8 Slave ID Addresses	2.3	5.5	Yes	Yes	No	10	TSSOP−16
CAT9554HV4I	8	8 Slave ID Addresses	2.3	5.5	Yes	Yes	No	10	TQFN−16
CAT9554WI	8	8 Slave ID Addresses	2.3	5.5	Yes	Yes	No	10	SOIC−16
CAT9554YI	8	8 Slave ID Addresses	2.3	5.5	Yes	Yes	No	10	TSSOP−16
CAT9555HV6I	16	8 Slave ID Addresses	2.3	5.5	Yes	Yes	No	10	TQFN−24
CAT9555WI	16	8 Slave ID Addresses	2.3	5.5	Yes	Yes	No	10	SOIC−24
CAT9555YI	16	8 Slave ID Addresses	2.3	5.5	Yes	Yes	No	10	TSSOP−24
JLC1562BF	8	–	4.2	6	No	No	–	–	SOEIAJ−16
JLC1562BN	8	–	4.2	6	No	No	–	–	PDIP−16

MODULATORS/DEMODULATORS

Device	z_{is} Typ (kΩ)	z_{os} Typ (kΩ)	V_{CFT} Typ (μV)	V_{CS} Typ (mV)	A_{VS} Typ (V)	BW Typ (MHz)	I_{IB} Typ (μA)	ACM Typ (dB)	T_A Min (°C)	T_A Max (°C)	Package
MC1496	200	40	20	65	3.5	300	12	85	0	70	SOIC−14
MC1496B	200	40	20	65	3.5	300	12	85	−40	125	SOIC−14

SENSOR INTERFACES

Device	Channels	V_{CC} Min (V)	V_{CC} Max (V)	I_T Max (mA)	V_I Typ (V)	T_A Min (°C)	T_A Max (°C)	Package
NCV1124	2	4.5	5.5	5	250	−40	125	SOIC−8

SMART AND SIM CARD INTERFACES

Device	Description	V_{CC} Min (V)	V_{CC} Max (V)	I_T Typ (mA)	$I_{I(standby)}$ Max (μA)	f_{Clock} Max (MHz)	Package
NCN4555	SIM Card Power Supply/Level Translator	1.8	5.5	0.03	4	5	QFN−16
NCN4557	Dual SIM / Smart Card Interface	1.8	5.5	0.03	3	5	QFN−16
NCN6001	Compact Smart Card Interface	2.7	6	0.5	60	40	TSSOP−20
NCN6004A	Dual Asynchronous/Synchronous Smart Card Interface	1.8	5.5	–	50	–	TQFP−48
NCN6024	Compact Smart Card Interface	–	–	–	1000	20	TSSOP−28
NCN6804	Dual Smart Card Interface	2.7	5.5	0.1	100	40	QFN−32

Memory

Memory

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SERIAL SRAM

Device	Density	Organization (Bits)	Data Transmission Standard	f_{cycle} Max (MHz)	V_{CC} Min (V)	V_{CC} Max (V)	$I_{standby}$ Typ (μA)	$I_{standby}$ Max (μA)	Package
N25S818HA	256 kb	32k x 8	SPI	16	1.7	1.95	0.2	0.5	TSSOP−8, SOIC−8
N25S830HA	256 kb	32k x 8	SPI	20	2.7	3.6	1	4	TSSOP−8, SOIC−8
N64S818HA	64 kb	8k x 8	SPI	16	1.7	1.95	0.2	0.5	TSSOP−8, SOIC−8
N64S830HA	64 kb	8k x 8	SPI	20	2.7	3.6	1	4	TSSOP−8, SOIC−8

PARALLEL SRAM

Device	Density	Organization (Bits)	t_{ACC} Max (ns)	V_{CC} Min (V)	V_{CC} Max (V)	$I_{standby}$ Typ (μA)	$I_{standby}$ Max (μA)	Package
N08L6182A	8 Mb	512k x 16	70	1.65	2.2	0.5	20	BGA−48
N08L63W2A	8 Mb	512k x 16	70	2.3	3.6	4	20	BGA−48
N04L63W1A	4 Mb	256k x 16	70	2.3	3.6	4	20	BGA−48, TSOP−44
N04L63W2A	4 Mb	256k x 16	70	2.3	3.6	4	20	BGA−48, TSOP−44
N02L6181A	2 Mb	128k x 16	70	1.65	2.2	0.5	10	BGA−48
N02L63W2A	2 Mb	128k x 16	55	2.3	3.6	2	20	BGA−48, TSOP−44
N02L63W3A	2 Mb	128k x 16	55	2.3	3.6	2	20	BGA−48, TSOP−44
N02L83W2A	2 Mb	256k x 8	55	2.3	3.6	2	20	TSOP−32, STSOP−32
N01L83W2A	1 Mb	128k x 8	55	2.3	3.6	2	20	TSOP−32, STSOP−32
N01L6183A	1 Mb	64k x 16	70	1.65	2.2	0.5	10	BGA−48, TSOP−44
N01L63W2A	1 Mb	64k x 16	55	2.3	3.6	2	20	BGA−48, TSOP−44
N01L63W3A	1 Mb	64k x 16	55	2.3	3.6	2	20	BGA−48, TSOP−44

SERIAL EEPROM

Product Type		Device	Density	Organization (bits)	Address Pins	f_{cycle} Max (MHz)	V_{CC} Min (V)	V_{CC} Max (V)	$I_{standby}$ Max (μA)	I_{act} Max (mA)	Package
I^2C Interface	Full Array Write Protect	CAT24C256	256 kb	32k x 8	Yes	0.4	1.8	5.5	1.0	1.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT24C128	128 kb	16k x 8	Yes	0.4	1.8	5.5	1.0	3.0	TSSOP–8, UDFN–8, SOIC–8, PDIP–8
		CAT24C64	64 kb	8k x 8	Yes	0.4	1.8	5.5	1.0	2.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT24C32	32 kb	4k x 8	Yes	0.4	1.7	5.5	1.0	2.0	TSSOP–8, TDFN–8, UDFN–8, SOIC–8, PDIP–8
		CAT24C164	16 kb	2k x 8	Yes	0.4	1.8	5.5	1.0	1.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT24C16	16 kb	2k x 8	No	0.4	1.7	5.5	1.0	2.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8, TSOT–23–5, MSOP–8
		CAT24AA16	16 kb	2k x 8	No	1.0	1.7	5.5	1.0	1.0	SOIC–8, TSOT–23–5
		CAT24C08	8 kb	1k x 8	Yes	0.4	1.7	5.5	1.0	2.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8, TSOT–23–5, MSOP–8
		CAT24AA08	8 kb	1k x 8	No	1.0	1.7	5.5	1.0	1.0	SOIC–8, TSOT–23–5
		CAT24C04	4 kb	512 x 8	Yes	0.4	1.7	5.5	1.0	2.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8, TSOT–23–5, MSOP–8
		CAT24AA04	4 kb	512 x 8	No	1.0	1.7	5.5	1.0	1.0	SOIC–8, TSOT–23–5
		CAT24C02	2 kb	256 x 8	Yes	0.4	1.7	5.5	1.0	2.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8, TSOT–23–5, MSOP–8
		CAT24AA02	2 kb	256 x 8	No	0.4	1.7	5.5	1.0	1.0	SOIC–8, TSOT–23–5
		CAT24C01	1 kb	128 x 8	Yes	0.4	1.7	5.5	1.0	2.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8, TSOT–23–5, MSOP–8
		CAT24AA01	1 kb	128 x 8	No	0.4	1.7	5.5	1.0	1.0	SOIC–8, TSOT–23–5
	Partial Array Write Protect	CAT24C05	4 kb	512 x 8	–	0.4	1.8	5.5	1.0	1.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8, TSOT–23–5
		CAT24C03	2 kb	256 x 8	–	0.4	1.8	5.5	1.0	1.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8, TSOT–23–5
	Application Specific	CAT24C208	8 kb	1k x 8	–	0.4	2.5	5.5	50	3.0	SOIC–8
		CAT34C02	2 kb	256 x 8	–	0.4	1.7	5.5 (Note 1)	1.0	1.0	TSSOP–8, TDFN–8, UDFN–8
		CAT24C21	1 kb	128 x 8	–	0.4	2.5	5.5	1.0	2.0	TSSOP–8, MSOP–8, TDFN–8, SOIC–8, PDIP–8

1. The CAT34C02 reversible software write protect feature V_{CC} = 1.7 to 3.6 V.

SERIAL EEPROM

Product Type		Device	Density	Organization (bits)	Address Pins	f_{cycle} Max (MHz)	V_{CC} Min (V)	V_{CC} Max (V)	$I_{standby}$ Max (μA)	I_{act} Max (mA)	Package
SPI Interface	Block Write Protection	CAT25256	256 kb	32k x 8	–	10 @ 2.5 V, 5 @ 1.8 V	1.8	5.5	3.0	4.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT25128	128 kb	16k x 8	–	10 @ 2.5 V, 5 @ 1.8 V	1.8	5.5	3.0	4.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT25640	64 kb	8k x 8	–	10 @ 2.5 V, 5 @ 1.8 V	1.8	5.5	1.0	3.0	TSSOP–8, TDFN–8, UDFN–8, SOIC–8, PDIP–8
		CAT25320	32 kb	4k x 8	–	10 @ 2.5 V, 5 @ 1.8 V	1.8	5.5	2.0	3.0	TSSOP–8, TDFN–8, SOIC–8, UDFN–8, PDIP–8
		CAT25160	16 kb	2k x 8	–	10 @ 2.5 V, 5 @ 1.8 V	1.8	5.5	2.0	2.0	TSSOP–8, TDFN–8, SOIC–8, UDFN–8, PDIP–8
		CAT25080	8 kb	1k x 8	–	10 @ 2.5 V, 5 @ 1.8 V	1.8	5.5	2.0	2.0	TSSOP–8, TDFN–8, UDFN–8, SOIC–8, PDIP–8
		CAT25040	4 kb	512 x 8	–	10 @ 2.5 V, 5 @ 1.8 V	1.8	5.5	2.0	2.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT25020	2 kb	256 x 8	–	10 @ 2.5 V, 5 @ 1.8 V	1.8	5.5	2.0	2.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT25010	1 kb	128 x 8	–	10 @ 2.5 V, 5 @ 1.8 V	1.8	5.5	2.0	2.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
MicroWire Interface	–	CAT93C86	16 kb	1024 x 16 2048 x 8	–	3 @ 4.5 V, 1 @ 2.5 V, 0.5 @ 1.8 V	1.8	5.5	10.0	3.0	TDFN–8, SOIC–8, PDIP–8
		CAT93C76	8 kb	512 x 16 1024 x 8	–	3 @ 2.5 V, 1 @ 1.8 V	1.8	5.5	10.0	3.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT93C66	4 kb	256 x 16 512 x 8	–	2.0	1.8	5.5	4.0	1.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT93C56	2 kb	128 x 16 256 x 8	–	2.0	1.8	5.5	4.0	1.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT93C57	2 kb	128 x 16 256 x 8	–	2.0	1.8	5.5	4.0	1.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT93C46	1 kb	64 x 16 128 x 8	–	2.0	1.8	5.5	2.0	1.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8
		CAT93C46R	1 kb	64 x 16 128 x 8	–	2.0	1.8	5.5	2.0	1.0	TSSOP–8, TDFN–8, SOIC–8, PDIP–8

1. The CAT34C02 reversible software write protect feature V_{CC} = 1.7 to 3.6 V.

PARALLEL EEPROM

Device	Density	Organization (Bits)	t_{ACC} Max (ns)	V_{CC} Min (V)	V_{CC} Max (V)	$I_{standby}$ Typ (μA)	I_{act} Max (mA)	Package
CAT28C512	512 kb	64k x 8	120, 150	4.5	5.5	200	50	TSOP–32, PDIP–32, PLCC–32
CAT28C513	512 kb	64k x 8	120, 150	4.5	5.5	200	50	PLCC–32
CAT28C256	256 kb	32k x 8	120, 150	4.5	5.5	150	25	TSOP–28, PDIP–28, PLCC–32
CAT28C257	256 kb	32k x 8	120, 150	4.5	5.5	150	25	PDIP–28, PLCC–32
CAT28LV256	256 kb	32k x 8	200, 250, 300	3.0	3.6	150	15	TSOP–28, PDIP–28, PLCC–32
CAT28C64B	64 kb	8k x 8	90, 120, 150	4.5	5.5	100	25	TSOP–28, SOIC–28, PDIP–28, PLCC–32
CAT28C65B	64 kb	8k x 8	90, 120, 150	4.5	5.5	100	25	TSOP–28, SOIC–28, PDIP–28, PLCC–32
CAT28LV64	64 kb	8k x 8	150, 200, 250	3.0	3.6	100	8	TSOP–28, SOIC–28, PDIP–28, PLCC–32
CAT28LV65	64 kb	8k x 8	150, 200, 250	3.0	3.6	100	8	TSOP–28, SOIC–28, PDIP–28, PLCC–32
CAT28C16A	16 kb	2k x 8	90, 120, 200	4.5	5.5	100	25	SOIC–24, PDIP–24, PLCC–32
CAT28C17A	16 kb	2k x 8	90, 120, 200	4.5	5.5	100	25	SOIC–28, PDIP–28, PLCC–32

FLASH

Device	Type	Density	Organization (Bits)	t_{ACC} Max (ns)	V_{CC} Min (V)	V_{CC} Max (V)	$I_{standby}$ Max (μA)	I_{act} Max (mA)	Package
CAT28F020	Bulk Erase	2 Mb	256k x 8	90, 120	5	12	100	30	TSOP–32, PDIP–32, PLCC–32
CAT28F001	Boot Block	1 Mb	128k x 8	90, 120	5	12	100	30	TSOP–32, PDIP–32, PLCC–32
CAT28F010	Bulk Erase	1 Mb	128k x 8	90, 120	5	12	100	30	TSOP–32, PDIP–32, PLCC–32
CAT28F512	Bulk Erase	512 kb	64k x 8	90, 120, 150	5	12	100	30	TSOP–32, PDIP–32, PLCC–32

NVRAM

Device	Density	Organization (Bits)	t_{ACC} Max (ns)	V_{CC} Min (V)	V_{CC} Max (V)	$I_{standby}$ Max (μA)	I_{act} Max (mA)	Package
CAT22C10	256 b	64 x 4	200, 300	4.5	5.5	30	40	SOIC–16, PDIP–18
CAT24C44	256 b	16 x 16	375	4.5	5.5	30	3	SOIC–8, PDIP–8

Rectifiers

Rectifiers

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APPLICATION SPECIFIC RECTIFIERS

Table 1. LOW V_F SCHOTTKY RECTIFIERS

Device	I_O (A)	V_{RRM} (V)	Max V_F @ Rated I_O and T_C = 25°C (V)	Max I_R @ Rated V_{RRM} and T_C = 25°C (mA)(1)	Package
MBRD835L	8.0	35	0.51	1.4	DPAK
MBRD1035CTL	10	35	0.47	2.0	DPAK
MBRD5H100	5.0	100	0.71	0.0035	DPAK
MBRB2515L	25	15	0.45	15	D^2PAK
MBRB3030CTL	30	30	0.44	2.0	D^2PAK
MBRB2535CTL	25	35	0.47	10	D^2PAK
MBRB30H60CT	30	60	0.62	0.3	D^2PAK
MBRB8H100	8	100	0.71	0.0045	D^2PAK
MBRB20H100CT	20	100	0.77	0.0045	D^2PAK
MBRB41H100CT	40	100	0.8	0.01	D^2PAK
MBRB60H100CT	60	100	0.84	0.01	D^2PAK
MBRB30H30CT−1G	30	30	0.48	0.8	I^2PAK
MBRB3045CT−1G	30	45	0.62	0.2	I^2PAK
MBRB30H60CT−1G	30	60	0.62	0.3	I^2PAK
MBRB41H100CT−1G	40	100	0.80	0.01	I^2PAK
MBRM110L	1.0	10	0.365	0.5	POWERMITE®
MBRA210L	2.0	10	0.35	0.7	SMA
MBRA320	3.0	20	0.50	2.0	SMA
MBRS130L	1.0	30	0.395	1.0	SMB
MBRS230L	2.0	30	0.50	1.0	SMB
MBRS2H100	2.0	100	0.79	0.008	SMB
MBRS410L	4.0	10	0.33	5.0	SMC
MBR0520L	0.5	20	0.385	0.25	SOD−123
MBR120LSF	1.0	20	0.45	0.4	SOD−123 Flat Lead
MBR120VLSF	1.0	20	0.34	0.6	SOD−123 Flat Lead
MBR130LSF	1.0	30	0.38	1.0	SOD−123 Flat Lead
MBR30H30CT	30	30	0.48	0.8	TO−220AB
MBR2535CT	30	35	0.62	0.2	TO−220AB
MBR30L45CT	30	45	0.5	0.65	TO−220AB
MBR3045ST	30	45	0.62	0.2	TO−220AB
MBR40L45CT	40	45	0.5	1.2	TO−220AB
MBR60L45CT	60	45	0.55	1.2	TO−220AB
MBR30H60CT	30	60	0.62	0.3	TO−220AB
MBR20H100CTG	20	100	0.77	0.0045	TO−220AB
MBR10H100CTG	10	100	0.73	0.0035	TO−220AB
MBR20L45CT	20	45	0.5	0.5	TO−220AB
MBR30H100CTG	30	100	0.80	0.0045	TO−220AB
MBR41H100CTG	40	100	0.80	0.01	TO−220AB
MBR60H100CTG	60	100	0.84	0.01	TO−220AB
MBR20H150CT	20	150	0.68 @ 125°C	0.05	TO−220AB
MBR2515L	25	15	0.45	15	TO−220AC
MBR2030CTL	20	30	0.52	5.0	TO−220AC
MBR2535CTL	25	35	0.47	5.0	TO−220AC
MBRF2045CT	20	45	0.84 @ 20A	0.1	TO220FP
MBRF30L45CT	30	45	0.5	0.65	TO220FP
MBRF30H60CTG	30	60	0.62	0.3	TO−220FP
MBRF20H100CT	20	100	0.77	0.0045	TO220FP
MBRF30H100CT	30	100	0.8	0.0045	TO220FP
MBRF20H150CT	20	150	0.68 @ 125°C	0.05	TO220FP
MBRF30H150CT	30	150	0.73 @ 125°C	0.06	TO220FP
MBRF20L45CT	20	45	0.5	0.5	TO220FP
MBRF2545CT	25	45	0.7	0.2	TO220FP
MBR4015LWT	40	15	0.42	5.0	TO−247
MBR60L45WT	60	45	0.55	1.2	TO−247
MBR40H100WTG	40	100	0.80	0.01	TO−247

1. Refers to maximum leakage current per leg on “CT” and “WT” suffix devices.

APPLICATION SPECIFIC RECTIFIERS (continued)

Table 2. LOW LEAKAGE SCHOTTKY RECTIFIERS

Device	I_O (A)	V_{RRM} (V)	Max V_F @ Rated I_O and T_C = 25°C (V)	Max I_R @ Rated V_{RRM} and T_C = 25°C (mA)	Package
MBR120ESF	1.0	20	0.53	0.01	SOD−123 FLAT LEAD
MBRM110E	1.0	10	0.53	0.001	POWERMITE®
MBRM120E	1.0	20	0.53	0.01	POWERMITE®
MBRA210E	2.0	10	0.5	0.05	SMA
MBRA120E	1.0	20	0.53	0.01	SMA
MBRS410E	4.0	10	0.5	0.15	SMC

Table 3. HIGH VOLTAGE SCHOTTKY RECTIFIERS

Device	I_O (A)	V_{RRM} (V)	Max V_F @ Rated I_O and T_C = 25°C (V)	Max I_R @ Rated V_{RRM} and T_C = 25°C (mA)(2)	Package
MBRS3200	3.0	200	0.84	1.0	SMB
MBRS3201	3.0	200	0.84	1.0	SMC
MBRS4201	4.0	200	0.86	1.0	SMC
MBRB20200CT	20	200	0.9	1.0	D^2PAK
MBR20200CT	20	200	0.9	1.0	TO−220AB
MBR40250T	40	250	0.97	0.03	TO−220AB
MBR40250	40	250	0.97	0.03	TO−220AC
MBRF20200CT	20	200	0.9	1.0	TO−200FP
MBRF40250T	40	250	0.97	0.03	TO−220FP

2. Refers to maximum leakage current per leg on “CT” and “WT” suffix devices.

Table 4. MEGAHERTZ™ RECTIFIERS

Device	I_O (A)	V_{RRM} (V)	Max V_F @ Rated I_F and T_C = 25°C (V)	Max I_R @ Rated V_{RRM} and T_C = 25°C (mA)(3)	t_{rr} (ns)	Package
MURHS160	1.0	600	2.4	0.02	35	SMB
MURHD560	5.0	600	2.7	0.01	30	DPAK
MURHB840CT	8.0	400	2.2	0.01	28	D^2PAK
MURHB860CT	8.0	600	2.8	0.01	35	D^2PAK
MURH840CT	8.0	400	2.2	0.01	28	TO−220AB
MURH860CT	8.0	600	2.8	0.01	35	TO−220AB
MURHF860CT	8.0	600	2.8	0.01	35	TO−220FP

3. Refers to maximum leakage current per leg on “CT” suffix devices.

Table 5. ULTRASOFT RECTIFIERS (For High Speed Rectification)

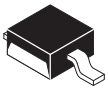
Device	I_O (A)	V_{RRM} (V)	Max V_F @ I_O and T_C = 25°C (V)	Max t_{rr} (ns)	T_JMax (°C)	Package
MSRD620CT	6.0	200	1.15	55	175	DPAK
MSR860	8.0	600	1.7	120	150	TO−220AC
MSR1560	15	600	1.8	45	150	TO−220AC
MSRF860	8	600	1.7	120	150	TO-220FP
MSRF1560	15	600	1.8	45	150	TO-220FP

Table 6. ENERGY RATED RECTIFIERS

Device	I_O (A)	V_{RRM} (V)	Max V_F @ I_O Rated and T_C = 25°C (V)	Max I_R @ Rated V_{RRM} and T_C = 25°C (μA)	Avalanche Energy (mJ)	Package
MUR180E	1.0	800	1.75	10	10	Case 59−10
MUR1100E	1.0	1000	1.75	10	10	Case 59−10
MUR480E	4.0	800	1.85	25	20	Case 267−05
MUR4100E	4.0	1000	1.85	25	20	Case 267−05
MURS480E	4.0	800	1.85	25	20	SMC
MUR880E	8.0	800	1.8	25	20	TO−220AC
MUR8100E	8.0	1000	1.8	25	20	TO−220AC

