

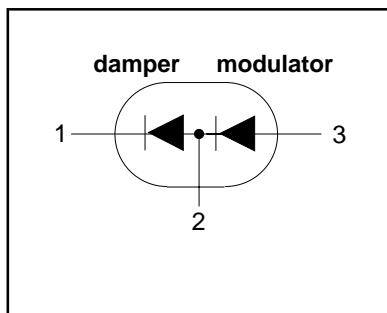
Dual diode fast, high-voltage

BYM359X

FEATURES

- Low forward volt drop
- Fast switching
- Soft recovery characteristic
- High thermal cycling performance
- Isolated mounting tab

SYMBOL



QUICK REFERENCE DATA

DAMPER	MODULATOR
$V_R = 1500\text{ V}$	$V_R = 800\text{ V}$
$V_F \leq 1.3\text{ V}$	$V_F \leq 1.45\text{ V}$
$I_{F(RMS)} = 15.7\text{ A}$	$I_{F(RMS)} = 11\text{ A}$
$I_{FSM} \leq 60\text{ A}$	$I_{FSM} \leq 60\text{ A}$
$t_{tr} \leq 300\text{ ns}$	$t_{tr} \leq 145\text{ ns}$

GENERAL DESCRIPTION

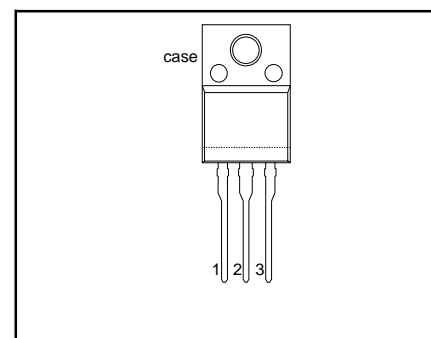
Combined damper and modulator diodes in an isolated plastic envelope for horizontal deflection in colour TV and PC monitors. The BYM359X contains diodes with performance characteristics designed specifically for applications from 16kHz to 56kHz

The BYM359X series is supplied in the conventional leaded SOT186A package.

PINNING

PIN	DESCRIPTION
1	damper cathode
2	common anode/cathode
3	modulator anode.

SOT186A



LIMITING VALUES

$T_j = 25\text{ °C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	DAMPER		MODULATOR		UNIT
			MIN	MAX	MIN	MAX	
V_{RSM}	Peak non-repetitive reverse voltage.		-	1500	-	800	V
V_{RRM}	Peak repetitive reverse voltage		-	1500	-	600	V
V_{RWM}	Crest working reverse voltage		-	1300	-	600	V
$I_{F(AV)}$	Average forward current	sinusoidal; a=1.57	-	10	-	8	A
$I_{F(RMS)}$	RMS forward current		-	15.7	-	11.0	A
I_{FRM}	Peak repetitive forward current	$t = 25\text{ }\mu\text{s}$ $\delta = 0.5$	-	20	-	16.0	A
I_{FSM}	Peak non-repetitive forward current	$T_{hs} \leq 83\text{ °C}$	-	60	-	60	A
		$t = 8.3\text{ ms}$	-	66	-	66	A
T_{stg}	Storage temperature		-40	150	-40	150	°C
T_j	Operating junction temperature	sinusoidal; with reapplied $V_{RWM(MAX)}$	-	150	-	150	°C

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ISOLATION LIMITING VALUE & CHARACTERISTIC $T_{hs} = 25\text{ °C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{isol}	R.M.S. isolation voltage from all three terminals to external heatsink	$f = 50\text{-}60\text{ Hz}$; sinusoidal waveform; R.H. $\leq 65\%$; clean and dustfree	-	-	2500	V
C_{isol}	Capacitance from T2 to external heatsink	$f = 1\text{ MHz}$	-	10	-	pF

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	DAMPER		MODULATOR		UNIT
			TYP.	MAX.	TYP.	MAX.	
$R_{th\ j\text{-}hs}$	Thermal resistance junction to heatsink	with heatsink compound	-	4.8	-	4.8	K/W
$R_{th\ j\text{-}a}$	Thermal resistance junction to ambient	in free air.	55	-	-	55	K/W

