

# Switching Diode

## BAS116L

### Features

- Low Leakage Current Applications
- Medium Speed Switching Times
- Available in 8 mm Tape and Reel
  - Use BAS116LT1G to order the 7 inch/3,000 unit reel
- S and NSV 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 | $V_R$           | 75    | Vdc  |
| Peak Forward Current       | $I_F$           | 200   | mAdc |
| Peak Forward Surge Current | $I_{FM(surge)}$ | 500   | mAdc |

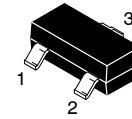
### THERMAL CHARACTERISTICS

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

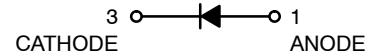
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. FR-5 =  $1.0 \times 0.75 \times 0.062$  in.

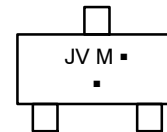
2. Alumina =  $0.4 \times 0.3 \times 0.024$  in. 99.5% alumina.



SOT-23 (TO-236)  
CASE 318  
STYLE 8



### MARKING DIAGRAM



JV = 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

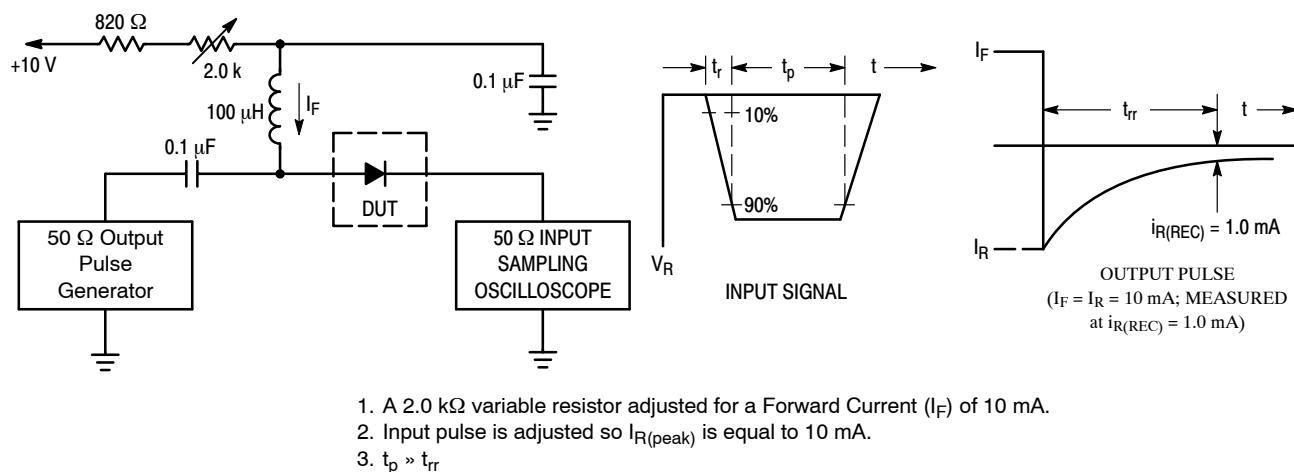
| Device                      | Package             | Shipping <sup>†</sup> |
|-----------------------------|---------------------|-----------------------|
| BAS116LT1G<br>SBAS116LT1G   | SOT-23<br>(Pb-Free) | 3000 / Tape & Reel    |
| BAS116LT3G<br>NSVBAS116LT3G | SOT-23<br>(Pb-Free) | 10000 / Tape & Reel   |

