BAS16L, SBAS16L

Switching Diode

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

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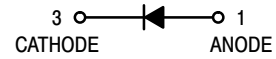
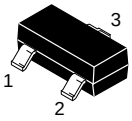
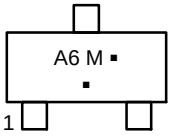




SOT−23
CASE 318
STYLE 8

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.

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	$I_{FSM(surge)}$	500	mA
Repetitive Peak Forward Current (Note 3)	I_{FRM}	1.0	A
Non−Repetitive Peak Forward Current (Square Wave, T_J = 25°C prior to surge) t = 1 μs t = 10 μs t = 100 μs t = 1 ms t = 1 s	I_{FSM}	 36.0 18.0 6.0 3.0 0.7	A

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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR−5 Board (Note 1) T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, (Note 2) T_A = 25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J, T_{stg}	−55 to +150	°C

1. FR−5 = 1.0 × 0.75 × 0.062 in.
2. Alumina = 0.4 × 0.3 × 0.024 in. 99.5% alumina.
3. Square Wave, f = 40 kHz, PW = 200 ns
   Test Duration = 60 s, T_J = 25°C prior to surge.

ORDERING INFORMATION

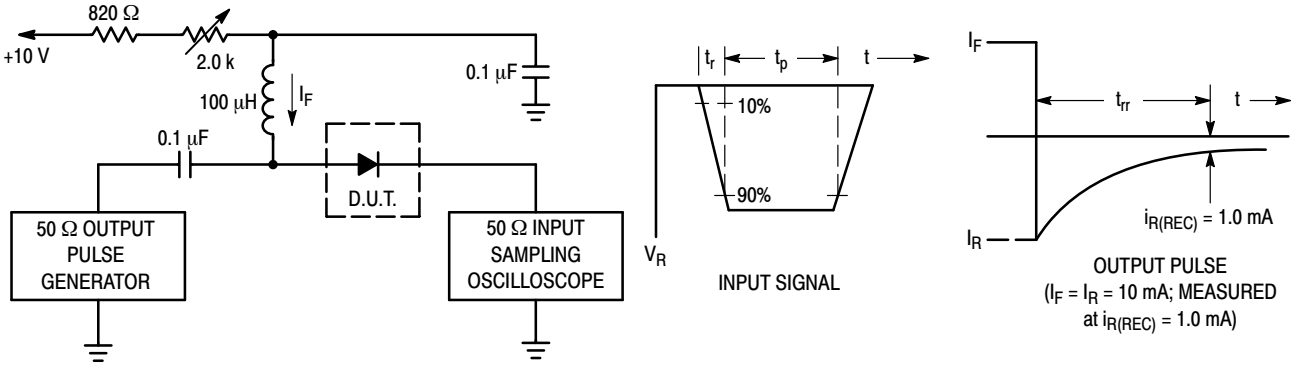
Device	Package	Shipping†
BAS16LT1G	SOT−23 (Pb−Free)	3000/Tape & Reel
BAS16LT3G	SOT−23 (Pb−Free)	10000/Tape & Reel
SBAS16LT1G	SOT−23 (Pb−Free)	3000/Tape & Reel
SBAS16LT3G	SOT−23 (Pb−Free)	10000/Tape & Reel

†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.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Reverse Voltage Leakage Current	I_R			μAdc
(V_R = 100 V)		–	1.0	
(V_R = 75 Vdc, T_J = 150°C)		–	50	
(V_R = 25 Vdc, T_J = 150°C)		–	30	
Reverse Breakdown Voltage (I_{BR} = 100 μAdc)	$V_{(BR)}$	100	–	Vdc
Forward Voltage	V_F			mV
(I_F = 1.0 mAdc)		–	715	
(I_F = 10 mAdc)		–	855	
(I_F = 50 mAdc)		–	1000	
(I_F = 150 mAdc)		–	1250	
Diode Capacitance (V_R = 0, f = 1.0 MHz)	C_D	–	2.0	pF
Forward Recovery Voltage (I_F = 10 mAdc, t_r = 20 ns)	V_{FR}	–	1.75	Vdc
Reverse Recovery Time (I_F = I_R = 10 mAdc, R_L = 50 Ω)	t_{rr}	–	6.0	ns
Stored Charge (I_F = 10 mAdc to V_R = 5.0 Vdc, R_L = 500 Ω)	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 $I_{R(peak)}$ is equal to 10 mA.
3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

