

# BAS16LT1G, BAS16LT3G, SBAS16LT1G, SBAS16LT3G



## Switching Diode

### Features

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

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Continuous Reverse Voltage	$V_R$	75	Vdc
Peak Forward Current	$I_F$	200	mA <sub>dc</sub>
Peak Forward Surge Current	$I_{FM(surge)}$	500	mA <sub>dc</sub>

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.

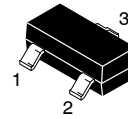
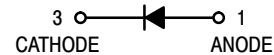
### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225	mW
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300	mW
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

1. FR-5 =  $1.0 \times 0.75 \times 0.062$  in.
2. Alumina =  $0.4 \times 0.3 \times 0.024$  in. 99.5% alumina.

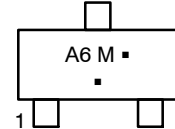
ON Semiconductor®

<http://onsemi.com>



SOT-23  
CASE 318  
STYLE 8

### MARKING DIAGRAM



- A6 = Specific Device Code
- M = Date Code\*
- = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation and/or overbar may vary depending upon manufacturing location.

### ORDERING INFORMATION

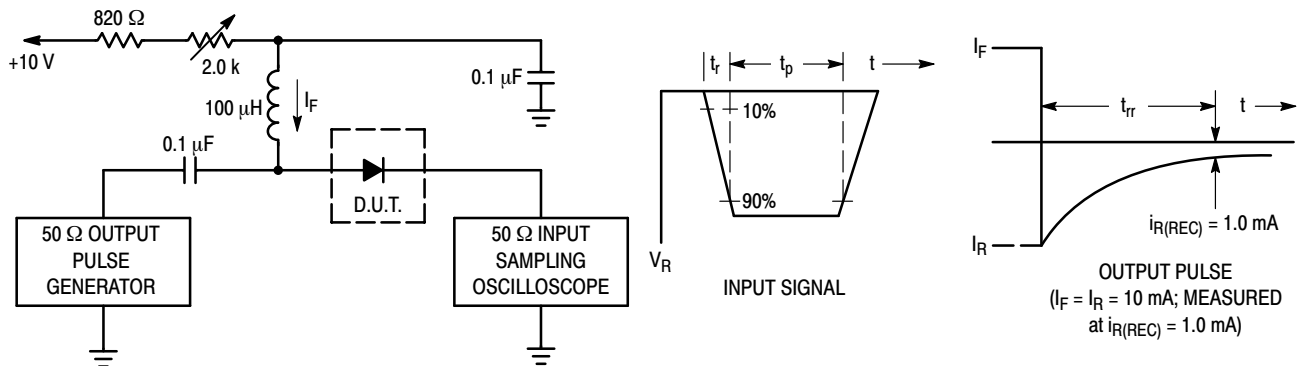
Device	Package	Shipping†
BAS16LT1G	SOT-23 (Pb-Free)	3000/Tape & Reel
BAS16LT3G	SOT-23 (Pb-Free)	10000/Tape & Reel
SBAS16LT1G	SOT-23 (Pb-Free)	3000/Tape & Reel
SBAS16LT3G	SOT-23 (Pb-Free)	10000/Tape & Reel

†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.

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

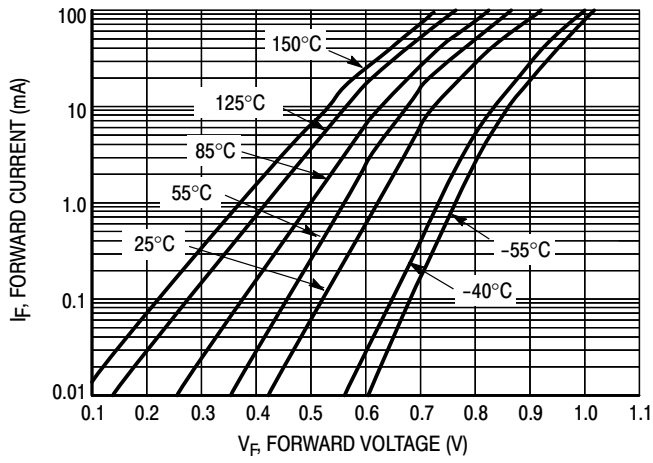
Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Reverse Voltage Leakage Current ( $V_R = 75\text{ Vdc}$ ) ( $V_R = 75\text{ Vdc}, T_J = 150^\circ\text{C}$ ) ( $V_R = 25\text{ Vdc}, T_J = 150^\circ\text{C}$ )	$I_R$	-	1.0 50 30	$\mu\text{Adc}$
Reverse Breakdown Voltage ( $I_{BR} = 100\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



