

# BAWH56W, NSVBAWH56W

## Dual Switching Diode, Common Anode

### Features

- 175°C T<sub>J(MAX)</sub> – Rated for High Temperature, Mission Critical Applications
- 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 (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   |
| Non-Repetitive Peak Surge Current<br>(surge applied at rated load conditions,<br>half wave, single pulse, 60 Hz) | I <sub>FSM</sub> | 2.0 | 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 (T<sub>A</sub> = 25°C)

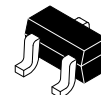
| Characteristic                                                                                    | Symbol                            | Max            | Unit        |
|---------------------------------------------------------------------------------------------------|-----------------------------------|----------------|-------------|
| 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>1.1     | mW<br>mW/°C |
| Thermal Resistance, Junction-to-Ambient<br>(Note 1)                                               | R <sub>θJA</sub>                  | 615            | °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>1.6     | mW<br>mW/°C |
| Thermal Resistance, Junction-to-Ambient<br>(Note 2)                                               | R <sub>θJA</sub>                  | 417            | °C/W        |
| Junction and Storage Temperature                                                                  | T <sub>J</sub> , T <sub>stg</sub> | -55 to<br>+175 | °C          |

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

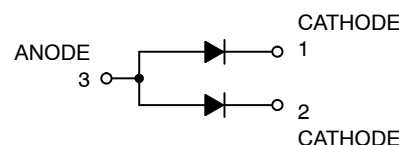


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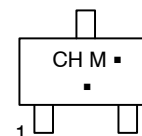
[www.onsemi.com](http://www.onsemi.com)



SC-70  
CASE 419  
STYLE 4



### MARKING DIAGRAM



CH = 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†           |
|---------------|--------------------|---------------------|
| BAWH56WT1G    | SC-70<br>(Pb-Free) | 3,000 / Tape & Reel |
| NSVBAWH56WT1G | SC-70<br>(Pb-Free) | 3,000 / Tape & Reel |

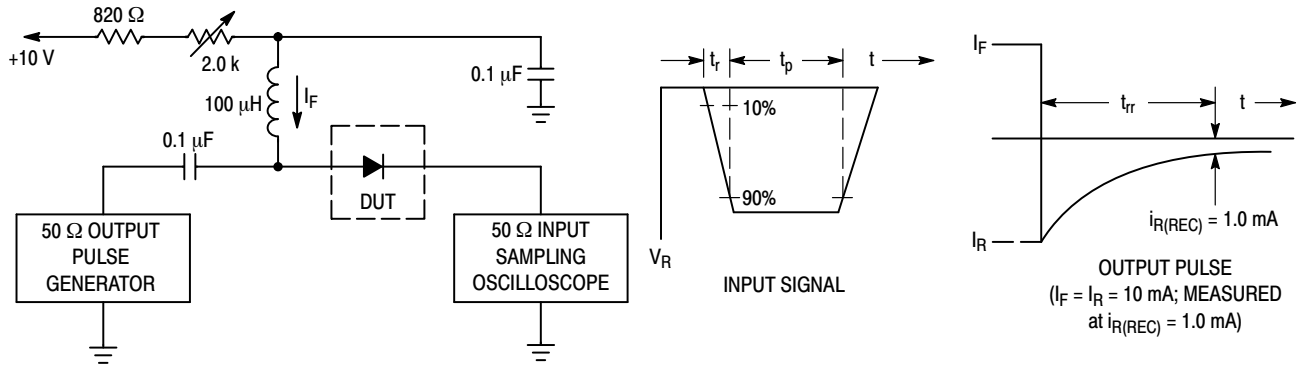
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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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>( $V_R = 25\ \text{V}$ , $T_J = 175^\circ\text{C}$ )<br>( $V_R = 70\ \text{V}$ )<br>( $V_R = 70\ \text{V}$ , $T_J = 175^\circ\text{C}$ ) | $I_R$      | –<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