<sup>†</sup>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** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| Characteristic                                                                                                                             | Symbol     | Min              | Max                         | Unit          |
|--------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------|-----------------------------|---------------|
| <b>OFF CHARACTERISTICS</b>                                                                                                                 |            |                  |                             |               |
| Reverse Breakdown Voltage ( $I_{BR} = 100\ \mu\text{Adc}$ )                                                                                | $V_{(BR)}$ | 75               | –                           | Vdc           |
| Reverse Voltage Leakage Current ( $V_R = 75\ \text{Vdc}$ )<br>( $V_R = 75\ \text{Vdc}$ , $T_J = 150^\circ\text{C}$ )                       | $I_R$      | –                | 5.0<br>80                   | nAdc          |
| Forward Voltage ( $I_F = 1.0\ \text{mAdc}$ )<br>( $I_F = 10\ \text{mAdc}$ )<br>( $I_F = 50\ \text{mAdc}$ )<br>( $I_F = 150\ \text{mAdc}$ ) | $V_F$      | –<br>–<br>–<br>– | 900<br>1000<br>1100<br>1250 | mV            |
| Diode Capacitance ( $V_R = 0\ \text{V}$ , $f = 1.0\ \text{MHz}$ )                                                                          | $C_D$      | –                | 2.0                         | pF            |
| Reverse Recovery Time ( $I_F = I_R = 10\ \text{mAdc}$ ) (Figure 1)                                                                         | $t_{rr}$   | –                | 3.0                         | $\mu\text{s}$ |

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.



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

TYPICAL CHARACTERISTICS

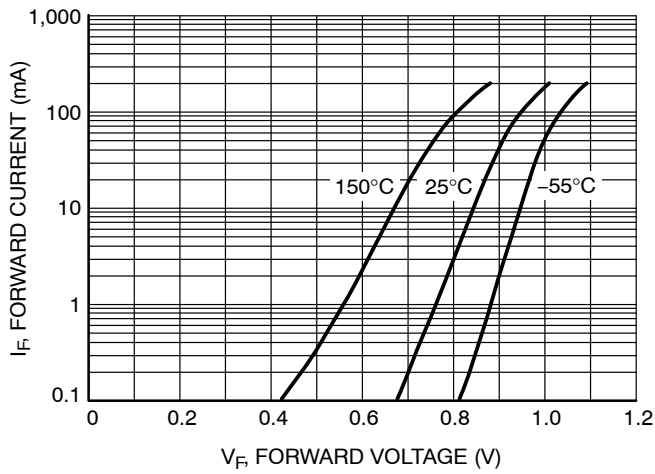


Figure 2. Forward Voltage

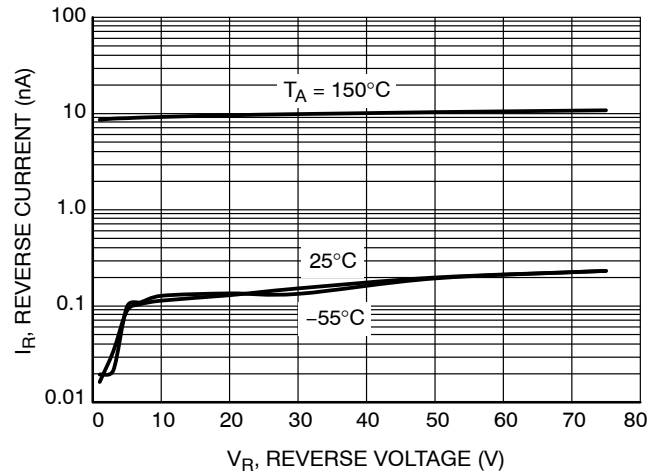


Figure 3. Leakage Current

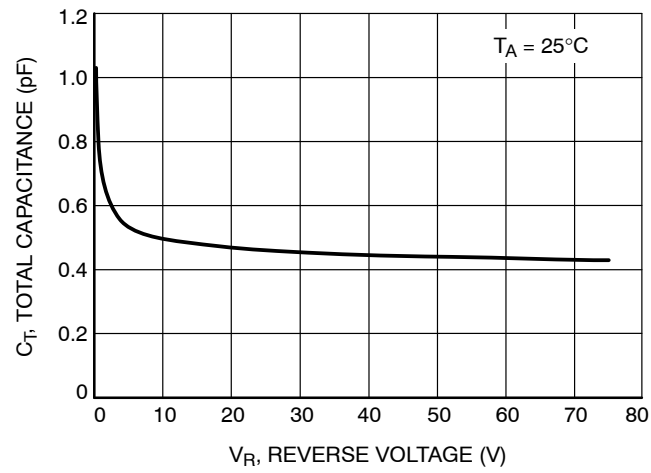


Figure 4. Capacitance

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