SCHOTTKY RECTIFIERS

Table 7. SURFACE MOUNT SCHOTTKY RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R(4) T_J = 25°C (mA)	Max I_R(4) (mA)	Package
20	0.5	T_L = 90°C	***MBR0520L***	0.385	5.5	125	0.250	8.0 @ 100°C	**CASE 425–04** (SOD–123) Cathode = Band
30	0.5	T_L = 100°C	***MBR0530***	0.430	5.5	125	0.130	4.0 @ 100°C	
30	2.0	T_L = 105°C	***MBR230LSF***	0.43	40	125	1.0	25 @ 100°C	
30	1.0	T_L = 65°C	***MBR130***	0.51	5.5	125	0.06	4.0 @ 125°C	
40	0.5	T_L = 115°C	***MBR0540***	0.51	5.5	150	0.020	13 @ 100°C	
100	1.0	T_L = 162°C	***MBR1H100SF***	0.76	50	175	0.04	0.5 @ 125°C	
100	2.0	T_L = 146°C	***MBR2H100SF***	0.84	50	175	0.04	0.5 @ 125°C	
20	1.0	T_L = 140°C	***MBR120ESF***	0.53	40	150	0.01	1.6 @ 100°C	**CASE 498–01** (SOD–123FL)
20	1.0	T_L = 115°C	***MBR120LSF***	0.45	50	125	0.4	25 @ 85°C	
20	1.0	T_L = 119°C	***MBR120VLSF***	0.34	45	125	0.6	15 @ 85°C	
30	1.0	T_L = 117°C	***MBR130LSF***	0.38	40	125	1.0	25 @ 100°C	
40	1.0	T_L = 112°C	***MBR140SF***	0.55	30	125	0.5	25 @ 85°C	
10	1.0	T_C = 115°C	***MBRM110E***	0.53	50	150	0.001	0.5 @ 100°C	**CASE 457–04** (POWERMITE®) 
10	1.0	T_C = 115°C	***MBRM110L***	0.365	50	125	0.5	60 @ 100°C	
20	1.0	T_C = 130°C	***MBRM120E***	0.53	50	150	0.01	1.6 @ 100°C	
20	1.0	T_C = 115°C	***MBRM120L***	0.45	50	125	0.4	25 @ 85°C	
30	1.0	T_C = 135°C	***MBRM130L***	0.38	50	125	0.41	11 @ 85°C	
40	1.0	T_C = 110°C	***MBRM140***	0.55	50	125	0.5	25 @ 85°C	
100	1.0	T_L = 168°C	***MBRM1H100***	0.76	50	175	0.02	1.0 @ 125°C	
100	2.0	T_L = 160°C	***MBRM2H100***	0.84	50	175	0.02	1.0 @ 125°C	
10	2.0	T_C = 125°C	***MBRA210E***	0.5	100	150	0.05	0.5 @ 100°C	**CASE 403D–02** (SMA) Cathode = Notch or Polarity Band
10	2.0	T_L = 110°C	***MBRA210L***	0.35	160	125	0.70	60 @ 100°C	
20	1.0	T_L = 125°C	***MBRA120E***	0.53	40	150	0.01	1.6 @ 100°C	
20	3.0	T_L = 100°C	***MBRA320***	0.50	80	125	2.0	20 @ 100°C	
30	1.0	T_C = 105°C	***MBRA130L***	0.41	25	125	1.0	25 @ 100°C	
40	1.0	T_C = 95°C	***MBRA140***	0.55	30	125	0.5	10 @ 100°C	
40	3.0	T_L = 100°C	***MBRA340***	0.45	100	150	0.3	15 @ 100°C	
60	1.0	T_C = 105°C	***MBRA160***	0.51	60	150	0.2	12 @ 125°C	
100	1.0	T_L = 167°C	***MBRA1H100***	0.76	50	175	0.04	0.5 @ 125°C	
100	2.0	T_L = 150°C	***MBRA2H100***	0.79	130	175	0.008	1.5 @ 125°C	

4. At V_{RRM}

SCHOTTKY RECTIFIERS (continued)

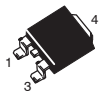
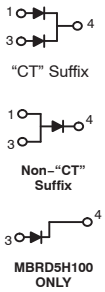
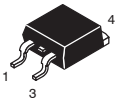
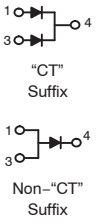
Table 7. SURFACE MOUNT SCHOTTKY RECTIFIERS (continued)

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R[5] T_J = 25°C (mA)	Max I_R (mA)	Package
20	1.0	T_L = 115°C	***MBRS120***	0.6	40	125	1.0	10 @ 100°C	**CASE 403A−03** (SMB) Cathode = Notch or Polarity Band
30	1.0	T_L = 120°C	***MBRS130L***	0.395	40	125	1.0	10 @ 100°C	
30	1.0	T_L = 115°C	***MBRS130***	0.6	40	125	1.0	10 @ 100°C	
30	2.0	T_C = 110°C	***MBRS230L***	0.5	40	125	1.0	75 @ 125°C	
40	1.0	T_L = 115°C	***MBRS140***	0.6	40	125	1.0	10 @ 100°C	
40	1.5	T_C = 100°C	***MBRS1540***	0.46	40	125	0.8	5.7 @ 100°C	
40	2.0	T_C = 100°C	***MBRS240L***	0.43	25	125	2.0	60 @ 100°C	
40	2.0	T_C = 103°C	***MBRS2040L***	0.43	70	125	0.80	20 @ 100°C	
60	2.0	T_L = 95°C	***MBRS260***	0.63	60	125	0.2	12 @ 125°C	
90	1.0	T_L = 163°C	***MBRS190***	0.75	50	175	0.5	5.0 @ 100°C	
100	1.0	T_L = 163°C	***MBRS1100***	0.75	50	175	0.5	5.0 @ 100°C	
100	2.0	T_L = 150°C	***MBRS2H100***	0.79	130	175	0.008	1.5 @ 125°C	
200	3.0	T_L = 120°C	***MBRS3200***	0.84	100	150	1.0	5.0 @ 100°C	
10	4.0	T_L = 130°C	***MBRS410E***	0.50	250	150	0.15	4.0 @ 100°C	**CASE 403−03** (SMC) Cathode = Notch
10	4.0	T_L = 110°C	***MBRS410L***	0.33	150	125	5.0	200 @ 100°C	
20	3.0	T_L = 110°C	***MBRS320***	0.50	80	150	2.0	20 @ 100°C	
30	3.0	T_L = 110°C	***MBRS330***	0.50	80	150	2.0	20 @ 100°C	
40	3.0	T_L = 110°C	***MBRS340***	0.5	80	150	2.0	20 @ 100°C	
40	5.0	T_C = 105°C	***MBRS540***	0.5	190	150	0.3	15 @ 100°C	
60	3.0	T_L = 137°C	***MBRS360***	0.74	125	175	0.15	10 @ 100°C	
100	3.0	T_L = 100°C	***MBRS3100***	0.79	130	175	0.05	5.0 @ 125°C	
200	3.0	T_C = 70°C	***MBRS3201***	0.84	100	150	1.0	5.0 @ 150°C	
200	4.0	T_L = 70°C	***MBRS4201***	0.86	100	150	1.0	5.0 @ 150°C	

5. At V_{RRM}

SCHOTTKY RECTIFIERS (continued)

Table 7. SURFACE MOUNT SCHOTTKY RECTIFIERS (continued)

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R[6] T_J = 25°C (mA)	Max I_R[6] (mA)	Package	
20	3.0	T_C = 125°C	***MBRD320***	0.60	75	175	0.2	20 @ 125°C	**CASE 369A−13** (DPAK) 	 "CT" Suffix Non−"CT" Suffix MBRD5H100 ONLY
20	6.0	T_C = 130°C	***MBRD620CT***	0.70	75	175	0.1	15 @ 125°C		
30	3.0	T_C = 125°C	***MBRD330***	0.60	75	175	0.2	20 @ 125°C		
30	6.0	T_C = 130°C	***MBRD630CT***	0.70	75	175	0.1	15 @ 125°C		
35	8.0	T_C = 88°C	***MBRD835L***	0.51	75	150	1.4	35 @ 100°C		
35	10	T_C = 115°C	***MBRD1035CTL***	0.47	50	150	2.0	60 @ 100°C		
40	3.0	T_C = 125°C	***MBRD340***	0.60	75	175	0.2	20 @ 125°C		
40	6.0	T_C = 130°C	***MBRD640CT***	0.70	75	175	0.1	15 @ 125°C		
45	10	T_C = 135°C	***MBRD1045***	0.84	70	175	0.1	15 @ 125°C		
50	3.0	T_C = 125°C	***MBRD350***	0.60	75	175	0.2	20 @ 125°C		
50	6.0	T_C = 130°C	***MBRD650CT***	0.70	75	175	0.1	15 @ 125°C		
60	3.0	T_C = 125°C	***MBRD360***	0.60	75	175	0.2	20 @ 125°C		
60	6.0	T_C = 130°C	***MBRD660CT***	0.70	75	175	0.1	15 @ 125°C		
100	5.0	T_C = 171°C	***MBRD5H100***	0.71	105	175	0.0035	4.5 @ 125°C		
15	25	T_C = 90°C	***MBRB2515L***	0.45	150	100	15	200 @ 70°C	**CASE 418B−04** (D^2PAK) 	 "CT" Suffix Non−"CT" Suffix
30	30	T_C = 134°C	***MBRB3030CT***	0.54	200	175	0.6	145 @ 150°C		
30	30	T_C = 115°C	***MBRB3030CTL***	0.44	300	125	2.0	195 @ 125°C		
30	40	T_C = 115°C	***MBRB4030***	0.55	300	175	0.35	150 @ 125°C		
35	25	T_C = 110°C	***MBRB2535CTL***	0.47	150	125	10	500 @ 125°C		
45	30	T_C = 164°C	***MBRB2545CT***	0.62	150	175	0.2	25 @ 125°C		
45	10	T_C = 135°C	***MBRB1045***	0.84	150	175	0.1	15 @ 125°C		
45	15	T_C = 167°C	***MBRB1545CT***	0.84	150	175	0.1	15 @ 125°C		
45	16	T_C = 163°C	***MBRB1645***	0.63	150	175	0.2	40 @ 125°C		
60	30	T_C = 159°C	***MBRB30H60CT***	0.62	260	175	0.3	45 @ 125°C		
60	20	T_C = 110°C	***MBRB2060CT***	0.95	150	175	0.15	35 @ 125°C		
100	8	T_C = 146°C	***MBRB8H100***	0.71	250	175	0.0045	5.3 @ 125°C		
100	20	T_C = 162°C	***MBRB20H100CT***	0.77	250	175	0.0045	6.0 @ 125°C		
100	40	T_C = 150°C	***MBRB41H100CT***	0.8	350	175	0.01	10 @ 125°C		
100	60	T_C = 155°C	***MBRB60H100CT***	0.84	350	175	0.01	10 @ 125°C		
100	20	T_C = 110°C	***MBRB20100CT***	0.85	150	175	0.1	6.0 @ 125°C		
200	20	T_C = 134°C	***MBRB20200CT***	0.9	150	150	1.0	50 @ 125°C		

6. At V_{RRM}; refers to maximum leakage current per leg on "CT" suffix devices.

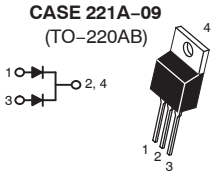
SCHOTTKY RECTIFIERS (continued)

Table 8. AXIAL LEAD SCHOTTKY RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R @ V_{RRM} T_A = 25°C (mA)	Max I_R @ V_{RRM} T_A = 100°C (mA)	Package
20	1.0	T_A = 55°C $R_{\theta JA}$ = 80°C/W	***1N5817***	0.45	25	125	1.0	10	**CASE 59–10 (DO–41) Plastic** Cathode = Polarity Band
30	1.0	T_A = 55°C $R_{\theta JA}$ = 80°C/W	***1N5818***	0.55	25	125	1.0	10	
40	1.0	T_A = 55°C $R_{\theta JA}$ = 80°C/W	***1N5819***	0.60	25	125	1.0	10	
50	1.0	T_A = 55°C $R_{\theta JA}$ = 80°C/W	***MBR150***	0.75	25	150	0.5	5.0	
60	1.0	T_A = 55°C $R_{\theta JA}$ = 80°C/W	***MBR160***	0.75	25	150	0.5	5.0	
100	1.0	T_A = 120°C $R_{\theta JA}$ = 50°C/W	***MBR1100***	0.79	50	175	0.5	5.0	
20	3.0	T_A = 76°C $R_{\theta JA}$ = 28°C/W	***1N5820***	0.475	80	125	2.0	20	**CASE 267–05 (DO–201AD) Plastic** Cathode = Polarity Band
30	3.0	T_A = 71°C $R_{\theta JA}$ = 28°C/W	***1N5821***	0.50	80	125	2.0	20	
40	3.0	T_A = 61°C $R_{\theta JA}$ = 28°C/W	***1N5822***	0.525	80	125	2.0	20	
40	3.0	T_A = 65°C $R_{\theta JA}$ = 28°C/W	***MBR340***	0.60	80	175	0.6	20	
50	3.0	T_A = 65°C $R_{\theta JA}$ = 28°C/W	***MBR350***	0.74	80	150	0.6	20	
60	3.0	T_A = 65°C $R_{\theta JA}$ = 28°C/W	***MBR360***	0.74	80	150	0.6	20	
100	3.0	T_A = 100°C $R_{\theta JA}$ = 28°C/W	***MBR3100***	0.79	150	175	0.6	20	

SCHOTTKY RECTIFIERS (continued)

Table 9. TO–220 AND I²PAK THRU–HOLE SCHOTTKY RECTIFIERS

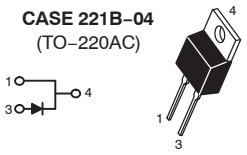
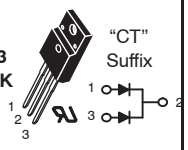
V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R(7) @ V_{RRM} T_A = 25°C (mA)	Max I_R(7) @ V_{RRM} T_A = 125°C (mA)	Package
15	40	T_C = 140°C	***MBR4015CTL***	0.43	150	150	10	600 @ 125°C	
30	20	T_C = 167°C	***MBR2030CTL***	0.52	150	175	5.0	75 @ 125°C	
30	30	T_C = 138°C	***MBR30H30CT***	0.48	260	150	0.8	130 @ 125°C	
35	15	T_C = 163°C	***MBR1535CT***	0.57 @ 125°C	150	175	0.1	15 @ 125°C	
35	25	T_C = 142°C	***MBR2535CTL***	0.47	150	150	5.0	500 @ 125°C	
35	30	T_C = 160°C	***MBR2535CT***	0.62	150	175	0.2	25 @ 125°C	
45	15	T_C = 163°C	***MBR1545CT***	0.57 @ 125°C	150	175	0.1	15 @ 125°C	
45	20	T_C = 141°C	***MBR20L45CT***	0.5	180	150	0.5	170 @ 125°C	
45	20	T_C = 165°C	***MBR2045CT***	0.57 @ 125°C	150	175	0.1	15 @ 125°C	
45	25	T_C = 160°C	***MBR2545CT***	0.62	150	175	0.2	25 @ 125°C	
45	30	T_C = 137°C	***MBR30L45CT***	0.5	190	150	0.65	250 @ 125°C	
45	30	T_C = 130°C	***MBR3045ST***	0.62	150	175	0.2	40 @ 125°C	
45	40	T_C = 145°C	***MBR40L45CT***	0.5	200	175	1.2	275 @ 125°C	
45	60	T_C = 145°C	***MBR60L45CT***	0.55	200	175	1.2	275 @ 125°C	
60	10	T_C = 140°C	***MBR10L60CT***	0.66	200	150	0.22	60 @ 125°C	**CASE 221A–09** (TO–220AB) 
60	20	T_C = 123°C	***MBR20L60CT***	0.73	240	150	0.38	96 @ 125°C	
60	20	T_C = 133°C	***MBR2060CT***	0.85	150	175	0.1	20 @ 125°C	
60	30	T_C = 159°C	***MBR30H60CT***	0.62	260	175	0.3	45 @ 125°C	
60	30	T_C = 133°C	***MBR30L60CT***	0.81	240	150	0.35	110 @ 125°C	
60	40	T_C = 130°C	***MBR40L60CT***	0.81	240	150	0.55	175 @ 125°C	
80	20	T_C = 137°C	***MBR20L80CT***	0.85	175	150	0.5	50 @ 125°C	
80	20	T_C = 133°C	***MBR2080CT***	0.85	150	175	0.1	6.0 @ 125°C	
80	30	T_C = 130°C	***MBR30H80CT***	0.88	240	150	0.25	35 @ 125°C	
90	20	T_C = 133°C	***MBR2090CT***	0.85	150	175	0.1	6.0 @ 125°C	
100	16	T_C = 166°C	***MBR16100CT***	0.74	150	175	0.1	5.0 @ 125°C	
100	10	T_C = 168°C	***MBR10H100CT***	0.75	180	175	0.0035	4.5 @ 125°C	
100	20	T_C = 162°C	***MBR20H100CT***	0.77	250	175	0.0045	6.0 @ 125°C	
100	20	T_C = 133°C	***MBR20100CT***	0.85	150	175	0.1	6.0 @ 125°C	
100	30	T_C = 156°C	***MBR30H100CT***	0.80	250	175	0.0045	6.0 @ 125°C	
100	40	T_C = 150°C	***MBR41H100CT***	0.80	350	175	0.01	10 @ 125°C	
100	60	T_C = 155°C	***MBR60H100CT***	0.84	350	175	0.01	10 @ 125°C	
150	20	T_C = 134°C	***MBR20H150CT***	0.68 @ 125°C	180	150	0.05	30 @ 125°C	
150	30	T_C = 124°C	***MBR30H150CT***	1.11	200	150	0.06	50 @ 125°C	
200	20	T_C = 161°C	***MBR20200CT***	0.90	150	175	1.0	50 @ 125°C	
250	40	T_C = 82°C	***MBR40250T***	0.86	150	150	0.03	30 @ 125°C	

7. Refers to maximum leakage current per leg on “CT” suffix devices.

Indicates UL Recognized – File #E69369

SCHOTTKY RECTIFIERS (continued)

Table 9. TO–220 AND I²PAK THRU–HOLE SCHOTTKY RECTIFIERS

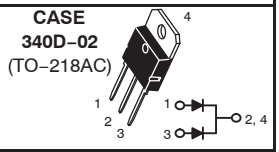
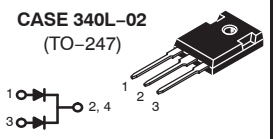
V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R[7] @ V_{RRM} T_A = 25°C (mA)	Max I_R[7] @ V_{RRM} T_A = 125°C (mA)	Package
15	25	T_C = 91°C	***MBR2515L***	0.45	150	100	15	200 @ 70°C	**CASE 221B–04** (TO–220AC) 
35	7.5	T_C = 164°C	***MBR735***	0.84	150	175	0.1	15 @ 125°C	
35	10	T_C = 135°C	***MBR1035***	0.84	150	175	0.1	15 @ 125°C	
35	16	T_C = 163°C	***MBR1635***	0.63	150	175	0.2	40 @ 125°C	
45	7.5	T_C = 164°C	***MBR745***	0.84	150	175	0.1	15 @ 125°C	
45	10	T_C = 135°C	***MBR1045***	0.84	150	175	0.1	15 @ 125°C	
45	16	T_C = 163°C	***MBR1645***	0.63	150	175	0.2	40 @ 125°C	
60	10	T_C = 133°C	***MBR1060***	0.80	150	175	0.1	15 @ 125°C	
80	10	T_C = 133°C	***MBR1080***	0.80	150	175	0.1	6.0 @ 125°C	
90	10	T_C = 133°C	***MBR1090***	0.80	150	175	0.1	6.0 @ 125°C	
100	10	T_C = 133°C	***MBR10100***	0.80	150	175	0.1	6.0 @ 125°C	
250	40	T_C = 82°C	***MBR40250***	0.86	150	150	0.03	30 @ 125°C	
30	30	T_C = 138°C	***MBRB30H30CT–1***	0.48	260	150	0.8	45 @ 125°C	**CASE 418D–01 I²PAK** (TO–262)
45	30	T_C = 130°C	***MBRB3045CT–1***	0.48	150	175	0.2	40 @ 125°C	
60	30	T_C = 159°C	***MBRB30H60CT–1***	0.62	260	175	0.3	45 @ 125°C	
80	30	T_C = 130°C	***MBRB30H80CT–1***	0.88	240	150	0.25	35 @ 125°C	
100	40	T_C = 150°C	***MBRB41H100CT–1***	0.80	350	175	0.01	10 @ 125°C	
45	20	T_C = 141°C	***MBRF20L45CT***	0.5	180	150	0.5	170 @ 125°C	**CASE 221D–03 FULL PAK**  "CT" Suffix
45	20	T_C = 165°C	***MBRF2045CT***	0.84 @ 20 A	150	175	0.1	15 @ 125°C	
45	25	T_C = 125°C	***MBRF2545CT***	0.70	150	175	0.2	40 @ 125°C	
45	30	T_C = 137°C	***MBRF30L45CT***	0.5	190	150	0.65	250 @ 125°C	
60	10	T_C = 140°C	***MBRF10L60CT***	0.66	200	150	0.22	60 @ 125°C	
60	20	T_C = 123°C	***MBRF20L60CT***	0.73	240	150	0.38	96 @ 125°C	
60	20	T_C = 133°C	***MBRF2060CT***	0.85	150	175	0.15	150 @ 125°C	
60	30	T_C = 133°C	***MBRF30L60CT***	0.81	240	150	0.35	110 @ 125°C	
60	30	T_C = 159°C	***MBRF30H60CT***	0.62	260	175	0.3	45 @ 125°C	
80	20	T_C = 137°C	***MBRF20L80CT***	0.85	175	150	0.5	50 @ 125°C	
100	20	T_C = 162°C	***MBRF20H100CT***	0.77	250	175	0.0045	6.0 @ 125°C	
100	20	T_C = 133°C	***MBRF20100CT***	0.85	150	175	0.15	150 @ 125°C	
100	30	T_C = 156°C	***MBRF30H100CT***	0.8	250	175	0.0045	6.0 @ 125°C	
150	10	T_C = 142°C	***MBRF10H150CT***	0.69 @ 125°C	150	150	0.045	20 @ 125°C	
150	20	T_C = 134°C	***MBRF20H150CT***	0.68 @ 125°C	180	150	0.05	30 @ 125°C	
150	30	T_C = 124°C	***MBRF30H150CT***	0.73 @ 125°C	200	150	0.06	50 @ 125°C	
200	20	T_C = 125°C	***MBRF20200CT***	0.90	150	150	1.0	50 @ 125°C	
250	40	T_C = 46°C	***MBRF40250T***	0.86	150	150	0.03	30 @ 125°C	

7. Refers to maximum leakage current per leg on “CT” suffix devices.

Indicates UL Recognized – File #E69369

SCHOTTKY RECTIFIERS (continued)

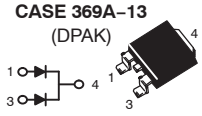
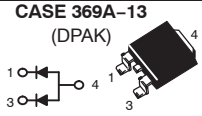
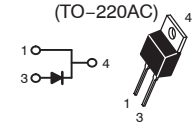
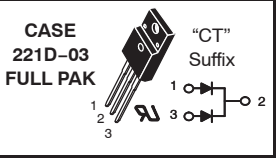
Table 10. TO–218 AND TO–247 SCHOTTKY RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R[8] @ V_{RRM} T_A = 25°C (mA)	Max I_R[8] @ V_{RRM} T_A = 100°C (mA)	Package
45	30	T_C = 105°C	***MBR3045PT***	0.76 @ 60 A	200	175	1.0	100 @ 125°C	CASE 340D–02 (TO–218AC) 
45	40	T_C = 125°C	***MBR4045PT***	0.70	400	175	1.0	50 @ 125°C	
45	60	T_C = 125°C	***MBR6045PT***	0.62	500	175	1.0	50 @ 125°C	
15	40	T_C = 120°C	***MBR4015LWT***	0.42	120	150	5.0	150 @ 100°C	CASE 340L–02 (TO–247) 
30	70	T_C = 100°C	***MBR7030WT***	0.55	500	175	5.0	250 @ 100°C	
45	30	T_C = 105°C	***MBR3045WT***	0.76 @ 60 A	200	175	1.0	100 @ 125°C	
45	40	T_C = 125°C	***MBR4045WT***	0.70	400	175	1.0	530 @ 100°C	
45	60	T_C = 125°C	***MBR6045WT***	0.62	500	175	1.0	50 @ 100°C	
45	60	T_C = 165°C	***MBR60L45WT***	0.55	200	175	1.2	275 @ 125°C	
100	40	T_C = 148°C	***MBR40H100WT***	0.80	200	175	0.01	10 @ 125°C	

8. Refers to maximum leakage current per leg on “CT” suffix devices.

ULTRASOFT RECTIFIERS

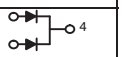
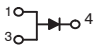
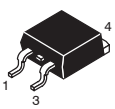
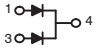
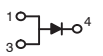
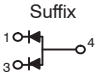
Table 11. ULTRASOFT RECTIFIERS (For High Speed Rectification)

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O T_C = 25°C (V)	t_{rr} (ns)	T_J Max (°C)	Max I_R[9] @ V_{RRM} T_A = 25°C (μA)	Max I_R[9] @ V_{RRM} T_A = 150°C (μA)	Package
200	6.0	T_C = 137°C	***MSRD620CT***	1.15	55	175	5.0	200	CASE 369A–13 (DPAK) 
200	6.0	T_C = 162°C	***MSRD620CTR***	1.3	75	175	1.0	200	CASE 369A–13 (DPAK) 
600	8.0	T_C = 125°C	***MSR860***	1.7	120	150	10	1000	CASE 221B–04 (TO–220AC) 
600	15	T_C = 125°C	***MSR1560***	1.8	45	150	15	5000	
600	8	T_C = 125°C	***MSRF860***	1.7	120	150	10	1000	CASE 221D–03 FULL PAK “CT” Suffix 
600	15	T_C = 125°C	***MSRF1560***	1.8	45	150	15	5000	

