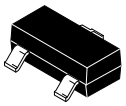
# BAW56LT1G, SBAW56LT1G, BAW56LT3G, SBAW56LT3G

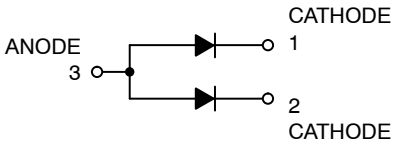
# Dual Switching Diode Common Anode

ON Semiconductor®

http://onsemi.com



SOT−23 (TO−236)
CASE 318
STYLE 12




### Features

- AEC−Q101 Qualified and PPAP Capable
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant*

### MAXIMUM RATINGS (EACH DIODE)

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Reverse Voltage | $V_R$ | 70 | V |
| Forward Current | $I_F$ | 200 | mA |
| Peak Forward Surge Current | $I_{FM(surge)}$ | 500 | mA |
| Non−Repetitive Peak Forward Current t = 1 μs (Note 3) | $I_{FSM}$ | 4 | A |

### THERMAL CHARACTERISTICS

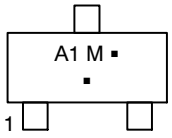
| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Total Device Dissipation FR−5 Board (Note 1) $T_A$ = 25°C<br>Derate above 25°C | $P_D$ | 225<br>1.8 | mW<br>mW/°C |
| Thermal Resistance, Junction−to−Ambient | $R_{\theta JA}$ | 556 | °C/W |
| Total Device Dissipation Alumina Substrate, (Note 2) $T_A$ = 25°C<br>Derate above 25°C | $P_D$ | 300<br>2.4 | mW<br>mW/°C |
| Thermal Resistance, Junction−to−Ambient | $R_{\theta JA}$ | 417 | °C/W |
| Junction and Storage Temperature | $T_J$, $T_{stg}$ | −55 to +150 | °C |

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.

1. FR−5 = 1.0 × 0.75 × 0.062 in.
2. Alumina = 0.4 × 0.3 × 0.024 in. 99.5% alumina.
3. Square Wave; $T_j$ = 25°C.

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

### MARKING DIAGRAM




A1 = Device Code
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

### ORDERING INFORMATION

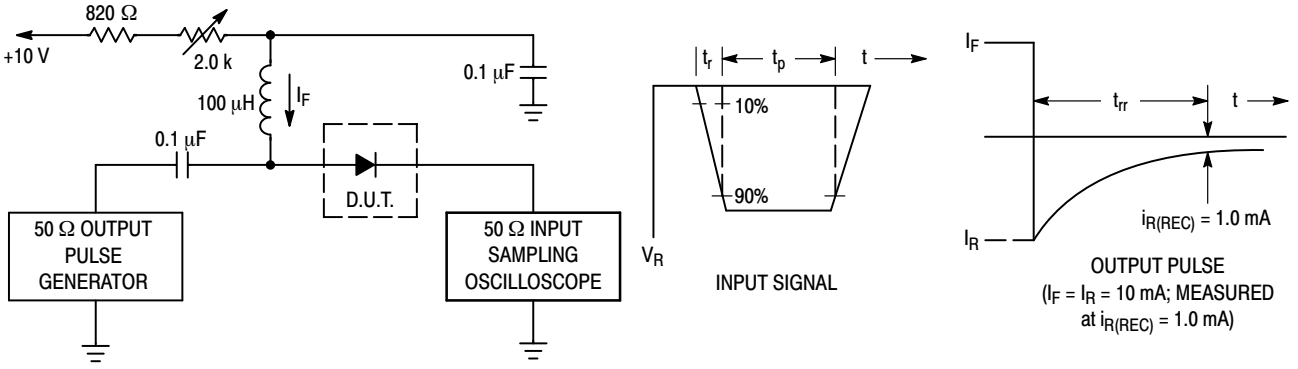
| Device | Package | Shipping† |
|---|---|---|
| BAW56LT1G | SOT−23 (Pb−Free) | 3,000 / Tape & Reel |
| SBAW56LT1G | SOT−23 (Pb−Free) | 3,000 / Tape & Reel |
| BAW56LT3G | SOT−23 (Pb−Free) | 10,000 / Tape & Reel |
| SBAW56LT3G | SOT−23 (Pb−Free) | 10,000 / Tape & Reel |

†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°C unless otherwise noted) (Each Diode)