STATIC CHARACTERISTICS $T_j = 25\text{ °C}$ unless otherwise stated

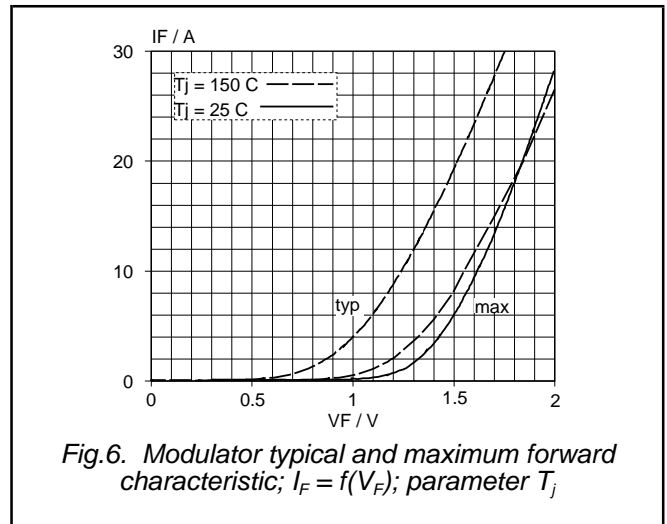
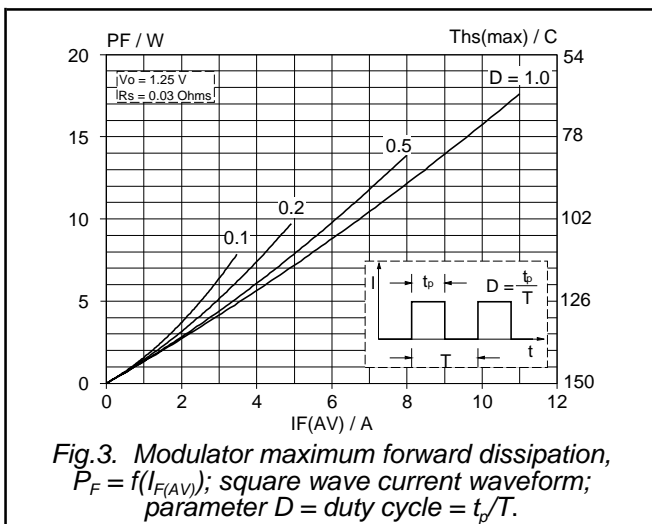
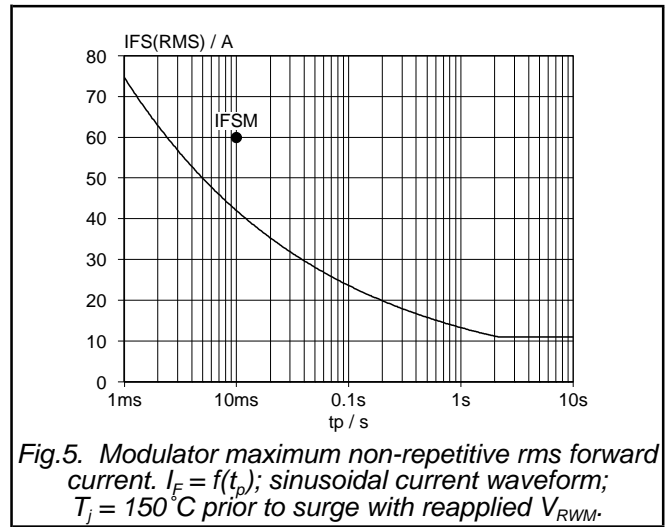
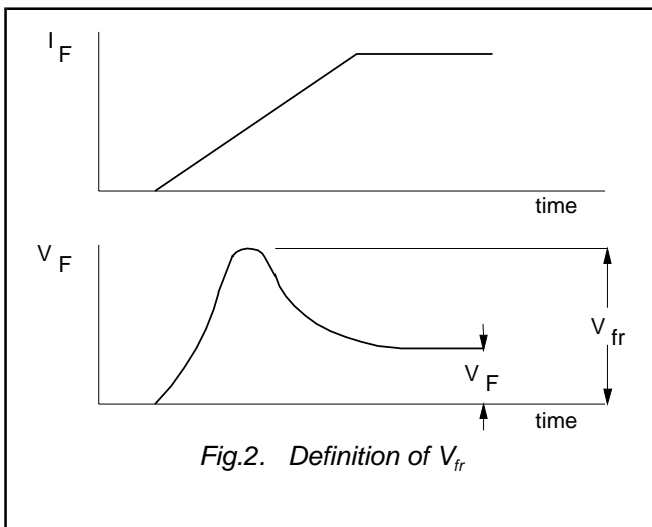
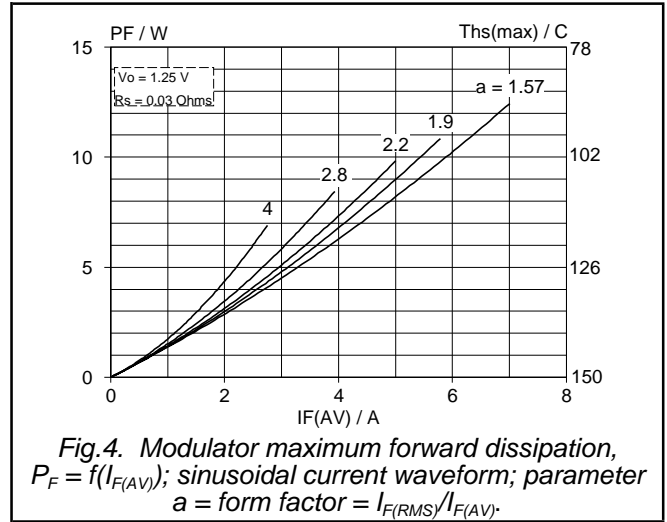
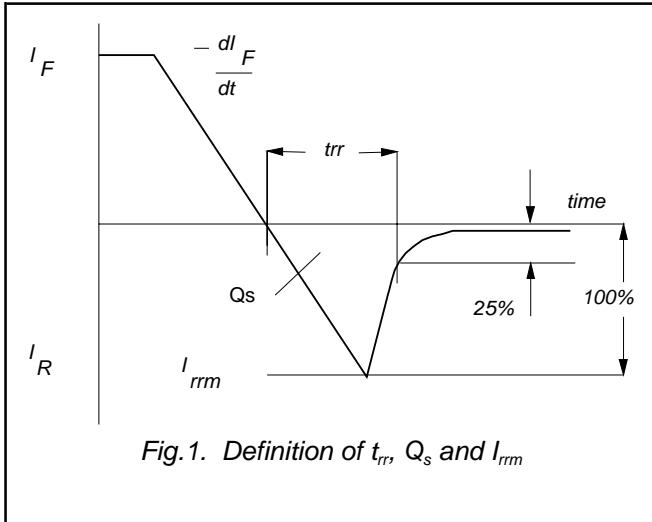
SYMBOL	PARAMETER	CONDITIONS	DAMPER		MODULATOR		UNIT
			TYP.	MAX.	TYP.	MAX.	
V_F	Forward voltage	$I_F = 6.5\text{ A}$	1.1	1.45	1.15	1.55	V
I_R	Reverse current	$I_F = 6.5\text{ A}$; $T_j = 125\text{ °C}$ $V_R = V_{RWM}$ $V_R = V_{RWM}$ $T_j = 100\text{ °C}$	1.05	1.3	1.1	1.45	V
			10	250	10	100	μA
			50	500	100	600	μA

