

# Switching Diode, Dual, Common Anode, 70 V

## BAW56WT1G, SBAW56WT1G

### 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 (T<sub>A</sub> = 25°C)

| Rating  | Symbol                 | Max                 | Unit |
|---|------------------------|---------------------|------|
| Reverse Voltage                                   | V <sub>R</sub>         | 70                  | V    |
| Forward Current                                   | I <sub>F</sub>         | 200                 | mA   |
| Peak Forward Surge Current                        | I <sub>FM(surge)</sub> | 500                 | mA   |
| Forward Surge Max Current<br>(Single Square Wave) | I <sub>FSM</sub>       | 4<br>1<br>0.5       | A    |
|   |                        | 1 μs<br>1 ms<br>1 s |      |

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 (T<sub>A</sub> = 25°C)

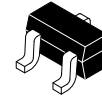
| Characteristic  | Symbol                            | Max            | Unit        |
|---|-----------------------------------|----------------|-------------|
| Total Device Dissipation FR-5 Board<br>(Note 1)<br>T <sub>A</sub> = 25°C<br>Derate above 25°C     | P <sub>D</sub>                    | 200<br>1.6     | mW<br>mW/°C |
| Thermal Resistance, Junction-to-Ambient   | R <sub>θJA</sub>                  | 625            | °C/W        |
| Total Device Dissipation<br>Alumina Substrate (Note 2) T <sub>A</sub> = 25°C<br>Derate above 25°C | P <sub>D</sub>                    | 300<br>2.4     | mW<br>mW/°C |
| Thermal Resistance, Junction-to-Ambient   | R <sub>θJA</sub>                  | 417            | °C/W        |
| Junction and Storage Temperature  | T <sub>J</sub> , T <sub>stg</sub> | -55 to<br>+150 | °C          |

1. FR-5 = 1.0 × 0.75 × 0.062 in.
2. Alumina = 0.4 × 0.3 × 0.024 in. 99.5% alumina.

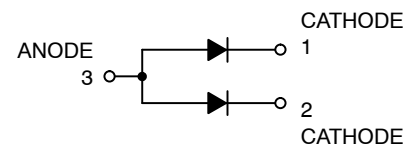


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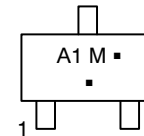
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SC-70  
CASE 419  
STYLE 4



### MARKING DIAGRAM



A1 = 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†           |
|------------|--------------------|---------------------|
| BAW56WT1G  | SC-70<br>(Pb-Free) | 3,000 / Tape & Reel |
| SBAW56WT1G | SC-70<br>(Pb-Free) | 3,000 / Tape & Reel |

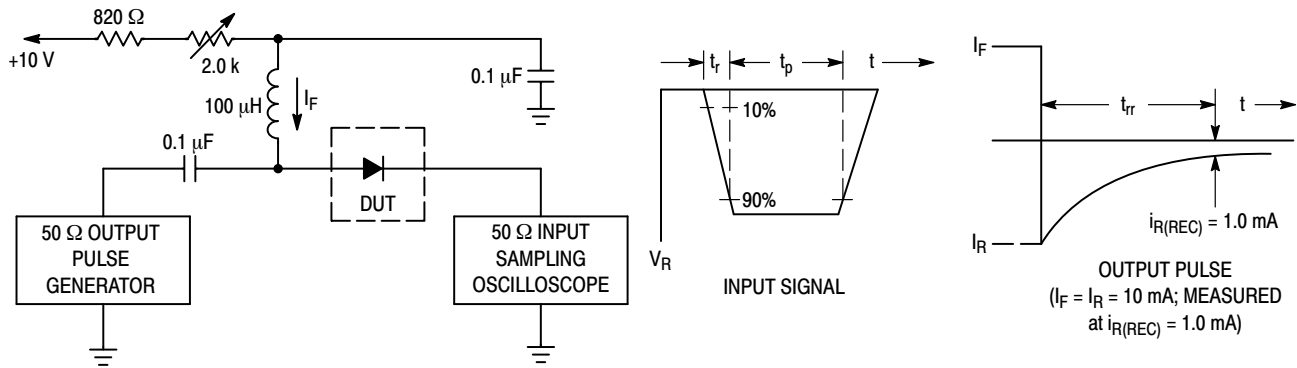
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

