

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

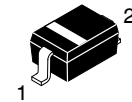
| Rating | Symbol | Value | Unit |
|--|------------------|----------------------------------|------|
| Continuous Reverse Voltage | V_R | 100 | V |
| Peak Forward Current | I_F | 200 | mA |
| Non-Repetitive Peak Forward Surge Current, 60 Hz | $I_{FSM(surge)}$ | 1.8 | A |
| Repetitive Peak Forward Current (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 |
| $t = 1 \mu\text{s}$ | | 36.0 | |
| $t = 10 \mu\text{s}$ | | 18.0 | |
| $t = 100 \mu\text{s}$ | | 6.0 | |
| $t = 1 \text{ ms}$ | | 3.0 | |
| $t = 10 \text{ ms}$ | | 1.8 | |
| $t = 100 \text{ ms}$ | | 1.3 | |
| $t = 1 \text{ s}$ | | 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.

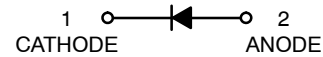
THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|-------------|----------------------------|
| Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°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 |

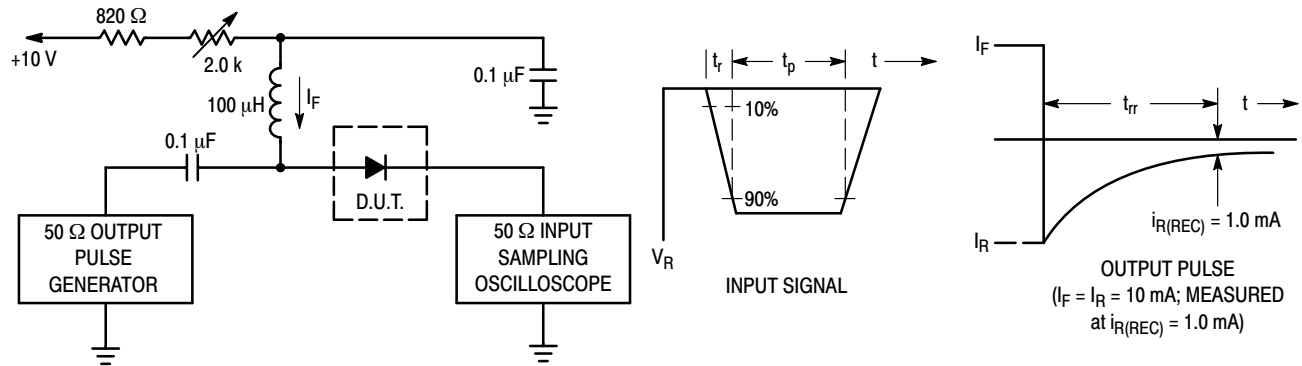
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

BAS16H

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

| Characteristic | Symbol | Min | Max | Unit |
|---|------------|------------------|----------------------------|-----------------|
| OFF CHARACTERISTICS | | | | |
| 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 | μAdc |
| 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 k Ω 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

