

# BAS16M3T5G

## Switching Diode

### Features

- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Continuous Reverse Voltage	$V_R$	100	Vdc
Peak Forward Current	$I_F$	200	mAdc
Peak Forward Surge Current	$I_{FM(surge)}$	500	mAdc

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.

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation, FR-4 Board (Note 1) $T_A = 25^\circ\text{C}$ Derated above $25^\circ\text{C}$	$P_D$	260	mW
		2.0	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	490	$^\circ\text{C/W}$
Total Device Dissipation, FR-4 Board (Note 2) $T_A = 25^\circ\text{C}$ Derated above $25^\circ\text{C}$	$P_D$	580	mW
		4.6	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	215	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

1. FR-4 @ Minimum Pad
2. FR-4 @  $1.0 \times 1.0$  Inch Pad

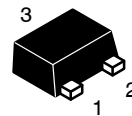


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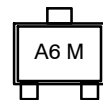
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### MARKING DIAGRAM



SOT-723  
CASE 631AA  
STYLE 2



A6 = Specific Device Code  
M = Date Code

### ORDERING INFORMATION

Device	Package	Shipping†
BAS16M3T5G	SOT-723 (Pb-Free)	8000 / Tape & Reel

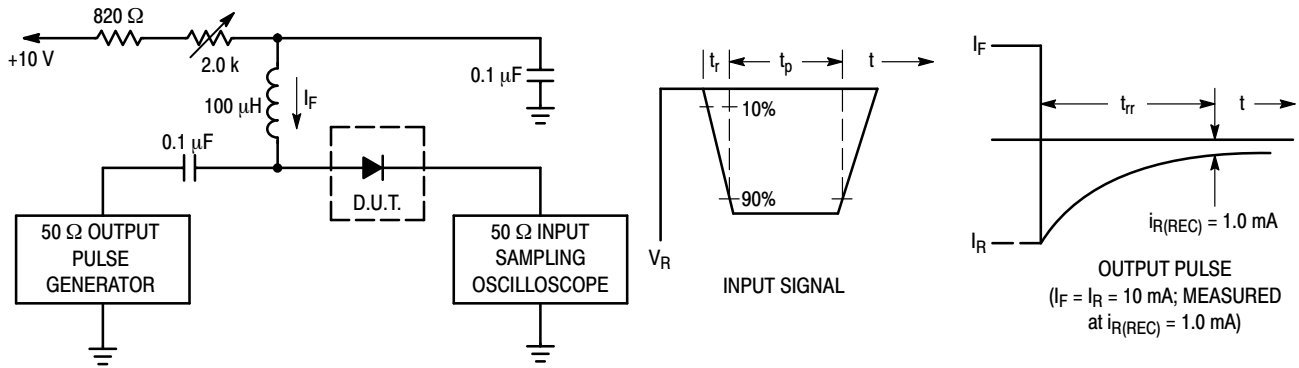
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# BAS16M3T5G

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

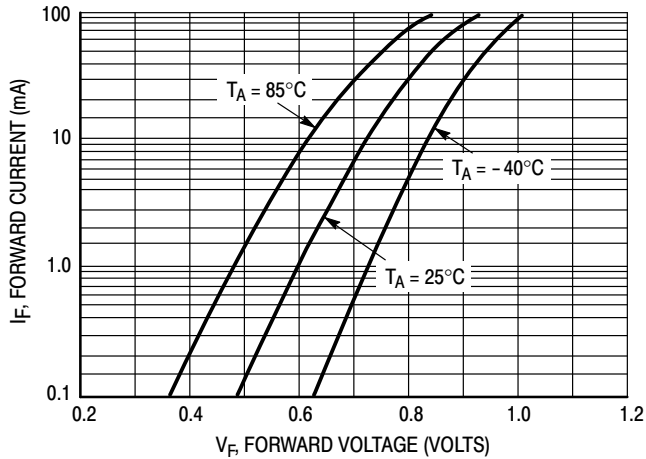
Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Reverse Voltage Leakage Current ( $V_R = 100\text{ Vdc}$ ) ( $V_R = 75\text{ Vdc}$ , $T_J = 150^\circ\text{C}$ ) ( $V_R = 25\text{ Vdc}$ , $T_J = 150^\circ\text{C}$ )	$I_R$	– – –	1.0 50 30	$\mu\text{Adc}$
Reverse Breakdown Voltage ( $I_{BR} = 100\text{ }\mu\text{Adc}$ )	$V_{(BR)}$	100	–	Vdc
Forward Voltage ( $I_F = 1.0\text{ mAdc}$ ) ( $I_F = 10\text{ mAdc}$ ) ( $I_F = 50\text{ mAdc}$ ) ( $I_F = 150\text{ mAdc}$ )	$V_F$	– – – –	715 855 1000 1250	mV
Diode Capacitance ( $V_R = 0$ , $f = 1.0\text{ MHz}$ )	$C_D$	–	2.0	pF
Forward Recovery Voltage ( $I_F = 10\text{ mAdc}$ , $t_f = 20\text{ ns}$ )	$V_{FR}$	–	1.75	Vdc
Reverse Recovery Time ( $I_F = I_R = 10\text{ mAdc}$ , $R_L = 50\text{ }\Omega$ )	$t_{rr}$	–	6.0	ns
Stored Charge ( $I_F = 10\text{ mAdc}$ to $V_R = 5.0\text{ Vdc}$ , $R_L = 500\text{ }\Omega$ )	$Q_S$	–	45	pC