| Characteristic  | Symbol     | Min              | Max                        | Unit          |
|---|------------|------------------|----------------------------|---------------|
| <b>OFF CHARACTERISTICS</b>  |            |                  |                            |               |
| Reverse Breakdown Voltage<br>( $I_{(BR)} = 100 \mu\text{A}$ )   | $V_{(BR)}$ | 70               | -                          | V             |
| Reverse Voltage Leakage Current<br>( $V_R = 25 \text{ V}, T_J = 150^\circ\text{C}$ )<br>( $V_R = 70 \text{ V}$ )<br>( $V_R = 70 \text{ V}, T_J = 150^\circ\text{C}$ ) | $I_R$      | -<br>-<br>-      | 30<br>2.5<br>50            | $\mu\text{A}$ |
| Diode Capacitance<br>( $V_R = 0, f = 1.0 \text{ MHz}$ )   | $C_D$      | -                | 2.0                        | pF            |
| Forward Voltage<br>( $I_F = 1.0 \text{ mA}$ )<br>( $I_F = 10 \text{ mA}$ )<br>( $I_F = 50 \text{ mA}$ )<br>( $I_F = 150 \text{ mA}$ )                                 | $V_F$      | -<br>-<br>-<br>- | 715<br>855<br>1000<br>1250 | mV            |
| Reverse Recovery Time<br>( $I_F = I_R = 10 \text{ mA}, R_L = 100 \Omega, I_{R(REC)} = 1.0 \text{ mA}$ ) (Figure 1)  | $t_{rr}$   | -                | 6.0                        | ns            |

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 $\Omega$  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**

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## TYPICAL CHARACTERISTICS

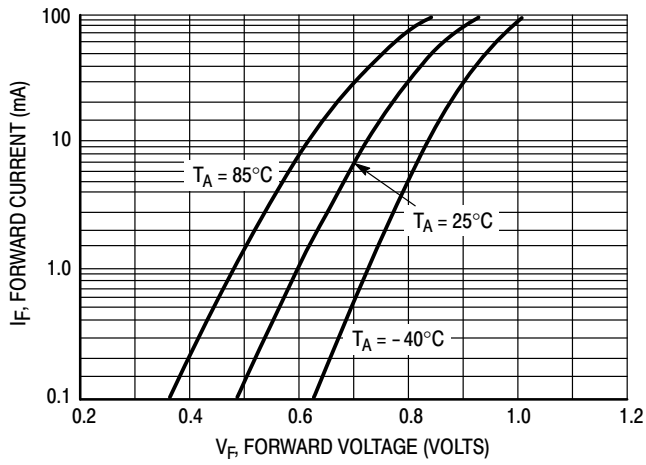


Figure 2. Forward Voltage

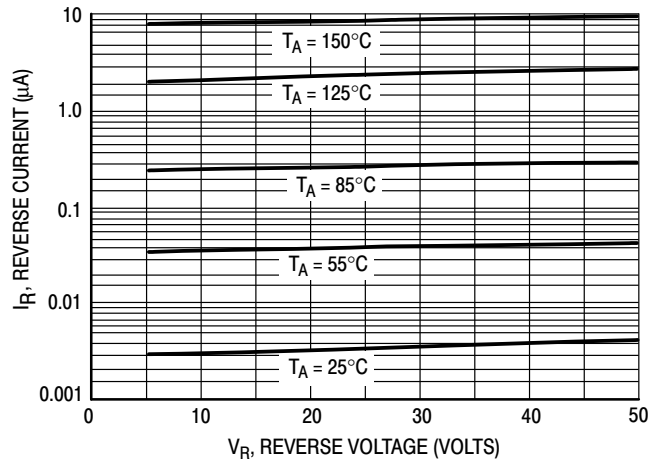


Figure 3. Leakage Current

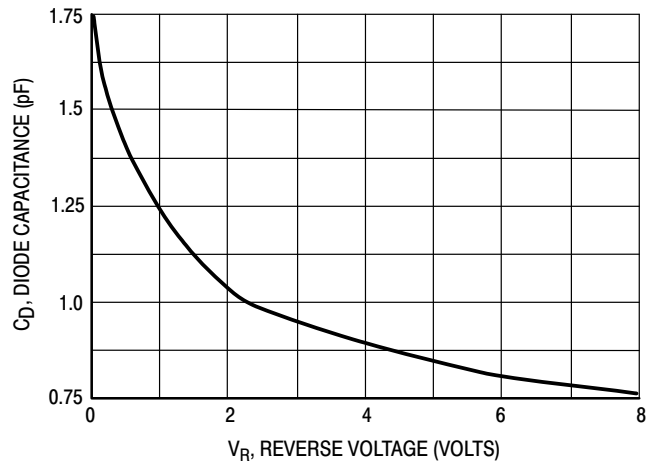
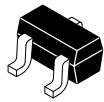


