

BAV199LT1G, SBAV199LT1G, SBAV199LT3G



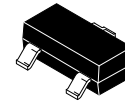
ON Semiconductor®

<http://onsemi.com>

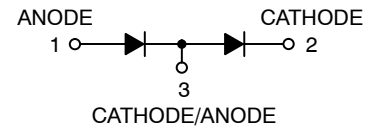
Dual Series Switching Diode

Features

- Low Leakage Current Applications
- Medium Speed Switching Times
- 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*



CASE 318
SOT-23
STYLE 11



MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|---|-----------------|-------------------|------|
| Reverse Voltage | V_R | 70 | Vdc |
| Forward Current | I_F | 215 | mAdc |
| Peak Forward Surge Current | $I_{FM(surge)}$ | 500 | mAdc |
| Repetitive Peak Reverse Voltage | V_{RRM} | 70 | Vdc |
| Average Rectified Forward Current (Note 1) (Averaged Over Any 20 ms Period) | $I_{F(AV)}$ | 715 | mAdc |
| Repetitive Peak Forward Current | I_{FRM} | 450 | mAdc |
| Non-Repetitive Peak Forward Current $t = 1.0 \mu s$ $t = 1.0 ms$ $t = 1.0 s$ | I_{FSM} | 2.0 1.0 0.5 | Adc |

THERMAL CHARACTERISTICS

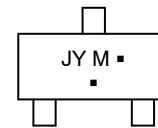
| Characteristic | Symbol | Max | Unit |
|---|-----------------|-------------|----------------------|
| Total Device Dissipation FR-5 Board (Note 1), $T_A = 25^\circ C$ Derate above $25^\circ C$ | P_D | 225 1.8 | mW mW/ $^\circ C$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 556 | $^\circ C/W$ |
| Total Device Dissipation Alumina Substrate (Note 2), $T_A = 25^\circ C$ Derate above $25^\circ C$ | P_D | 300 2.4 | mW mW/ $^\circ C$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 417 | $^\circ C/W$ |
| Junction and Storage Temperature | T_J, T_{stg} | -65 to +150 | $^\circ C$ |

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 = $1.0 \times 0.75 \times 0.062$ in.
2. Alumina = $0.4 \times 0.3 \times 0.024$ in. 99.5% alumina.

*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



JY = Specific 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

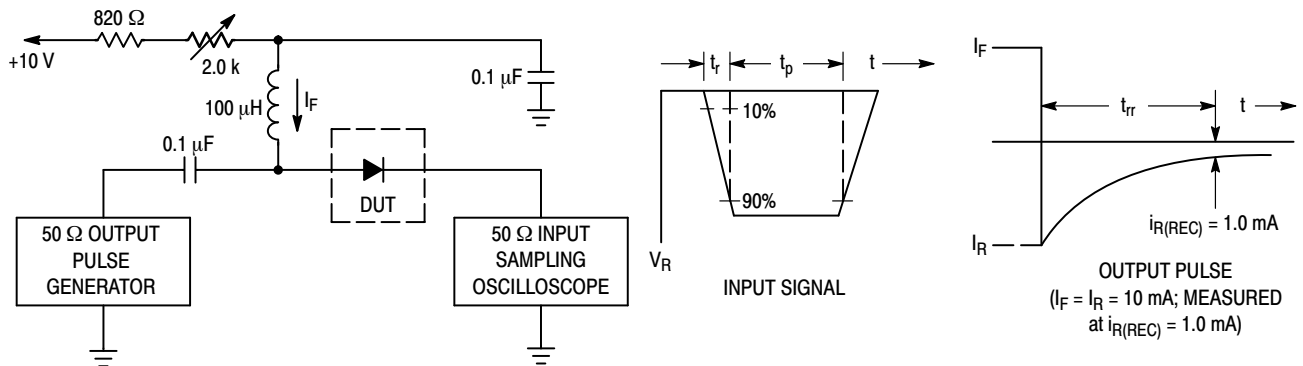
| Device | Package | Shipping† |
|-------------|---------------------|-------------------------|
| BAV199LT1G | SOT-23 (Pb-Free) | 3,000 / Tape & Reel |
| SBAV199LT1G | SOT-23 (Pb-Free) | 3,000 / Tape & Reel |
| SBAV199LT3G | SOT-23 (Pb-Free) | 10,000 / Tape & Reel |

†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 ($T_A = 25^\circ\text{C}$ unless otherwise noted) (EACH DIODE)

| Characteristic | Symbol | Min | Max | Unit |
|---|------------|-----|-----------------------------|---------------|
| OFF CHARACTERISTICS | | | | |
| Reverse Breakdown Voltage ($I_{(BR)} = 100 \mu\text{Adc}$) | $V_{(BR)}$ | 70 | - | Vdc |
| Reverse Voltage Leakage Current ($V_R = 70 \text{Vdc}$) ($V_R = 70 \text{Vdc}$, $T_J = 150^\circ\text{C}$) | I_R | - | 5.0 80 | nAdc |
| Diode Capacitance ($V_R = 0 \text{V}$, $f = 1.0 \text{MHz}$) | C_D | - | 2.0 | pF |
| Forward Voltage ($I_F = 1.0 \text{mA}$) ($I_F = 10 \text{mA}$) ($I_F = 50 \text{mA}$) ($I_F = 150 \text{mA}$) | V_F | - | 900 1000 1100 1250 | mVdc |
| Reverse Recovery Time ($I_F = I_R = 10 \text{mA}$) (Figure 1) | t_{rr} | - | 3.0 | μs |



