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BAS21TMR6

High Voltage Switching Diode

The BAS21TMR6T1G device houses three high-voltage switching diodes in a SC-74 surface mount package. This device is ideal for low-power surface mount applications where board space is at a premium.

Features

- Reduces Board Space
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS (EACH DIODE)

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	250	Vdc
Forward Current	I_F	200	mAdc
Peak Forward Surge Current	$I_{FM(surge)}$	625	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	311 2.5	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	402	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	347 2.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	360	$^\circ\text{C/W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

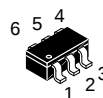
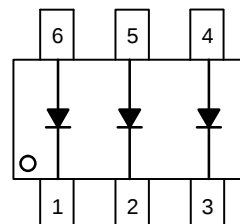
1. FR-4 @ 10 mm², 2 oz copper traces
2. FR-4 @ 25 mm², 2 oz copper traces



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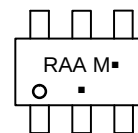
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250 V HIGH VOLTAGE SWITCHING DIODE



SC-74
CASE 318F

MARKING DIAGRAM



RAA = Device Code
M = Date Code*
▪ = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping [†]
BAS21TMR6T1G	SC-74 (Pb-Free)	3000 / Tape & Reel
NSVBAS21TMR6T1G	SC-74 (Pb-Free)	3000 / Tape & Reel
NSVBAS21TMR6T2G	SC-74 (Pb-Free)	3000 / Tape & Reel

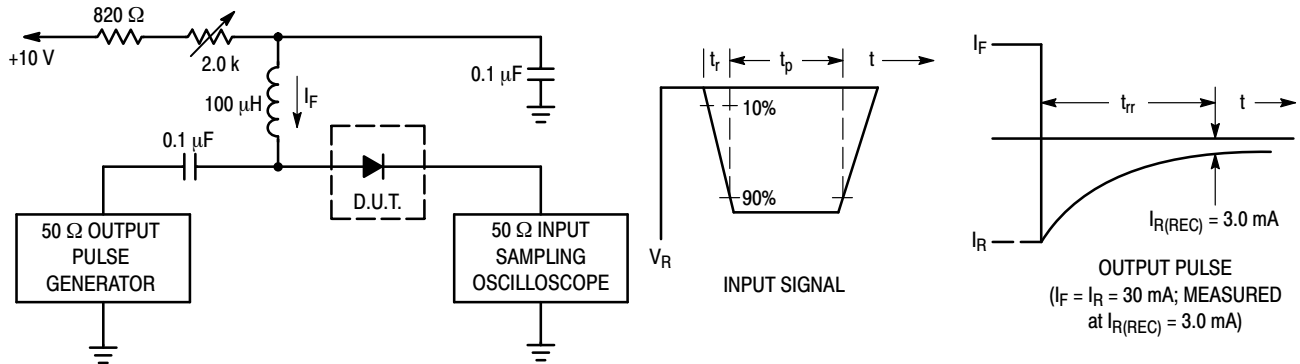
[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

BAS21TMR6

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
Reverse Voltage Leakage Current ($V_R = 200\text{ Vdc}$) ($V_R = 200\text{ Vdc}$, $T_J = 150^\circ\text{C}$)	I_R	–	0.1 100	μAdc
Reverse Breakdown Voltage ($I_{BR} = 100\text{ }\mu\text{Adc}$)	$V_{(BR)}$	250	–	Vdc
Forward Voltage ($I_F = 100\text{ mAdc}$) ($I_F = 200\text{ mAdc}$)	V_F	–	1.0 1.25	Vdc
Diode Capacitance ($V_R = 0$, $f = 1.0\text{ MHz}$)	C_D	–	5.0	pF
Reverse Recovery Time ($I_F = I_R = 30\text{ mAdc}$, $I_{R(REC)} = 3.0\text{ mAdc}$, $R_L = 100$)	t_{rr}	–	50	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 30 mA.
2. Input pulse is adjusted so $I_{R(\text{peak})}$ is equal to 30 mA.
3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

