

# BAV99L, SBAV99L

## Dual Series Switching Diode

### 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 (Each Diode)

| Rating                                                                                | Symbol          | Value             | Unit |
|---------------------------------------------------------------------------------------|-----------------|-------------------|------|
| Reverse Voltage                                                                       | $V_R$           | 100               | Vdc  |
| Forward Current                                                                       | $I_F$           | 215               | mAdc |
| Peak Forward Surge Current                                                            | $I_{FM(surge)}$ | 500               | mAdc |
| Repetitive Peak Reverse Voltage                                                       | $V_{RRM}$       | 100               | V    |
| Average Rectified Forward Current (Note 1)<br>(averaged over any 20 ms period)        | $I_{F(AV)}$     | 715               | mA   |
| Repetitive Peak Forward Current                                                       | $I_{FRM}$       | 450               | mA   |
| Non-Repetitive Peak Forward Current<br>$t = 1.0 \mu s$<br>$t = 1.0 ms$<br>$t = 1.0 s$ | $I_{FSM}$       | 2.0<br>1.0<br>0.5 | 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

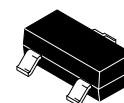
| Characteristic                                                                                            | Symbol          | Max         | Unit                 |
|-----------------------------------------------------------------------------------------------------------|-----------------|-------------|----------------------|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

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.

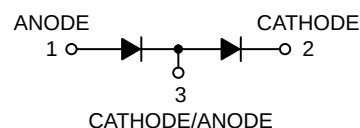


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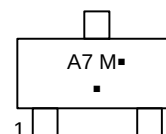
[www.onsemi.com](http://www.onsemi.com)



CASE 318  
SOT-23  
STYLE 11



### MARKING DIAGRAM



A7 = 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†            |
|------------|---------------------|----------------------|
| BAV99LT1G  | SOT-23<br>(Pb-Free) | 3,000 / Tape & Reel  |
| SBAV99LT1G | SOT-23<br>(Pb-Free) | 3,000 / Tape & Reel  |
| BAV99LT3G  | SOT-23<br>(Pb-Free) | 10,000 / Tape & Reel |
| SBAV99LT3G | SOT-23<br>(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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## OFF CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted) (Each Diode)

| Characteristic                                                                                                                                                                      | Symbol     | Min              | Max                        | Unit            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------|----------------------------|-----------------|
| Reverse Breakdown Voltage,<br>( $I_{(BR)} = 100\ \mu\text{A}$ )                                                                                                                     | $V_{(BR)}$ | 100              | –                          | Vdc             |
| Reverse Voltage Leakage Current,<br>( $V_R = 100\ \text{Vdc}$ )<br>( $V_R = 25\ \text{Vdc}$ , $T_J = 150^\circ\text{C}$ )<br>( $V_R = 70\ \text{Vdc}$ , $T_J = 150^\circ\text{C}$ ) | $I_R$      | –<br>–<br>–      | 1.0<br>30<br>50            | $\mu\text{Adc}$ |
| Diode Capacitance,<br>( $V_R = 0$ , $f = 1.0\ \text{MHz}$ )                                                                                                                         | $C_D$      | –                | 1.5                        | 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 | mVdc            |
| Reverse Recovery Time,<br>( $I_F = I_R = 10\ \text{mA}$ , $i_{R(REC)} = 1.0\ \text{mA}$ ) $R_L = 100\ \Omega$                                                                       | $t_{rr}$   | –                | 6.0                        | ns              |
| Forward Recovery Voltage,<br>( $I_F = 10\ \text{mA}$ , $t_r = 20\ \text{ns}$ )                                                                                                      | $V_{FR}$   | –                | 1.75                       | V               |

