

# Switching Diode

## BAS16XV2

### Features

- High-Speed Switching Applications
- Lead Finish: 100% Matte Sn (Tin)
- Qualified Reflow Temperature: 260°C
- Extremely Small SOD-523 Package
- 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

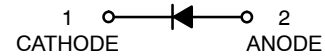
| Rating                                                                                                                                                          | Symbol          | Value             | Unit |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------|------|
| Continuous Reverse Voltage                                                                                                                                      | $V_R$           | 100               | V    |
| Continuous Forward Current                                                                                                                                      | $I_F$           | 200               | mA   |
| Peak Forward Surge Current                                                                                                                                      | $I_{FM(surge)}$ | 500               | mA   |
| Repetitive Peak Forward Current<br>(Pulse Wave = 1 sec, Duty Cycle = 66%)                                                                                       | $I_{FRM}$       | 500               | mA   |
| Non-Repetitive Peak Forward Current<br>(Square Wave, $T_J = 25^\circ\text{C}$ prior to surge)<br>$t = 1 \mu\text{s}$<br>$t = 1 \text{ ms}$<br>$t = 1 \text{ s}$ | $I_{FSM}$       | 4.0<br>1.0<br>0.5 | 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, (Note 1)<br>$T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 200<br>1.57 | mW<br>mW/°C |
| Thermal Resistance, Junction-to-Ambient                                                           | $R_{\theta JA}$ | 635         | °C/W        |
| Junction and Storage Temperature                                                                  | $T_J, T_{stg}$  | -55 to 150  | °C          |

1. FR-5 Minimum Pad.



SOD-523  
CASE 502

### MARKING DIAGRAM



A6 = Specific Device Code  
M = Date Code  
■ = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

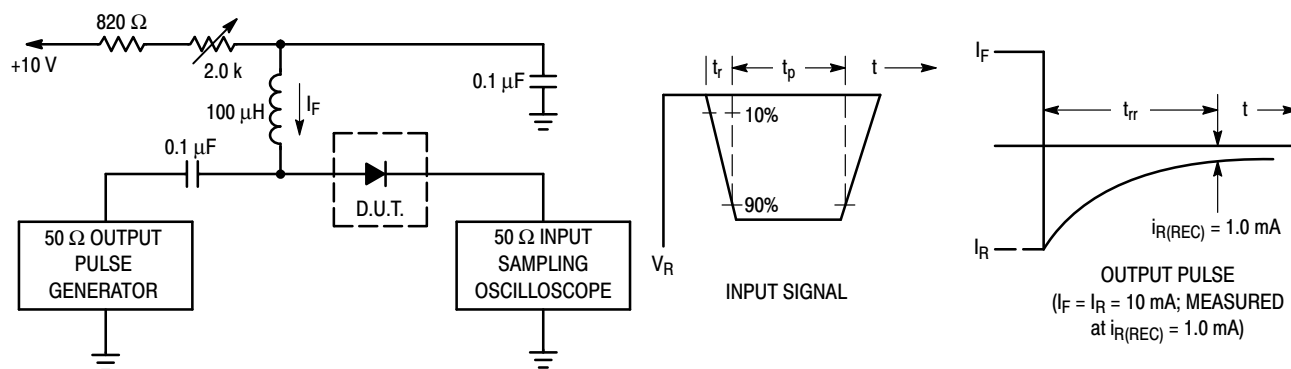
| Device       | Package              | Shipping†          |
|--------------|----------------------|--------------------|
| BAS16XV2T1G  | SOD-523<br>(Pb-Free) | 3000 / Tape & Reel |
| BAS16XV2T5G  | SOD-523<br>(Pb-Free) | 8000 / Tape & Reel |
| SBAS16XV2T1G | SOD-523<br>(Pb-Free) | 3000 / Tape & Reel |
| SBAS16XV2T5G | SOD-523<br>(Pb-Free) | 8000 / 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](http://BRD8011/D).

