Switching Diode

BAS16L

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	IF	200	mA
Non-Repetitive Peak Forward Surge Current 60 Hz	I _{FSM(surge)}	1.8	Α
Repetitive Peak Forward Current (Note 3)	I _{FRM}	1.0	Α
Non–Repetitive Peak Forward Current (Square Wave, $T_J = 25^{\circ}C$ prior to surge) $t = 1 \ \mu s$ $t = 10 \ \mu s$ $t = 100 \ \mu s$ $t = 1 \ ms$ $t = 10 \ ms$ $t = 100 \ ms$ $t = 1 \ s$	IFSM	36.0 18.0 6.0 3.0 1.8 1.3	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	P _D	225	mW
Derate above 25°C		1.8	mW/°C
Thermal Resistance, Junction-to-Ambient	$R_{ heta JA}$	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_{\thetaJA}	417	°C/W
Junction and Storage Temperature	T _J , T _{stg}	-55 to +150	°C

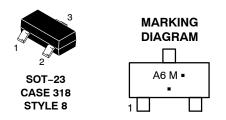
- 1. FR-5 = 1.0 \times 0.75 \times 0.062 in.
- 2. Alumina = 0.4 \times 0.3 \times 0.024 in. 99.5% alumina.
- 3. Square Wave, f = 40 kHz, PW = 200 ns Test Duration = 60 s, $T_J = 25^{\circ}\text{C}$ prior to surge.



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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

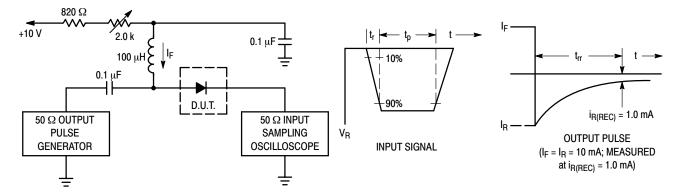
Device	Package	Shipping [†]
BAS16LT1G	SOT-23 (Pb-Free)	3000/Tape & Reel
BAS16LT3G	SOT-23 (Pb-Free)	10000/Tape & Reel
SBAS16LT1G	SOT-23 (Pb-Free)	3000/Tape & Reel
SBAS16LT3G	SOT-23 (Pb-Free)	10000/Tape & Reel

†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.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS	•		•	
Reverse Voltage Leakage Current $(V_R = 100 \text{ V})$ $(V_R = 75 \text{ Vdc}, T_J = 150^{\circ}\text{C})$ $(V_R = 25 \text{ Vdc}, T_J = 150^{\circ}\text{C})$	I _R	- - -	1.0 50 30	μAdc
Reverse Breakdown Voltage (I _{BR} = 100 μAdc)	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 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 $(I_F = I_R = 10 \text{ mAdc}, R_L = 50 \Omega)$	t _{rr}	-	6.0	ns
Stored Charge (I _F = 10 mAdc to V _R = 5.0 Vdc, R _L = 500 Ω)	Qs	-	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 k Ω 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

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TYPICAL CHARACTERISTICS

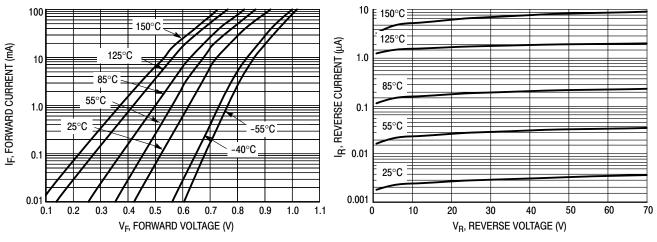


Figure 2. V_F vs. I_F

Figure 3. I_R vs. V_R

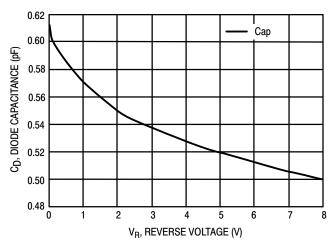


Figure 4. Capacitance

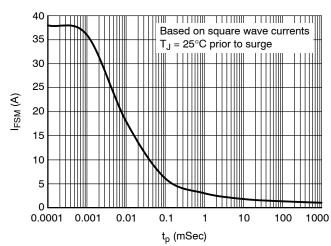
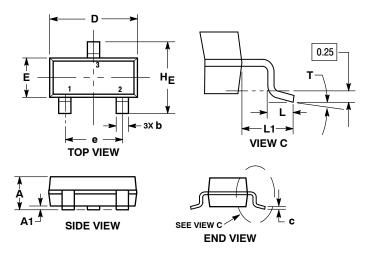


Figure 5. Maximum Non-repetitive Peak Forward Current as a Function of Pulse Duration, Typical Values

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PACKAGE DIMENSIONS

SOT-23 (TO-236) CASE 318-08 **ISSUE AS**



NOTES:

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

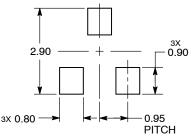
	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α	0.89	1.00	1.11	0.035	0.039	0.044
A1	0.01	0.06	0.10	0.000	0.002	0.004
b	0.37	0.44	0.50	0.015	0.017	0.020
С	0.08	0.14	0.20	0.003	0.006	0.008
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
е	1.78	1.90	2.04	0.070	0.075	0.080
L	0.30	0.43	0.55	0.012	0.017	0.022
L1	0.35	0.54	0.69	0.014	0.021	0.027
HE	2.10	2.40	2.64	0.083	0.094	0.104
Т	0°		10°	0°		10°

STYLE 8:

PIN 1. ANODE

- NO CONNECTION 2.
- 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.

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