DYNAMIC CHARACTERISTICS $T_j = 25\text{ °C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	DAMPER		MODULATOR		UNIT
			TYP.	MAX.	TYP.	MAX.	
t_{rr}	Reverse recovery time	$I_F = 1\text{ A}$; $V_R \geq 30\text{ V}$; $-di_F/dt = 50\text{ A}/\mu\text{s}$	200	300	125	145	ns
Q_s	Reverse recovery charge	$2\text{ A}, 30\text{ V}, 20\text{ A}/\mu\text{s}$	1.2	2.0	0.5	0.7	μC
V_{fr}	Peak forward recovery voltage	$I_F = 6.5\text{ A}$; $di_F/dt = 50\text{ A}/\mu\text{s}$	27	-	18.0	-	V

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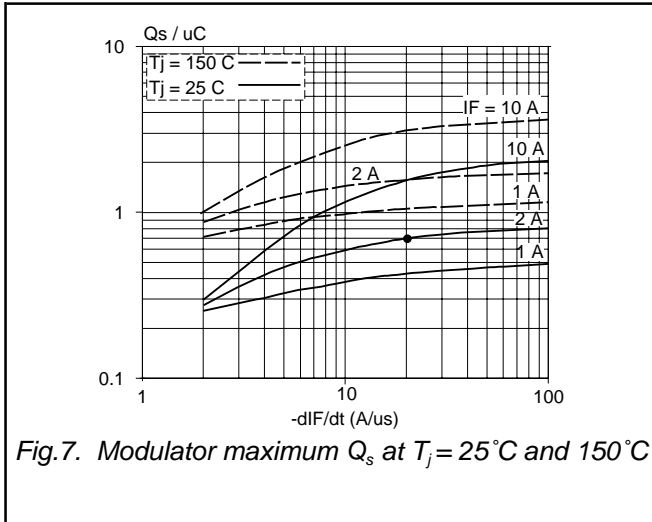


Fig.7. Modulator maximum Q_s at $T_j = 25^\circ\text{C}$ and 150°C

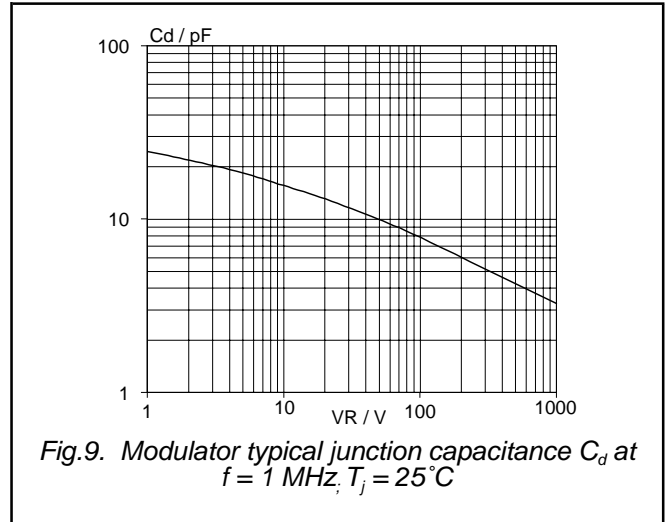


Fig.9. Modulator typical junction capacitance C_d at $f = 1\text{ MHz}$, $T_j = 25^\circ\text{C}$

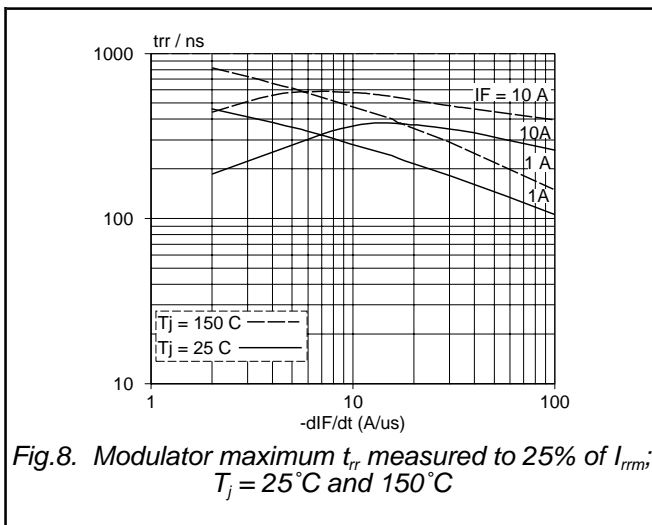


Fig.8. Modulator maximum t_{rr} , measured to 25% of I_{rsm} ; $T_j = 25^\circ\text{C}$ and 150°C