9. Refers to maximum leakage current per leg on “CT” suffix devices.

ULTRAFAST RECTIFIERS

Table 12. SURFACE MOUNT ULTRAFAST RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max t_{rr} (ns)	Max V_F @ I_O Rated T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R[10] @ V_{RRM} T_A = 25°C (μA)	Max I_R[10] @ V_{RRM} T_A = 150°C (μA)	Package
50	1.0	T_L = 155°C	***MURA105***	30	0.875	50	175	2.0	50	**CASE 403D−02 SMA** Cathode = Polarity Band
50	2.0	T_L = 135°C	***MURA205***	30	0.94	50	175	2.0	50	
100	1.0	T_L = 155°C	***MURA110***	30	0.875	50	175	2.0	50	
100	2.0	T_L = 135°C	***MURA210***	30	0.94	50	175	2.0	50	
150	1.0	T_L = 155°C	***MURA115***	35	0.875	40	175	2.0	50	
150	2.0	T_L = 135°C	***MURA215***	35	0.95	40	175	2.0	50	
200	1.0	T_L = 155°C	***MURA120***	35	0.875	40	175	2.0	50	
200	2.0	T_L = 135°C	***MURA220***	35	0.95	40	175	2.0	50	
300	1.0	T_L = 150°C	***MURA130***	65	1.1	35	175	5.0	150	
300	2.0	T_L = 125°C	***MURA230***	65	1.3	35	175	5.0	150	
400	1.0	T_L = 150°C	***MURA140***	65	1.1	35	175	5.0	150	
400	2.0	T_L = 125°C	***MURA240***	65	1.3	35	175	5.0	150	
600	1.0	T_L = 145°C	***MURA160***	75	1.25	30	175	5.0	150	
600	2.0	T_L = 110°C	***MURA260***	75	1.45	30	175	5.0	150	
50	1.0	T_L = 155°C	***MURS105***	35	0.875	40	175	2.0	50	**CASE 403A−03 SMB** Cathode = Polarity Band
50	2.0	T_L = 125°C	***MURS205***	30	0.94	50	175	2.0	50	
100	1.0	T_L = 155°C	***MURS110***	35	0.875	40	175	2.0	50	
100	2.0	T_L = 125°C	***MURS210***	30	0.94	50	175	2.0	50	
150	1.0	T_L = 155°C	***MURS115***	35	0.875	40	175	2.0	50	
200	1.0	T_L = 155°C	***MURS120***	35	0.875	40	175	2.0	50	
200	2.0	T_L = 145°C	***MURS220***	35	0.95	40	175	2.0	50	
300	2.0	T_L = 125°C	***MURS230***	65	1.3	35	175	5.0	150	
400	1.0	T_L = 150°C	***MURS140***	75	1.25	35	175	5.0	150	
400	2.0	T_L = 125°C	***MURS240***	65	1.3	35	175	5.0	150	
600	1.0	T_L = 145°C	***MURHS160***	35	2.4	15	175	20	200 @ 125°C	
600	1.0	T_L = 150°C	***MURS160***	75	1.25	35	175	5.0	150	
600	2.0	T_L = 125°C	***MURS260***	75	1.45	35	175	5.0	150	
600	3.0	T_L = 105°C	***MURS360B***	75	1.25	100	175	3.0	150	
200	3.0	T_L = 140°C	***MURS320***	35	0.875	75	175	5.0	150	**CASE 403−03 SMC** Cathode = Notch
400	3.0	T_L = 130°C	***MURS340***	75	1.25	75	175	10	250	
600	3.0	T_L = 130°C	***MURS360***	75	1.25	75	175	10	250	
800	4.0	T_L = 110°C	***MURS480E***	100	1.85	70	175	25	900	
200	3.0	T_C = 158°C	***MURD320***	35	0.95	75	175	5.0	500 @ 125°C	**DPAK**  “CT” Suffix MURD550PF ONLY  Non−“CT” Suffix
200	6.0	T_C = 140°C	***MURD620CT***	35	1.0	50	175	5.0	250 @ 125°C	
300	3.0	T_C = 160°C	***MURD330***	50	1.15	75	175	5.0	500	
300	5.0	T_C = 165°C	***MURD530***	45	1.05	75	175	5.0	100 @ 125°C	
520	5.0	T_C = 160°C	***MURD550PF***	95	1.15	75	175	5.0	400	
600	5.0	T_C = 159°C	***MURHD560***	30	2.7	50	175	10	70 @ 125°C	
200	16	T_C = 150°C	***MURB1620CT***	35	0.975	100	175	5.0	250	**D²PAK CASE 418B−04**   “CT” Suffix  Non−“CT” Suffix  MURB1620CTR ONLY
200	16	T_C = 150°C	***MURB1620CTR***	35	0.975	100	175	5.0	250	
400	8.0	T_C = 120°C	***MURHB840CT***	28	2.2	100	175	10	500	
600	8.0	T_C = 120°C	***MURHB860CT***	35	2.8	100	175	10	500	
600	16	T_C = 150°C	***MURB1660CT***	60	1.5	100	175	10	500	

10. Refers to maximum leakage current per leg on “CT” suffix devices.

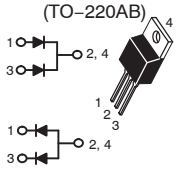
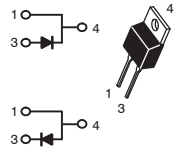
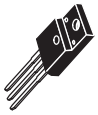
ULTRAFAST RECTIFIERS (continued)

Table 13. AXIAL LEAD ULTRAFAST RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max t_{rr} (ns)	Max V_F @ I_O Rated T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R @ V_{RRM} T_A = 25°C (μA)	Max I_R @ V_{RRM} T_A = 150°C (μA)	Package
50	1.0	T_A = 130°C	***MUR105***	35	0.875	35	175	2.0	50	**CASE 59–10** (DO–41) Plastic Cathode = Polarity Band
100	1.0	T_A = 130°C	***MUR110***	35	0.875	35	175	2.0	50	
100	2.0	T_A = 100°C	***MUR210***	30	0.94	35	175	2.0	50	
150	1.0	T_A = 130°C	***MUR115***	35	0.875	35	175	2.0	50	
200	1.0	T_A = 130°C	***MUR120***	35	0.875	35	175	2.0	50	
200	2.0	T_A = 90°C	***MUR220***	35	0.95	35	175	2.0	50	
300	1.0	T_A = 120°C	***MUR130***	75	1.25	35	175	5.0	150	
400	1.0	T_A = 120°C	***MUR140***	75	1.25	35	175	5.0	150	
400	2.0	T_A = 85°C	***MUR240***	65	1.3	35	175	5.0	150	
600	1.0	T_A = 120°C	***MUR160***	100	1.25	35	175	5.0	150	
600	2.0	T_A = 60°C	***MUR260***	75	1.35	35	175	5.0	150	
800	1.0	T_A = 95°C	***MUR180E***	100	1.75	35	175	10	600 @ 100°C	
1000	1.0	T_A = 95°C	***MUR1100E***	100	1.75	35	175	10	600 @ 100°C	
1000	2.0	T_A = 35°C	***MUR2100E***	100	2.2	35	175	10	600 @ 100°C	
50	4.0	T_A = 80°C	***MUR405***	35	0.89	125	175	5.0	150	**CASE 267–05** (DO–201AD) Plastic Cathode = Polarity Band
100	4.0	T_A = 80°C	***MUR410***	35	0.89	125	175	5.0	150	
150	4.0	T_A = 80°C	***MUR415***	35	0.89	125	175	5.0	150	
200	4.0	T_A = 80°C	***MUR420***	35	0.89	125	175	5.0	150	
400	4.0	T_A = 40°C	***MUR440***	75	1.28	110	175	10	250	
520	5.0	T_A = 65°C	***MUR550APF***	95	1.15	85	175	5.0	500	
600	4.0	T_A = 40°C	***MUR460***	75	1.28	110	175	10	400	
800	4.0	T_A = 35°C	***MUR480E***	100	1.85	70	175	25	900	
1000	4.0	T_A = 35°C	***MUR4100E***	100	1.85	70	175	25	900	

ULTRAFAST RECTIFIERS (continued)

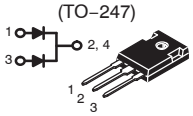
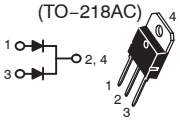
Table 14. TO–220 ULTRAFAST AND MEGAHERTZ™ RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max t_{rr} (ns)	Max V_F @ I_O Rated T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R(11) @ V_{RRM} T_A = 25°C (μA)	Max I_R(11) @ V_{RRM} T_A = 150°C (μA)	Package
100	16	T_C = 150°C	***MUR1610CT***	35	0.975	100	175	5.0	250	**CASE 221A–09** (TO–220AB)  **MUR1620CTR Only**
150	16	T_C = 150°C	***MUR1615CT***	35	0.975	100	175	5.0	250	
200	6.0	T_C = 130°C	***MUR620CT***	35	0.975	75	175	5.0	250	
200	16	T_C = 150°C	***MUR1620CT***	35	0.975	100	175	5.0	250	
200	16	T_C = 160°C	***MUR1620CTR***	85	1.2	100	175	5.0	500	
400	8.0	T_C = 155°C	***MURH840CT***	28	2.2	100	175	10	500	
400	16	T_C = 150°C	***MUR1640CT***	60	1.30	100	175	10	500	
600	8.0	T_C = 120°C	***MURH860CT***	35	2.8	100	175	10	500	
600	16	T_C = 150°C	***MUR1660CT***	60	1.5	100	175	10	500	
50	8.0	T_C = 150°C	***MUR805***	35	0.975	100	175	5.0	250	**CASE 221B–04** (TO–220AC)  **MUR2020R Only**
100	8.0	T_C = 150°C	***MUR810***	35	0.975	100	175	5.0	250	
100	15	T_C = 150°C	***MUR1510***	35	1.05	200	175	10	500	
150	8.0	T_C = 150°C	***MUR815***	35	0.975	100	175	5.0	250	
150	15	T_C = 150°C	***MUR1515***	35	1.05	200	175	10	500	
200	8.0	T_C = 150°C	***MUR820***	35	0.975	100	175	5.0	250	
200	15	T_C = 150°C	***MUR1520***	35	1.05	200	175	10	500	
200	20	T_C = 125°C	***MUR2020R***	95	1.10	250	175	50	1000	
400	8.0	T_C = 150°C	***MUR840***	60	1.30	100	175	10	500	
400	15	T_C = 150°C	***MUR1540***	60	1.25	150	175	10	500	
520	5.0	T_C = 160°C	***MUR550PF***	95	1.15	100	175	5.0	400	
600	8.0	T_C = 150°C	***MUR860***	60	1.50	100	175	10	500	
600	15	T_C = 145°C	***MUR1560***	60	1.50	150	175	10	1000	
800	8.0	T_C = 150°C	***MUR880E***	100	1.80	100	175	25	500 @ 100°C	
1000	8.0	T_C = 150°C	***MUR8100E***	100	1.80	100	175	25	500 @ 100°C	
200	16	T_C = 150°C	***MURF1620CT***	35	0.975	100	150	5.0	250	**CASE 221D–03** (TO–220) FULL PAK 
520	5.0	T_C = 160	***MURF550PF***	95	1.15	100	175	5.0	400	
600	8.0	T_C = 150	***MURF860***	60	1.5	100	175	10	500	
600	8.0	T_C = 120°C	***MURHF860CT***	35	2.8	100	150	10	500	
600	15	T_C = 145	***MURF1560***	60	45	150	175	10	1000	
600	16	T_C = 150°C	***MURF1660CT***	60	1.5	100	150	10	500	

Indicates UL Recognized – File #E69369

11. Refers to maximum leakage current per leg on “CT” and “CTR” suffix devices.

Table 15. TO–218 AND TO–247 ULTRAFAST RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max t_{rr} (ns)	Max V_F @ I_O Rated T_C = 25°C (V)	I_{FSM} (A)	T_J Max (°C)	Max I_R(12) @ V_{RRM} T_A = 25°C (μA)	Max I_R(12) V_{RRM} T_A = 150°C (mA)	Package
200	30	T_C = 145°C	***MUR3020WT***	35	1.05	200	175	10	0.5	**CASE 340L–02** (TO–247) 
600	30	T_C = 145°C	***MUR3060WT***	60	1.70	150	175	10	1.0	
200	30	T_C = 150°C	***MUR3020PT***	35	1.05	200	175	10	0.5	**CASE 340D–02** (TO–218AC) 
400	30	T_C = 150°C	***MUR3040PT***	60	1.25	200	175	10	0.5	
600	30	T_C = 145°C	***MUR3060PT***	60	1.50	200	175	10	1.0	

12. Refers to maximum leakage current per leg on “WT” and “PT” suffix devices.

FAST RECOVERY RECTIFIERS/GENERAL PURPOSE RECTIFIERS

Table 16. FAST RECOVERY RECTIFIERS/GENERAL PURPOSE RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated T_J = 25°C (V)	Max t_{rr} (ns)	I_{FSM} (A)	T_J Max (°C)	Max I_R V_{RRM} T_J = 25°C (μA)	Max I_R V_{RRM} T_A = 100°C (μA)	Package
300	1.0	T_L = 150°C	***MRA4003***	1.1	–	30	175	10	50	**CASE 403D–02 SMA** Cathode = Notch
400	1.0	T_L = 150°C	***MRA4004***	1.1	–	30	175	10	50	
600	1.0	T_L = 150°C	***MRA4005***	1.1	–	30	175	10	50	
800	1.0	T_L = 150°C	***MRA4006***	1.1	–	30	175	10	50	
1000	1.0	T_L = 150°C	***MRA4007***	1.1	–	30	175	10	50	
400	1.5	T_L = 118°C	***MRS1504***	1.04	–	50	150	1.0	340	**CASE 403A–03 SMB**
50	1.0	T_A = 75°C	***1N4001RL***	1.1	–	30	175	10	50	**CASE 59–10**[13] (DO–41) Plastic Cathode = Polarity Band
100	1.0	T_A = 75°C	***1N4002RL***	1.1	–	30	175	10	50	
200	1.0	T_A = 75°C	***1N4003RL***	1.1	–	30	175	10	50	
400	1.0	T_A = 75°C	***1N4004RL***	1.1	–	30	175	10	50	
600	1.0	T_A = 75°C	***1N4005RL***	1.1	–	30	175	10	50	
800	1.0	T_A = 75°C	***1N4006RL***	1.1	–	30	175	10	50	
1000	1.0	T_A = 75°C	***1N4007RL***	1.1	–	30	175	10	50	
50	1.0	T_A = 75°C	***1N4933RL***	1.2	200	30	150	5.0	100	
100	1.0	T_A = 75°C	***1N4934RL***	1.2	200	30	150	5.0	100	
200	1.0	T_A = 75°C	***1N4935RL***	1.2	200	30	150	5.0	100	
400	1.0	T_A = 75°C	***1N4936RL***	1.2	200	30	150	5.0	100	
600	1.0	T_A = 75°C	***1N4937RL***	1.2	200	30	150	5.0	100	
50	3.0	T_L = 105°C	***1N5400RL***	1.0	–	200	150	10	50	**CASE 267–05** (DO–201AD) Plastic Cathode = Polarity Band
100	3.0	T_L = 105°C	***1N5401RL***	1.0	–	200	150	10	50	
100	3.0	T_A = 80°C	***MR851***	1.25	200	100	125	10	150 @ 80°C	
200	3.0	T_L = 105°C	***1N5402RL***	1.0	–	200	150	10	50	
400	3.0	T_L = 105°C	***1N5404RL***	1.0	–	200	150	10	50	
600	3.0	T_L = 105°C	***1N5406RL***	1.0	–	200	150	10	50	
800	3.0	T_L = 105°C	***1N5407RL***	1.0	–	200	150	10	50	
1000	3.0	T_L = 105°C	***1N5408RL***	1.0	–	200	150	10	50	
200	3.0	T_A = 80°C	***MR852RL***	1.25	200	100	125	–	200 @ 80°C	
400	3.0	T_A = 80°C	***MR854RL***	1.25	200	100	125	–	250 @ 80°C	
600	3.0	T_A = 80°C	***MR856RL***	1.25	200	100	125	–	300 @ 80°C	

13. Package Size: 0.120” max diameter by 0.260” length.

Standard Logic

Standard Logic

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ARITHMETIC FUNCTIONS

Device	Description	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	P_D Max (W)	I_O Max (mA)	Package
MC14040B	12−Bit Binary Counter	3.00	18.0	1440.0	0.50	2.25	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74HC4040A	12−Stage Binary Counter	2.00	6.0	31.0	0.75	5.20	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74AC4040D	12−Stage Binary Ripple Counter	2.00	6.0	8.0	0.75	24.00	SOIC−16, PDIP−16, EIAJ−16
MC14020B	14−Bit Binary Counter	3.00	18.0	1725.0	0.50	2.25	SOIC−16, PDIP−16
MC74HC4020A	14−Stage Binary Counter	2.00	6.0	31.0	0.75	5.20	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC14060B	14−Stage Binary Counter/Oscillator	3.00	18.0	1300.0	0.50	2.25	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74HC4060A	14−Stage Binary Ripple Counter With Oscillator	2.00	6.0	250.0	0.75	5.20	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC14521B	24−Stage Frequency Divider	3.00	18.0	4500.0	0.50	2.25	SOIC−16, PDIP−16, EIAJ−16
MC14553B	3−Digit BCD Counter	3.00	18.0	1000.0	0.50	2.25	PDIP−16
MC14008B	4−Bit Full Adder	3.00	18.0	320.0	0.50	2.25	SOIC−16, PDIP−16
MC14585B	4−Bit Magnitude Comparator	3.00	18.0	360.0	0.50	2.25	SOIC−16, PDIP−16, EIAJ−16
MC14024B	7−Segment Ripple Counter	3.00	18.0	750.0	0.50	2.25	SOIC−14, PDIP−14, EIAJ−14
MC14516B	Binary Up/Down Counter	3.00	18.0	260.0	0.50	2.25	SOIC−16, PDIP−16, EIAJ−16
MC14029B	Binary/Decade Up/Down Counter	3.00	18.0	200.0	0.50	2.25	SOIC−16, PDIP−16, EIAJ−16
NL7SZ57	Configurable Multifunction Logic	1.65	5.5	2.5	0.20	32.00	SC−88 / SC−70 / SOT−363
NL7SZ97	Configurable Multifunction Logic	1.65	5.5	2.5	0.20	32.00	SC−88 / SC−70 / SOT−363
NLX1G99	Configurable Multifunction Logic	1.65	5.5	6.7	0.20	32.00	ULLGA−8
NL7SZ58	Configurable Multifunction Logic, Inverting	1.65	5.5	2.5	0.20	32.00	SC−88 / SC−70 / SOT−363
NL7SZ98	Configurable Multifunction Logic, Inverting	1.65	5.5	2.5	0.20	32.00	SC−88 / SC−70 / SOT−363
MC14017B	Decade Counter/Divider	3.00	18.0	460.0	0.50	2.25	SOIC−16, PDIP−16, EIAJ−16
MC74HC393A	Dual 4−Stage Binary Ripple Counter	2.00	6.0	52.0	0.75	5.20	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74HC390A	Dual 4−Stage Binary Ripple Counter, ÷2 and ÷5 Sections	2.00	6.0	58.0	0.75	5.20	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC14518B	Dual BCD Up Counter	3.00	18.0	230.0	0.50	2.25	SOIC−16, PDIP−16
MC14520B	Dual BCD Up Counter	3.00	18.0	230.0	0.50	2.25	SOIC−16, PDIP−16
MC14490	Hex Bounce Eliminator	3.00	18.0	320.0	0.50	9.00	SOIC−16, PDIP−16, EIAJ−16
MC14022B	Octal Counter	3.00	18.0	460.0	0.50	2.25	SOIC−16, PDIP−16
MC14018B	Preset Divide By N Counter	3.00	18.0	240.0	0.50	2.25	SOIC−16, PDIP−16
MC14526B	Presettable 4−Bit Down Counters	3.00	18.0	450.0	0.50	2.25	SOIC−16, PDIP−16, EIAJ−16
MC14569B	Programmable Divide−By−N Dual 4−Bit Binary/BCD Down Counter	3.00	18.0	500.0	0.50	2.25	SOIC−16, PDIP−16
MC74HC161A	Synchronous 4−Bit Binary Counter	2.0	6.0	16	0.5	5.2	TSSOP−16
MC74HC163A	Synchronous 4−Bit Binary Counter	2.0	6.0	16	0.5	5.2	TSSOP−16
MC74HC160A	Synchronous BCD Decade Counter	2.0	6.0	16	0.5	5.2	TSSOP-16, SOIC-16
MC74ACT163	Synchronous Presettable Binary Counter, TTL Level	4.50	5.5	11.0	0.35	24.00	SOIC−16, PDIP−16, EIAJ−16
MC74AC161	Synchronous Presettable Binary Counter	2.00	6.0	9.5	0.35	24.00	SOIC−16, PDIP−16, EIAJ−16
MC74AC163	Synchronous Presettable Binary Counter	2.00	6.0	9.5	0.35	24.00	SOIC−16, PDIP−16
MC74ACT161	Synchronous Presettable Binary Counter, TTL Level	4.50	5.5	10.5	0.35	24.00	SOIC−16, PDIP−16, EIAJ−16

BUFFERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74LCX16240	16−Bit Buffer	16	2.00	3.6	4.5	24.0	TSSOP−48
MC74LCX16244	16−Bit Buffer	16	2.00	3.6	4.5	24.0	TSSOP−48
M74LCX16240	16−Bit Noninverting Buffer	16	2.00	3.6	4.5	24.0	TSSOP−48
M74LCX16244	16−Bit Noninverting Buffer	16	2.00	3.6	4.5	24.0	TSSOP−48
74VCXH245	8−Bit Transceiver	1	2.00	6.0	15.0	6.0	QFN−20
MC14511B	BCD−to−7 Segment Latch/Decoder/Driver	1	3.00	18.0	580.0	25.0	SOIC−16, PDIP 16, EIAJ−16
MC14513B	BCD−to−7 Segment Latch/Decoder/Driver	1	3.00	18.0	580.0	25.0	PDIP−18
MC14543B	BCD−to−7 Segment Latch/Decoder/Driver for Liquid Crystals	1	3.00	18.0	660.0	10.0	SOIC−16, PDIP 16, EIAJ−16
NLX1G99	Configurable Multifunction Logic	1	1.65	5.5	6.7	32.0	ULLGA−8
NL27WZ16	Dual Buffer	2	1.65	5.5	3.8	32.0	TSOP−6, SC−88
NLU2G16	Dual Buffer	2	1.65	5.5	5.5	8.0	UDFN−6, ULLGA−6
NLX2G16	Dual Buffer	2	1.65	5.5	1.8	24.0	ULLGA−6
NL27WZ17	Dual Buffer Schmitt	2	1.65	5.5	5.9	32.0	SC−88
NLX2G17	Dual Buffer Schmitt	2	1.65	5.5	3.1	24.0	ULLGA−6
NL27WZ07	Dual Buffer, Open Drain	2	1.65	5.5	3.5	32.0	TSOP−6, SC−88
NLX2G07	Dual Buffer, Open Drain	2	1.65	5.5	3.5	32.0	ULLGA−6
NL27WZ126	Dual Noninverting Buffer With High Enable, 3−State Outputs	2	1.65	5.5	5.7	24.0	US−8
NL27WZ125	Dual Noninverting Buffer With Low Enable, 3−State Outputs	2	1.65	5.5	5.7	32.0	US−8
NLU2G07	Dual Non−Inverting Buffer, Open Drain Output	2	1.65	5.5	5.5	8.0	UDFN−6, ULLGA−6
NLU2G17	Dual Schmitt−Trigger Buffer	2	1.65	5.5	8.6	8.0	UDFN−6, ULLGA−6
MC74VHC50	Hex Buffer	6	2.00	5.5	7.5	8.0	TSSOP−14, SOIC−14, EIAJ−14
MC74LVX50	Hex Buffer, 3−State Outputs	6	2.00	3.6	9.7	4.0	TSSOP−14, SOIC−14, EIAJ−14
MC74LCX07	Hex Buffer, Open Drain Outputs	6	2.00	5.5	3.0	24.0	TSSOP−14, SOIC−14, EIAJ−14
MC14503B	Hex Noninverting Buffer, 3−State Outputs	6	3.00	18.0	80.0	6.2	SOIC−16, PDIP−16, EIAJ−16
MC74HCT365A	Hex Buffers / Line Drivers, 3−State Outputs, TTL Output	6	4.5	5.5	20	7.8	TSSOP−16, SOIC−16
MC74HCT366A	Hex Buffers / Line Drivers, 3−State Outputs, TTL Output	6	4.5	5.5	20	7.8	TSSOP−16, SOIC−16
MC74HC365A	Hex Buffer/Line Driver, Non−Inverting 3−State	6	2.0	6.0	20	7.8	TSSOP−16, SOIC−16
MC74HC367A	Hex Buffer/Line Driver, Non−Inverting 3−State	6	2.0	6.0	20	7.8	TSSOP−16, SOIC−16
MC74HC368A	Hex Buffer/Line Driver, Non−Inverting 3−State	6	2.0	6.0	20	7.8	TSSOP−16, SOIC−16
MC74VHCT50A	Non−inverting Buffer / CMOS Logic Level Shifter, TTL Level	6	4.50	5.5	7.7	8.0	TSSOP−14, SOIC−14, EIAJ−14
NLU1G07	Non−Inverting Buffer, Open Drain Output	1	1.65	5.5	5.5	8.0	UDFN−6, ULLGA−6
NLU1GT50	Non−Inverting Buffer, TTL Level	1	1.65	5.5	6.7	8.0	UDFN−6, ULLGA−6
MC74AC240	Octal Buffer/Line Driver, 3−State Outputs	8	2.00	6.0	6.5	24.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74AC244	Octal Buffer/Line Driver, 3−State Outputs	8	2.00	6.0	7.0	24.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20

BUFFERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74ACT240	Octal Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.50	5.5	8.5	24.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74ACT241	Octal Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.50	5.5	9.0	24.0	TSSOP−20, SOIC−20, EIAJ−20
MC74ACT244	Octal Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.50	5.5	9.0	24.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74VHCT244	Octal Bus Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.50	5.5	8.4	8.0	TSSOP−20, SOIC−20, EIAJ−20
MC74LCX244	Octal Bus Transceiver With 3−State Outputs	8	2	3.6	7	24	QFN−20
MC74LCX240	Octal Inverting Buffer, 3−State Outputs	8	2.00	3.6	6.5	24.0	TSSOP−20.SOIC−20
74HC540	Octal Inverting Buffer/Line Driver, 3−State Outputs	8	2.00	6.0	25.0	6.0	TSSOP−20
MC74AC540	Octal Inverting Buffer/Line Driver, 3−State Outputs	8	2.00	6.0	6.0	24.0	SOIC−20, PDIP−20
MC74HC540A	Octal Inverting Buffer/Line Driver, 3−State Outputs	8	2.00	6.0	25.0	6.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74LCX540	Octal Inverting Buffer/Line Driver, 3−State Outputs	8	2.00	3.6	6.5	24.0	TSSOP−20, SOIC−20, EIAJ−20
MC74LVX540	Octal Inverting Buffer/Line Driver, 3−State Outputs	8	2.00	3.6	7.0	4.0	EIAJ−20
MC74VHC240	Octal Inverting Buffer/Line Driver, 3−State Outputs	8	2.00	5.5	7.5	8.0	TSSOP−20, SOIC−20
MC74VHC540	Octal Inverting Buffer/Line Driver, 3−State Outputs	8	2.00	5.5	7.0	8.0	TSSOP−20, SOIC−20
MC74ACT540	Octal Inverting Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.50	5.5	8.0	24.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74VHCT240A	Octal Inverting Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.50	5.5	8.8	8.0	TSSOP−20, SOIC−20, EIAJ−20
MC74VHCT540A	Octal Inverting Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.50	5.5	7.0	8.0	EIAJ−20
MC74HC240A	Octal Inverting Buffer/Line Driver/Line Receiver, 3−State Outputs	8	2.00	6.0	22.0	6.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74LVX240	Octal Inverting Bus Buffer, 3−State Outputs	8	2.00	3.6	9.7	4.0	TSSOP−20, SOIC−20, EIAJ−20
MC74LCX244	Octal Noninverting Buffer, 3−State Outputs	8	2.00	3.6	6.5	24.0	TSSOP−20, SOIC−20, EIAJ−20
74HC541	Octal Noninverting Buffer/Line Driver, 3−State Outputs	8	2.00	6.0	25.0	6.0	TSSOP−20
MC74AC541	Octal Noninverting Buffer/Line Driver, 3−State Outputs	8	2.00	6.0	6.0	24.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74HC541A	Octal Noninverting Buffer/Line Driver, 3−State Outputs	8	2.00	6.0	25.0	6.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74LCX541	Octal Noninverting Buffer/Line Driver, 3−State Outputs	8	2.00	3.6	6.5	24.0	TSSOP−20, SOIC−20, EIAJ−20
MC74LVX541	Octal Noninverting Buffer/Line Driver, 3−State Outputs	8	2.00	3.6	7.0	4.0	TSSOP−20, SOIC−20, EIAJ−20
MC74VHC541	Octal Noninverting Buffer/Line Driver, 3−State Outputs	8	2.00	5.5	7.0	8.0	TSSOP−20, SOIC−20, EIAJ−20
MC74HCT241A	Octal Noninverting Buffer/Line Driver, 3−State, TTL Output	8	4.5	5.5	22	7.8	TSSOP−20, SOIC−20
MC74ACT541	Octal Noninverting Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.50	5.5	7.5	24.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74HCT541A	Octal Noninverting Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.50	5.5	30.0	6.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74VHCT541A	Octal Noninverting Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.50	5.5	7.9	8.0	TSSOP−20, SOIC−20, EIAJ−20
74HC244	Octal Noninverting Buffer/Line Driver/Line Receiver, 3−State Outputs	8	2.00	5.5	7.5	8.0	TSSOP−20
MC74HC244A	Octal Noninverting Buffer/Line Driver/Line Receiver, 3−State Outputs	8	2.00	6.0	22.0	6.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74HCT244A	Octal Noninverting Buffer/Line Driver/Line Receiver, 3−State Outputs, TTL Level	8	4.50	5.5	26.0	6.0	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74LVX244	Octal Noninverting Bus Buffer, 3−State Outputs	8	2.00	3.6	10.6	4.0	TSSOP−20, SOIC−20, EIAJ−20

BUFFERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74VHC244	Octal Noninverting Bus Buffer, 3−State Outputs	8	2.00	5.5	7.5	8.0	TSSOP−20, SOIC−20, EIAJ−20
MC74LVX257	Quad 2−Channel Multiplexer, 3−State Outputs	4	2.00	3.6	12.0	4.0	TSSOP−16, SOIC−16, EIAJ−16
MC74VHC257	Quad 2−Channel Multiplexer, 3−State Outputs	4	2.00	5.5	7.9	8.0	TSSOP−16, SOIC−16, EIAJ−16
MC74VHCT257A	Quad 2−Channel Multiplexer, 3−State Outputs, TTL Level	4	4.50	5.5	7.9	8.0	TSSOP−16, SOIC−16, EIAJ−16
MC74HC126A	Quad Noninverting Buffer With High Enable, 3−State Outputs	4	2.00	6.0	24.0	6.0	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74LVX126	Quad Noninverting Buffer With High Enable, 3−State Outputs	4	2.00	3.6	9.7	4.0	EIAJ−14
MC74VHC126	Quad Noninverting Buffer With High Enable, 3−State Outputs	4	2.00	5.5	7.5	8.0	TSSOP−14, SOIC−14
M74VHCT126A	Quad Noninverting Buffer With High Enable, 3−State Outputs, TTL Level	4	4.50	5.5	7.5	8.0	TSSOP−14
MC74VHCT126A	Quad Noninverting Buffer With High Enable, 3−State Outputs, TTL Level	4	4.50	5.5	7.5	8.0	SOIC−14, EIAJ−14
NLSF3T126	Quad Noninverting Buffer With High Enable, 3−State Outputs, TTL Level	4	2.00	5.5	7.5	25.0	QFN−16
74HC125	Quad Noninverting Buffer With Low Enable, 3−State Outputs	4	2.00	5.5	7.5	8.0	TSSOP−14, SOIC−14
MC74AC125	Quad Noninverting Buffer With Low Enable, 3−State Outputs	4	2.00	6.0	7.0	24.0	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74HC125A	Quad Noninverting Buffer With Low Enable, 3−State Outputs	4	2.00	6.0	24.0	6.0	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74LCX125	Quad Noninverting Buffer With Low Enable, 3−State Outputs	4	2.00	3.6	6.0	24.0	TSSOP−14, SOIC−14
MC74LVX125	Quad Noninverting Buffer With Low Enable, 3−State Outputs	4	2.00	3.6	9.7	4.0	TSSOP−14, SOIC−14, EIAJ−14
MC74VHC125	Quad Noninverting Buffer With Low Enable, 3−State Outputs	4	2.00	5.5	7.5	8.0	TSSOP−14, SOIC−14, EIAJ−14
NLVLCX125	Quad Noninverting Buffer With Low Enable, 3−State Outputs	4	2.00	3.6	6.0	24.0	TSSOP−14
MC74ACT125	Quad Noninverting Buffer With Low Enable, 3−State Outputs, TTL Level	4	4.50	5.5	9.0	24.0	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74HCT125A	Quad Noninverting Buffer with Low Enable, 3−State Outputs, TTL Output	4	4.5	5.5	9	24	TSSOP−14, SOIC−14
MC74VHCT125A	Quad Noninverting Buffer With Low Enable, 3−State Outputs, TTL Level	4	4.50	5.5	7.5	8.0	TSSOP−14, SOIC−14, EIAJ−14
NLSF3T125	Quad Noninverting Buffer With Low Enable, 3−State Outputs, TTL Level	4	2.00	5.5	5.5	25.0	QFN−16
NL17SZ16	Single Buffer	1	1.65	5.5	4.5	24.0	SC−88A, SOT−553
NL17SZ17	Single Buffer, Schmitt	1	1.65	5.5	4.9	24.0	SC−88A, SOT−553
MC74VHC1G50	Single Noninverting Buffer	1	2.00	5.5	7.5	8.0	TSOP−5, SC−88A
MC74VHC1G126	Single Noninverting Buffer With Enable, 3−State	1	2.00	5.5	7.5	8.0	TSOP−5, SC−88A
M74VHC1G126	Single Noninverting Buffer With High Enable, 3−State Outputs	1	2.00	5.5	7.5	8.0	TSOP−5, SC−88A
NL17SZ126	Single Noninverting Buffer With High Enable, 3−State Outputs	1	1.65	5.5	5.0	24.0	SC−88A, SOT−553
M74VHC1GT126	Single Noninverting Buffer With High Enable, 3−State Outputs, TTL Level	1	3.00	5.5	7.5	8.0	TSOP−5, SC−88A
NLU1GT126A	Single Noninverting Buffer With High Enable, 3−State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA−6

BUFFERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
NLU1GT126B	Single Noninverting Buffer With High Enable, 3−State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA−6
NLU1GT126C	Single Noninverting Buffer With High Enable, 3−State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA−6
NLU1GT126	Single Noninverting Buffer With High Enable, 3−State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	UDFN−6
M74VHC1G125	Single Noninverting Buffer With Low Enable, 3−State Outputs	1	2.00	5.5	7.5	8.0	TSOP−5, SC−88A
MC74VHC1G125	Single Noninverting Buffer With Low Enable, 3−State Outputs	1	2.00	5.5	7.5	8.0	TSOP−5, SC−88A
NL17SZ125	Single Noninverting Buffer With Low Enable, 3−State Outputs	1	1.65	5.5	5.0	24.0	TSOP−5, SC−88A, SOT−553
NLX1G125	Single Noninverting Buffer With Low Enable, 3−State Outputs	1	1.65	5.5	2.7	24	uBump−5
M74VHC1GT125	Single Noninverting Buffer With Low Enable, 3−State Outputs, TTL Level	1	3.00	5.5	7.5	8.0	TSOP−5, SC−88A
MC74VHC1GT125	Single Noninverting Buffer With Low Enable, 3−State Outputs, TTL Level	1	3.00	5.5	7.5	8.0	TSOP−5, SC−88A
NLU1GT125A	Single Noninverting Buffer With Low Enable, 3−State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA−6
NLU1GT125B	Single Noninverting Buffer With Low Enable, 3−State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA−6
NLU1GT125C	Single Noninverting Buffer With Low Enable, 3−State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA−6
NLU1GT125	Single Noninverting Buffer With Low Enable, 3−State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	UDFN−6
MC74VHC1G07	Single Noninverting Buffer, Open Drain	1	2.00	5.5	7.5	8.0	TSOP−5, SC−88A
NL17SZ07	Single Noninverting Buffer, Open Drain	1	1.65	5.5	3.5	24.0	SC−88A, SOT−553
NL17VHC1G07	Single Noninverting Buffer, Open Drain	1	2.00	5.5	7.5	8.0	TSOP−5
M74VHC1GT50	Single Noninverting Buffer, TTL Level	1	1.65	5.5	7.7	8.0	TSOP−5, SC−88A
MC74VHC1GT50	Single Noninverting Buffer, TTL Level	1	1.65	5.5	7.7	8.0	TSOP−5, SC−88A
NL27WZ07	The NL27WZ07 is a high performance dual buffer, open drain	2	1.65	5.5	3.5	32.0	SC−88
NL37WZ16	Triple Buffer	3	1.65	5.5	3.8	32.0	US−8
NLU3G16	Triple Buffer	3	1.65	5.5	5.5	8.0	UDFN−8, ULLGA−8
NLX3G16	Triple Buffer	3	1.65	5.5	3.8	32.0	ULLGA−8
NL37WZ07	Triple Buffer, Open Drain	3	1.65	5.5	3.5	32.0	US−8
NLX3G14	Triple Inverter, Schmitt	3	1.65	5.5	4.9	32.0	ULLGA−8
NL37WZ17	Triple Noninverting Schmitt Trigger Buffer	3	1.65	5.5	4.9	32.0	US−8
NLU3G17	Triple Noninverting Schmitt Trigger Buffer	3	1.65	5.5	8.6	8.0	UDFN−8, ULLGA−8
NLX3G17	Triple Non−Inverting Schmitt−Trigger Buffer	3	1.65	5.5	2.7	24.0	ULLGA−8

BUS SWITCHES

Device	Product Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	R_{ON} Typical (Ω)	Package
7SB3125	1−Bit Bus Switch	1	1.65	5.5	0.25	<5	SC−88, TSOP−5, UDFN−6, ULLGA−6
7SB3126	1−Bit Bus Switch	1	1.65	5.5	0.25	<5	SC−88, TSOP−5, UDFN−6, ULLGA−6
NL7SB3257	1−Bit Digital Switch	1	4	5.5	0.25	<5	ULLGA−6
7SB384	1−Bit Digital Switch SPST	1	1.65	5.5	0.25	<5	SC−88, TSOP−5, UDFN−6, ULLGA−6
7SB385	1−Bit Digital Switch SPST	1	1.65	5.5	0.25	<5	SC−88, TSOP−5, UDFN−6, ULLGA−6
CBTL1G125	1−Bit Low Voltage Bus Switch	1	0.9	4.5	0.25	<5	ULLGA−6
7SB3257	1−Bit Multiplexer/Demultiplexer Bus Switch	1	1.65	5.5	0.25	<5	SC−88, TSOP−5, UDFN−6, ULLGA−6
CBTL3257	2:1 Multiplexer/Demultiplexer Low Voltage Bus Switch	1	0.9	4.5	0.25	<5	ULLGA−6
7WB3125	2−Bit Bus Switch	2	1.65	5.5	0.25	<5	Micro−8, SOIC−8, ULLGA−8
7WB3126	2−Bit Bus Switch	2	1.65	5.5	0.25	<5	Micro−8, SOIC−8, ULLGA−8
7WB3305	2−Bit Bus Switch	2	1.65	5.5	0.25	<5	Micro−8, SOIC−8, ULLGA−8
7WB3306	2−Bit Bus Switch	2	1.65	5.5	0.25	<5	Micro−8, SOIC−8, ULLGA−8
7WB383	2−Bit Bus Switch	2	1.65	5.5	0.25	<5	Micro−8, SOIC−8, ULLGA−8
CBTL3306	2−Bit Low Voltage Bus Switch	2	0.9	4.5	0.25	<5	ULLGA−6
CBTL383	2−Bit Low Voltage Bus Switch	2	0.9	4.5	0.25	<5	ULLGA−6
7WBD3125	2−Bit Translating Bus Switch	2	4	5.5	0.25	3	Micro−8, SOIC−8, ULLGA−8, US8, UQFN−8
7WBD3126	2−Bit Translating Bus Switch	2	4	5.5	0.25	3	Micro−8, SOIC−8, ULLGA−8, US8, UQFN−8
7WBD3305	2−Bit Translating Bus Switch	2	4	5.5	0.25	3	Micro−8, SOIC−8, ULLGA−8, US8, UQFN−8
7WBD3306	2−Bit Translating Bus Switch	2	4	5.5	0.25	3	Micro−8, SOIC−8, ULLGA−8, US8, UQFN−8
7WBD383	2−Bit Translating Bus Switch	2	4	5.5	0.25	3	Micro−8, SOIC−8, ULLGA−8, US8, UQFN−8
74FST3257	Quad 2:1 Multiplexer/Demultiplexer Bus Switch	4	4	5.5	0.25	4	TSSOP−16, SOIC−16, QFN−16

FLIP–FLOPS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
M74LCX16374	16–Bit D–Type Flip–Flop	16	2.00	3.6	6.2	24.00	TSSOP–48
MC74LCX16374	16–Bit D–Type Flip–Flop	16	2.00	3.6	6.2	24.00	TSSOP–48
MC14013B	Dual D–Type Flip–Flop	2	3.00	18.0	150.0	2.25	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74LCX74	Dual D–Type Flip–Flop	2	2.00	3.6	7.0	24.00	TSSOP–14, SOIC–14, EIAJ–14
MC74LVX74	Dual D–Type Flip–Flop	2	2.00	3.6	13.6	4.00	TSSOP–14, SOIC–14, EIAJ–14
74HC74	Dual D–Type Flip–Flop, Set and Reset	2	2.00	5.5	9.3	8.00	TSSOP–14, SOIC–14
MC74HC74A	Dual D–Type Flip–Flop, Set and Reset	2	2.00	6.0	20.0	4.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74HCT74A	Dual D–Type Flip–Flop, Set and Reset, TTL Level	2	4.50	5.5	24.0	4.00	SOIC–14, PDIP–14
MC74VHCT74A	Dual D–Type Flip–Flop, Set and Reset, TTL Level	2	4.50	5.5	8.8	8.00	TSSOP–14, SOIC–14
MC74AC74	Dual D–Type Positive Edge Trigger	2	2.00	6.0	9.5	24.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74ACT74	Dual D–Type Positive Edge Trigger, TTL Level	2	4.50	5.5	10.0	24.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC14027B	Dual J–K Flip–Flop	2	3.00	18.0	150.0	2.25	SOIC–16, PDIP–16
MC74HC73A	Dual J–K Flip Flop w/ Reset	2	2	6	21	5.2	TSSOP–14, SOIC–14
MC74HC112A	Dual Negative–Edge–Triggered J–K Flip–Flops with Set and Reset	2	2	6	21	5.2	TSSOP–16, SOIC–16
MC14174B	Hex D–Type Flip–Flop	6	3.00	18.0	160.0	2.25	SOIC–16, PDIP–16
MC74HC174A	Hex D–Type Flip–Flop, Clock	6	2.00	6.0	22.0	4.00	TSSOP–16, SOIC–16, PDIP–16, EIAJ–16
NLSF1174	Hex D–Type Flip–Flop, Common Clock and Reset	6	2.00	6.0	19.0	25.00	QFN–16
74HC574	Octal D–Type 3–State Noninverting Flip–Flop	8	2.00	5.5	10.6	8.00	TSSOP–20
MC74HC574A	Octal D–Type 3–State Noninverting Flip–Flop	8	2.00	6.0	32.0	6.00	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
74HC374	Octal D–Type Flip–Flop	8	2.00	5.5	10.1	8.00	TSSOP–20
MC74AC273	Octal D–Type Flip–Flop	8	2.00	6.0	10.0	24.00	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74HC273A	Octal D–Type Flip–Flop	8	2.00	6.0	29.0	6.00	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74HC374A	Octal D–Type Flip–Flop	8	2.00	6.0	25.0	6.00	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74LCX374	Octal D–Type Flip–Flop	8	2.00	3.6	8.5	24.00	TSSOP–20, SOIC–20, EIAJ–20
MC74LCX574	Octal D–Type Flip–Flop Flow Through Pinout	8	2.00	3.6	8.5	3.60	TSSOP–20, SOIC–20, EIAJ–20
MC74AC374	Octal D–Type Flip–Flop, 3–State Outputs	8	2.00	6.0	9.5	24.00	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74AC574	Octal D–Type Flip–Flop, 3–State Outputs	8	2.00	6.0	9.5	24.00	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74LVX374	Octal D–Type Flip–Flop, 3–State Outputs	8	2.00	3.6	14.1	4.00	TSSOP–20, SOIC–20, EIAJ–20
MC74LVX374	Octal D–Type Flip–Flop, 3–State Outputs	8	2.00	3.6	14.1	4.00	EIAJ–20
MC74LVX574	Octal D–Type Flip–Flop, 3–State Outputs	8	2.00	3.6	16.7	4.00	TSSOP–20, SOIC–20, EIAJ–20
MC74VHC374	Octal D–Type Flip–Flop, 3–State Outputs	8	2.00	5.5	10.1	8.00	TSSOP–20, SOIC–20, EIAJ–20
MC74VHC574	Octal D–Type Flip–Flop, 3–State Outputs	8	2.00	5.5	10.6	8.00	TSSOP–20, SOIC–20

FLIP–FLOPS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74VHC74	Octal D–Type Flip–Flop, 3–State Outputs	2	2.00	5.5	9.3	8.00	TSSOP–14, SOIC–14, EIAJ–14
MC74ACT374	Octal D–Type Flip–Flop, 3–State Outputs, TTL Level	8	4.50	5.5	10.0	24.00	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74ACT574	Octal D–Type Flip–Flop, 3–State Outputs, TTL Level	8	4.50	5.5	11.0	24.00	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74AC377	Octal D–Type Flip–Flop, Clock Enable	8	2.00	6.0	10.0	24.00	TSSOP–20, SOIC–20, PDIP–20
MC74ACT377	Octal D–Type Flip–Flop, Clock Enable, TTL Level	8	4.50	5.5	10.0	24.00	SOIC–20, PDIP–20, EIAJ–20
MC74ACT273	Octal D–Type Flip–Flop, TTL Level	8	4.50	5.5	11.0	24.00	TSSOP–20, SOIC–20, PDIP–20
MC74HCT273A	Octal D–Type Flip–Flop, TTL Level	8	4.50	5.5	25.0	6.00	TSSOP–20, SOIC–20, PDIP–20
MC74HC377A	Octal D–Type Flip–Flop w/Enable, Positive–Edge Trigger	8	2	6	32	15	TSSOP–20, SOIC–20
MC74HCT374A	Octal D–Type Noninverting Flip–Flop, 3–State, TTL Level	8	4.50	5.5	31.0	6.00	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74HCT574A	Octal D–Type Noninverting Flip–Flop, 3–State, TTL Level	8	4.50	5.5	30.0	6.00	TSSOP–20, SOIC–20, PDIP–20
MC74VHCT374A	Octal D–Type Noninverting Flip–Flop, 3–State, TTL Level	8	4.50	5.5	10.4	8.00	TSSOP–20, SOIC–20, EIAJ–20
MC74VHCT574A	Octal D–Type Noninverting Flip–Flop, 3–State, TTL Level	8	4.50	5.5	10.4	8.00	TSSOP–20, SOIC–20
MC14175B	Quad D–Type Flip–Flop	4	3.00	18.0	160.0	2.25	SOIC–16, PDIP–16, EIAJ–16
MC74HC175A	Quad D–type Flip–Flop, Common Clock and Reset	4	2.00	6.0	26.0	4.00	TSSOP–16, SOIC–16, PDIP–16, EIAJ–16
NL17SZ74	Single D–Type Flip–Flop	1	1.65	5.5	5.0	24.00	US–8

INVERTERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
NLX1G99	Configurable Multifunction Logic	1	1.65	5.5	6.7	32.00	ULLGA−8
MC14007UB	Dual Comparator Pair Plus Inverter	3	3.00	18.0	75.0	2.50	SOIC−14, PDIP−14, EIAJ−14
NL27WZ04	Dual Inverter	2	1.65	5.5	3.6	32.00	TSOP−6, SC−88
NLU2G04	Dual Inverter	2	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLX2G04	Dual Inverter	2	1.65	5.5	1.8	24.00	ULLGA−6
NL27WZ06	Dual Inverter, Open Drain	2	1.65	5.5	3.0	32.00	TSOP−6, SC−88
NLX2G06	Dual Inverter, Open Drain	2	1.65	5.5	3.0	32.00	ULLGA−6
NL27WZ14	Dual Inverter, Schmitt	2	1.65	5.5	4.9	32.00	TSOP−6, SC−88
NLX2G14	Dual Inverter, Schmitt	2	1.65	5.5	4.9	32.00	ULLGA−6
NLU2G14	Dual Schmitt−Trigger Inverter	2	1.65	5.5	8.6	8.00	UDFN−6, ULLGA−6
NL27WZU04	Dual Unbuffered Inverter	2	1.65	5.5	5.6	32.00	TSOP−6, SC−88
NLU2GU04	Dual Unbuffered Inverter	2	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLX2GU04	Dual Unbuffered Inverter	2	1.65	5.5	2.7	16.00	ULLGA−6
MC14049B	Hex Buffer	6	3.00	18.0	80.0	16.00	SOIC−16, PDIP−16, EIAJ−16
MC14049UB	Hex Buffer	6	3.00	18.0	65.0	16.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC14050B	Hex Buffer	6	3.00	18.0	80.0	16.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC14572UB	Hex Gate	6	3.00	18.0	100.0	2.25	SOIC−16, PDIP−16
MC14069UB	Hex Inverter	6	3.00	18.0	100.0	2.25	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74AC04	Hex Inverter	6	2.00	6.0	7.0	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74HC04A	Hex Inverter	6	2.00	6.0	15.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74LCX04	Hex Inverter	6	2.00	3.6	5.2	24.00	TSSOP−14, SOIC−14, EIAJ−14
MC74LVX04	Hex Inverter	6	2.00	3.6	9.7	4.00	TSSOP−14, SOIC−14, EIAJ−14
MC74VHC04	Hex Inverter	6	2.00	5.5	7.5	8.00	TSSOP−14, SOIC−14, EIAJ−14
MC74LVXU04	Hex Inverter (Unbuffered)	6	2.00	3.6	9.7	4.00	TSSOP−14, SOIC−14, EIAJ−14
MC74AC05	Hex Inverter Open−Drain	6	2.00	6.0	6.0	24.00	SOIC−14, PDIP−14, EIAJ−14
MC74AC14	Hex Inverter Schmitt Trigger	6	2.00	6.0	10.0	24.00	TSSOP−14, SOIC−14, EIAJ−14
MC74ACT14	Hex Inverter Schmitt Trigger, TTL Level	6	4.50	5.5	11.5	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74HC05A	Hex Inverter, Open Drain Outputs	6	2	6	15	5.2	TSSOP−14, SOIC−14
MC74LCX06	Hex Inverter, Open Drain Outputs	6	2.00	3.6	3.7	24.00	TSSOP−14, SOIC−14, EIAJ−14
MC74ACT05	Hex Inverter, Open−Drain Outputs, TTL Level	6	4.50	5.5	8.5	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
74HCT04	Hex Inverter, TTL Level	6	4.50	5.5	7.7	8.00	TSSOP−14, SOIC−14
MC74ACT04	Hex Inverter, TTL Level	6	4.50	5.5	8.5	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14

INVERTERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74HCT04A	Hex Inverter, TTL Level	6	4.50	5.5	17.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74VHCT04A	Hex Inverter, TTL Level	6	4.50	5.5	7.7	8.00	TSSOP−14, SOIC−14, EIAJ−14
MC74LCX14	Hex Schmitt Inverter	6	2.00	3.6	6.5	24.00	TSSOP−14, SOIC−14, EIAJ−14
MC74LVX14	Hex Schmitt Inverter	6	2.00	3.6	14.1	4.00	TSSOP−14, SOIC−14, EIAJ−14
MC74VHC14	Hex Schmitt Inverter	6	2.00	5.5	10.6	8.00	TSSOP−14, SOIC−14
MC14106B	Hex Schmitt Trigger	6	3.00	18.0	100.0	2.25	TSSOP−14, SOIC−14, PDIP−14
MC14584B	Hex Schmitt Trigger	6	3.00	18.0	100.0	2.25	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
74HC14	Hex Schmitt−Trigger Inverter	6	2.00	5.5	10.6	8.00	TSSOP−14, SOIC−14
MC74HC14A	Hex Schmitt−Trigger Inverter	6	2.00	6.0	15.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
74HCT14	Hex Schmitt−Trigger Inverter, TTL Level	6	4.50	5.5	9.6	8.00	TSSOP−14, SOIC−14
MC74HCT14A	Hex Schmitt−Trigger Inverter, TTL Level	6	4.50	5.5	32.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74VHCT14A	Hex Schmitt−Trigger Inverter, TTL Level	6	4.50	5.5	9.6	8.00	TSSOP−14, SOIC−14, EIAJ−14
74HCU04	Hex Unbuffered Inverter	6	2.00	5.5	7.0	8.00	TSSOP−14, SOIC−14
MC74HCU04A	Hex Unbuffered Inverter	6	2.00	6.0	14.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74VHCU04	Hex Unbuffered Inverter	6	2.00	5.5	7.0	8.00	TSSOP−14, SOIC−14, EIAJ−14
NLU1GT04	Inverting Buffer TTL Level	1	1.65	5.5	6.7	8.00	UDFN−6, ULLGA−6
NLU1GT14	Schmitt−Trigger Inverter, TTL Level	1	1.65	5.5	8.6	8.00	UDFN−6, ULLGA−6
MC74HC1G04	Single Inverter	1	2.00	6.0	20.0	2.00	TSOP−5, SC−88A
MC74VHC1G04	Single Inverter	1	2.00	5.5	7.5	8.00	TSOP−5, SC−88A
NL17SZ04	Single Inverter	1	1.65	5.5	4.3	24.00	SC−88A, SOT−553
NLU1G04	Single Inverter	1	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
MC74VHC1G05	Single Inverter, Open Drain	1	2.00	5.5	7.5	8.00	TSOP−5, SC−88A
NL17SZ06	Single Inverter, Open Drain	1	1.65	5.5	3.0	24.00	SC−88A, SOT−553
MC74HC1G14	Single Inverter, Schmitt Input	1	2.00	6.0	20.0	2.00	TSOP−5, SC−88A
MC74VHC1G14	Single Inverter, Schmitt Input	1	2.00	5.5	10.6	8.00	TSOP−5, SC−88A
NL17SZ14	Single Inverter, Schmitt Input	1	1.65	5.5	5.9	24.00	SC−88A, SOT−553
M74VHC1GT14	Single Inverter, Schmitt Input,TTL Level	1	3.00	5.5	10.6	8.00	TSOP−5, SC−88A
MC74VHC1GT14	Single Inverter, Schmitt Input,TTL Level	1	3.00	5.5	10.6	8.00	TSOP−5, SC−88A
M74VHC1GT04	Single Inverter, TTL Level	1	3.00	5.5	7.7	8.00	TSOP−5, SC−88A
MC74VHC1GT04	Single Inverter, TTL Level	1	3.00	5.5	7.7	8.00	TSOP−5, SC−88A
NLU1G14	Single Schmitt−Trigger Inverter	1	1.65	5.5	8.6	8.00	UDFN−6, ULLGA−6
M74VHC1GU04	Single Unbuffered Inverter	1	2.00	5.5	7.0	8.00	TSOP−5, SC−88A

INVERTERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74HC1GU04	Single Unbuffered Inverter	1	2.00	6.0	20.0	2.00	TSOP−5, SC−88A
MC74VHC1GU04	Single Unbuffered Inverter	1	2.00	5.5	7.0	8.00	SC−88A
NL17SZU04	Single Unbuffered Inverter	1	1.65	5.5	5.0	24.00	SC−88A, SOT−553
NLU1GU04	Single Unbuffered Inverter	1	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLV17SZU04	Single Unbuffered Inverter	1	1.65	5.5	5.0	24.00	SC−88A
NL37WZ04	Triple Inverter	3	1.65	5.5	3.6	32.00	US−8
NL37WZ06	Triple Inverter, Open Drain	3	1.65	5.5	3.0	32.00	US−8
NL37WZ14	Triple Inverter, Schmitt	3	1.65	5.5	4.9	32.00	US−8
NLU3G14	Triple Schmitt−Trigger Inverter	3	1.65	5.5	8.6	8.00	UDFN−8, ULLGA−8
MC74LCXU04	Unbuffered Hex Inverter	6	2.00	3.6	3.6	16.00	TSSOP−14, SOIC−14, EIAJ−14

LATCHES AND REGISTERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC14557B	1 To 64 Bit Variable Length Shift Register	1	3.0	18.0	260.0	2.25	SOIC−16, PDIP−16
M74LCX16373	16−Bit Transparent Latch	16	2.0	3.6	5.4	24.00	TSSOP−48
MC74LCX16373	16−Bit Transparent Latch	16	2.0	3.6	5.4	24.00	TSSOP−48
MC14076B	4−Bit D−Type Register, Three−State Outputs	4	3.0	18.0	250.0	2.25	SOIC−16, PDIP−16
MC74HC589A	8/Bit Shift Register	1	2.0	6.0	40.0	6.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74AC259DG	8−Bit Addressable Latch	8	2.0	6.0	10.0	24.00	SOIC−16, PDIP−16, EIAJ−16
MC74ACT259	8−Bit Addressable Latch, TTL Level	8	4.5	5.5	11.0	24.00	SOIC−16, PDIP−16
MC74HCT259A	8−Bit Addressable Latch, TTL Output	1	4.5	5.5	35	4	TSSOP−16, SOIC−16
MC74LVX259	8−Bit Addressable Latch/1−of−8 Decoder CMOS Logic Level Shifter	1	2.0	3.6	12.0	4.00	TSSOP−16, SOIC−16, EIAJ−16
MC74VHC259	8−Bit Addressable Latch/1−of−8 Decoder CMOS Logic Level Shifter	1	2.0	5.5	10.0	8.00	TSSOP−16, SOIC−16, EIAJ−16
MC74VHCT259A	8−Bit Addressable Latch/1−of−8 Decoder, TTL Level	1	4.5	5.5	10.0	8.00	TSSOP−16, SOIC−16, EIAJ−16
MC74HC259A	8−Bit Addressable Latches	1	2.0	6.0	30	5.2	TSSOP−16, SOIC−16
MC14099B	8−Bit Addressable Latches	1	3.0	18.0	150.0	2.25	SOIC−16, PDIP−16
NLV14099B	8−Bit Addressable Latches	1	3.0	18.0	150.0	2.25	SOIC−16
MC74HC165A	8−Bit Serial or Parallel−Input/Serial Output Shift Register	1	2.0	6.0	30.0	4.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74HC164A	8−Bit Serial−Input/Parallel−Output Shift Register	1	2.0	6.0	32.0	4.00	TSSOP−14, SOIC−14, PDIP−14
MC74HC597A	8−Bit Shift Register	1	2.0	6.0	45	5.2	TSSOP−16, SOIC−16
MC74HCT595A	8−Bit Shift Registers, 3−State Output Registers, TTL Output	1	4.5	5.5	34	4	TSSOP−16, SOIC−16
74HC595	8−Bit Shift Register w/Output Storage Register (3−State)	1	2.0	6.0	28.0	6.00	TSSOP−16, SOIC−16
MC74VHC595	8−Bit Shift Register w/Output Storage Register (3−State)	1	2.0	5.5	10.0	8.00	SOIC−16
MC14094B	8−Bit Shift/Store Register, Three−State Outputs	1	3.0	18.0	250.0	2.25	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC14014B	8−Bit Static S/R	1	3.0	18.0	340.0	2.25	SOIC−16, PDIP−16, EIAJ−16
MC14021B	8−Bit Static Shift Register	1	3.0	18.0	340.0	2.25	SOIC−16, PDIP−16, EIAJ−16
MC74HC4094A	8−Stage Bus Register, 3−State	1	2.0	6.0	33	5.2	TSSOP−16, SOIC−16
MC74HCT4094A	8−Stage Bus Register, 3−State, TTL Output	1	4.5	5.5	36	4	TSSOP−16, SOIC−16
MC14598B	9−Bit Bus−Compatible Latches	8	3.0	18.0	250.0	6.00	PDIP−18
MC14015B	Dual 4−Bit Static Shift Register	2	3.0	18.0	250.0	2.25	SOIC−16, PDIP−16, EIAJ−16
MC14517B	Dual 64−Bit Static Shift Register	2	3.0	18.0	300.0	2.25	SOIC−16, PDIP−16
MC74HCT573A	Octal 3−State Inverter Transceiver/Latch, TTL Level	8	4.5	5.5	30.0	6.00	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74VHC573	Octal 3−State Non−Inverting D−Type Latch	8	2.0	5.5	8.8	8.00	TSSOP−20, SOIC−20, EIAJ−20
74HC373	Octal 3−State Non−Inverting Transparent Latch	8	2.0	5.5	9.2	8.00	TSSOP−20

LATCHES AND REGISTERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74HC373A	Octal 3−State Non−Inverting Transparent Latch	8	2.0	6.0	25.0	6.00	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74HC573A	Octal 3−State Non−Inverting Transparent Latch	8	2.0	6.0	30.0	6.00	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74AC573	Octal Buffer/Line Driver, 3−State Outputs	8	2.0	6.0	10.0	24.00	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74ACT573	Octal Buffer/Line Driver, 3−State Outputs, TTL Level	8	4.5	5.5	10.5	24.00	TSSOP−20, SOIC−20, PDIP−20
MC74LVX573	Octal D−Type Latch 3−State Outputs	8	2.0	3.6	12.8	4.00	TSSOP−20, SOIC−20, EIAJ−20
MC74ACT564	Octal D−Type Latch, 3−State Outputs, TTL Level	8	4.5	5.5	10.5	24.00	SOIC−20, PDIP−20
MC74VHCT573A	Octal D−Type Latch, 3−State Outputs, TTL Level	8	4.5	5.5	9.5	8.00	TSSOP−20, SOIC−20
MC74HCT373A	Octal Latch, TTL Level	8	4.5	5.5	28.0	6.00	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74LCX373	Octal Transparent Latch	8	2.0	3.6	8.0	24.00	TSSOP−20, SOIC−20, EIAJ−20
MC74LVX373	Octal Transparent Latch 3−State	8	2.0	3.6	12.8	4.00	TSSOP−20, SOIC−20, EIAJ−20
MC74VHC373	Octal Transparent Latch 3−State	8	2.0	5.5	9.2	8.00	TSSOP−20, SOIC−20, EIAJ−20
MC74LCX573	Octal Transparent Latch Flow Through Pinout	8	2.0	3.6	8.0	24.00	TSSOP−20, SOIC−20, EIAJ−20
MC74AC373	Octal Transparent Latch, 3−State Outputs	8	2.0	6.0	9.5	24.00	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74ACT373	Octal Transparent Latch, 3−State Outputs, TTL Level	8	4.5	5.5	10.0	24.00	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74VHCT373A	Octal Transparent Latch, 3−State Outputs, TTL Level	8	4.5	5.5	9.5	8.00	TSSOP−20, SOIC−20
MC14043B	Quad R−S Latches	4	3.0	18.0	175.0	2.25	SOIC−16, PDIP−16, EIAJ−16
MC14044B	Quad R−S Latches	4	3.0	18.0	175.0	2.25	SOIC−16, PDIP−16
MC14042B	Quad Transparent Latch	4	3.0	18.0	180.0	2.25	SOIC−16, PDIP−16
MC74HC595A	Shift Register 3−State	1	2.0	6.0	28.0	6.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74VHC595	Shift Register 3−State	1	2.0	5.5	10.0	8.00	TSSOP−16
MC74HC595A	Shift Register 3−State	1	2.0	6.0	28.0	6.00	TSSOP−16
MC14549B	Successive Approximation Registers	1	3.0	18.0	420.0	2.25	SOIC−16, PDIP−16

LOGIC GATES

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
NL7SZ57	Configurable Multifunction Logic	3	1.65	5.5	2.5	32.00	SC−88
NLX1G57	Configurable Multifunction Logic	1	1.65	5.5	5.1	24.00	ULLGA−6
NLX1G99	Configurable Multifunction Logic	1	1.65	5.5	6.7	32.00	ULLGA−6
NLX1G97	Configurable Multifunction Logic	1	1.65	5.5	6.3	24.00	ULLGA−6
NL7SZ58	Configurable Multifunction Logic, Inverting	3	1.65	5.5	2.5	32.00	SC−88
NLX1G58	Configurable Multifunction Logic, Inverting	1	1.65	5.5	5.1	24.00	ULLGA−6
NLX1G98	Configurable Multifunction Logic, Inverting	1	1.65	5.5	5.1	24.00	ULLGA−6
NL27WZ08	Dual 2−Input AND Gate	2	1.65	5.5	3.7	32.00	US−8
NLX2G08	Dual 2−Input AND Gate	2	1.65	5.5	4.8	24	ULLGA−8, UQFN−8
NL27WZ86	Dual 2−Input Exclusive OR Gate	2	1.65	5.5	4.2	32.00	US−8
NLX2G86	Dual 2−Input Exclusive OR Gate	2	1.65	5.5	4.8	24	ULLGA−8, UQFN−8
NL27WZ00	Dual 2−Input NAND Gate	2	1.65	5.5	3.6	32.00	US−8
NLX2G00	Dual 2−Input NAND Gate	2	1.65	5.5	4.6	24	ULLGA−8
NL27WZ02	Dual 2−Input NOR Gate	2	1.65	5.5	3.7	32.00	US−8
NLX2G02	Dual 2−Input NOR Gate	2	1.65	5.5	4.8	24	ULLGA−8
NL27WZ32	Dual 2−Input OR Gate	2	1.65	5.5	3.7	32.00	US−8
NLX2G32	Dual 2−Input OR Gate	2	1.65	5.5	4.8	24	ULLGA−8, UQFN−8
MC14082B	Dual 4−Input AND Gate	2	3.00	18.0	130.0	2.25	SOIC−14, PDIP−14
MC14012B	Dual 4−Input NAND Gates	2	3.00	18.0	130.0	2.25	SOIC−14, PDIP−14
MC74HC20A	Dual 4−Input NAND Gate	2	2.0	6.0	26	5.2	TSSOP−14, SOIC−14
MC74AC20	Dual 4−Input NAND Gate	2	2.00	6.0	7.0	24.00	SOIC−14, PDIP−14, EIAJ−14
MC74ACT20	Dual 4−Input NAND Gate, TTL Level	2	4.50	5.5	9.0	24.00	SOIC−14, PDIP−14
MC74HCT20A	Dual 4−Input NAND Gate, TTL Output	2	4.5	5.5	25	4	TSSOP−14, SOIC−14
NLU2G16	Dual Buffer	2	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLU2G04	Dual Inverter	2	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLU2G06	Dual Inverter, Open Drain Output	2	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLU2G07	Dual Non−Inverting Buffer, Open Drain Output	2	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLU2G17	Dual Schmitt−Trigger Buffer	2	1.65	5.5	8.6	8.00	UDFN−6, ULLGA−6
NLU2G14	Dual Schmitt−Trigger Inverter	2	1.65	5.5	8.6	8.00	UDFN−6, ULLGA−6
NLU2GU04	Dual Unbuffered Inverter	2	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
74HC04	Hex Inverter	6	2.00	5.5	7.5	8.00	TSSOP−14, SOIC−14
NLU1G07	Non−Inverting Buffer, Open Drain Output	1	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLU1GT50	Non−Inverting Buffer, TTL Level	1	1.65	5.5	6.7	8.00	UDFN−6, ULLGA−6

LOGIC GATES

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
74HC08	Quad 2−Input AND Gate	4	2.00	5.5	7.9	8.00	TSSOP−14, SOIC−14
MC14081B	Quad 2−Input AND Gate	4	3.00	18.0	130.0	2.25	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74AC08	Quad 2−Input AND Gate	4	2.00	6.0	7.5	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74HC08A	Quad 2−Input AND Gate	4	2.00	6.0	15.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74LCX08	Quad 2−Input AND Gate	4	2.00	3.6	5.5	24.00	TSSOP−14, SOIC−14, EIAJ−14
MC74LVX08	Quad 2−Input AND Gate	4	2.00	3.6	10.6	4.00	TSSOP−14, SOIC−14, EIAJ−14
MC74VHC08	Quad 2−Input AND Gate	4	2.00	5.5	7.9	8.00	TSSOP−14, SOIC−14, EIAJ−14
NLSF308	Quad 2−Input AND Gate	4	2.00	5.5	7.9	8.00	QFN−16
74HCT08	Quad 2−Input AND Gate, TTL Level	4	4.50	5.5	7.9	8.00	TSSOP−14, SOIC−14
MC74ACT08	Quad 2−Input AND Gate, TTL Level	4	4.50	5.5	9.0	24.00	TSSOP−14, SOIC−14, PDIP−14
MC74HCT08A	Quad 2−Input AND Gate, TTL Output	4	4.5	5.5	15	4	TSSOP−14, SOIC−14
74HC86	Quad 2−Input Exclusive OR Gate	4	2.00	5.5	8.0	8.00	TSSOP−14, SOIC−14
MC74AC86	Quad 2−Input Exclusive OR Gate	4	2.00	6.0	8.5	24.00	TSSOP−14, SOIC−14, PDIP−14
MC74HC86A	Quad 2−Input Exclusive OR Gate	4	2.00	6.0	20.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74VHC86	Quad 2−Input Exclusive OR Gate	4	2.00	5.5	8.8	8.00	TSSOP−14, SOIC−14, EIAJ−14
MC74ACT86	Quad 2−Input Exclusive−OR Gate, TTL Level	4	4.50	5.5	9.5	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74HCT86A	Quad 2−Input Exclusive−OR Gate, TTL Level	4	4.5	5.5	17	4	TSSOP−14, SOIC−14
74HC00	Quad 2−Input NAND Gate	4	2.00	5.5	7.5	8.00	TSSOP−14, SOIC−14
MC14011B	Quad 2−Input NAND Gate	4	3.00	18.0	100.0	2.25	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC14011UB	Quad 2−Input NAND Gate	4	3.00	18.0	100.0	2.25	SOIC−14, PDIP−14
MC74AC00	Quad 2−Input NAND Gate	4	2.00	6.0	8.0	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74HC00A	Quad 2−Input NAND Gate	4	2.00	6.0	15.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74LCX00	Quad 2−Input NAND Gate	4	2.00	3.6	5.2	24.00	TSSOP−14, SOIC−14, EIAJ−14
MC74LVX00	Quad 2−Input NAND Gate	4	2.00	3.6	9.7	4.00	TSSOP−14, SOIC−14, EIAJ−14
MC74VHC00	Quad 2−Input NAND Gate	4	2.00	5.5	7.5	8.00	TSSOP−14, SOIC−14, EIAJ−14
MC74HC03A	Quad 2−Input NAND Gate, Open Drain Outputs	4	2.00	6.0	24.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
74HC132	Quad 2−Input NAND Gate, Schmitt Trigger	4	2.00	5.5	9.7	8.00	TSSOP−14, SOIC−14
MC74ACT00	Quad 2−Input NAND Gate, TTL Level	4	4.50	5.5	9.0	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74VHCT00A	Quad 2−Input NAND Gate, TTL Level	4	3.00	5.5	7.9	8.00	TSSOP−14, SOIC−14
MC74HCT132A	Quad 2−Input NAND Gate, TTL Level	4	4.5	5.5	25	4	TSSOP−14, SOIC−14
MC14093B	Quad 2−Input NAND Schmitt Trigger	4	3.00	18.0	100.0	2.25	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74AC132	Quad 2−Input NAND Schmitt Trigger	4	2.00	6.0	9.0	24.00	SOIC−14, PDIP−14, EIAJ−14
MC74HC132A	Quad 2−Input NAND Schmitt Trigger	4	2.00	6.0	25.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14

