

# High Voltage Switching Diode

## BAS20H

### 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                                                                                                                                      | $V_R$           | 200               | Vdc  |
| Repetitive Peak Reverse Voltage                                                                                                                                 | $V_{RRM}$       | 200               | Vdc  |
| Continuous Forward Current                                                                                                                                      | $I_F$           | 200               | mAdc |
| Peak Forward Surge Current                                                                                                                                      | $I_{FM(surge)}$ | 625               | mAdc |
| 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>$t = 1 \text{ s}$ | $I_{FSM}$       | 5.0<br>2.0<br>0.5 | A    |

### THERMAL CHARACTERISTICS

| Characteristic                                                                                      | Symbol          | Max         | Unit                       |
|-----------------------------------------------------------------------------------------------------|-----------------|-------------|----------------------------|
| Total Device Dissipation FR-5 Board*<br>$T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 200<br>1.57 | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance Junction-to-Ambient                                                              | $R_{\theta JA}$ | 635         | $^\circ\text{C}/\text{W}$  |
| Junction and Storage Temperature Range                                                              | $T_J, T_{stg}$  | -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.

\*FR-5 Minimum Pad

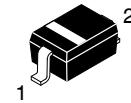
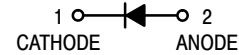
### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

### OFF CHARACTERISTICS

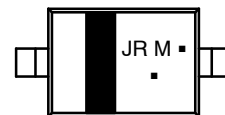
|                                                                                                                           |            |     |              |                 |
|---------------------------------------------------------------------------------------------------------------------------|------------|-----|--------------|-----------------|
| Reverse Voltage Leakage Current<br>( $V_R = 200 \text{ Vdc}$ )<br>( $V_R = 200 \text{ Vdc}$ , $T_J = 150^\circ\text{C}$ ) | $I_R$      | –   | 1.0<br>100   | $\mu\text{Adc}$ |
| Reverse Breakdown Voltage<br>( $I_{BR} = 100 \mu\text{Adc}$ )                                                             | $V_{(BR)}$ | 250 | –            | Vdc             |
| Forward Voltage<br>( $I_F = 100 \text{ mAdc}$ )<br>( $I_F = 200 \text{ mAdc}$ )                                           | $V_F$      | –   | 1000<br>1250 | mV              |
| Diode Capacitance<br>( $V_R = 0$ , $f = 1.0 \text{ MHz}$ )                                                                | $C_D$      | –   | 5.0          | pF              |
| Reverse Recovery Time<br>( $I_F = I_R = 30 \text{ mAdc}$ , $R_L = 100 \Omega$ )                                           | $t_{rr}$   | –   | 50           | ns              |

## HIGH VOLTAGE SWITCHING DIODE



SOD-323  
CASE 477  
STYLE 1

### MARKING DIAGRAM



JR = Specific Device Code

M = Date Code\*

▪ = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation may vary depending upon manufacturing location.

### ORDERING INFORMATION

| Device     | Package              | Shipping†          |
|------------|----------------------|--------------------|
| BAS20HT1G  | SOD-323<br>(Pb-Free) | 3000 / Tape & Reel |
| SBAS20HT1G | SOD-323<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](http://BRD8011/D).

