

# BAS16XV2T1, BAS16XV2T5, SBAS16XV2T1G



**ON Semiconductor®**

<http://onsemi.com>

## Switching Diode

### Features

- High-Speed Switching Applications
- Lead Finish: 100% Matte Sn (Tin)
- Qualified Reflow Temperature: 260°C
- Extremely Small SOD-523 Package
- AEC-Q101 Qualified and PPAP Capable
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- Pb-Free Packages are Available

### MAXIMUM RATINGS

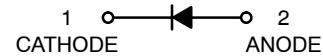
| Rating  | Symbol          | Value | Unit |
|---|-----------------|-------|------|
| Continuous Reverse Voltage  | $V_R$           | 75    | V    |
| Continuous Forward Current  | $I_F$           | 200   | mA   |
| Peak Forward Surge Current  | $I_{FM(surge)}$ | 500   | mA   |
| Repetitive Peak Forward Current   | $I_{FRM}$       | 500   | mA   |
| Non-Repetitive Peak Forward Current<br>(Square Wave, $T_J = 25^\circ\text{C}$ prior to surge) | $I_{FSM}$       |       | A    |
| $t = 1 \mu\text{s}$   |                 | 4.0   |      |
| $t = 1 \text{ms}$   |                 | 1.0   |      |
| $t = 1 \text{s}$  |                 | 0.5   |      |

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

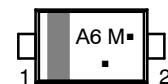
| Characteristic  | Symbol          | Max        | Unit                      |
|---|-----------------|------------|---------------------------|
| Total Device Dissipation, (Note 1)<br>$T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 200        | mW                        |
| 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-5 Minimum Pad.



SOD-523  
CASE 502  
PLASTIC

### MARKING DIAGRAM



A6 = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package  
(Note: Microdot may be in either location)

### ORDERING INFORMATION

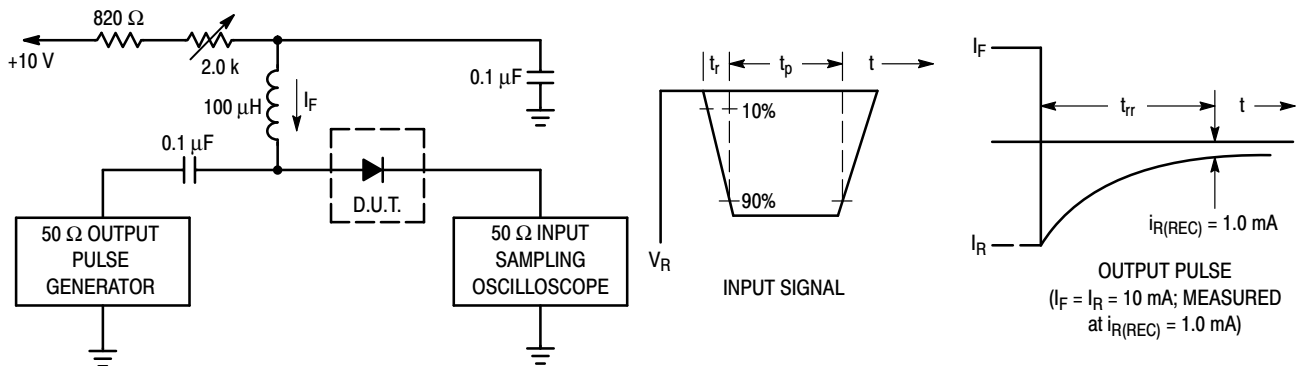
| Device       | Package              | Shipping†          |
|--------------|----------------------|--------------------|
| BAS16XV2T1   | SOD-523              | 3000 / Tape & Reel |
| BAS16XV2T1G  | SOD-523<br>(Pb-Free) | 3000 / Tape & Reel |
| BAS16XV2T5G  | SOD-523<br>(Pb-Free) | 8000 / Tape & Reel |
| SBAS16XV2T1G | SOD-523<br>(Pb-Free) | 3000 / 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.

# BAS16XV2T1, BAS16XV2T5, SBAS16XV2T1G

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

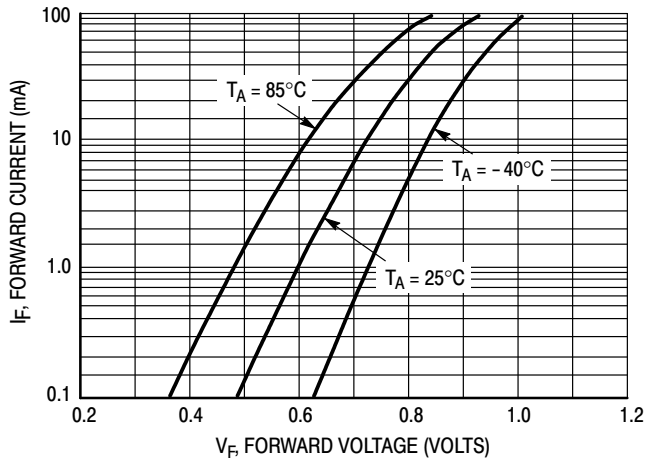
| Characteristic   | Symbol     | Min | Max                        | Unit          |
|--|------------|-----|----------------------------|---------------|
| <b>OFF CHARACTERISTICS</b>   |            |     |                            |               |
| Reverse Voltage Leakage Current<br>( $V_R = 75\text{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