LOGIC GATES

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74LVX132	Quad 2−Input NAND Schmitt Trigger	4	2.00	3.6	15.4	4.00	TSSOP−14, SOIC−14, EIAJ−14
MC74VHC132	Quad 2−Input NAND Schmitt Trigger	4	2.00	5.5	7.5	8.00	TSSOP−14, SOIC−14, EIAJ−14
MC74ACT132	Quad 2−Input NAND, Schmitt Trigger, TTL Level	4	4.50	5.5	11.5	24.00	SOIC−14, PDIP−14, EIAJ−14
MC74VHCT132A	Quad 2−Input NAND, Schmitt Trigger, TTL Level	4	4.50	5.5	9.7	8.00	TSSOP−14, SOIC−14, EIAJ−14
74HC02	Quad 2−Input NOR Gate	4	2.00	6.0	22.0	4.00	TSSOP−14, SOIC−14
MC14001B	Quad 2−Input NOR Gate	4	3.00	18.0	100.0	2.25	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC14001UB	Quad 2−Input NOR Gate	4	3.00	18.0	100.0	2.25	SOIC−14, PDIP−14
MC74AC02	Quad 2−Input NOR Gate	4	2.00	6.0	6.5	24.00	TSSOP−14, SOIC−14, PDIP−14
MC74HC02A	Quad 2−Input NOR Gate	4	2.00	6.0	15.0	4.00	TSSOP−14, SOIC−14, PDIP−14
MC74LCX02	Quad 2−Input NOR Gate	4	2.00	3.6	5.2	24.00	TSSOP−14, SOIC−14, EIAJ−14
MC74LVX02	Quad 2−Input NOR Gate	4	2.00	3.6	10.1	4.00	TSSOP−14, SOIC−14, EIAJ−14
MC74VHC02	Quad 2−Input NOR Gate	4	2.00	5.5	7.5	8.00	TSSOP−14, SOIC−14
NLSF302	Quad 2−Input NOR Gate	4	2.00	5.5	7.5	8.00	QFN−16
MC74ACT02	Quad 2−Input NOR Gate, TTL Level	4	4.50	5.5	9.5	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74VHCT02A	Quad 2−Input NOR Gate, TTL Level	4	4.50	5.5	7.5	8.00	TSSOP−14, SOIC−14, EIAJ−14
MC74VHCT08A	Quad 2−Input NOR Gate, TTL Level	4	4.50	5.5	7.9	8.00	TSSOP−14, SOIC−14, EIAJ−14
MC14071B	Quad 2−Input OR Gate	4	3.00	18.0	130.0	2.25	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74AC32	Quad 2−Input OR Gate	4	2.00	6.0	7.5	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC74LCX32	Quad 2−Input OR Gate	4	2.00	3.6	5.5	24.00	TSSOP−14, SOIC−14, EIAJ−14
MC74LVX32	Quad 2−Input OR Gate	4	2.00	3.6	10.1	4.00	TSSOP−14, SOIC−14, EIAJ−14
MC74VHCT32A	Quad 2−Input OR Gate / CMOS Logic Level Shifter, TTL Level	4	2.00	5.5	7.5	8.00	TSSOP−14, SOIC−14, EIAJ−14
MC74ACT32	Quad 2−Input OR Gate, TTL Level	4	4.50	5.5	9.0	24.00	TSSOP−14, SOIC−14, PDIP−14
MC74HCT32A	Quad 2−Input OR Gate, TTL Level	4	4.5	5.5	15	4	TSSOP−14, SOIC−14
MC74LCX86	Quad 2−Input XOR Gate	4	2.00	3.6	6.5	24.00	TSSOP−14, SOIC−14
MC74LVX86	Quad 2−Input XOR Gate	4	2.00	3.6	12.8	4.00	TSSOP−14, SOIC−14, EIAJ−14
MC74VHCT86A	Quad 2−Input XOR Gate / CMOS Logic Level Shifter, TTL Level	4	2.00	5.5	8.8	8.00	TSSOP−14, SOIC−14, EIAJ−14
MC14077B	Quad Exclusive NOR Gate	4	3.00	18.0	150.0	2.25	SOIC−14, PDIP−14, EIAJ−14
74HC32	Quad OR Gate	4	2.00	5.5	7.5	8.00	TSSOP−14, SOIC−14
MC74HC32A	Quad OR Gate	4	2.00	6.0	15.0	4.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
74HCT32	Quad OR Gate, TTL Level	4	2.00	6.0	22.0	4.00	TSSOP−14, SOIC−14
MC14070B	Quad XOR Gate	4	3.00	18.0	150.0	2.25	SOIC−14, PDIP−14, EIAJ−14
NLU1GT14	Schmitt−Trigger Inverter, TTL Level	1	1.65	5.5	8.6	8.00	UDFN−6, ULLGA−6
MC74VHC32	Single 2−1 Quad OR Gate	4	2.00	5.5	7.5	8.00	TSSOP−14, SOIC−14, EIAJ−14

LOGIC GATES

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74HC1G08	Single 2−Input AND Gate	1	2.00	6.0	20.0	2.00	TSOP−5, SC−88A
MC74VHC1G08	Single 2−Input AND Gate	1	2.00	5.5	7.9	8.00	TSOP−5, SC−88A
NL17SV08	Single 2−Input AND Gate	1	0.90	3.6	1.0	24.00	SOT−553
NL17SZ08	Single 2−Input AND Gate	1	1.65	5.5	4.5	24.00	SC−88A, SOT−553
NLU1G08	Single 2−Input AND Gate	1	1.65	5.5	5.9	8.00	UDFN−6, ULLGA−6
MC74VHC1G09	Single 2−Input AND Gate, Open Drain	1	2.00	5.5	7.9	8.00	TSOP−5, SC−88A
M74VHC1GT08	Single 2−Input AND Gate, TTL Level	1	3.00	5.5	7.9	8.00	TSOP−5, SC−88A
MC74VHC1GT08	Single 2−Input AND Gate, TTL Level	1	3.00	5.5	7.9	8.00	TSOP−5, SC−88A
MC74VHC1G86	Single 2−Input Exclusive OR Gate	1	2.00	5.5	8.8	8.00	TSOP−5, SC−88A
NL17SZ86	Single 2−Input Exclusive OR Gate	1	1.65	5.5	4.2	24.00	SC−88A
NLU1G86	Single 2−Input Exclusive OR Gate	1	1.65	5.5	6.8	8.00	UDFN−6, ULLGA−6
M74VHC1GT86	Single 2−Input Exclusive OR Gate, TTL Level	1	3.00	5.5	8.8	8.00	TSOP−5, SC−88A
MC74VHC1GT86	Single 2−Input Exclusive OR Gate, TTL Level	1	3.00	5.5	8.8	8.00	SC−88A
NLU1GT86	Single 2−Input Exclusive OR Gate, TTL Level	1	1.65	5.5	6.8	8.00	UDFN−6, ULLGA−6
MC74HC1G00	Single 2−Input NAND Gate	1	2.00	6.0	20.0	2.00	TSOP−5, SC−88A
MC74VHC1G00	Single 2−Input NAND Gate	1	2.00	5.5	7.5	8.00	TSOP−5, SC−88A
NL17SV00	Single 2−Input NAND Gate	1	0.90	3.6	2.3	50.00	SOT−553
NL17SZ00	Single 2−Input NAND Gate	1	1.65	5.5	4.3	24.00	SC−88A, SOT−553
NLU1G00	Single 2−Input NAND Gate	1	1.65	5.5	3.5	8.00	ULLGA−6
MC74VHC1G01	Single 2−Input NAND Gate, Open Drain	1	2.00	5.5	7.5	8.00	TSOP−5, SC−88A
M74VHC1G132	Single 2−Input NAND Gate, Schmitt	1	2.00	5.5	9.7	8.00	TSOP−5, SC−88A
MC74VHC1G132	Single 2−Input NAND Gate, Schmitt	1	2.00	5.5	9.7	8.00	TSOP−5, SC−88A
M74VHC1G135	Single 2−Input NAND Gate, Schmitt ,Open Drain	1	2.00	5.5	9.7	8.00	TSOP−5, SC−88A
M74VHC1GT00	Single 2−Input NAND Gate, TTL level	1	3.00	5.5	7.9	8.00	TSOP−5, SC−88A
MC74VHC1GT00	Single 2−Input NAND Gate, TTL level	1	3.00	5.5	7.9	8.00	TSOP−5, SC−88A
MC74HC1G02	Single 2−Input NOR Gate	1	2.00	6.0	20.0	2.00	TSOP−5, SC−88A
MC74VHC1G02	Single 2−Input NOR Gate	1	2.00	5.5	7.5	8.00	TSOP−5, SC−88A
NL17SV02	Single 2−Input NOR Gate	1	0.90	3.6	3.3	50.00	SOT−553
NL17SZ02	Single 2−Input NOR Gate	1	1.65	5.5	4.3	24.00	SC−88A, SOT−553
MC74VHC1GT02	Single 2−Input NOR Gate TTL Level	1	3.00	5.5	7.7	8.00	SC−88A
MC74VHC1G03	Single 2−Input NOR Gate, Open Drain	1	2.00	5.5	7.5	8.00	TSOP−5, SC−88A
M74VHC1GT02	Single 2−Input NOR Gate, TTL Level	1	3.00	5.5	7.7	8.00	TSOP−5, SC−88A
MC74HC1G32	Single 2−Input OR Gate	1	2.00	6.0	20.0	2.00	TSOP−5, SC−88A

LOGIC GATES

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74VHC1G32	Single 2−Input OR Gate	1	2.00	5.5	7.5	8.00	TSOP−5, SC−88A
NL17SV32	Single 2−Input OR Gate	1	0.90	3.6	3.3	50.00	SOT−553
NL17SZ32	Single 2−Input OR Gate	1	1.65	5.5	4.5	24.00	SC−88A, SOT−553
NLU1G32	Single 2−Input OR Gate	1	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
M74VHC1GT32	Single 2−Input OR Gate, TTL Level	1	3.00	5.5	7.5	8.00	TSOP−5, SC−88A
NLU1GT32	Single 2−Input OR Gate, TTL Level	1	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLX1G11	Single 3−Input AND Gate	1	1.65	5.5	2.7	24	ULLGA−6
NLX1G10	Single 3−Input NAND Gate	1	1.65	5.5	2.7	24	ULLGA−6
NLX1G332	Single 3−Input OR Gate	1	1.65	5.5	2.7	24	ULLGA−6
MC74HC30A	Single 8−Input NAND Gate	1	2.0	6.0	30	5.2	TSSOP−14, SOIC−14
NL17SV04	Single Inverter	1	0.09	3.6	2.3	50.00	SOT−553
NL17SV16	Single Noninverting Buffer	1	0.90	4.6	3.3	50.00	SOT−553
NLU1GT126	Single Noninverting Buffer With High Enable, 3−State Outputs, TTL Level	1	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLU1GT125	Single Noninverting Buffer With Low Enable, 3−State Outputs, TTL Level	1	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
NLU1G14	Single Schmitt−Trigger Inverter	1	1.65	5.5	8.6	8.00	UDFN−6, ULLGA−6
NLU1GU04	Single Unbuffered Inverter	1	1.65	5.5	5.5	8.00	UDFN−6, ULLGA−6
MC14073B	Triple 3−Input AND Gate	3	3.00	18.0	130.0	2.25	SOIC−14, PDIP−14, EIAJ−14
MC74AC11	Triple 3−Input AND Gate	3	2.00	6.0	8.0	24.00	SOIC−14, PDIP−14, EIAJ−14
MC74HC11A	Triple 3−Input AND Gate	3	2.0	6.0	16	5.2	TSSOP−14, SOIC−14
MC74ACT11	Triple 3−Input AND Gate, TTL Level	3	4.50	5.5	9.5	24.00	SOIC−14, PDIP−14, EIAJ−14
MC74HC10A	Triple 3−Input NAND Gate	3	2.0	6.0	16	5.2	TSSOP−14, SOIC−14
MC14023B	Triple 3−Input NAND Gate	3	3.00	18.0	130.0	2.25	SOIC−14, PDIP−14, EIAJ−14
MC74AC10	Triple 3−Input NAND Gate	3	2.00	6.0	7.0	24.00	SOIC−14, PDIP−14
MC74ACT10	Triple 3−Input NAND Gate, TTL Level	3	4.50	5.5	9.0	24.00	TSSOP−14, SOIC−14, PDIP−14, EIAJ−14
MC14025B	Triple 3−Input NOR Gate	3	3.00	18.0	130.0	2.25	SOIC−14, PDIP−14, EIAJ−14
NLU3G16	Triple Buffer	3	1.65	5.5	5.5	8.00	UDFN−8, ULLGA−8
NLU3G17	Triple Noninverting Schmitt Trigger Buffer	3	1.65	5.5	8.6	8.00	UDFN−8, ULLGA−8
NLU3G14	Triple Schmitt−Trigger Inverter	3	1.65	5.5	8.6	8.00	UDFN−8, ULLGA−8

MULTIPLEXERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
NL7SZ18	1:2 Digital Demultiplexer Non−Inverting, 3−State Outputs	2	1.65	5.5	4.00	32.00	UDFN−6, SC−88
NL7SZ19	1:2 Digital Multiplexer / Demultiplexer	2	1.65	5.5	4.00	50.00	UDFN−6, SC−88
74HC138	1−of−8 Decoder/Demultiplexer	1	2.00	5.5	10.10	8.00	TSSOP−16, SOIC−16
MC74AC138	1−of−8 Decoder/Demultiplexer	1	2.00	6.0	9.50	24.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74HC138A	1−of−8 Decoder/Demultiplexer	1	2.00	6.0	27.00	4.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74ACT138	1−of−8 Decoder/Demultiplexer, TTL Level	1	4.50	5.5	10.50	24.00	TSSOP−16, SOIC−16, PDIP−16
MC74HCT138A	1−of−8 Decoder/Demultiplexer, TTL Level	1	4.50	5.5	30.00	4.00	PDIP−16
MC74HCT138A	1−of−8 Decoder/Demultiplexer. TTL Output	1	4.5	5.5	35	4	TSSOP−16, SOIC−16
MC74HC4067A	1−to−16 Multiplexer / Demultiplexer	1	2	6	20	5.2	TSSOP−24, SOIC−24
MC74LCX138	3−to−8 Decoder/Demultiplexer	1	2.00	3.6	6.00	24.00	TSSOP−16, SOIC−16, EIAJ−16
MC74HC238A	3−to−8 Line Decoder/Demultiplexer	1	2	6	35	5.2	TSSOP−16, SOIC−16
MC74LVX138	3−To−8 Line Decoder	1	2.00	3.6	12.30	4.00	TSSOP−16, SOIC−16, EIAJ−16
MC74VHC138	3−To−8 Line Decoder	1	2.00	5.5	10.10	8.00	TSSOP−16, SOIC−16
MC74VHCT138A	3−To−8 Line Decoder, TTL Level	1	3.00	5.5	11.40	8.00	TSSOP−16, SOIC−16
MC14514B	4−Bit Transparent Latch/4−to−16 Line Decoder	1	3.00	18.0	450.00	2.25	SOIC−24
MC14515B	4−Bit Transparent Latch/4−to−16 Line Decoder	1	3.00	18.0	450.00	2.25	SOIC−24
MC14532B	8−Bit Priority Encoder	1	3.00	18.0	220.00	2.25	SOIC−16, PDIP−16
MC14512B	8−Channel Data Selector	1	3.00	18.0	250.00	2.25	SOIC−16, PDIP−16
MC74HC151A	8−Input Multiplexer	1	2	6	43	5.2	TSSOP−16, SOIC−16
MC74HC251A	8−Input Multiplexer, 3−State Outputs	1	2	6	43	5.2	TSSOP−16, SOIC−16
MC74LVX4051	Analog Multiplexer/ Demultiplexer	1	2.50	6.0	23.00	4.00	TSSOP−16, SOIC−16, EIAJ−16
MC74LVX4052	Analog Multiplexer/ Demultiplexer	2	2.50	6.0	23.00	4.00	TSSOP−16, SOIC−16, EIAJ−16
MC74LVX4053	Analog Multiplexer/ Demultiplexer	3	2.50	6.0	23.00	4.00	TSSOP−16, SOIC−16, EIAJ−16
MC74LVXT4051	Analog Multiplexer/ Demultiplexer	1	2.50	6.0	23.00	4.00	TSSOP−16, SOIC−16, EIAJ−16
MC74LVXT4052	Analog Multiplexer/ Demultiplexer	2	2.50	6.0	23.00	4.00	TSSOP−16, SOIC−16, EIAJ−16
MC74LVXT4053	Analog Multiplexer/ Demultiplexer	3	2.50	6.0	23.00	4.00	TSSOP−16, SOIC−16, EIAJ−16
MC74VHC4052	Analog Multiplexer/ Demultiplexer	1	2.00	6.0	49.00	8.00	TSSOP−16, SOIC−16, EIAJ−16
MC74VHC4053	Analog Multiplexer/ Demultiplexer	1	2.00	6.0	49.00	8.00	TSSOP−16, SOIC−16, EIAJ−16
NLAS4053	Analog Multiplexers/Demultiplexers	2	2.50	5.5	40.00	50.00	TSSOP−16, SOIC−16
MC14028B	BCD−to−Decimal Decoder	1	3.00	18.0	260.00	2.25	SOIC−16, PDIP−16, EIAJ−16
MC74VHC157	Data Selector/Multiplexer 2−Input	4	2.00	5.5	8.40	8.00	TSSOP−16, SOIC−16
MC74HC157A	Data Selector/Multiplexer 2−Input Q	4	2.00	6.0	21.00	6.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74HC139A	Dual 1−of−4 Decoder / Demultiplexer	2	2.00	6.0	23.00	4.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74AC139	Dual 1−of−4 Decoder/Demultiplexer	2	2.00	6.0	8.50	24.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16

MULTIPLEXERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC74ACT139	Dual 1−of−4 Decoder/Demultiplexer, TTL Level	2	4.50	5.5	9.50	24.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74LCX139	Dual 2−of−4 Decoder/Demultiplexer	2	2.00	3.6	6.20	24.00	TSSOP−16, SOIC−16, EIAJ−16
MC74LVX139	Dual 2−to−4 Decoder/ Demultiplexer	2	2.00	3.6	13.00	4.00	TSSOP−16, SOIC−16
MC74VHC139	Dual 2−to−4 Decoder/Demultiplexer	2	2.00	5.5	9.20	8.00	TSSOP−16, SOIC−16
MC74VHCT139A	Dual 2−to−4 Decoder/Demultiplexer, TTL Level	2	4.50	5.5	9.20	8.00	TSSOP−16, SOIC−16, EIAJ−16
MC74HC153A	Dual 4−Input Multiplexers	2	2	6	38	5.2	TSSOP−16, SOIC−16
MC74ACT253	Dual 4−Input Multiplexer, 3−State Outputs, TTL Level	2	4.50	5.5	13.00	24.00	SOIC−16
MC74ACT153	Dual 4−Input Multiplexer, TTL Level	2	4.50	5.5	11.50	24.00	SOIC−16
MC14555B	Dual Binary to 1−of−4 Decoder/Demultiplexer	2	3.00	18.0	190.00	2.25	SOIC−16, PDIP−16, EIAJ−16
MC14556B	Dual Binary to 1−of−4 Decoder/Demultiplexer	2	3.00	18.0	190.00	2250.00	SOIC−16, PDIP−16, EIAJ−16
74FST3257	Quad 2:1 Multiplexer/Demultiplexer Bus Switch	4	4.00	5.5	0.25	–	TSSOP−16, SOIC−16
MC74LVX157	Quad 2−Channel Multiplexer	4	2.00	3.6	11.40	4.00	TSSOP−16, SOIC−16, EIAJ−16
M74VHCT257A	Quad 2−Channel Multiplexer, 3−State Outputs,TTL Level	4	2	5.5	8	8	TSSOP−16
74HCT157	Quad 2−Channel Multiplexer, TTL Level	4	4.50	5.5	8.40	8.00	TSSOP−16, SOIC−16
M74VHCT157A	Quad 2−Channel Multiplexer, TTL Level	4	4.50	5.5	8.40	8.00	TSSOP−16
MC74VHCT157A	Quad 2−Channel Multiplexer, TTL Level	4	4.50	5.5	8.40	8.00	EIAJ−16
MC74AC157	Quad 2−Input Multiplexer	4	2.00	6.0	9.00	24.00	TSSOP−16, SOIC−16, PDIP−16
MC74LCX157	Quad 2−Input Multiplexer	2	2.00	3.6	5.80	24.00	TSSOP−16, SOIC−16
MC74LCX158	Quad 2−Input Multiplexer	4	2.00	3.6	6.50	24.00	TSSOP−16, SOIC−16, EIAJ−16
MC74LCX257	Quad 2−Input Multiplexer	4	2.00	3.6	6.00	24.00	TSSOP−16, SOIC−16, EIAJ−16
MC74LCX258	Quad 2−Input Multiplexer	4	2.00	3.6	6.50	24.00	TSSOP−16, SOIC−16, EIAJ−16
MC74AC257	Quad 2−Input Multiplexer 3−State Output	4	2.00	6.0	7.50	24.00	SOIC−16, PDIP−16, EIAJ−16
MC74ACT257	Quad 2−Input Multiplexer, 3−State Outputs, TTL Level	4	4.50	5.5	10.50	24.00	SOIC−16, PDIP−16, EIAJ−16
MC74ACT157	Quad 2−Input Multiplexer, TTL Level	4	4.50	5.5	9.50	24.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74VHC4316	Quad Analog Multiplexer / Demultiplexer	4	2.00	6.0	8.00	–	TSSOP−16, SOIC−16, EIAJ−16
NLAS4053	Triple 2:1 Analog Switch − Multiplexer	2	2.50	5.5	40.00	50.00	TSSOP−16

MULTIVIBRATORS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
MC14528B	Dual Monostable Multivibrator	2	3	18	240	2.25	SOIC−16, PDIP−16, EIAJ−16
MC14538B	Dual Precision Monostable Multivibrator	2	3	18	300	2.25	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74HC4538A	Dual Precision Monostable Multivibrator	2	3	6	35	4.00	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16
MC74HC123A	Dual retriggerable monostable multivibrator with reset	2	2	**6**	75	5.2	TSSOP−16, SOIC−16