## CURVES APPLICABLE TO EACH DIODE

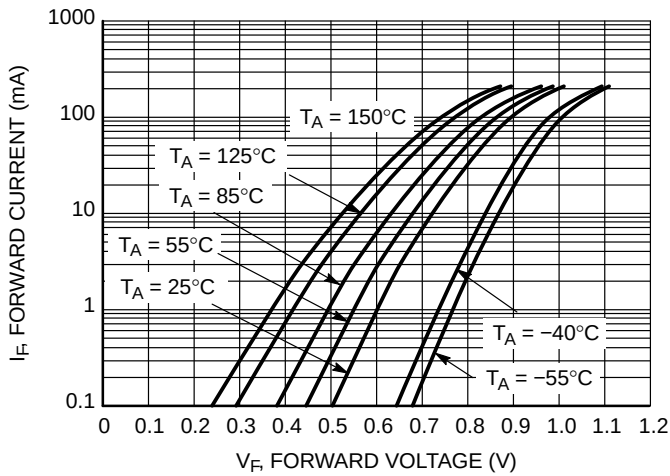


Figure 1. Forward Voltage

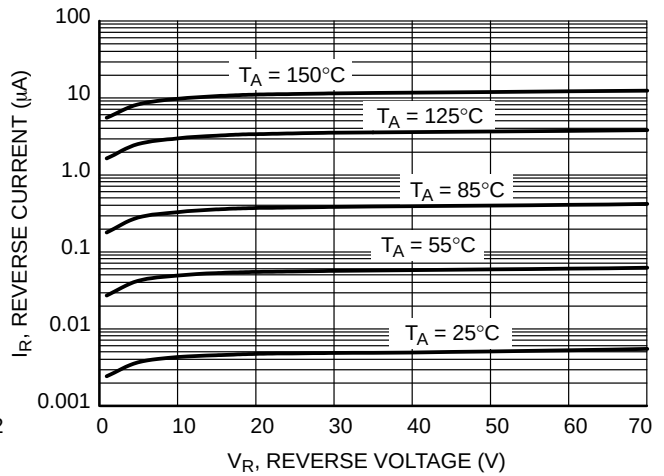


Figure 2. Leakage Current

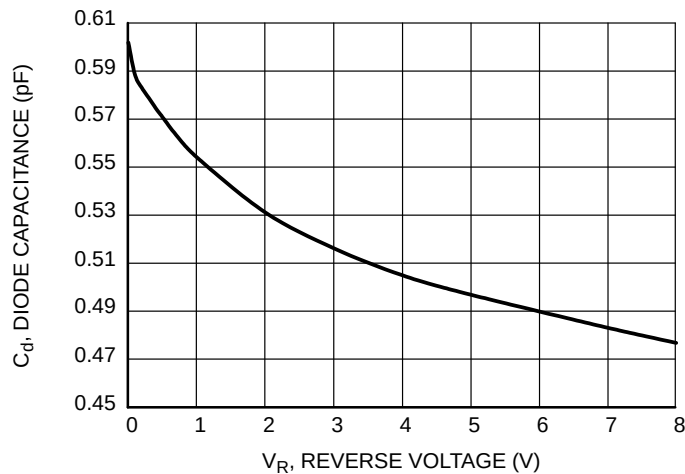
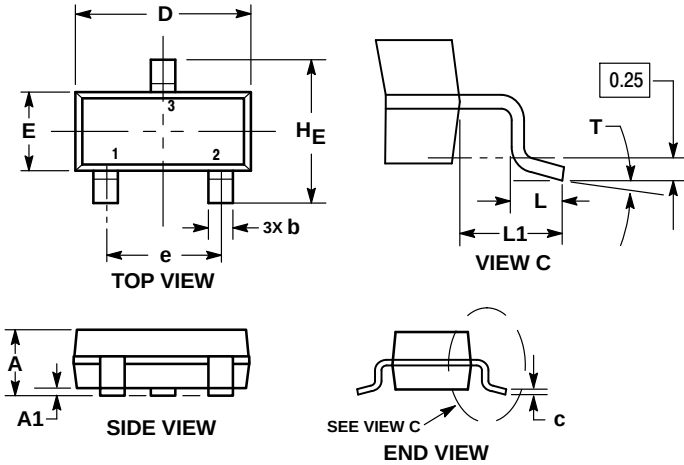


Figure 3. Capacitance

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## PACKAGE DIMENSIONS

### SOT-23 (TO-236) CASE 318-08 ISSUE AR



#### NOTES:

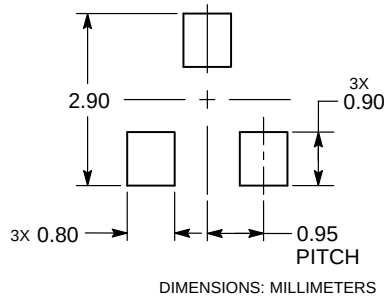
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

| DIM            | MILLIMETERS |      |      | INCHES |       |       |
|----------------|-------------|------|------|--------|-------|-------|
|                | MIN         | NOM  | MAX  | MIN    | NOM   | MAX   |
| A              | 0.89        | 1.00 | 1.11 | 0.035  | 0.039 | 0.044 |
| A1             | 0.01        | 0.06 | 0.10 | 0.000  | 0.002 | 0.004 |
| b              | 0.37        | 0.44 | 0.50 | 0.015  | 0.017 | 0.020 |
| c              | 0.08        | 0.14 | 0.20 | 0.003  | 0.006 | 0.008 |
| 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 | 0.080 |
| L              | 0.30        | 0.43 | 0.55 | 0.012  | 0.017 | 0.022 |
| L1             | 0.35        | 0.54 | 0.69 | 0.014  | 0.021 | 0.027 |
| H <sub>E</sub> | 2.10        | 2.40 | 2.64 | 0.083  | 0.094 | 0.104 |
| T              | 0°          | ---  | 10°  | 0°     | ---   | 10°   |

#### STYLE 11:

1. ANODE
2. CATHODE
3. CATHODE-ANODE

### RECOMMENDED 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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