

# Switching Diode

## BAS16H

### Features

- S 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

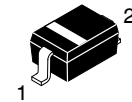
Rating	Symbol	Value	Unit
Continuous Reverse Voltage	$V_R$	100	V
Peak Forward Current	$I_F$	200	mA
Non-Repetitive Peak Forward Surge Current, 60 Hz	$I_{FSM(surge)}$	1.8	A
Repetitive Peak Forward Current (Note 2)	$I_{FRM}$	1.0	A
Non-Repetitive Peak Forward Current (Square Wave, $T_J = 25^\circ\text{C}$ prior to surge)	$I_{FSM}$		A
$t = 1 \mu\text{s}$ $t = 10 \mu\text{s}$ $t = 100 \mu\text{s}$ $t = 1 \text{ ms}$ $t = 10 \text{ ms}$ $t = 100 \text{ ms}$ $t = 1 \text{ s}$		36.0 18.0 6.0 3.0 1.8 1.3 1.0	
ESD Rating: Human Body Model Machine Model Charged Device Model	ESD	Class 3A Class M4 Class C3	

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.

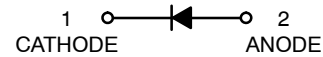
### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	200 1.57	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	635	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$

1. FR-4 Minimum Pad.
2. Square Wave,  $f = 40 \text{ kHz}$ ,  $PW = 200 \text{ ns}$   
Test Duration = 60 s,  $T_J = 25^\circ\text{C}$  prior to surge.



SOD-323  
CASE 477  
STYLE 1



### MARKING DIAGRAM



A6 = Specific Device Code  
M = Date Code

### ORDERING INFORMATION

Device	Package	Shipping†
BAS16HT1G	SOD-323 (Pb-Free)	3000 / Tape & Reel
SBAS16HT1G	SOD-323 (Pb-Free)	3000 / Tape & Reel
BAS16HT3G	SOD-323 (Pb-Free)	10000 / Tape & Reel
SBAS16HT3G	SOD-323 (Pb-Free)	10000 / Tape & Reel

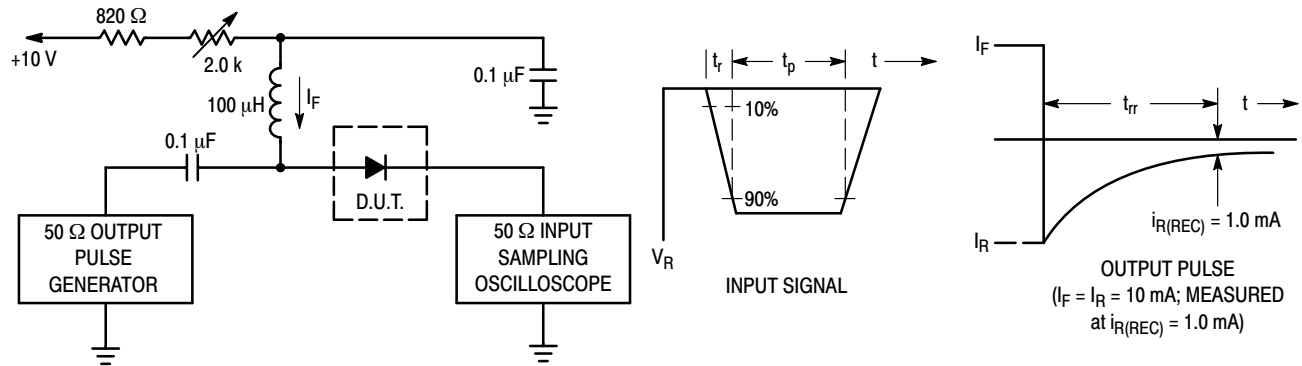
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# BAS16H

## 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 ( $I_F = 10\text{ mAdc}$ , $t_r = 20\text{ ns}$ )	$V_{FR}$	–	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

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 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**