BAS21TMR6

TYPICAL CHARACTERISTICS

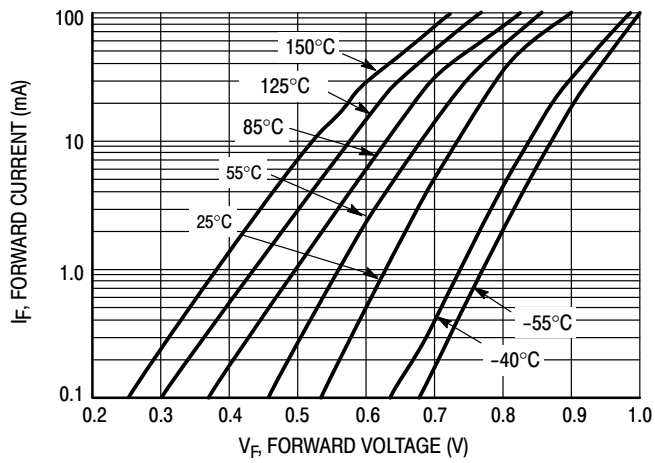


Figure 2. V_F vs. I_F

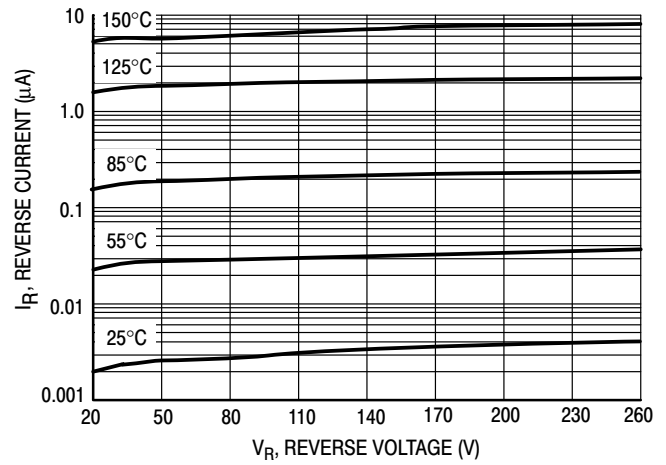


Figure 3. I_R vs. V_R

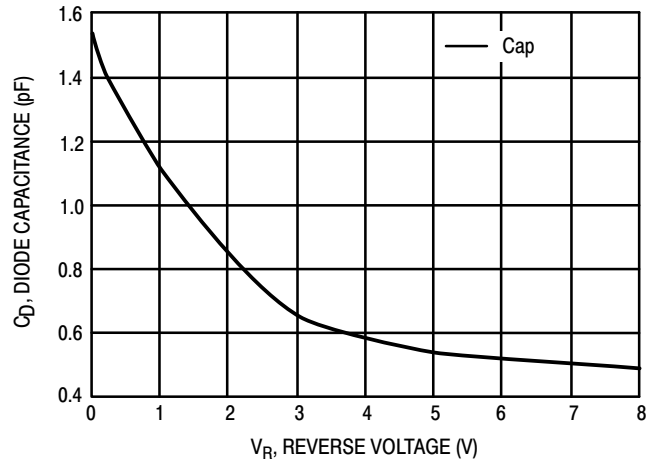


Figure 4. Capacitance

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

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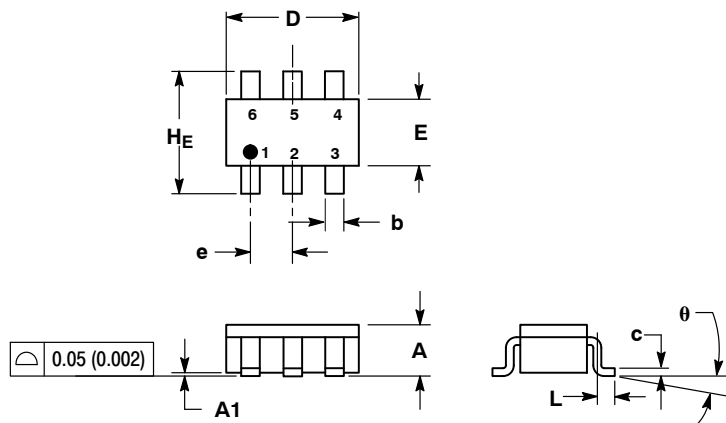
SC-74