# BAS16XV2

## 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>( $V_R = 100\text{ V}$ )<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>( $I_{BR} = 100\text{ }\mu\text{A}$ )                                                                                                        | $V_{(BR)}$ | 100 | –                          | 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>( $I_F = I_R = 10\text{ mA}$ , $R_L = 50\text{ }\Omega$ )                                                                                        | $t_{rr}$   | –   | 6.0                        | ns            |
| Stored Charge<br>( $I_F = 10\text{ mA}$ to $V_R = 5.0\text{ V}$ , $R_L = 500\text{ }\Omega$ )                                                                             | $Q_S$      | –   | 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.  $t_p \gg t_{rr}$

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

## BAS16XV2

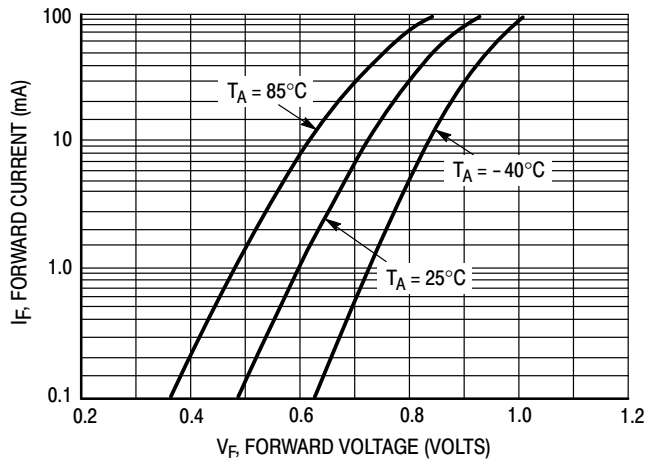


Figure 2. Forward Voltage

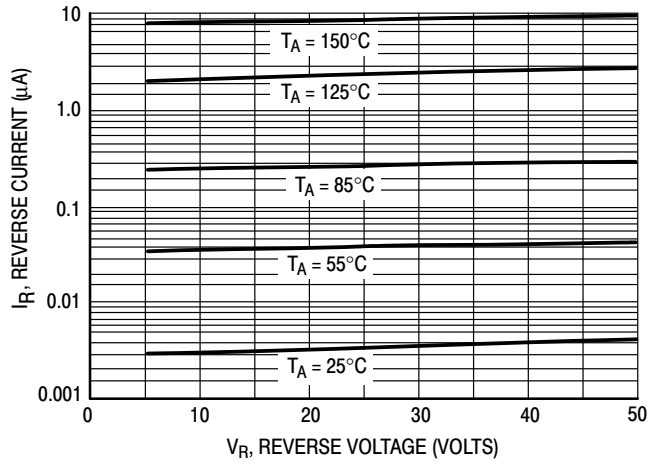


Figure 3. Leakage Current

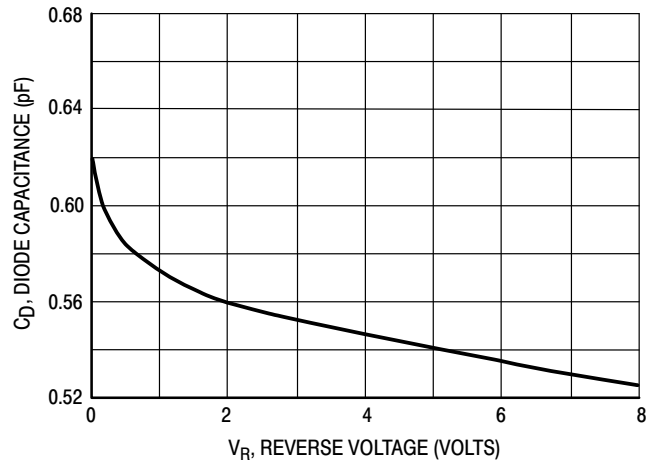
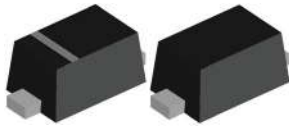
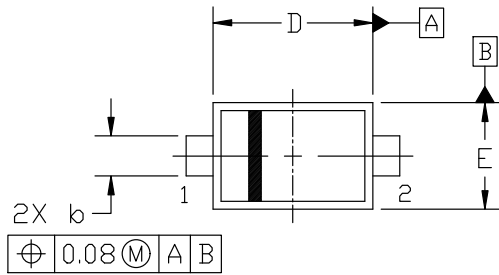


Figure 4. Capacitance



**SOD-523 1.20x0.80x0.60**  
**CASE 502**  
**ISSUE F**

DATE 08 FEB 2024



TOP VIEW



SIDE VIEW



BOTTOM VIEW

**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

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
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   | 1.50        | 1.60 | 1.70 |
| L   | 0.30 REF    |      |      |
| L2  | 0.15        | 0.20 | 0.25 |



RECOMMENDED MOUNTING  
FOOTPRINT

\*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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