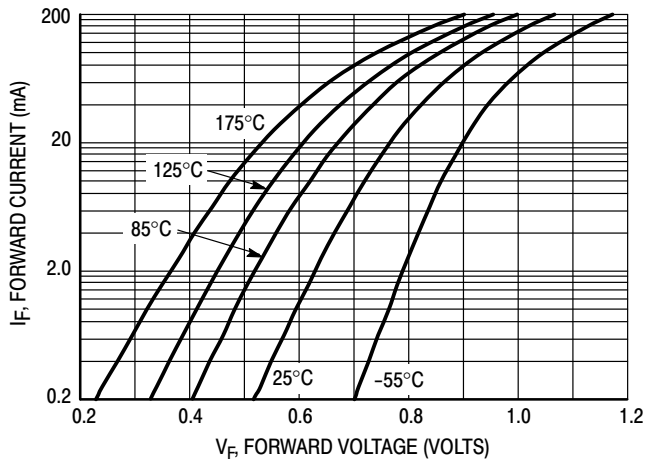


Figure 2. Forward Voltage

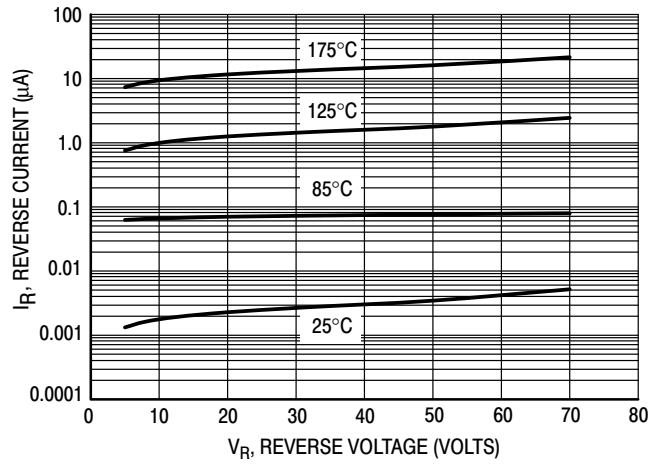


Figure 3. Leakage Current

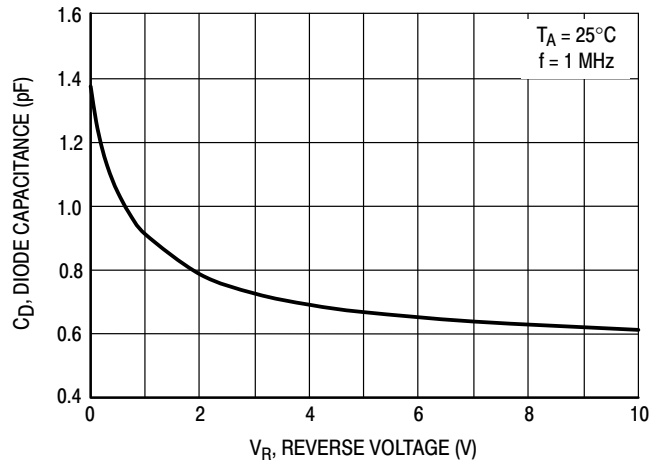
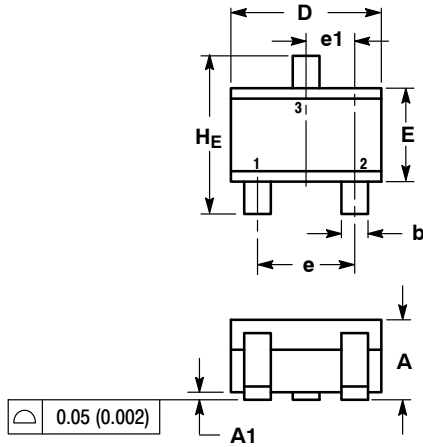


Figure 4. Capacitance

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## PACKAGE DIMENSIONS

### SC-70 (SOT-323) CASE 419-04 ISSUE N



#### NOTES:

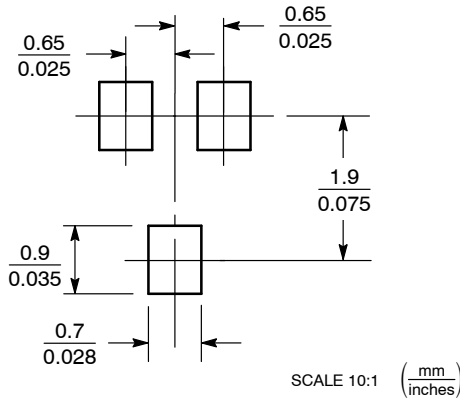
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| 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 REF |       |       |
| 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        | 2.10 | 2.20 | 0.071     | 0.083 | 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 |
| HE  | 2.00        | 2.10 | 2.40 | 0.079     | 0.083 | 0.095 |

#### STYLE 4:

- PIN 1: CATHODE
- CATHODE
- ANODE

### SOLDERING 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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