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




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

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

**Curves Applicable to Each Cathode**

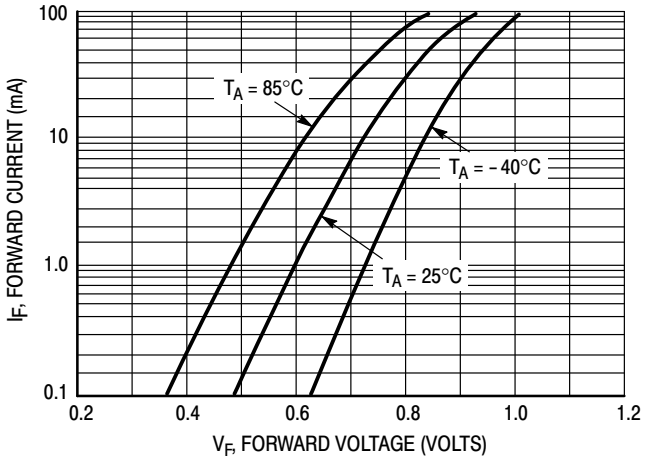



**Figure 2. Forward Voltage**

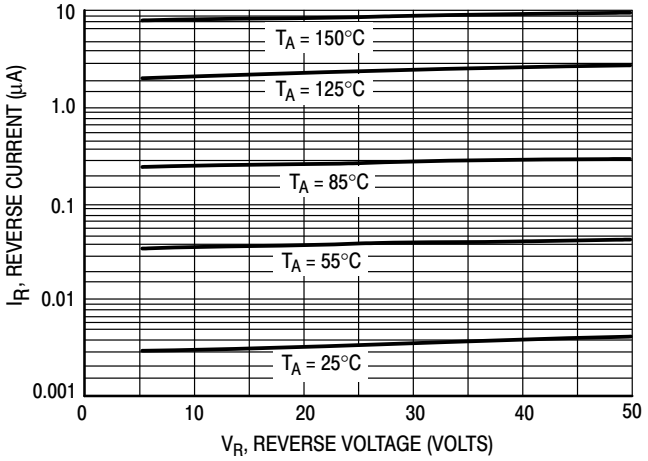



**Figure 3. Leakage Current**

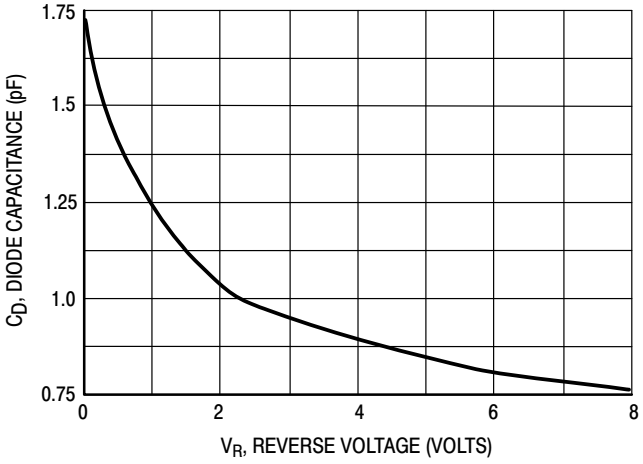
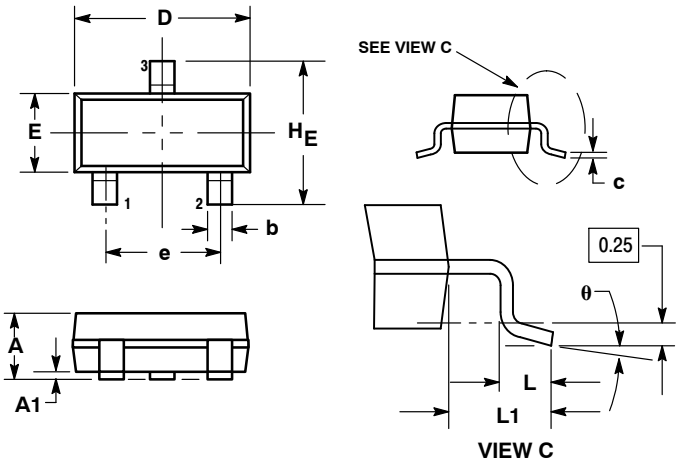



**Figure 4. Capacitance**

## PACKAGE DIMENSIONS

**SOT−23 (TO−236)**
CASE 318−08
ISSUE AP

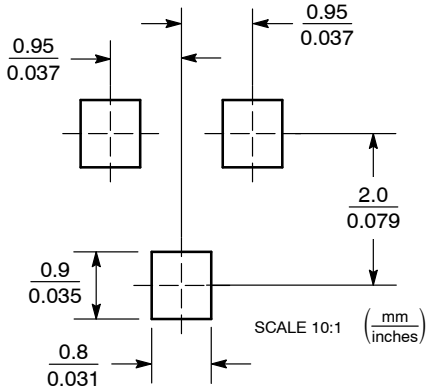



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| DIM | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.89 | 1.00 | 1.11 | 0.035 | 0.040 | 0.044 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| b | 0.37 | 0.44 | 0.50 | 0.015 | 0.018 | 0.020 |
| c | 0.09 | 0.13 | 0.18 | 0.003 | 0.005 | 0.007 |
| D | 2.80 | 2.90 | 3.04 | 0.110 | 0.114 | 0.120 |
| E | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| e | 1.78 | 1.90 | 2.04 | 0.070 | 0.075 | 0.081 |
| L | 0.10 | 0.20 | 0.30 | 0.004 | 0.008 | 0.012 |
| L1 | 0.35 | 0.54 | 0.69 | 0.014 | 0.021 | 0.029 |
| $H_E$ | 2.10 | 2.40 | 2.64 | 0.083 | 0.094 | 0.104 |
| θ | 0° | −−− | 10° | 0° | −−− | 10° |

STYLE 12:
PIN 1. CATHODE
2. CATHODE
3. ANODE

## SOLDERING FOOTPRINT




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