- Notes: 1. A 2.0 k Ω 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

TYPICAL CHARACTERISTICS

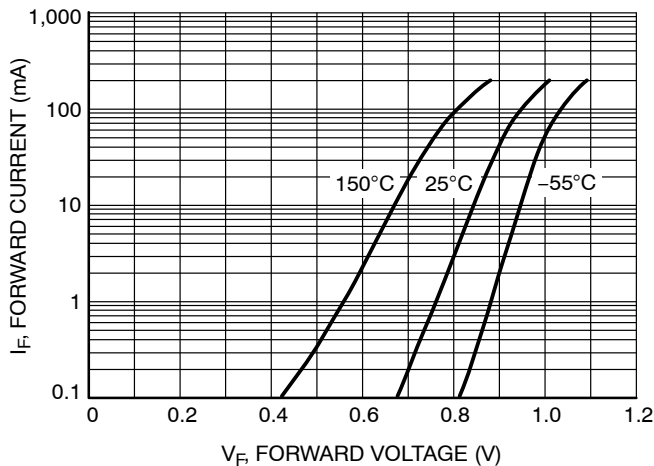


Figure 2. Forward Voltage

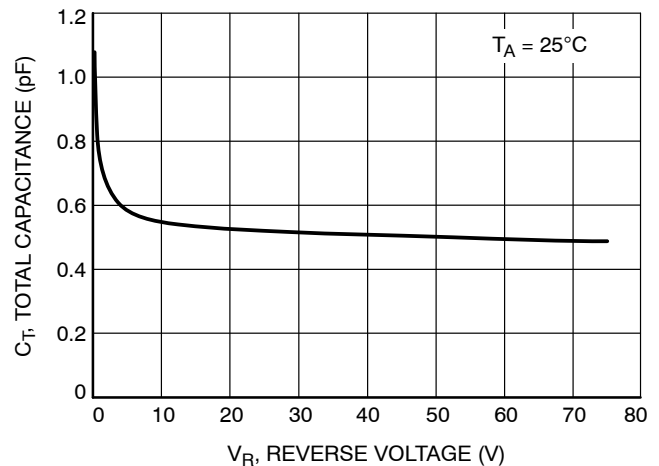
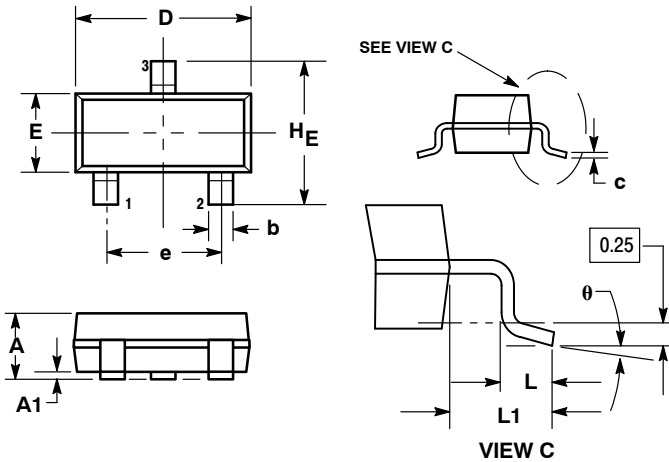


Figure 3. Capacitance

BAV199LT1G, SBAV199LT1G, SBAV199LT3G

PACKAGE DIMENSIONS

SOT-23 (TO-236)
CASE 318-08
ISSUE AP



NOTES:

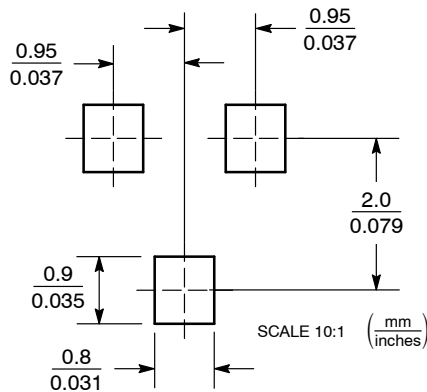
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|--------|-------|-------|
| | 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 |
| HE | 2.10 | 2.40 | 2.64 | 0.083 | 0.094 | 0.104 |
| θ | 0° | --- | 10° | 0° | --- | 10° |

STYLE 11:

- PIN 1. ANODE
- CATHODE
- CATHODE-ANODE

SOLDERING FOOTPRINT



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