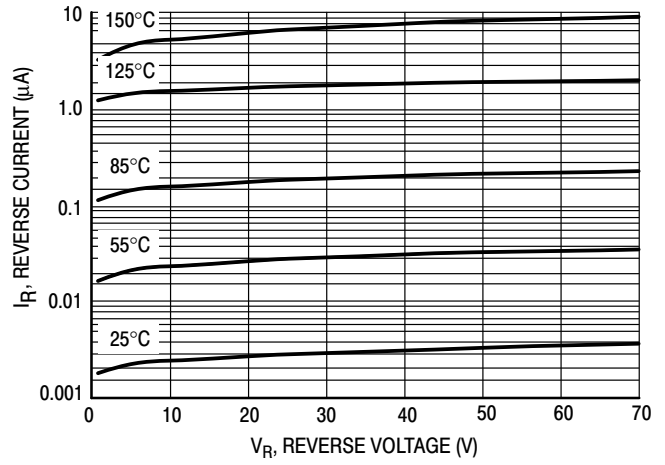
- Notes: 1. A 2.0 k $\Omega$  variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.  
 2. Input pulse is adjusted so  $I_{R(\text{peak})}$  is equal to 10 mA.  
 3.  $t_p \gg t_{rr}$

**Figure 1. Recovery Time Equivalent Test Circuit**

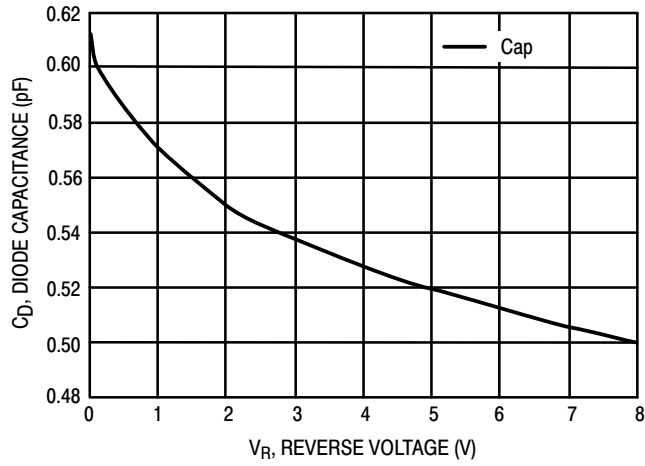
**BAS16LT1G, BAS16LT3G, SBAS16LT1G, SBAS16LT3G**



**Figure 2.  $V_F$  vs.  $I_F$**



**Figure 3.  $I_R$  vs.  $V_R$**

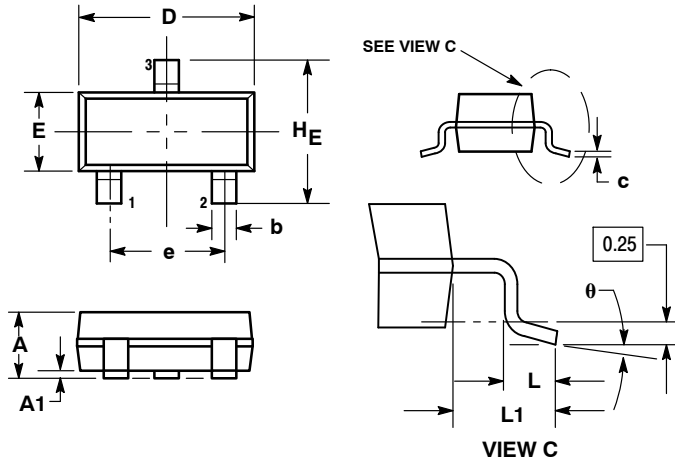


**Figure 4. Capacitance**

# BAS16LT1G, BAS16LT3G, SBAS16LT1G, SBAS16LT3G

## PACKAGE DIMENSIONS

SOT-23 (TO-236)  
CASE 318-08  
ISSUE AP



NOTES:

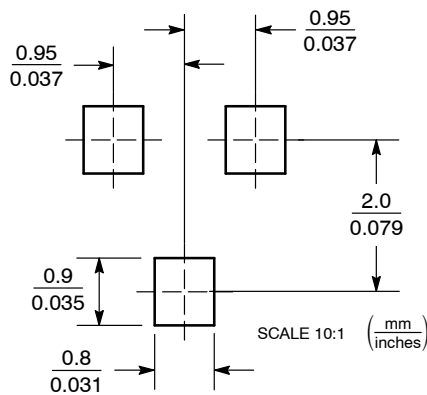
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.40	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

STYLE 8:

1. ANODE
2. NO CONNECTION
3. CATHODE

### 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.

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