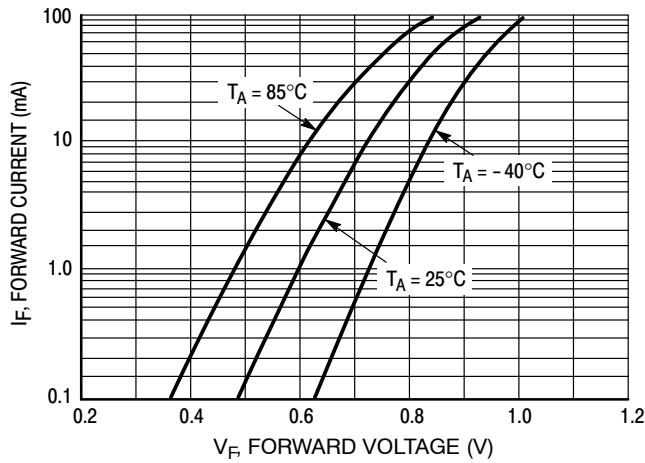


Figure 2. Forward Voltage

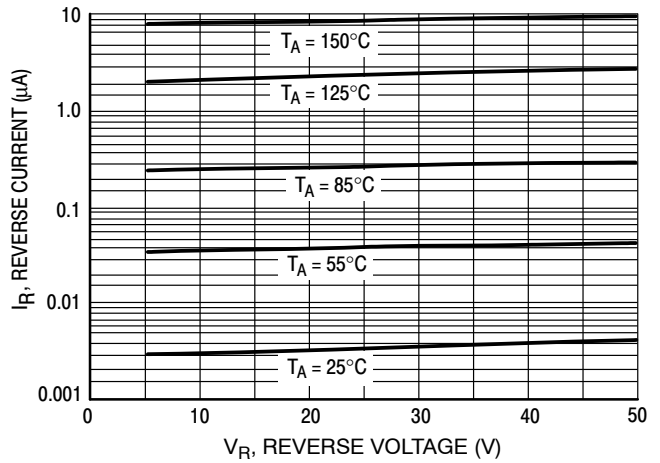


Figure 3. Leakage Current

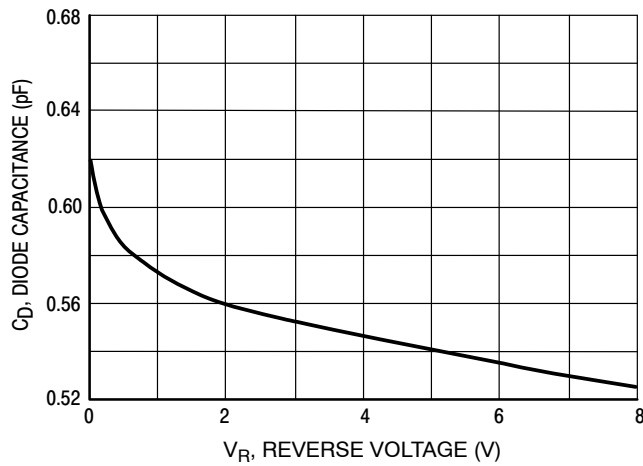


Figure 4. Capacitance

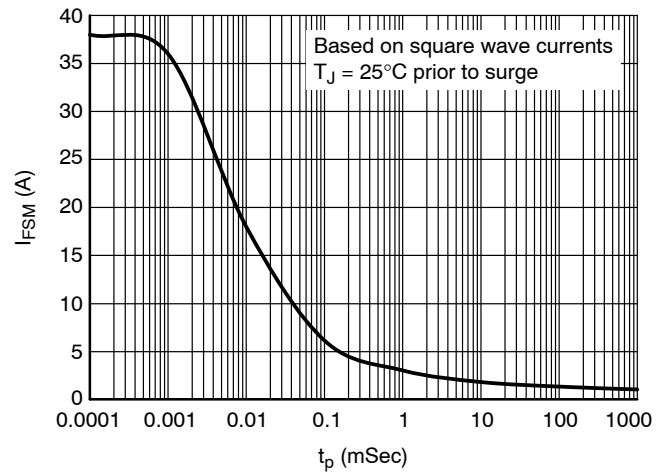
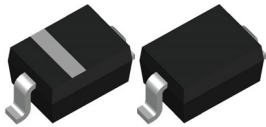
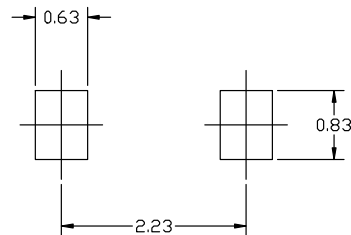
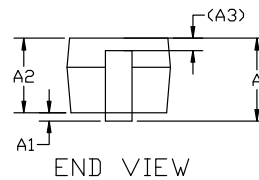
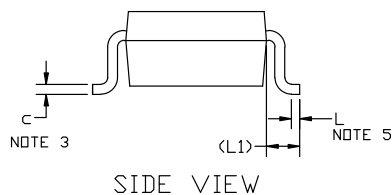
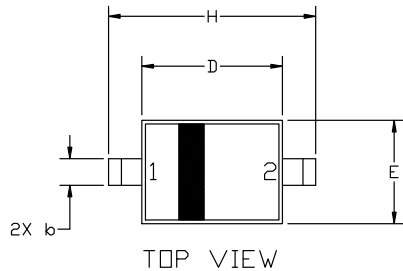


Figure 5. Maximum Non-repetitive Peak Forward Current as a Function of Pulse Duration, Typical Values


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

DATE 11 MAR 2024

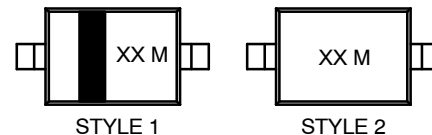


*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference manual, SOLDERRM/D.

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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| DESCRIPTION: | SOD-323 1.70x1.25x0.85 | PAGE 1 OF 1 |

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