# BAS16M3T5G

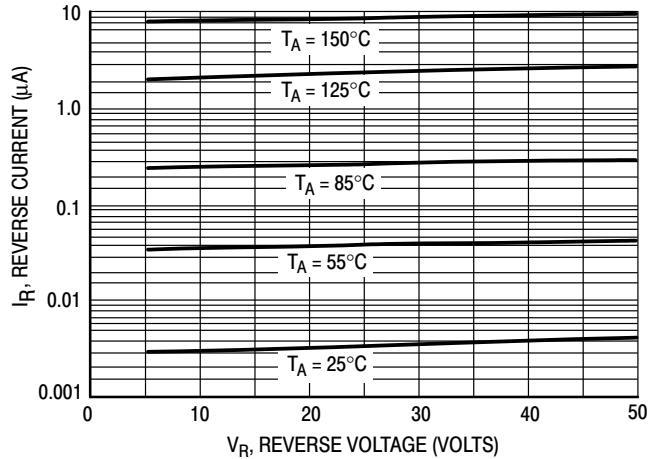


- Notes: 1. A 2.0 k $\Omega$  variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.  
2. Input pulse is adjusted so  $I_{R(\text{peak})}$  is equal to 10 mA.  
3.  $t_p \gg t_{rr}$

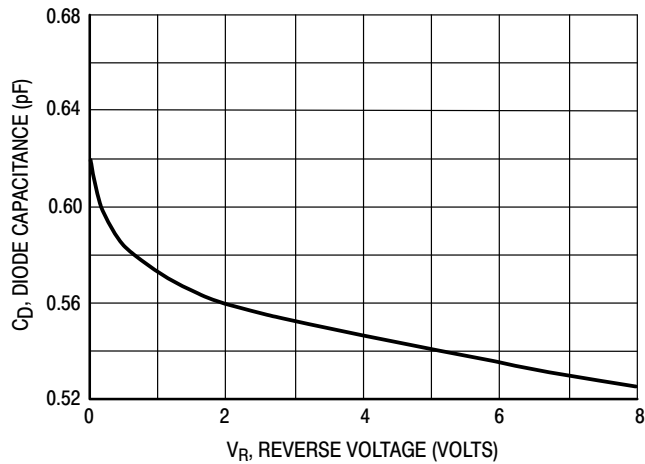
### Figure 1. Recovery Time Equivalent Test Circuit



### Figure 2. Forward Voltage



### Figure 3. Leakage Current



### Figure 4. Capacitance

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

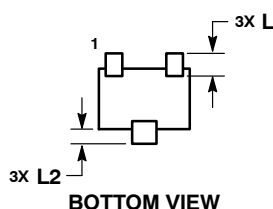
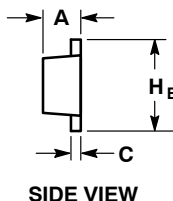
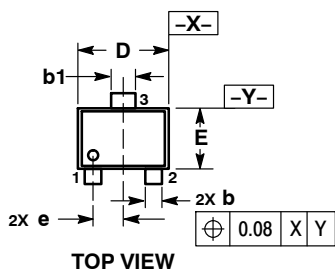
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SCALE 4:1

**SOT-723**  
CASE 631AA-01  
ISSUE D

DATE 10 AUG 2009



STYLE 1:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

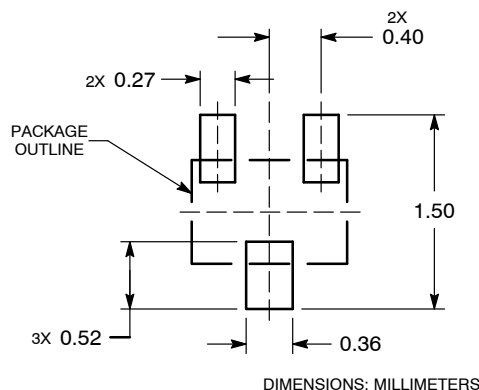
STYLE 2:  
PIN 1. ANODE  
2. N/C  
3. CATHODE

STYLE 3:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE

STYLE 4:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

STYLE 5:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

### RECOMMENDED SOLDERING FOOTPRINT\*



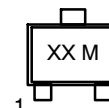
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.45	0.50	0.55
b	0.15	0.21	0.27
b1	0.25	0.31	0.37
C	0.07	0.12	0.17
D	1.15	1.20	1.25
E	0.75	0.80	0.85
e	0.40 BSC		
H E	1.15	1.20	1.25
L	0.29 REF		
L2	0.15	0.20	0.25

### GENERIC MARKING DIAGRAM\*



XX = Specific Device Code  
M = Date Code

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

**DOCUMENT NUMBER:** 98AON12989D

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**DESCRIPTION:** SOT-723

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