TRANSCEIVERS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
74VCXH16245	16−Bit Transceiver	16	1.65	3.6	2.5	24	TSSOP−48
M74LCX16245	16−Bit Transceiver	8	2.00	3.6	5.2	24	TSSOP−48
MC74LCX16245	16−Bit Transceiver	8	2.00	3.6	5.2	24	TSSOP−48
74VCXH245	8−Bit Tranceiver, Low Voltage	1	2.00	6.0	15.0	6	QFN−20
MC74LVXC3245	Configurable Dual Supply Octal Transceiver	8	2.30	3.6	9.0	24	TSSOP−24, SOIC−24
MC74LVX4245	Dual Supply Octal Translating Transceiver	8	2.70	3.6	10.0	24	TSSOP−24, SOIC−24
74HC245	Octal 3−State Non−Inverting Bus/Transceiver	1	2.00	5.5	7.5	8	TSSOP−20
MC74HC245A	Octal 3−State Non−Inverting Bus/Transceiver	1	2.00	6.0	15.0	6	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74ACT245	Octal Bidirectional Transceiver, 3−State Inputs/Outputs, TTL Level	1	4.50	5.5	8.0	24	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74AC245	Octal Bidirectional Transceiver, 3−State Outputs Inputs/Outputs	1	2.00	2.0	6.5	24	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74LVX245	Octal Bus Tranceiver	1	2.00	3.6	10.1	4	TSSOP−20, SOIC−20, EIAJ−20
MC74VHC245	Octal Bus Transceiver	1	2.00	5.5	7.5	8	TSSOP−20, SOIC−20
74HCT245	Octal Bus Transceiver, 3−State Inputs/Outputs, TTL Level	1	4.50	5.5	22.0	6	TSSOP−20
MC74HCT245A	Octal Bus Transceiver, 3−State Inputs/Outputs, TTL Level	1	4.50	5.5	22.0	6	TSSOP−20, SOIC−20, PDIP−20, EIAJ−20
MC74VHCT245A	Octal Bus Transceiver, 3−State Inputs/Outputs, TTL Level	1	4.50	5.5	8.7	8	TSSOP−20, SOIC−20, EIAJ−20
MC74LCX245	Octal Bus Transceiver With 3−State Outputs	8	2	3.6	7	24	QFN−20
MC74ACT640	Octal Inverting Transceiver, 3−State, TTL Level	1	4.50	5.5	8.0	24	SOIC−20, PDIP−20, EIAJ−20
MC74ACT646	Octal Noninverting Transceiver/Register, 3−State Outputs, TTL Level	8	4.50	5.5	14.5	24	SOIC−24, PDIP−24
MC74ACT652	Octal Noninverting Transceiver/Register, 3−State Outputs, TTL Level	8	4.50	5.5	14.5	24	SOIC−24, PDIP−24
MC74LCX245	Octal Transceiver	1	2.00	3.6	7.0	24	TSSOP−20, SOIC−20, EIAJ−20
MC74AC646	Octal Transceiver/Register, 3−State Outputs (Non−inverting)	8	2.00	6.0	12.0	24	SOIC−24
MC74AC652	Octal Transceiver/Register, 3−State Outputs (Non−inverting)	8	2.00	6.0	12.0	24	SOIC−24

TRANSLATORS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
NLSX5011	1−Bit Auto Sensing Dual−Supply Voltage Level Translator	1	0.9	4.5	8	0.02	UDFN−6, ULLGA−6
NLSV1T34	1 Bit Dual Supply Unidirectional Voltage Level Translator w/o Output Enable	1	0.90	4.5	3.3	50.00	ULLGA−6, SC−88A
NLSV1T244	1−Bit Dual Supply Unidirectional Voltage Level Translator	1	0.90	4.5	3.3	50.00	UDFN−6
NLSV1T240	1−Bit Dual Supply Unidirectional Voltage Level Translator; Inverting	1	0.90	4.5	3.3	50.00	UDFN−6
NLSX3012	2−Bit Auto Sensing Dual−Supply Voltage Level Translator	2	1.30	5.5	7.2	0.02	UDFN−8
NLSX5012	2−Bit Auto Sensing Dual−Supply Voltage Level Translator	2	0.9	4.5	8	0.02	TSSOP−8, SOIC−8, UDFN−8, Micro−8
NLSX3373	2−Bit Auto Sensing Dual−Supply Voltage Level Translator, Open Drain	2	1.20	5.5	30.0	40.00	UDFN−8
NLSX4373	2−Bit Auto Sensing Dual−Supply Voltage Level Translator, Open Drain	2	1.50	5.5	20.0	–	UDFN−8
NLSX4378B	2−Bit Auto Sensing Dual−Supply Voltage Level Translator, Open Drain	4	1.50	5.5	20.0	–	uBump−12
NLSX4378	2−Bit Auto Sensing Dual−Supply Voltage Level Translator, Open Drain	4	1.50	5.5	20.0	–	uBump−12
NLSX4373	2−Bit Auto Sensing Dual−Supply Voltage Level Translator, Open Drain	2	1.5	5.5	20	0.02	SOIC−8, Micro−8
NLSV2T3236	2−Bit Bidirectional Dual−Supply Unidirectional Voltage Level Translator, 26 Ω Series Resistor	2	0.9	4.5	3.3	24	UQFN10
NLSV2T245	2−Bit Bidirectional Dual−Supply Unidirectional Voltage Level Translator, Push−Pull	2	0.9	4.5	3.3	24	UQFN10
NLSV2T244	2−Bit Dual Supply Unidirectional Voltage Level Translator	2	0.90	4.5	3.3	50.00	UDFN−8
NLSV2T244	2−Bit Dual−Supply Unidirectional Voltage Level Translator	2	0.9	4.5	3.3	24	SOIC−8, Micro−8
NLSV2T240	2−Bit Dual Supply Unidirectional Voltage Level Translator; Inverting	2	0.90	4.5	3.3	50.00	UDFN−8
NLSX3014	4−Bit Auto Sensing Dual−Supply Voltage Level Translator	4	0.90	4.5	6.5	0.02	UQFN−12
NLSX4014	4−Bit Auto Sensing Dual−Supply Voltage Level Translator	4	1.30	4.5	17.0	–	UQFN−12
NLSX4014	4−Bit Auto Sensing Dual−Supply Voltage Level Translator	4	0.9	4.5	9	0.02	TSSOP−14, SOIC−14
NLSX5014	4−Bit Auto Sensing Dual−Supply Voltage Level Translator	4	0.9	4.5	8	0.02	TSSOP−14, SOIC−14, UQFN−12
NLSX3378B	4−Bit Auto Sensing Dual−Supply Voltage Level Translator, Open Drain	4	1.20	4.5	15.0	40.00	uBump−12
NLSX3378	4−Bit Auto Sensing Dual−Supply Voltage Level Translator, Open Drain	4	1.20	4.5	15.0	40.00	uBump−12
NLSV4T244	4−Bit Dual−Supply Unidirectional Voltage Level Translator	4	0.9	4.5	3.3	24	TSSOP−14, SOIC−14
NLSV4T2244	4−Bit Dual Supply Unidirectional Voltage Level Translator	4	0.90	4.5	3.3	50.00	UQFN−12
NLSV4T3144	4−Bit Dual Supply Unidirectional Voltage Level Translator	4	0.90	4.5	3.3	50.00	UQFN−12
NLSV4T3234	4−Bit Dual Supply Unidirectional Voltage Level Translator, 26 Ω Output Series Resistor	4	0.90	4.5	5.6	50.00	uBump−11
NLSV4T240	4−Bit Dual Supply Unidirectional Voltage Level Translator; Inverting	4	0.90	4.5	3.3	50.00	UQFN−12

TRANSLATORS

Device	Description	Channels	V_{CC} Min (V)	V_{CC} Max (V)	t_{pd} Max (ns)	I_O Max (mA)	Package
NLSX3013B	8−Bit Auto Sensing Dual−Supply Voltage Level Translator	8	1.30	4.5	6.5	0.02	uBump−20
NLSX3013	8−Bit Auto Sensing Dual−Supply Voltage Level Translator	8	1.30	4.5	6.0	0.02	uBump−20
NLSX3018	8−Bit Auto Sensing Dual−Supply Voltage Level Translator	8	0.90	5.5	6.5	20.00	UDFN−20
NLSX3018	8−Bit Auto Sensing Dual−Supply Voltage Level Translator	8	0.9	4.5	9	0.02	TSSOP−20, SOIC−20
NLSV8T244	8−Bit Dual−Supply Unidirectional Voltage Level Translator	8	0.9	4.5	3.3	24	TSSOP−20, SOIC−20
NLSV8T240	8−Bit Dual Supply Unidirectional Voltage Level Translator; Inverting	8	0.90	4.5	3.3	50.00	UDFN−20
NLSV22T244	Dual 2−Bit Dual−Supply Non−Inverting Level Translator	4	1.65	3.6	3.3	50.00	UQFN−12
PCA9306	Dual Bidirectional Voltage Level Translator	2	1.65	5.5	1		Micro−8, SOIC−8, UQFN−8
MC74LVX4245	Dual Supply Octal Translating Transceiver	8	2.70	3.6	10.0	24.00	TSSOP−24, SOIC−24
MC14504B	Hex Level Shifter	1	3.00	18.0	340.0	2.25	TSSOP−16, SOIC−16, PDIP−16, EIAJ−16

Thermal Management

Thermal Management

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FAN CONTROLLERS

Device	Data Transmission Standard	I_{CC} Max (mA)	V_{CC} Min (V)	V_{CC} Max (V)	T Min (°C)	T Max (°C)	Package
ADM1024	SMBus	3.5	2.8	5.5	0	100	TSSOP−24
ADM1026	SMBus	4	3	5.5	0	100	QFP−48
ADM1029	SMBus	3	3	5.5	0	100	QSOP−24
ADM1030	SMBus	3	3	5.5	0	100	QSOP−16
ADM1031	SMBus	3	3	5.5	0	100	QSOP−16
ADM1033	SMBus	3	3	5.5	−40	125	QSOP−16
ADM1034	SMBus	3	3	3.6	−40	125	QSOP−16
ADT7460	SMBus	3	3	5.5	−40	120	QSOP−16
ADT7462	SMBus	4	3	5.5	−40	125	LFCSP−32
ADT7463	SMBus	3	3	5.5	−40	120	QSOP−24
ADT7467	SMBus	3	3	5.5	−40	120	QSOP−16
ADT7473	SMBus	3	3	3.6	−40	125	QSOP−16
ADT7475	SMBus	3	3	3.6	−40	125	QSOP−16
ADT7476	SMBus	3	3	3.6	−40	125	QSOP−24
ADT7490	SMBus	5	3	3.6	−40	125	QSOP−24

TEMPERATURE SENSORS

Device	Sensor Type	Data Transmission Standard	I_{CC} Max (mA)	V_{CC} Min (V)	V_{CC} Max (V)	T Min (°C)	T Max (°C)	Temperature Error (°C)	Packages
ADM1021	Local & Remote	SMBus	0.2	3	5.5	−55	125	±3	QSOP−16
ADM1023	Local & Remote	SMBus	0.2	3	5.5	0	120	±1	QSOP−16
ADM1032	Local & Remote	SMBus	0.215	3	5.5	0	120	±1	Micro8™, SOIC−8
ADT7421	Local & Remote	I2C, SMBus	5	3	3.6	−40	125	±1.75	Micro8™, SOIC−8
ADT7461A	Local & Remote	SMBus	0.35	3	3.6	−40	125	±1	Micro8™
ADT7461	Local & Remote	SMBus	0.215	3	5.5	−40	125	±1	Micro8™, SOIC−8
ADT7481	Local & Remote	SMBus	0.35	3	3.6	−40	125	±1	Micro−10
ADT7482	Local & Remote	SMBus	0.35	3	3.6	−40	125	±1	Micro−10
ADT7483	Local & Remote	SMBus	0.35	3	3.6	−40	125	±1	QSOP−16
ADT7484	Local & Remote	SST	5	3	3.6	−40	125	±1	Micro8™, SOIC−8
ADT7485A	–	SST	5	3	3.6	−40	125	±1	Micro−10
ADT7486A	Local & Remote	SST	5	3	3.6	−40	125	±1	Micro−10
ADT7488A	–	SST	5	3	3.6	−40	125	±1	Micro−10
CAT6095	–	–	–	3	3.6	−40	125	±3	TDFN−8

Thyristors

Thyristors

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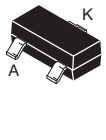
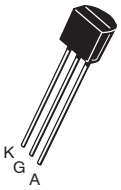
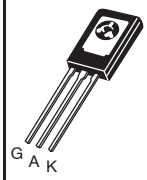
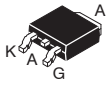
SILICON CONTROLED RECTIFIERS (SCRs)

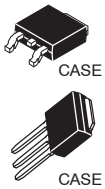
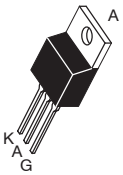
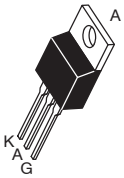
						Style 4  Style 5			
On–State RMS Current $IT_{(RMS)}$ (A)	**Blocking Voltage V_{DRM}, V_{RRM} (V)**	**SOT–23** Case 318 Style 8	**TO–92** (Note 1) **(TO–226AA)** Case 029 Style 10	**SOT–223** Case 318E Style 10	**TO–225AA (TO–126)** Case 077 Style 2	**D–PAK** Case 369C Style 4 & 5 Case 369D Style 5	**Surge Current I_{TSM} (A) 60 Hz**	**Max I_{GT} (mA)**	**Max V_{GT} (V)**
0.25	200	**NCY0102BL**					7.0	0.2	0.8
0.8	30		**2N5060**				10	0.2	0.8
	60		**2N5061**						
	100		**2N5062**						
	200		**2N5064**						
	100		**MCR100–3**						
	200		**MCR100–4**						
	400		**MCR100–6**						
	600		**MCR100–8**						
	200			**MCR08B**					
	600			**MCR08M**					
				NYC008–6J (Notes 1 & 5)					
1.5	400		**MCR22–6**				15	0.2	0.8
	600		**MCR22–8**						
	50			**NYC222ST**					
	400			**NCY226ST**					
	600			**NCY228ST**					
4.0	200				**C106B**		20	0.2	0.8
	400				**C106D**				
					C106D1				
	600				**C106M**				
					C106M1				
	400				**MCR106–6**		25	0.2	1.0
	600				**MCR106–8**				
	100					**MCR703A** (Note 2)	25	0.1	0.8
	400					**MCR706A** (Note 2)			
	600					**MCR708A** (Note 2)			
						MCR708A1 (Note 2 & 4)			
	400					**MCR716** (Note 3)			
	600					**MCR718** (Note 3)			

1. See TO–92 data sheets for complete device suffix packaging ordering options.
   RLRA, RLRE, RL, & RL1 suffixes: Radial Tape and Reel
   RLRM & ZL1 suffixes: Radial Tape and Ammo Pack
2. Denotes pkg style 5
3. Denotes pkg style 4
4. Denotes straight lead package
5. Denotes min of 50 V/μs for dV/dt

Shaded devices denote sensitive gate SCR's

Lead Identification
A = Anode
K = Cathode
G = Gate

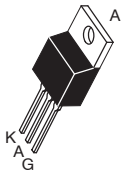
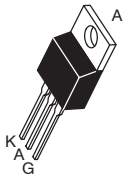
SILICON CONTROLED RECTIFIERS (SCRs) (continued)

							
On−State RMS Current $IT_{(RMS)}$ (A)	**Blocking Voltage V_{DRM}, V_{RRM} (V)**	**DPAK** Case 369C −001 = Case 369D Style 4	**TO−220AB** Case 221A−09 Style 3	**TO−220AB** Case 221A−07 Style 3	**Surge Current I_{TSM} (A) 60 Hz**	**Max I_{GT} (mA)**	**Max V_{GT} (V)**
8.0	600	**MCR8DSMT4**			80	0.2	1.0
	800	**MCR8DSNT4**					
	600	**MCR8DCMT4**			80	15	1.0
	800	**MCR8DCNT4**					
	400		**MCR8SD**		80	0.2	1.0
	600		**MCR8SM**				
	800		**MCR8SN**				
	800		**MCR8N**		80	15	1.0
	50			**C122F1**	90	25	1.5
	100			**MCR72−3**	100	0.2	1.5
	400			**MCR72−6**			
	600			**MCR72−8**			
	50			**MCR218−2**	100	25	1.5
	200			**MCR218−4**			
	400			**MCR218−6**			
12	400		**MCR12LD**		100	8.0	0.8
	600		**MCR12LM**				
	800		**MCR12LN**				
	800			**MCR310−10**	100	0.2	1.5
	600	**MCR12DSM**			100	0.2	1.0
	800	**MCR12DSN**					
	800	**MCR12DSN−001**					
	600	**MCR12DCM**			100	20	1.0
	800	**MCR12DCN**					
	400		**MCR12D**				
	600		**MCR12M**				
	800		**MCR12N**				
	50			**MCR68−2**	100	30	1.5

Shaded devices denote sensitive gate SCR's

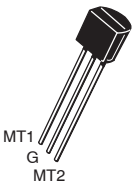
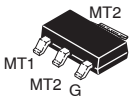
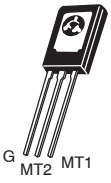
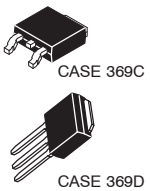
Lead Identification
A = Anode
K = Cathode
G = Gate

SILICON CONTROLED RECTIFIERS (SCRs) (continued)

						
On–State RMS Current $IT_{(RMS)}$ (A)	**Blocking Voltage V_{DRM}, V_{RRM} (V)**	**TO–220AB** Case 221A–09 Style 3	**TO–220AB** Case 221A–07 Style 3	**Surge Current I_{TSM} (A) 60 Hz**	**Max I_{GT} (mA)**	**Max V_{GT} (V)**
12	50		**2N6394**	100	30	1.5
	100		**2N6395**			
	400		**2N6397**			
	800		**2N6399**			
16	800	**MCR16N**		160	20	1.0
	50		**2N6400**	160	30	1.5
	100		**2N6401**			
	200		**2N6402**			
	400		**2N6403**			
	600		**2N6404**			
	800		**2N6405**			
25	400	**MCR25D**		300	30	1.0
	600	**MCR25M**				
	800	**MCR25N**				
	50		**2N6504**	300	30	1.5
	100		**2N6505**			
	400		**2N6507**			
	600		**2N6508**			
	800		**2N6509**			
	50		**MCR69–2**			
	100		**MCR69–3**			

Lead Identification
A = Anode
K = Cathode
G = Gate

TRIACs (Bidirectional Devices)

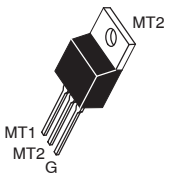
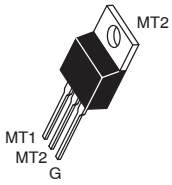
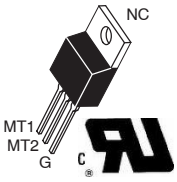
										
							Max IGT (mA)			
On−State RMS Current $IT_{(RMS)}$ (A)	**Blocking Voltage V_{DRM}, V_{RRM} (V)**	**TO−92** (Note 6) **(TO−226AA)** Case 029 Style 12	**SOT−223** Case 318E Style 11	**TO−225AA (TO−126)** Case 077 Style 5	**D−PAK** Case 369C −001 = Case 369D Style 6	**Surge Current I_{TSM} (A) 60 Hz**	**Q1**	**Q2**	**Q3**	**Q4**
0.6	200	**MAC97A4**				8.0	5.0	5.0	5.0	7.0
	400	**MAC97A6**								
	600	**MAC97A8**								
0.8	400	**MAC997A6**				8.0				
		MAC997B6					3.0	3.0	3.0	5.0
	600	**MAC997A8**					5.0	5.0	5.0	7.0
		MAC997B8					3.0	3.0	3.0	5.0
	200		**MAC08B**				10	10	10	10
	600		**MAC08M**							
1.0	600	**Z0103MA**				8.0	3.0	3.0	3.0	5.0
		Z0107MA					5.0	5.0	5.0	7.0
		Z0109MA					10	10	10	10
			Z0103MN			8.0	3.0	3.0	3.0	5.0
			Z0107MN				5.0	5.0	5.0	7.0
			Z0109MN				10	10	10	10
2.5	200			**T2322B**		25	10	10	10	10
4.0	200			**2N6071A**		30	5.0	5.0	5.0	10
				2N6071B			3.0	3.0	3.0	5.0
	400			**2N6073A**			5.0	5.0	5.0	10
				2N6073B			3.0	3.0	3.0	5.0
	600			**2N6075A**			5.0	5.0	5.0	10
				2N6075B			3.0	3.0	3.0	5.0
4.0	600				**MAC4DLM** (Note 7)	40	3.0	3.0	3.0	5.0
					MAC4DLM−1 (Note 8)					
4.0	600				**MAC4DHM** (Note 7)		5.0	5.0	5.0	10
					MAC4DHM−1 (Note 8)					
4.0	600				**MAC4DSM** (Note 7)	40	10	10	10	–
					MAC4DSMT−1 (Note 8)					
	800				**MAC4DSN** (Note 7)					
					MAC4DSN−1 (Note 8)					
4.0	600				**MAC4DCM** (Note 7)	40	35	35	35	–
					MAC4DCM−1 (Note 8)					
	800				**MAC4DCN** (Note 7)					
					MAC4DCN−1 (Note 8)					

6. See TO−92 data sheets for complete device suffix packaging ordering options.
   RLRA, RLRE, RL, & RL1 suffixes: Radial Tape and Reel
   RLRM & ZL1 suffixes: Radial Tape and Ammo Pack
7. Denotes SMT package
8. Denotes straight lead package

Shaded devices denote sensitive gate Triacs

Lead Identification
MT1 = Main Terminal 1
MT2 = Main Terminal 2
G = Gate

TRIACs (Bidirectional Devices) (continued)

									
						Max I_{GT} (mA)			
On−State RMS Current $IT_{(RMS)}$ (A)	**Blocking Voltage V_{DRM}, V_{RRM} (V)**	**TO−220AB** Case 221A−09 Style 4	**TO−220AB** Case 221A−07 Style 4	**ISOLATED TO−220** Case 221A−07 Style 12	**Surge Current I_{TSM} (A) 60 Hz**	**Q1**	**Q2**	**Q3**	**Q4**
6.0	400		**T2500D**		60	25	60	25	60
8.0	400	**MAC8SD**			70	5.0	5.0	5.0	–
	600	**MAC8SM**							
	800	**MAC8SN**							
8.0	400	**MAC8D**			80	35	35	35	–
	600	**MAC8M**							
	800	**MAC8N**							
8.0	400	**MAC9D**			80	50	50	50	–
	600	**MAC9M**							
	800	**MAC9N**							
8.0	200		**MAC228A4**		80	5	5	5	10
	400		**MAC228A6**						
	600		**MAC228A8**						
	800		**MAC228A10**						
8.0	600		**BTB08−600CW3G**	**BTA08−600CW3G**	90	35	35	35	–
	800		**BTB08−800CW3G**	**BTA08−800CW3G**					
8.0	600		**BTB08−600BW3G**	**BTA08−600BW3G**	90	50	50	50	–
	800		**BTB08−800BW3G**	**BTA08−800BW3G**					
8.0	600		**2N6344**		100	50	75	50	75
8.0	400		**T2800D**		100	25	60	25	60

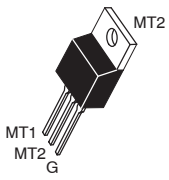
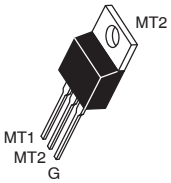
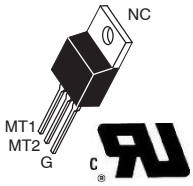
9. Denotes SMT package
10. Denotes straight lead package

UL logo indicates UL Recognized File #E69369

Shaded devices denote sensitive gate Triacs

Lead Identification
MT1 = Main Terminal 1
MT2 = Main Terminal 2
G = Gate
NC = Not Connected

TRIACs (Bidirectional Devices) (continued)

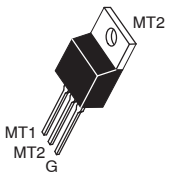
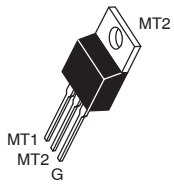
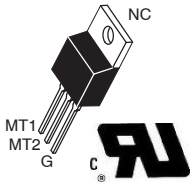
									
						Max I_{GT} (mA)			
On−State RMS Current $IT_{(RMS)}$ (A)	**Blocking Voltage V_{DRM}, V_{RRM} (V)**	**TO−220AB** Case 221A−09 Style 4	**TO−220AB** Case 221A−07 Style 4	**ISOLATED TO−220** Case 221A−07 Style 12	**Surge Current I_{TSM} (A) 60 Hz**	**Q1**	**Q2**	**Q3**	**Q4**
10	600		**MAC210A8**		100	50	50	50	75
	800		**MAC210A10**						
12	600	**MAC12SM**			90	5.0	5.0	5.0	–
	800	**MAC12SN**							
12	400	**MAC12HCD**			100	50	50	50	–
	600	**MAC12HCM**							
	800	**MAC12HCN**							
12	400	**MAC12D**			100	35	35	35	–
	600	**MAC12M**							
	800	**MAC12N**							
12	600		**MAC212A8**		100	50	50	50	75
	800		**MAC212A10**						
12	600		**BTB12−600TW3G**		120	5	5	5	–
12	600		**BTB12−600CW3G**	**BTA12−600CW3G**	120	35	35	35	–
	600		**BTB12H−600CW3G (Note 11)**						
	800		**BTB12−800CW3G**	**BTA12−800CW3G**					
	600		**BTB12−600BW3G**	**BTA12−600BW3G**	120	50	50	50	–
	800		**BTB12−800BW3G**	**BTA12−800BW3G**					
12	600		**2N6344A**		120	50	75	50	75
	600		**2N6348A**			50	75	50	75
	800		**2N6349A**			50	75	50	75
15	400	**MAC15SD**			120	5.0	5.0	5.0	–
	600	**MAC15SM**							
	800	**MAC15SN**							
15	600	**MAC15M**			150	35	35	35	–
	800	**MAC15N**							
15	400	**MAC15A6**			150	50	50	50	75
	600	**MAC15A8**				50	50	50	75
	800	**MAC15A10**				50	50	50	75

