BAS21TMR6T1G

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

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°C Derate above 25°C	P_D	311 2.5	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	402	°C/W
Total Device Dissipation Alumina Substrate, (Note 2) T_A = 25°C Derate above 25°C	P_D	347 2.8	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	360	°C/W
Junction and Storage Temperature	T_J, T_{stg}	−55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR−4 @ 10 mm^2, 2 oz copper traces
2. FR−4 @ 25 mm^2, 2 oz copper traces

ON Semiconductor®

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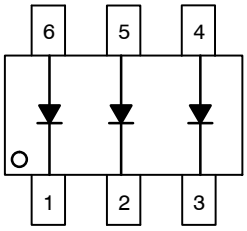
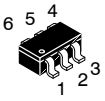
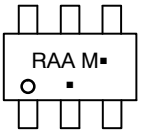
250 V
HIGH VOLTAGE
SWITCHING DIODE





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.

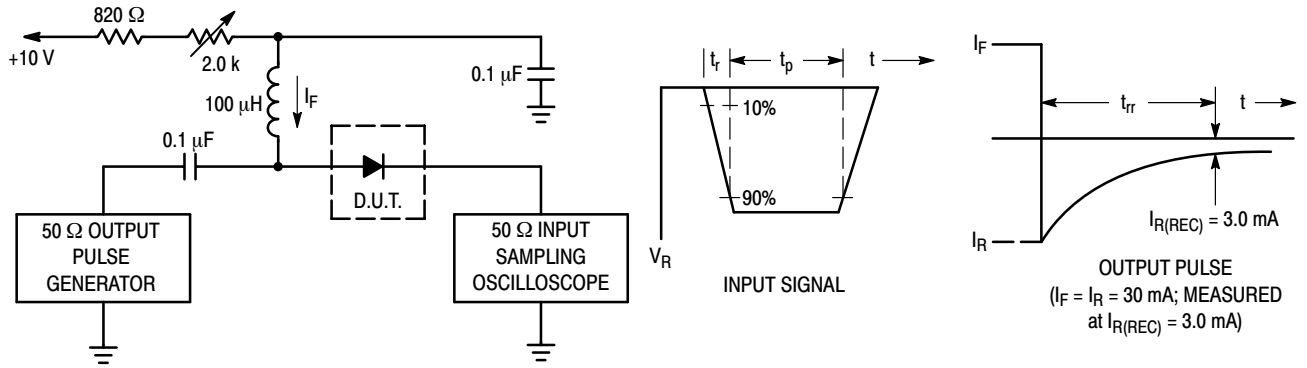
ORDERING INFORMATION

Device	Package	Shipping†
BAS21TMR6T1G	SC−74 (Pb−Free)	3000 / Tape & Reel
NSVBAS21TMR6T1G	SC−74 (Pb−Free)	3000 / Tape & Reel

†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.