TYPICAL CHARACTERISTICS

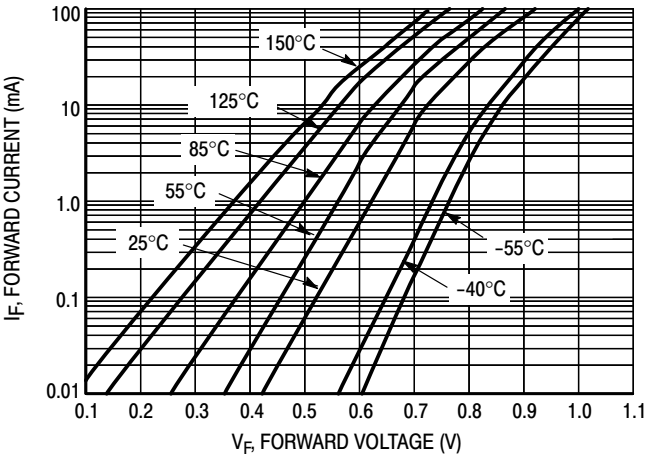


Figure 2. V_F vs. I_F

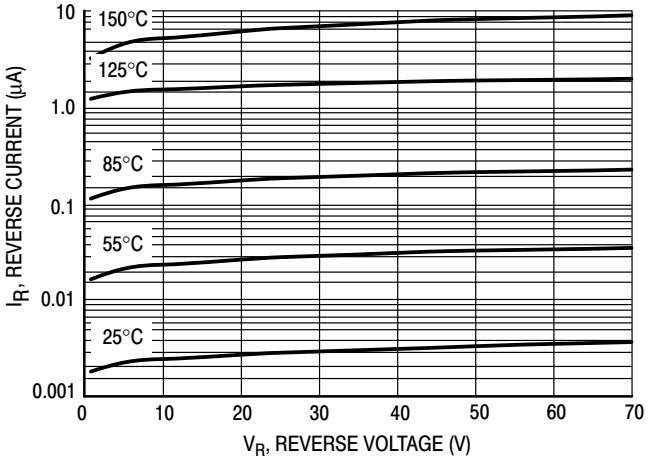


Figure 3. I_R vs. V_R

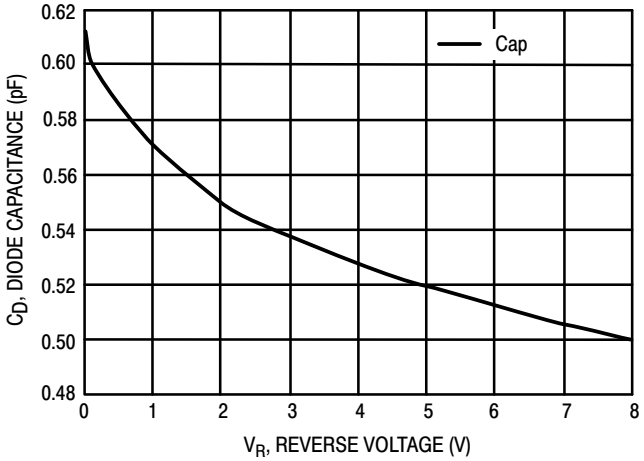
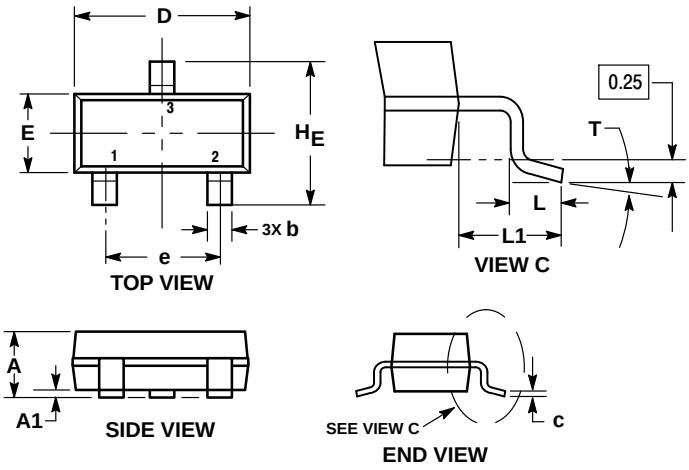


Figure 4. Capacitance

PACKAGE DIMENSIONS

SOT−23 (TO−236)
CASE 318−08
ISSUE AR

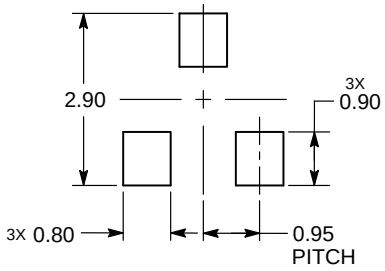


NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.039	0.044
A1	0.01	0.06	0.10	0.000	0.002	0.004
b	0.37	0.44	0.50	0.015	0.017	0.020
c	0.08	0.14	0.20	0.003	0.006	0.008
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	0.080
L	0.30	0.43	0.55	0.012	0.017	0.022
L1	0.35	0.54	0.69	0.014	0.021	0.027
H_E	2.10	2.40	2.64	0.083	0.094	0.104
T	0°	−−−	10°	0°	−−−	10°

STYLE 8:
PIN 1. ANODE
2. NO CONNECTION
3. CATHODE

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*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:
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