## BAS20H

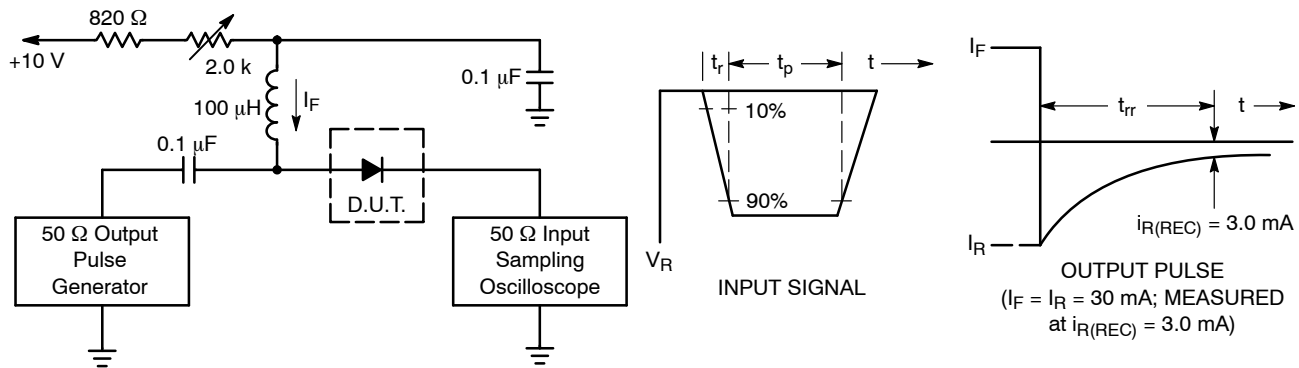


Figure 1. Recovery Time Equivalent Test Circuit

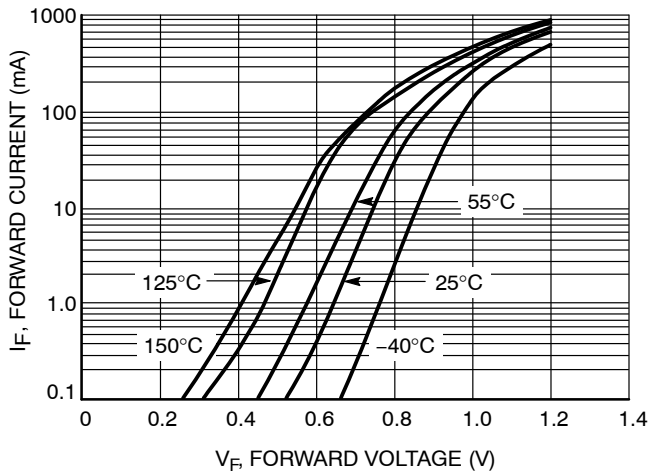


Figure 2. Forward Current

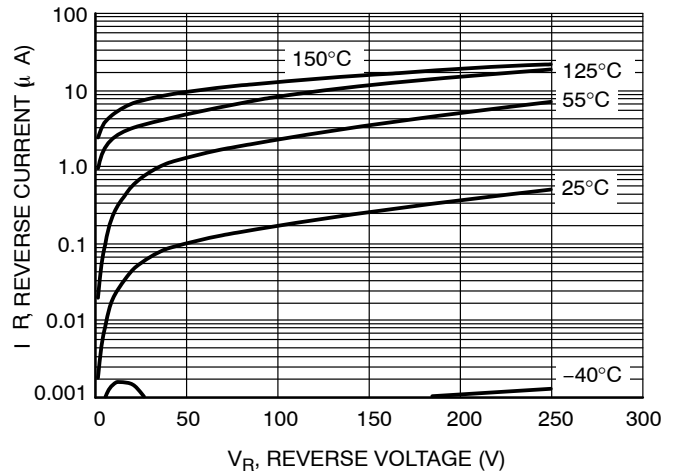


Figure 3. Leakage Current

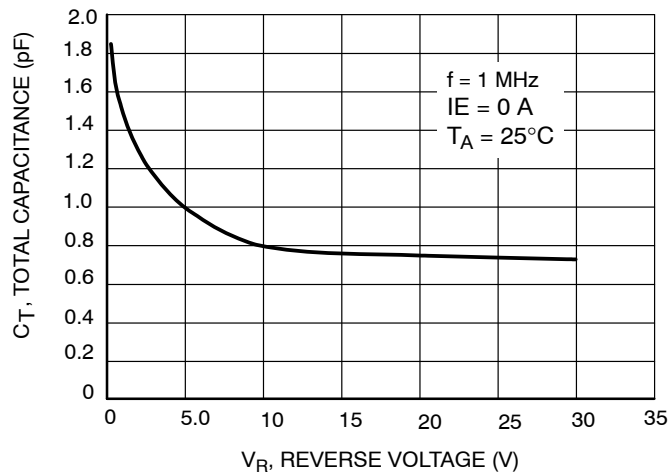
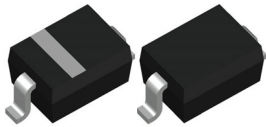


Figure 4. Total Capacitance

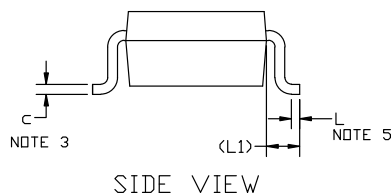
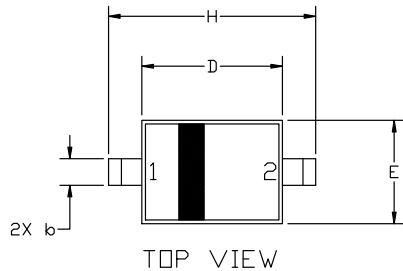


### SOD-323 1.70x1.25x0.85

#### CASE 477

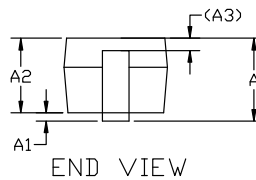
#### ISSUE K

DATE 11 MAR 2024

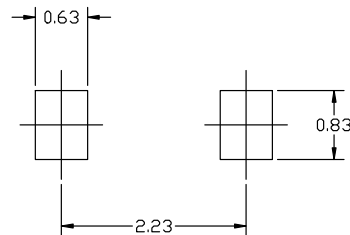


#### NOTES:

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.

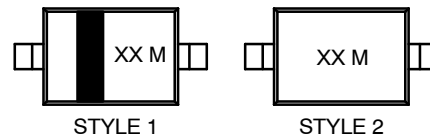


| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | 0.80        | 0.90 | 1.00 |
| A1  | 0.00        | 0.05 | 0.10 |
| A2  | 0.75        | 0.85 | 0.95 |
| A3  | 0.15 (REF)  |      |      |
| b   | 0.25        | 0.32 | 0.4  |
| c   | 0.09        | 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)  |      |      |



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

#### 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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| <b>DESCRIPTION:</b>     | <b>SOD-323 1.70x1.25x0.85</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                               |

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