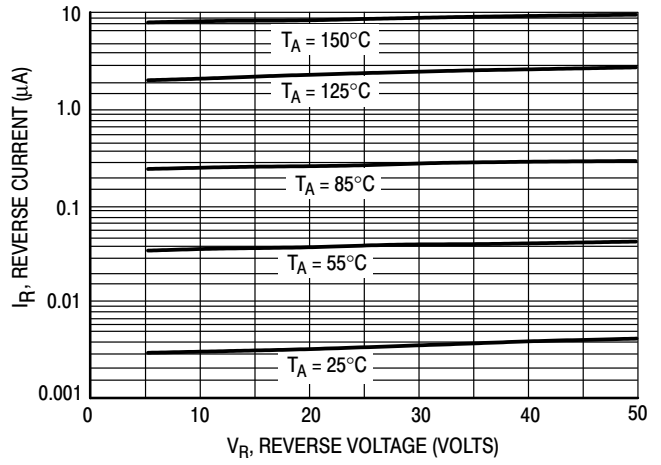
- Notes: 1. A 2.0 k $\Omega$  variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.  
 2. Input pulse is adjusted so  $I_{R(\text{peak})}$  is equal to 10 mA.  
 3.  $t_p > t_{rr}$

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

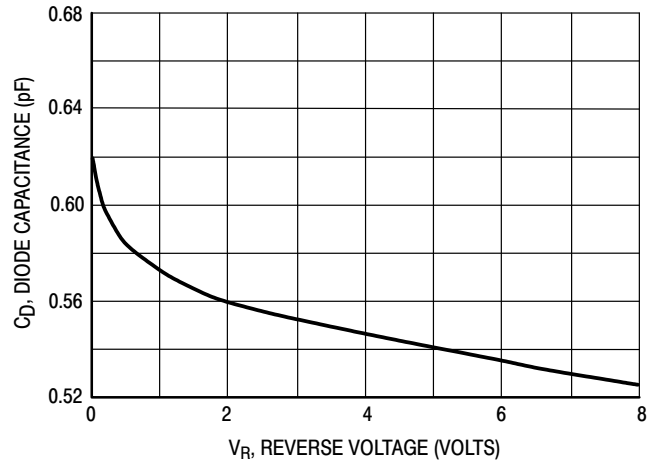
**BAS16XV2T1, BAS16XV2T5, SBAS16XV2T1G**



**Figure 2. Forward Voltage**



**Figure 3. Leakage Current**

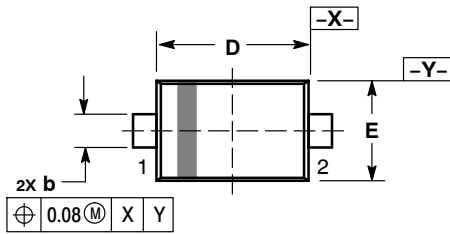


**Figure 4. Capacitance**

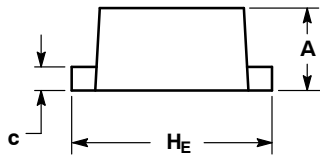
# BAS16XV2T1, BAS16XV2T5, SBAS16XV2T1G

## PACKAGE DIMENSIONS

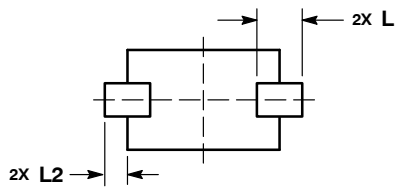
SOD-523  
CASE 502-01  
ISSUE E



TOP VIEW



SIDE VIEW



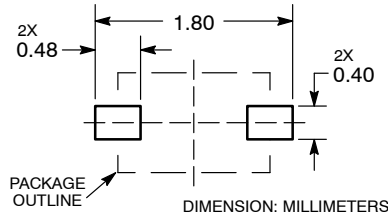
BOTTOM VIEW

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 BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN         | NOM  | MAX  |
| A   | 0.50        | 0.60 | 0.70 |
| b   | 0.25        | 0.30 | 0.35 |
| c   | 0.07        | 0.14 | 0.20 |
| D   | 1.10        | 1.20 | 1.30 |
| E   | 0.70        | 0.80 | 0.90 |
| H E | 1.50        | 1.60 | 1.70 |
| L   | 0.30 REF    |      |      |
| L2  | 0.15        | 0.20 | 0.25 |

### RECOMMENDED SOLDERING FOOTPRINT\*



DIMENSION: 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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