Figure 4. Capacitance

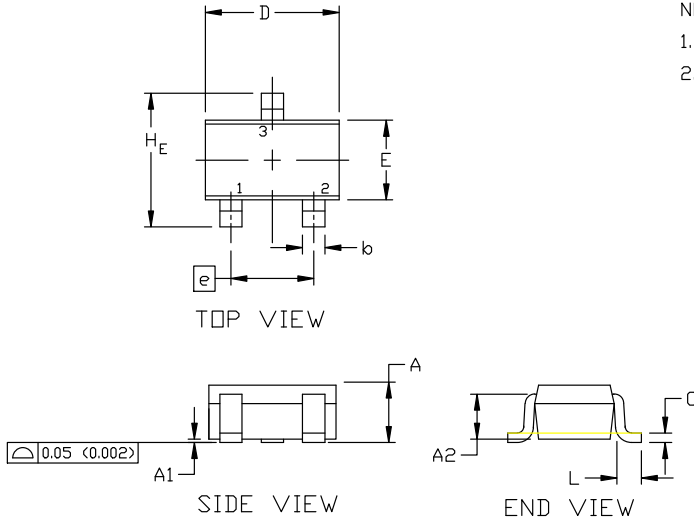
# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SCALE 4:1

## SC-70 (SOT-323) CASE 419 ISSUE R

DATE 11 OCT 2022

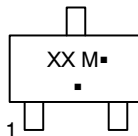


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH

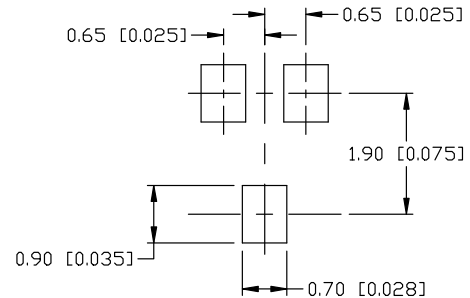
| DIM            | MILLIMETERS |      |      | INCHES    |       |       |
|----------------|-------------|------|------|-----------|-------|-------|
|                | MIN.        | NOM. | MAX. | MIN.      | NOM.  | MAX.  |
| A              | 0.80        | 0.90 | 1.00 | 0.032     | 0.035 | 0.040 |
| A1             | 0.00        | 0.05 | 0.10 | 0.000     | 0.002 | 0.004 |
| A2             | 0.70 REF    |      |      | 0.028 BSC |       |       |
| b              | 0.30        | 0.35 | 0.40 | 0.012     | 0.014 | 0.016 |
| c              | 0.10        | 0.18 | 0.25 | 0.004     | 0.007 | 0.010 |
| D              | 1.80        | 2.00 | 2.20 | 0.071     | 0.080 | 0.087 |
| E              | 1.15        | 1.24 | 1.35 | 0.045     | 0.049 | 0.053 |
| e              | 1.20        | 1.30 | 1.40 | 0.047     | 0.051 | 0.055 |
| e1             | 0.65 BSC    |      |      | 0.026 BSC |       |       |
| L              | 0.20        | 0.38 | 0.56 | 0.008     | 0.015 | 0.022 |
| H <sub>E</sub> | 2.00        | 2.10 | 2.40 | 0.079     | 0.083 | 0.095 |

### GENERIC MARKING DIAGRAM



- XX = Specific Device Code
- M = Date Code
- = Pb-Free Package

\*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.



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

### SOLDERING FOOTPRINT

|   |   |   |  |   |
|---|---|---|--|---|
| STYLE 1:<br>CANCELLED                                 | STYLE 2:<br>PIN 1. ANODE<br>2. N.C.<br>3. CATHODE     | STYLE 3:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 4:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. ANODE       | STYLE 5:<br>PIN 1. ANODE<br>2. ANODE<br>3. CATHODE          |
| STYLE 6:<br>PIN 1. EMITTER<br>2. BASE<br>3. COLLECTOR | STYLE 7:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 8:<br>PIN 1. GATE<br>2. SOURCE<br>3. DRAIN      | STYLE 9:<br>PIN 1. ANODE<br>2. CATHODE<br>3. CATHODE-ANODE | STYLE 10:<br>PIN 1. CATHODE<br>2. ANODE<br>3. ANODE-CATHODE |
|   |   |   |  | STYLE 11:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. CATHODE     |

|                         |                        |  |
|-------------------------|------------------------|--|
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| <b>DESCRIPTION:</b>     | <b>SC-70 (SOT-323)</b> | <b>PAGE 1 OF 1</b>   |

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