

# BAV199L, SBAV199L

## Dual Series Switching Diode

### Features

- Low Leakage Current Applications
- Medium Speed Switching Times
- 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

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	$^\circ C$

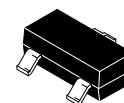
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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.

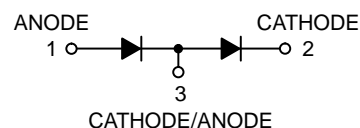


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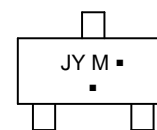
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CASE 318  
SOT-23  
STYLE 11



### 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

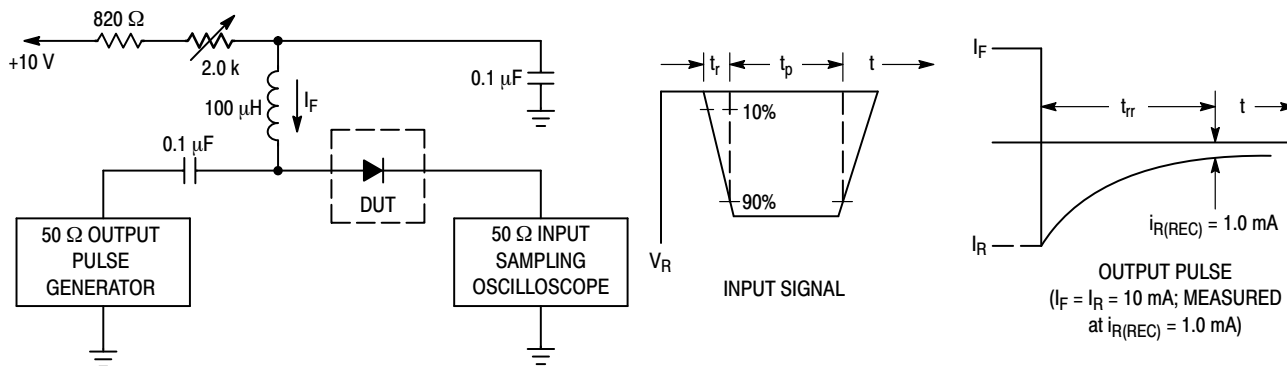
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# BAV199L, SBAV199L

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

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
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 ( $I_F = 1.0 \text{ mAdc}$ ) ( $I_F = 10 \text{ mAdc}$ ) ( $I_F = 50 \text{ mAdc}$ ) ( $I_F = 150 \text{ mAdc}$ )	$V_F$	-	900 1000 1100 1250	mVdc
Reverse Recovery Time ( $I_F = I_R = 10 \text{ mAdc}$ ) (Figure 1)	$t_{rr}$	-	3.0	$\mu\text{s}$

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**

# BAV199L, SBAV199L

## TYPICAL CHARACTERISTICS

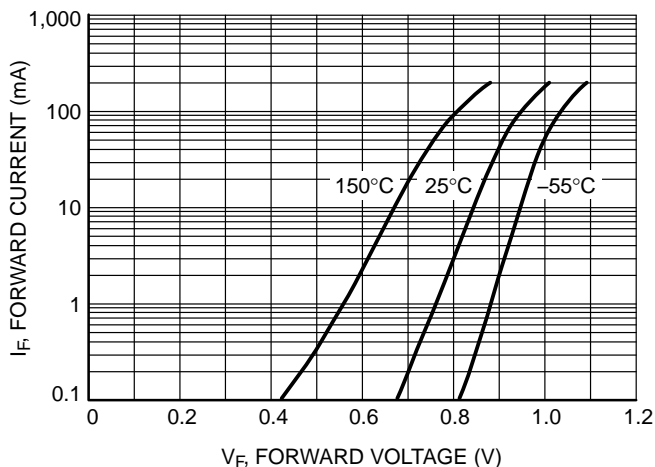


Figure 2. Forward Voltage

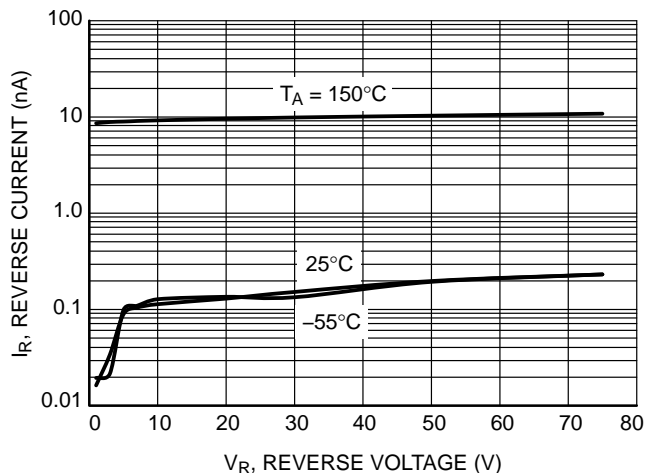


Figure 4. Leakage Current

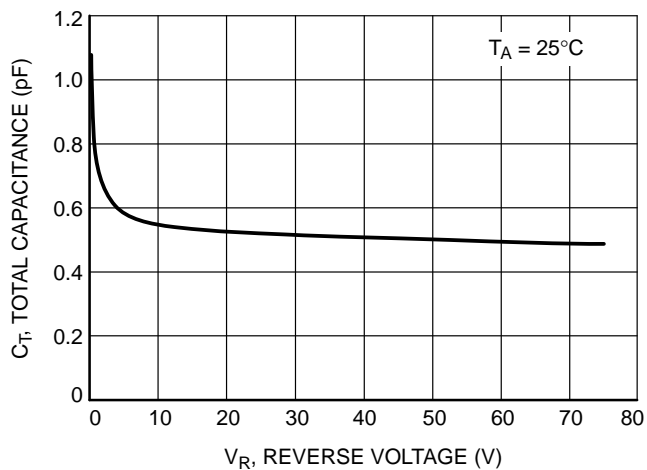
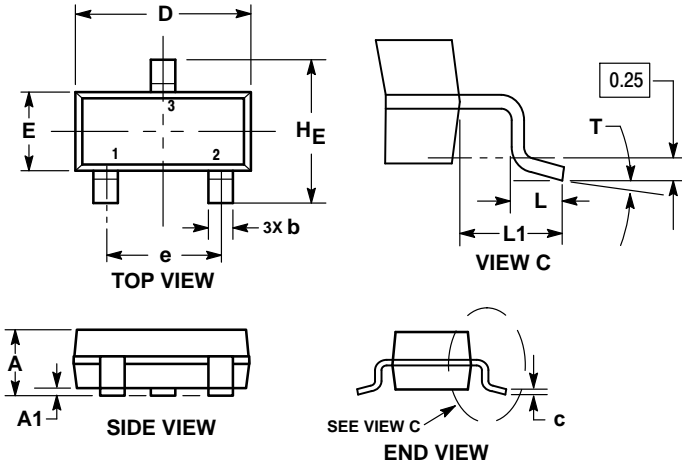


Figure 3. Capacitance

# BAV199L, SBAV199L

## PACKAGE DIMENSIONS

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



NOTES:

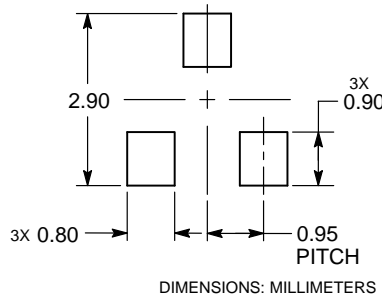
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

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
HE	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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