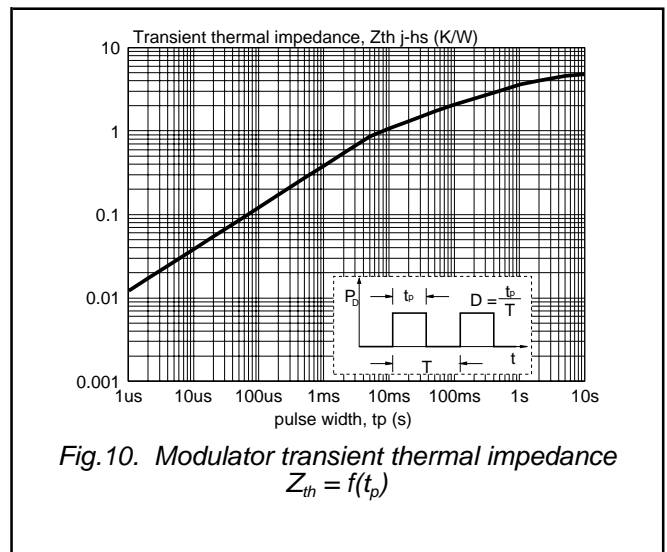


Fig.10. Modulator transient thermal impedance $Z_{th} = f(t_p)$

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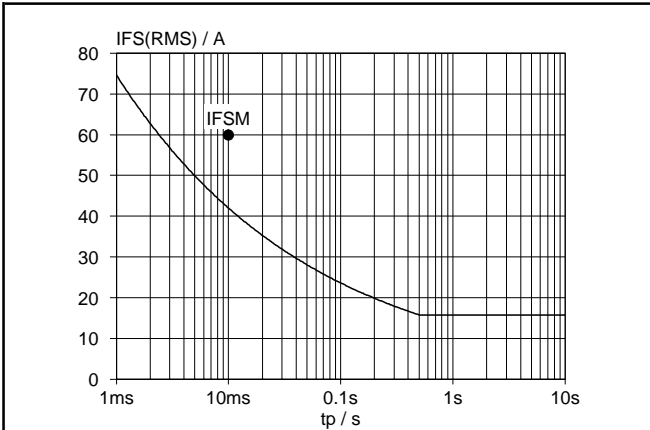


Fig.11. Damper maximum non-repetitive rms forward current. $I_F = f(t_p)$; sinusoidal current waveform; $T_j = 150^\circ\text{C}$ prior to surge with reapplied V_{RWM} .