CASE 318F-05

ISSUE N

DATE 08 JUN 2012

SCALE 2:1

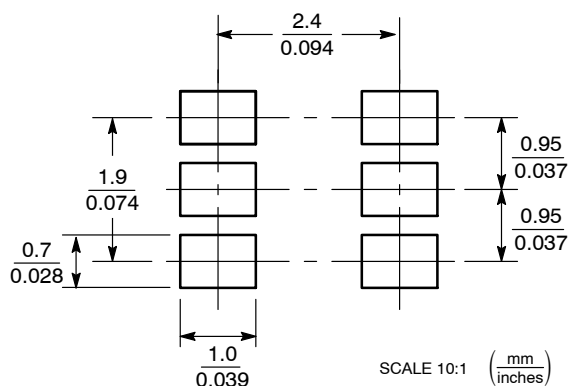


NOTES:

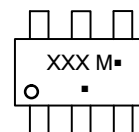
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318F-01, -02, -03, -04 OBSOLETE. NEW STANDARD 318F-05.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	1.00	1.10	0.035	0.039	0.043
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.25	0.37	0.50	0.010	0.015	0.020
c	0.10	0.18	0.26	0.004	0.007	0.010
D	2.90	3.00	3.10	0.114	0.118	0.122
E	1.30	1.50	1.70	0.051	0.059	0.067
e	0.85	0.95	1.05	0.034	0.037	0.041
L	0.20	0.40	0.60	0.008	0.016	0.024
HE	2.50	2.75	3.00	0.099	0.108	0.118
θ	0°	—	10°	0°	—	10°

SOLDERING FOOTPRINT*



GENERIC MARKING DIAGRAM*



XXX = Specific Device Code
M = Date Code
▪ = Pb-Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

STYLE 1:

PIN 1. CATHODE
2. ANODE
3. CATHODE
4. CATHODE
5. ANODE
6. CATHODE

STYLE 2:

PIN 1. NO CONNECTION
2. COLLECTOR
3. EMITTER
4. NO CONNECTION
5. COLLECTOR
6. BASE

STYLE 3:

PIN 1. EMITTER 1
2. BASE 1
3. COLLECTOR 2
4. EMITTER 2
5. BASE 2
6. COLLECTOR 1

STYLE 4:

PIN 1. COLLECTOR 2
2. EMITTER 1/EMITTER 2
3. COLLECTOR 1
4. EMITTER 3
5. BASE 1/BASE 2/COLLECTOR 3
6. BASE 3

STYLE 5:

PIN 1. CHANNEL 1
2. ANODE
3. CHANNEL 2
4. CHANNEL 3
5. CATHODE
6. CHANNEL 4

STYLE 6:

PIN 1. CATHODE
2. ANODE
3. CATHODE
4. CATHODE
5. CATHODE
6. CATHODE

STYLE 7:

PIN 1. SOURCE 1
2. GATE 1
3. DRAIN 2
4. SOURCE 2
5. GATE 2
6. DRAIN 1

STYLE 8:

PIN 1. EMITTER 1
2. BASE 2
3. COLLECTOR 2
4. EMITTER 2
5. BASE 1
6. COLLECTOR 1

STYLE 9:

PIN 1. EMITTER 2
2. BASE 2
3. COLLECTOR 1
4. EMITTER 1
5. BASE 1
6. COLLECTOR 2

STYLE 10:

PIN 1. ANODE/CATHODE
2. BASE
3. EMITTER
4. COLLECTOR
5. ANODE
6. CATHODE

STYLE 11:

PIN 1. EMITTER
2. BASE
3. ANODE/CATHODE
4. ANODE
5. CATHODE
6. COLLECTOR

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ON Semiconductor Website: www.onsemi.com

TECHNICAL SUPPORT

North American Technical Support:

Voice Mail: 1 800-282-9855 Toll Free USA/Canada

Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:

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