11. Denotes High TJ devices (150°C)
UL logo indicates UL Recognized File #E69369

Shaded devices denote sensitive gate Triacs

Lead Identification
MT1 = Main Terminal 1
MT2 = Main Terminal 2
G = Gate
NC = Not Connected

TRIACs (Bidirectional Devices) (continued)

									
						Max I_{GT} (mA)			
On−State RMS Current $IT_{(RMS)}$ (A)	**Blocking Voltage V_{DRM}, V_{RRM} (V)**	**TO−220AB** Case 221A−09 Style 4	**TO−220AB** Case 221A−07 Style 4	**ISOLATED TO−220** Case 221A−07 Style 12	**Surge Current I_{TSM} (A) 60 Hz**	**Q1**	**Q2**	**Q3**	**Q4**
15	400	**MAC16D**			150	50	50	50	–
	600	**MAC16M**							
	800	**MAC16N**							
16	600	**MAC16CM**			150	35	35	35	–
	800	**MAC16CN**							
16	400	**MAC16HCD**			150	50	50	50	–
	600	**MAC16HCM**							
	800	**MAC16HCN**							
16	800			**BTA16−600SW3G**	170	10	10	10	–
	600			**BTA16−800SW3G**					
	600		**BTB16−600CW3G**	**BTA16−600CW3G**		35	35	35	
	800		**BTB16−800CW3G**	**BTA16−800CW3G**					
	600		**BTB16−600BW3G**	**BTA16−600BW3G**		50	50	50	–
	600		**BTB16H−600BW3G (Note 11)**						
	800		**BTB16−800BW3G**	**BTA16−800BW3G**					
25	600			**BTA25−600CW3G**	250	35	35	35	–
				BTA25H−600CW3G (Note 11)					
	800			**BTA25−800CW3G**					
				BTA25H−800CW3G (Note 11)					
30	600			**BTA30−600CW3G**	300	35	35	35	–
				BTA30H−600CW3G (Note 11)					
	800			**BTA30−800CW3G**					
				BTA30H−800CW3G (Note 11)					

11. Denotes High TJ devices (150°C)
UL logo indicates UL Recognized File #E69369

Shaded devices denote sensitive gate Triacs

Lead Identification
MT1 = Main Terminal 1
MT2 = Main Terminal 2
G = Gate
NC = Not Connected

SURGE SUPPRESSORS

ULTRA LOW CAPACITANCE (TSPD)

SMB CASE 403C					
	V_{DRM}	V_{BO}	I_{PPS} = 10x1000 μs	C_O, 2 V, 1 MHz	
Device	**Offstate Voltage (V)**	**Breakover Voltage (V)**	**Surge Current Rating (A)**	**Capacitance Maximum (pF)**	**General Description**
NP0640SAMC	58	77	50	18	Due to their ultra low off−state capacitance (C_O), these devices offer minimal signal distortion for high speed equipment such as DSL and T1/E1 circuits. The low capacitance translates into extremely low differential capacitance offering superb linearity with applied voltage or frequency. and assists designers in protecting equipment from surge events while maximizing circuit performance.
NP0720SAMC	65	88			
NP0900SAMC	75	98			
NP1100SAMC	90	130			
NP1300SAMC	120	160			
NP1500SAMC	140	180			
NP1800SAMC	170	220			
NP2100SAMC	180	240			
NP2300SAMC	190	260			
NP2600SAMC	220	300			
NP3100SAMC	275	350			
NP3500SAMC	320	400			
NP0640SBMC	58	77	80	21	
NP0720SBMC	65	88			
NP0900SBMC	75	98			
NP1100SBMC	90	130			
NP1300SBMC	120	160			
NP1500SBMC	140	180			
NP1800SBMC	170	220			
NP2100SBMC	180	240			
NP2300SBMC	190	260			
NP2600SBMC	220	300			
NP3100SBMC	275	350			
NP3500SBMC	320	400			
NP0640SCMC	58	77	100	29	
NP0720SCMC	65	88			
NP0900SCMC	75	98			
NP1100SCMC	90	130			
NP1300SCMC	120	160			
NP1500SCMC	140	180			
NP1800SCMC	170	220			
NP2100SCMC	180	240			
NP2300SCMC	190	260			
NP2600SCMC	220	300			
NP3100SCMC	275	350			
NP3500SCMC	320	400			

SURGE SUPPRESSORS (continued)

THYRISTOR SURGE PROTECTION DEVICE (TSPD)

SMB CASE 403C					
	V_{DRM}	V_{BO}	I_{PPS} = 10x1000 μs	Co, 2 V, 1 Mhz	
Device	**Offstate Voltage (V)**	**Breakover Voltage (V)**	**Surge Current Rating (A)**	**Capacitance Maximum (pF)**	**General Description**
NP0640SA	58	77	50	84	These Thyristor Surge Protector Devices (TSPD) protect telecommunication circuits such as central office, access, and customer premises equipment from overvoltage conditions. These are bidirectional devices so they are able to have functionality of 2 devices in one package, saving valuable space on board layout. These devices will act as a crowbar when overvoltage occurs and will divert the energy away from circuit or device that is being protected. Use of the NP Series in equipment will help meet various regulatory requirements including: GR-1089-CORE, EC 61000-4-5, ITU K.20/21/45, IEC 60950, TIA-968-A, FCC Part 68, EN 60950,UL 1950.
NP0720SA	65	88		79	
NP0900SA	75	98		65	
NP1100SA	90	130		58	
NP1300SA	120	160		46	
NP1500SA	140	180		44	
NP1800SA	170	220		39	
NP2100SA	180	240		37	
NP2300SA	190	260		36	
NP2600SA	220	300		33	
NP3100SA	275	350		31	
NP3500SA	320	400		28	
NP0640SB	58	77	80	129	
NP0720SB	65	88		123	
NP0900SB	75	98		122	
NP1100SB	90	130		95	
NP1300SB	120	160		75	
NP1500SB	140	180		70	
NP1800SB	170	220		59	
NP2100SB	180	240		59	
NP2300SB	190	260		56	
NP2600SB	220	300		52	
NP3100SB	275	350		47	
NP3500SB	320	400		44	
NP0640SC	58	77	100	222	
NP0720SC	65	88		198	
NP0900SC	75	98		122	
NP1100SC	90	130		154	
NP1300SC	120	160		120	
NP1500SC	140	180		113	
NP1800SC	170	220		99	
NP2100SC	180	240		97	
NP2300SC	190	260		56	
NP2600SC	220	300		81	
NP3100SC	275	350		76	
NP3500SC	320	400		71	

SURGE SUPPRESSORS (continued)

THYRISTOR SURGE SUPPRESSORS

Surge Current IPPS1 10 x 1000 μsec (A)	**Maximum Off State Voltage (V)**	**SMB Case 403C**	**Maximun Breakover Voltage V_{BO} (V)**	**Min. Holding Current I_H (mA)**	**General Description**
50	170	**MMT05B230**	265	175	These Thyristor Surge Protection devices prevent overvoltage damage to sensitive circuits by lightening, induction and power line crossing. They are breakover triggered crowbar protectors with turn off occurring when the surge current falls below the holding current value.
	200	**MMT05B260**	320	175	
	270	**MMT05B310**	365	175	
100	170	**MMT10B230**	265	175	
	200	**MMT10B260**	320	175	
	270	**MMT10B310**	365	175	

LOW VOLTAGE PROTECTOR

5 1					
TSOP−5 CASE 483 SN SUFFIX					
	V_{RWM}	**V_{BR}**	**I_{PPS} = 8x20uS**	**Co, 2 V, 1 Mhz**	
Device	**Offstate Voltage (V)**	**Breakover Voltage (V)**	**Surge Current Rating (A)**	**Capacitance Maximum (pF)**	**General Description**
NP0080TA	8	9.5	50	13	These low capacitance, low leakage current devices provide superior performance in low voltage high speed applications and assist designers in protecting equipment from surge events while maximizing circuit performance.
NP0120TA	12	13		11	

VERY LOW VOLTAGE TSPD

SMB CASE 403C					
Device	**V_{DRM} Offstate Voltage (V)**	**V_{BO} Breakover Voltage (V)**	**I_{PPS} = 10 x 1000 μs Surge Current Rating (A)**	**C_o, 2 V, 1 Mhz Capacitance Max (pF)**	**General Description**
NP0080SAMC	6	25	50	30	The NP−VLV series of Low Capacitance Thyristor Surge Protection Devices (TSPD) protect sensitive electronic equipment from transient overvoltage conditions. Their low turn on voltage allows them to replace much larger TVS devices of the same surge rating.
NP0100SAMC	8	15			
NP0150SAMC	15	30			
NP0220SAMC	15	32			
NP0300SAMC	25	40			
NP0080SCMC	6	25	100		
NP0100SCMC	8	15			
NP0150SCMC	15	30			
NP0220SCMC	15	32			
NP0300SCMC	25	40			

SURGE SUPPRESSORS (continued)

HIGH CURRENT TSPD

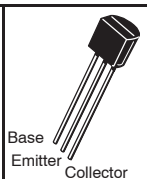
SMB CASE 403C					
Device	**V_{DRM} Offstate Voltage (V)**	**V_{BO} Breakover Voltage (V)**	**I_{PPS} = 10 x 1000 μs Surge Current Rating (A)**	**C_o, 2 V, 1 Mhz Capacitance Max (pF)**	**General Description**
NP0720SDMC	58	77	200	65	The NP−SDMC series of High Current Thyristor Surge ProtectionDevices (TSPD) protect sensitive electronic equipment from transient overvoltage conditions. The high current withstand of these devices offer protection in extreme environments and provide a solution for GR−1089 balanced “Y” configurations.
NP1100SDMC	65	88			
NP1300SDMC	75	98			
NP1500SDMC	90	130			
NP1800SDMC	170	220			
NP3100SDMC	275	350			

TRIGGERS

THYRISTOR TRIGGERS

On−State RMS Current $IT_{(RMS)}$ (A).	**DO−41** Case 059A	**Surmetic 50** Case 267 Style 2	**Range Breakover Voltage V_{BO} (V)**	**I_{TSM} Surge Current 60 Hz (A)**	**General Description**
0.9	**MKP1V120**		110−130	4	High voltage trigger devices (used primarily to trigger SCRs and Triacs gates) similar in operation to treiacs. Upon reaching the breakover voltage in either direction, the devices switch to a low voltage on state.
	MKP1V130		120−140		
	MKP1V160		150−170		
	MKP1V240		220−250		
1.0		**MKP3V120**	110−130	20	
		MKP3V240	220−250		

TRANSISTOR TRIGGERS

					
I_P R_G = 10 kΩ (μA Max)	**R_G = 1 MΩ (μA Max)**	**TO−92 [12] (TO226AA)** Case 029 Style 2	**IV R_G = 10 kΩ (μA Max)**	**R_G = 1 MΩ (μA Max)**	**General Description**
5.0	2.0	**2N6027**	70	50	The only transistors in the Thyristor portolio. Similar to unijuction transistors, except that IP, IV, and intrisic voltage are programmable (adjustable) by means of external voltage divider. Used primarily to trigger SCR and Triac gates,
1.0	0.15	**2N6028**	25	25	

12. See TO−92 data sheets for device suffix packaging ordering options.

Voltage and Current Management

Voltage and Current Management

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CURRENT PROTECTION

Device	Type	V_I Max (V)	$r_{DS(on)}$ Max (mΩ)	T_{SD} Typ (°C)	T_{hyst} Typ (°C)	Package
NIS5112D1	Latch Off	18	35	135		SOIC−8
NIS5112D2	Auto−Retry	18	35	135	40	SOIC−8
NIS5132MN1	Latch Off	18	55	175	45	DFN−10
NIS5132MN2	Auto−Retry	18	55	175	45	DFN−10
NIS5135MN1	Latch Off	–	82	175	45	DFN−10
NIS5135MN2	Auto−Retry	–	82	175	45	DFN−10

VOLTAGE PROTECTION

Device	Vcc (V) Max	UVLO (V) Typ	OVLO (V) Typ	Iq (μA) Typ	OCP (A) Typ	$R_{DS(on)}$ (mΩ) Typ	Batttery Sense	Flag Status	Enable	Reverse Blocking	Package	Additional Features
NCP360MU	+21	3.00	5.675	24	N.A	210	No	Yes	Yes	No	μDFN−6	–
NCP360SN	+21	3.00	5.675	24	N.A	210	No	Yes	Yes	No	TSOP−5	–
NCP360SNAE	+21	3.00	6.250	24	N.A	210	No	Yes	Yes	No	TSOP−5	–
NCP360SNAF	+21	3.00	7.070	24	N.A	210	No	Yes	Yes	No	TSOP−5	–
NCP360SNAI	+21	3.00	7.200	24	N.A	210	No	Yes	Yes	No	TSOP−5	–
NCP361MU	+21	3.00	5.675	20	0.75	300	No	Yes	Yes	No	μDFN−6	–
NCP361SN	+21	3.00	5.675	20	0.75	300	No	Yes	Yes	No	TSOP−5	–
NCP362AMU	+21	3.00	5.675	20	0.75	300	No	Yes	Yes	No	μDFN−10	TVS for Vbus pin
NCP362BMU	+21	3.00	5.675	20	0.75	300	No	Yes	Yes	No	μDFN−10	TVS for Data lines
NCP362CMU	+21	3.00	5.675	20	0.75	300	No	Yes	Yes	No	μDFN−10	TVS for Both Vbus and data
NCP348MT	+30	3.25	6.40	170	N.A	65	No	Yes	Yes	No	WDFN−10	Soft−start
NCP348AEMT	+30	3.25	6.02	170	N.A	65	No	Yes	Yes	No	WDFN−10	Soft−start
NCP347MTAE	+30	2.95	5.63	170	N.A	65	No	Yes	Yes	No	WDFN−10	Soft−start
NCP347MTAF	+30	2.95	5.90	170	N.A	65	No	Yes	Yes	No	WDFN−10	Soft−start
NCP347MTAH	+30	2.95	7.20	170	N.A	65	No	Yes	Yes	No	WDFN−10	Soft−start
NCP347MTAI	+30	2.95	5.85	170	N.A	65	No	Yes	Yes	No	WDFN−10	Soft−start
NCP349MN	+30	2.95	6.85	140	N.A	65	No	Yes	Yes	No	DFN−6	Soft−start
NCP349MNAE	+30	2.95	5.68	140	N.A	65	No	Yes	Yes	No	DFN−6	Soft−start
NCP349MNBG	+30	3.25	6.02	140	N.A	65	No	Yes	Yes	No	DFN−6	Soft−start
NCP349MNBK	+30	3.25	6.40	140	N.A	65	No	Yes	Yes	No	DFN−6	Soft−start
NCP370MUAI	−30 / +30	2.70	6.60	200	1.7, Adj	130	No	Yes	Yes	Yes	LLGA−12	Soft−start, Production mode
NCP372MUAI	−30 / +30	2.70	6.30	200	N.A	130	No	Yes	Yes	Yes	LLGA−12	Soft−start

VOLTAGE REFERENCES

Product	Type	$V_{(BR)}$ Typ (V)	Tolerance (%)	I_Q Typ (mA)	I_R Min (mA)	V_F Max (V)	T_A Min (°C)	T_A Max (°C)	Package
CAT102TDI	Adjustable	0.6	1	0.09	0.1	18	−40	85	TSOT−23
CAT8900B125	Fixed	1.25	0.08	0.45	0.1	6.5	−40	85	SOT−23
CAT8900B204	Fixed	2.048	0.05	0.45	0.1	6.5	−40	85	SOT−23
CAT8900B250	Fixed	2.5	0.04	0.45	0.1	6.5	−40	85	SOT−23
CAT8900C125	Fixed	1.25	0.2	0.45	0.1	6.5	−40	85	SOT−23
CAT8900C204	Fixed	2.048	0.12	0.45	0.1	6.5	−40	85	SOT−23
CAT8900C250	Fixed	2.5	0.1	0.45	0.1	6.5	−40	85	SOT−23
CAT8900D125	Fixed	1.25	0.4	0.45	0.1	6.5	−40	85	SOT−23
CAT8900D204	Fixed	2.048	0.24	0.45	0.1	6.5	−40	85	SOT−23
CAT8900D250	Fixed	2.5	0.2	0.45	0.1	6.5	−40	85	SOT−23
LM285D−1.2	Fixed	1.235	1	–	0.01	–	−40	85	SOIC−8
LM285D−2.5	Fixed	2.5	1.5	–	0.01	–	−40	85	SOIC−8
LM285Z−1.2	Fixed	1.235	1	–	0.01	–	−40	85	TO−92
LM285Z−2.5	Fixed	2.5	1.5	–	0.01	–	−40	85	TO−92
LM385BD−1.2	Fixed	1.235	1	–	0.015	–	0	70	SOIC−8
LM385BD−2.5	Fixed	2.5	1.5	–	0.015	–	0	70	SOIC−8
LM385BZ−1.2	Fixed	1.235	1	–	0.015	–	0	70	TO−92
LM385BZ−2.5	Fixed	2.5	1.5	–	0.015	–	0	70	TO−92
LM385D−1.2	Fixed	1.235	2	–	0.015	–	0	70	SOIC−8
LM385D−2.5	Fixed	2.5	3	–	0.015	–	0	70	SOIC−8
LM385Z−1.2	Fixed	1.235	2	–	0.015	–	0	70	TO−92
LM385Z−2.5	Fixed	2.5	3	–	0.015	–	0	70	TO−92
NCP100	Adjustable	0.696	1.7	0.07	0.1	7	−40	85	TO−92, TSOP−5
NCP4300A	Fixed	2.6	1	–	0.08	36	0	105	SOIC−8
NCS1002	–	–	0.4	0.4	–	–	–	–	SOIC−8
NCV1009	Fixed	2.5	0.2	–	0.4	–	−40	125	SOIC−8
NCV431AI	–	–	–	0.5	–	–	–	–	Micro8™, SOIC−8
NCV431BV	Adjustable	2.495	0.4	–	1	36	−40	125	Micro8™
TL431AC	Adjustable	2.495	1	0.5	1	36	0	70	Micro8™, SOIC−8, TO−92, PDIP−8
TL431AI	Adjustable	2.495	1	0.5	1	36	−40	85	Micro8™, SOIC−8, TO−92, PDIP−8
TL431BC	Adjustable	2.495	0.4	–	1	36	0	70	Micro8™, SOIC−8, TO−92, PDIP−8
TL431BI	Adjustable	2.495	0.4	–	1	36	−40	85	Micro8™, SOIC−8, TO−92, PDIP−8
TL431BV	Adjustable	2.495	0.4	–	1	36	−40	85	Micro8™, SOIC−8, TO−92, PDIP−8
TL431C	Adjustable	2.495	2.2	–	1	36	0	70	Micro8™, SOIC−8, TO−92, PDIP−8
TL431I	Adjustable	2.495	2.2	–	1	36	−40	85	Micro8™, SOIC−8, TO−92, PDIP−8
TLV431A	Adjustable	1.24	1	–	0.08	18	−40	85	TO−92, SOT−23
TLV431B	Adjustable	1.24	0.5	–	0.000055	16	−40	85	TO−92, SOT−23

VOLTAGE SUPERVISORS

Device	Channels	V_{CC} Min (V)	V_{CC} Max (V)	I_{CC} Typ (μA)	Reset Active High	Reset Active Low	Threshold Levels (V)	Package
CAT885	5	1.5	5.5	3		√	1.68, 2.33, 2.87, 2.95, 4.63, + 3x Adj (0.60 V min)	MSOP−8, SOIC−8
CAT8710	4	1.5	5.5	3		√	1.67, 2.32, 2.78, 3.08 + 2x Adj (0.62 V min)	SOT−23−6
CAT705/6	2	1.2	5.5	6		√	4.40 / 1.25, 4.65 / 1.25	SOIC−8
CAT813	2	1.2	5.5	6	√		4.65 / 1.25	SOIC−8
MC33161, MC34161	2	2	40	450	√	√	1.27	Micro8™, SOIC−8, PDIP−8
CAT808N	1	1.2	6.0	3.5		√	2.7, 3.2, 3.5	TSOT−23−5
CAT811	1	1	5.5	6		√	2.32, 2.63, 2.93, 3.08, 4.0, 4.38, 4.63	SOT−143−4
CAT812	1	1	5.5	6	√		2.32, 2.63, 2.93, 3.08, 4.0, 4.38, 4.64	SOT−143−4
CAT823/4/5	1	1	5.5	4	√	√	2.19, 2.32, 2.63, 2.93, 3.08, 4.0, 4.38, 4.63	TSOT−23−5, SC−70−5
CAT853/59/63/69	1	1	5.5	6		√	2.40, 2.93, 3.08, 4.38	SOT−23−3
CAT1232LP	1	1	5.5	35	√	√	4.37, 4.62	PDIP−8, MSOP−8, SOIC−8, SOIC−16
CAT1832	1	1	5.5	35	√	√	2.55, 2.88	PDIP−8, MSOP−8, SOIC−8
MAX708	1	1	5.5	12	√	√	2.63, 2.93, 3.08, 4.38	Micro8™, SOIC−8
MAX803 (Note 13)	1	1	5.5	0.5		√	1.2, 1.6, 2.32, 2.63, 2.93, 3.08, 4.0, 4.38, 4.63	SC−70−3, SOT−23−3
MAX809 (Note 14)	1	1	5.5	0.5		√	1.2, 1.6, 2.32, 2.63, 2.93, 3.08, 4.0, 4.38, 4.55, 4.63, 4.9	SC−70−3, SOT−23−3
MAX810 (Note 15)	1	1	5.5	0.5	√		1.2, 2.63, 2.93, 3.08, 4.38, 4.63	SC−70−3, SOT−23−3
MC33064, MC34064	1	1	6.5	9		√	4.59	Micro8™, SOIC−8, TSOP−5, TO−92
MC33164, MC34164	1	1	10	9		√	2.65, 4.27	Micro8™, SOIC−8, TSOP−5, TO−92
NCP300/1	1	0.55	10	0.2	√	√	0.9, 1.0, 1.2, 1.6, 1.8, 1.85, 2.0, 2.2, 2.5, 2.6, 2.7, 2.8, 3.0, 3.1, 3.2, 3.3, 3.4, 3.6, 3.9, 4.0, 4.2, 4.4, 4.5, 4.6, 4.7	TSOP−5
NCP302	1	0.55	10	0.2	√	√	0.9, 1.5, 1.8, 2.0, 2.7, 3.0, 3.3, 3.8, 4.0, 4.3, 4.5, 4.7	TSOP−5
NCP303	1	0.55	10	0.2		√	0.9, 1.0, 1.1, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.0, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.0, 3.1, 3.2, 3.3, 3.4, 3.6, 3.8, 4.0, 4.2, 4.5, 4.6, 4.7, 4.9	TSOP−5
NCP304	1	0.55	10	0.8	√	√	0.9, 1.5, 1.8, 2.0, 2.2, 2.3, 2.5, 2.7, 2.9, 3.0, 3.3, 3.7, 3.8, 4.0, 4.2, 4.3, 4.5, 4.6, 4.7, 4.9	SC−70−4
NCP305	1	0.55	10	0.8		√	0.9, 1.1, 1.5, 1.6, 1.7, 1.8, 2.0, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.0, 4.4, 4.5, 4.7, 4.9	SC−70−4

13. See CAT803, MAX803, NCP803
14. See CAT809, MAX809
15. See CAT810, MAX810

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