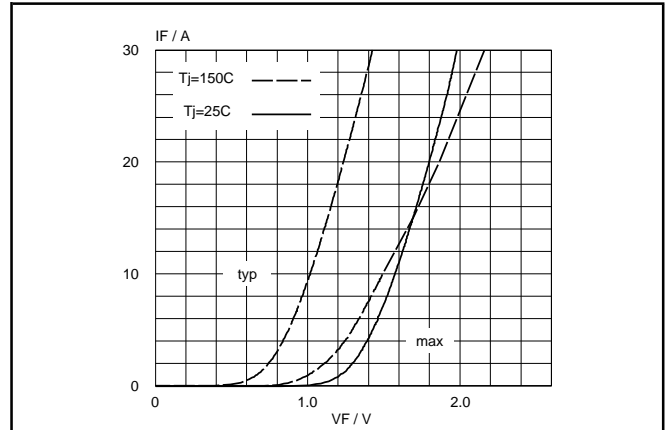


Fig.13. Damper forward characteristic $I_F = f(V_F)$; parameter T_j

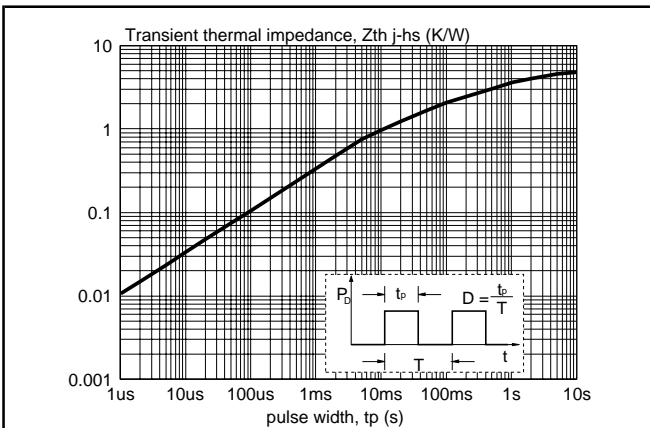
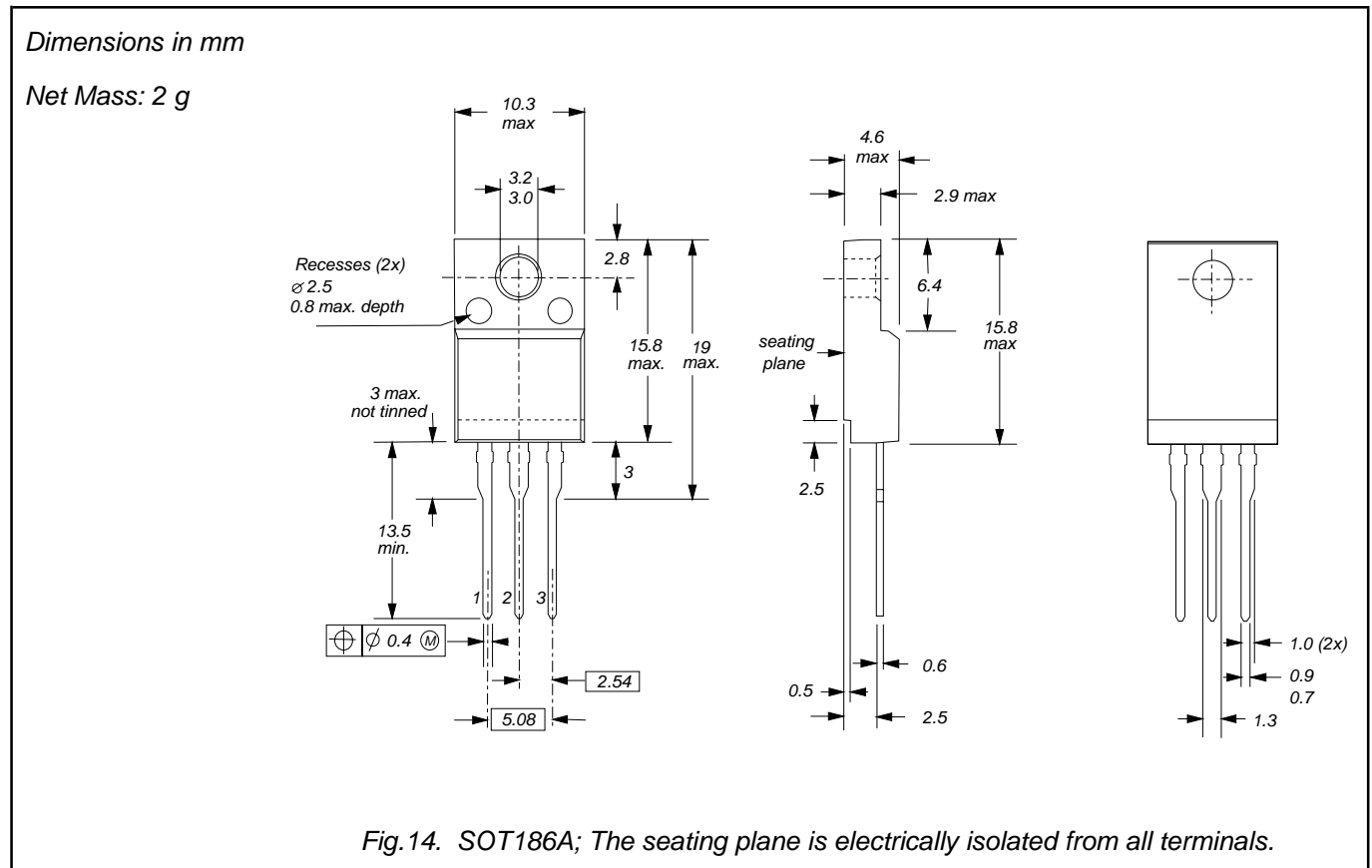


Fig.12. Damper transient thermal impedance $Z_{th} = f(t_p)$

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MECHANICAL DATA



Notes

1. Refer to mounting instructions for F-pack envelopes.
2. Epoxy meets UL94 V0 at 1/8".

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DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	
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