TYPICAL CHARACTERISTICS

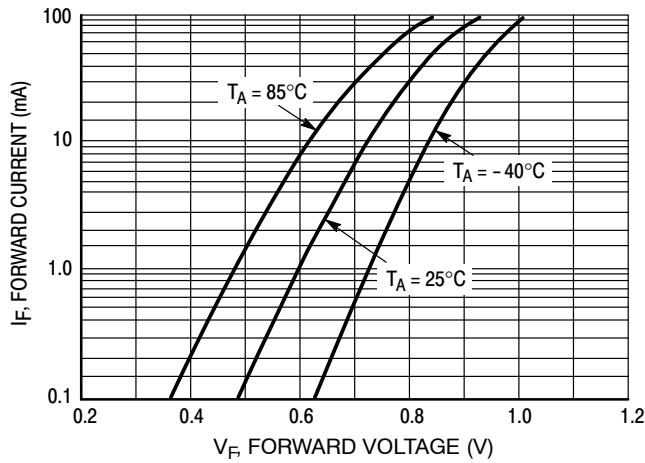


Figure 2. Forward Voltage

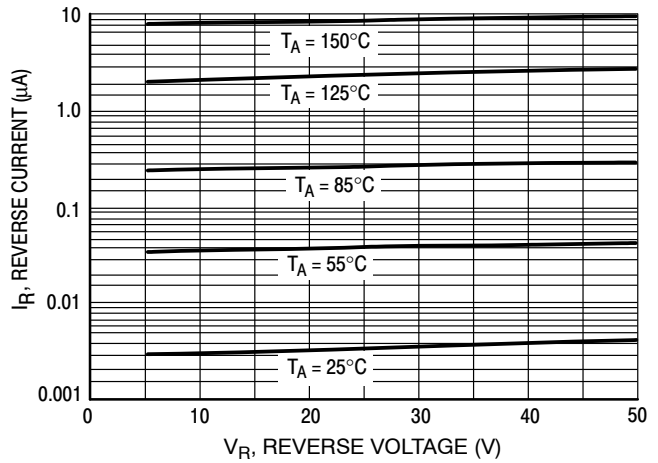


Figure 3. Leakage Current

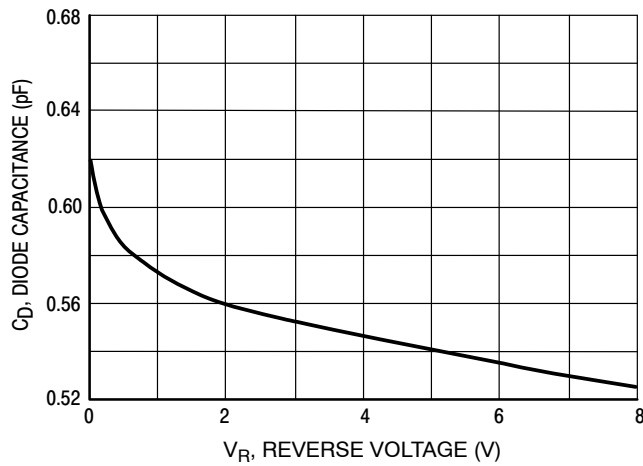


Figure 4. Capacitance

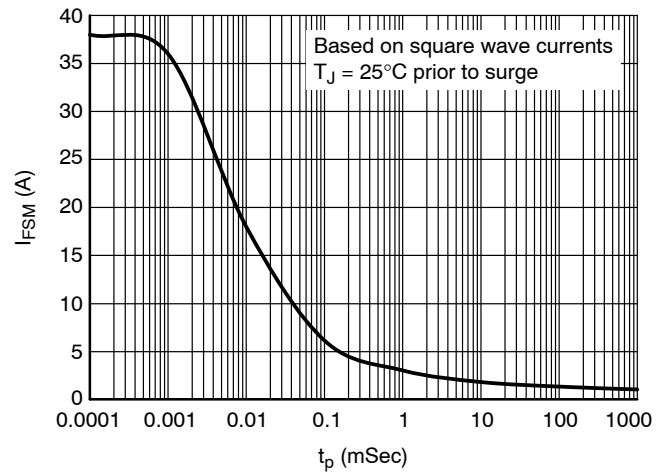
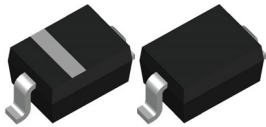
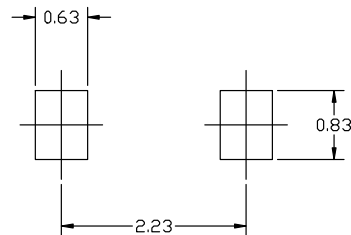
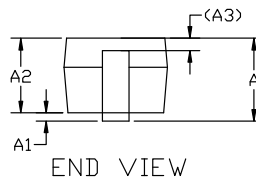
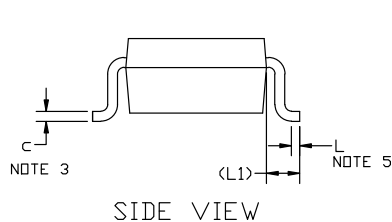
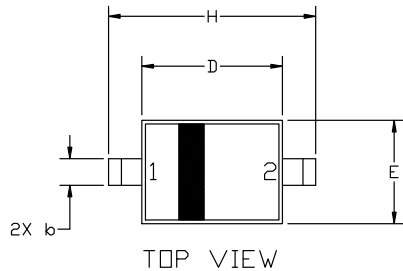


Figure 5. Maximum Non-repetitive Peak Forward Current as a Function of Pulse Duration, Typical Values


**SOD-323 1.70x1.25x0.85**  
**CASE 477**  
**ISSUE K**

DATE 11 MAR 2024

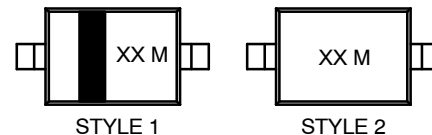


\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference manual, SOLDERRM/D.

## NOTES:

1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DIMENSION L IS MEASURE FROM END OF RADIUS.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.80	0.90	1.00
A1	0.00	0.05	0.10
A2	0.75	0.85	0.95
A3	0.15 (REF)		
b	0.25	0.32	0.4
c	0.09	0.12	0.18
D	1.60	1.70	1.80
E	1.15	1.25	1.35
H	2.30	2.50	2.70
L	0.08	---	---
L1	0.40 (REF)		

**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" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

STYLE 1:  
PIN 1: CATHODE (POLARITY BAND)  
2: ANODE

STYLE 2:  
NO POLARITY

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