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

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



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

Figure 1. Recovery Time Equivalent Test Circuit

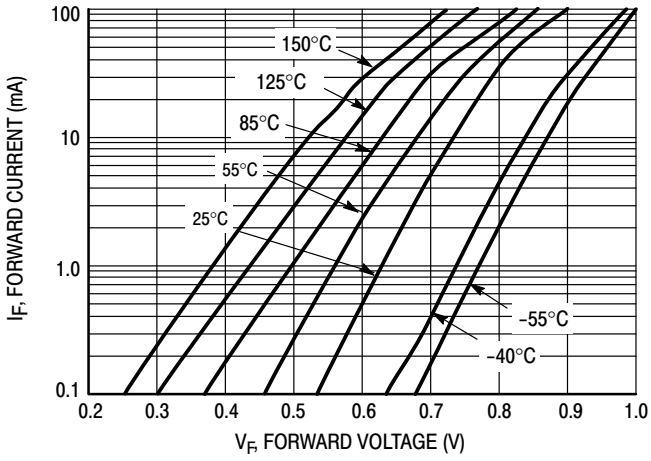


Figure 2. V_F vs. I_F

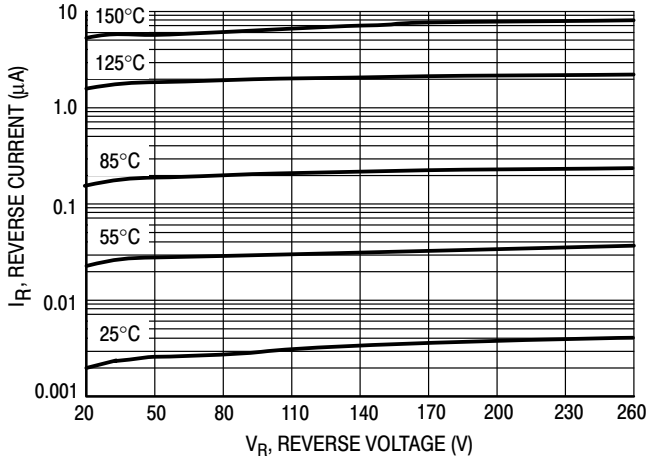


Figure 3. I_R vs. V_R

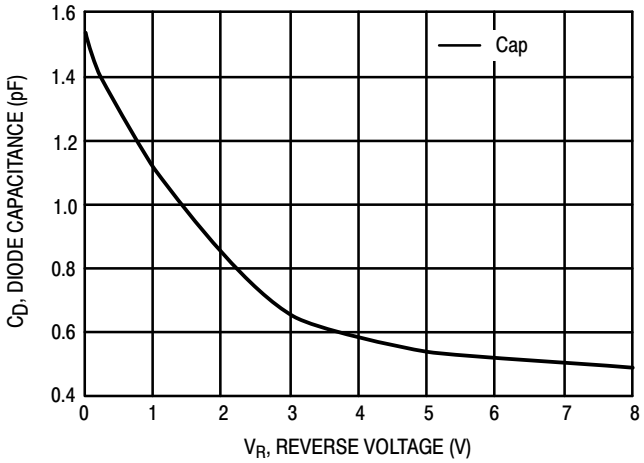
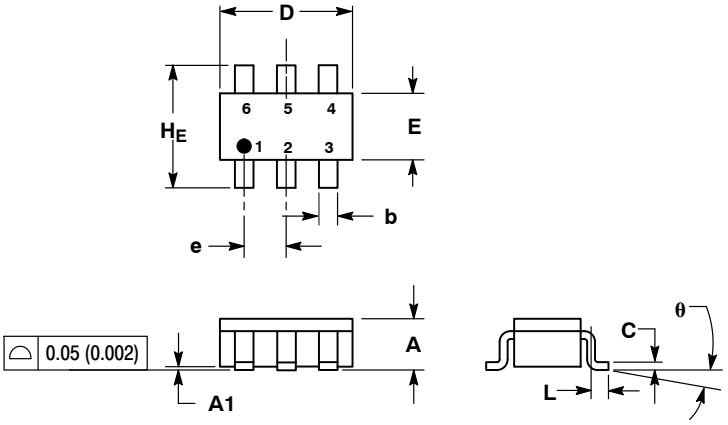


Figure 4. Capacitance

BAS21TMR6T1G

PACKAGE DIMENSIONS

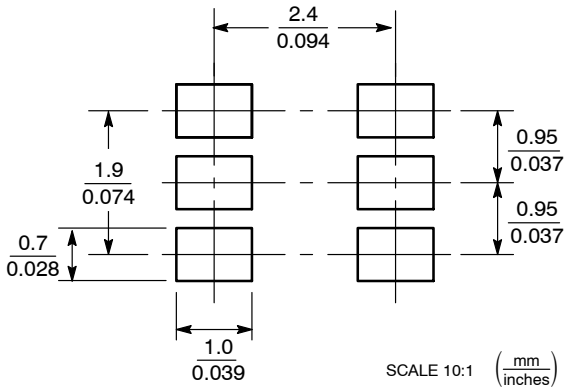
SC−74
CASE 318F−05
ISSUE M



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 OBSOLETE. NEW STANDARD 318F−04.

	MILLIMETERS			INCHES		
DIM	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
H_E	2.50	2.75	3.00	0.099	0.108	0.118
θ	0°	–	10°	0°	–	10°

SOLDERING FOOTPRINT*



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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
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