

# Dual Series Switching Diode

## BAV99L, SBAV99L

### 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)

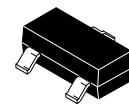
Rating	Symbol	Value	Unit
Reverse Voltage	V <sub>R</sub>	100	Vdc
Forward Current	I <sub>F</sub>	215	mAdc
Peak Forward Surge Current	I <sub>FM(surge)</sub>	500	mAdc
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	100	V
Average Rectified Forward Current (Note 1) (averaged over any 20 ms period)	I <sub>F(AV)</sub>	715	mA
Repetitive Peak Forward Current	I <sub>FRM</sub>	450	mA
Non-Repetitive Peak Forward Current t = 1.0 µs t = 1.0 ms t = 1.0 s	I <sub>FSM</sub>	2.0 1.0 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.

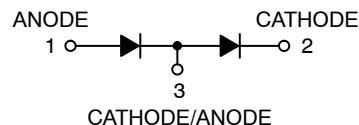
### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	225 1.8	mW mW/°C
Thermal Resistance, Junction-to-Ambient	R <sub>θJA</sub>	556	°C/W
Total Device Dissipation Alumina Substrate (Note 2) T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	300 2.4	mW mW/°C
Thermal Resistance, Junction-to-Ambient	R <sub>θJA</sub>	417	°C/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +150	°C

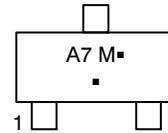
1. FR-5 = 1.0 × 0.75 × 0.062 in.
2. Alumina = 0.4 × 0.3 × 0.024 in 99.5% alumina.



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 (Pb-Free)	3,000 / Tape & Reel
SBAV99LT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel
BAV99LT3G	SOT-23 (Pb-Free)	10,000 / Tape & Reel
SBAV99LT3G	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.

# BAV99L, SBAV99L

**OFF CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted) (Each Diode)

Characteristic	Symbol	Min	Max	Unit
Reverse Breakdown Voltage, ( $I_{(BR)} = 100 \mu\text{A}$ )	$V_{(\text{BR})}$	100	-	Vdc
Reverse Voltage Leakage Current, ( $V_R = 100 \text{ Vdc}$ ) ( $V_R = 25 \text{ Vdc}, T_J = 150^\circ\text{C}$ ) ( $V_R = 70 \text{ Vdc}, T_J = 150^\circ\text{C}$ )	$I_R$	- - -	1.0 30 50	$\mu\text{Adc}$
Diode Capacitance, ( $V_R = 0, f = 1.0 \text{ MHz}$ )	$C_D$	-	1.5	pF
Forward Voltage, ( $I_F = 1.0 \text{ mAdc}$ ) ( $I_F = 10 \text{ mAdc}$ ) ( $I_F = 50 \text{ mAdc}$ ) ( $I_F = 150 \text{ mAdc}$ )	$V_F$	- - - -	715 855 1000 1250	mVdc
Reverse Recovery Time, ( $I_F = I_R = 10 \text{ mA}, i_{R(\text{REC})} = 1.0 \text{ mA}$ ) $R_L = 100 \Omega$	$t_{rr}$	-	6.0	ns
Forward Recovery Voltage, ( $I_F = 10 \text{ mA}, t_r = 20 \text{ ns}$ )	$V_{FR}$	-	1.75	V

## CURVES APPLICABLE TO EACH DIODE

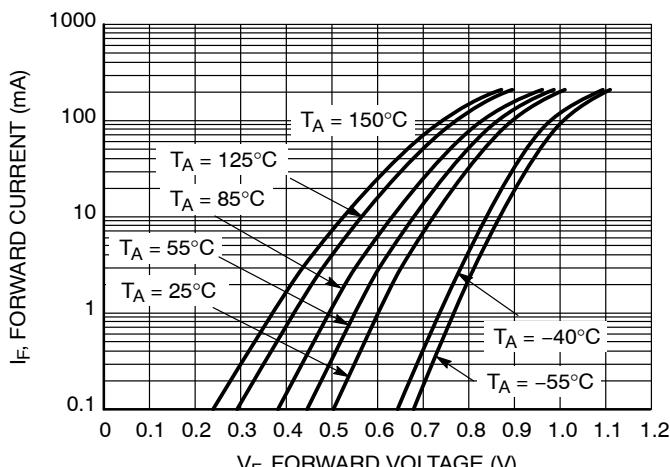


Figure 1. Forward Voltage

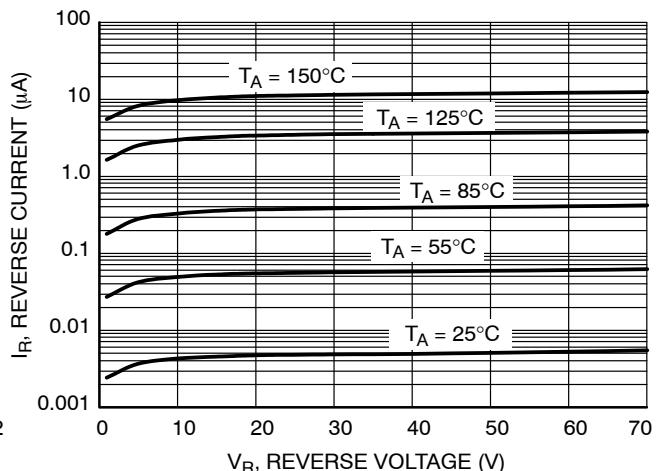


Figure 2. Leakage Current

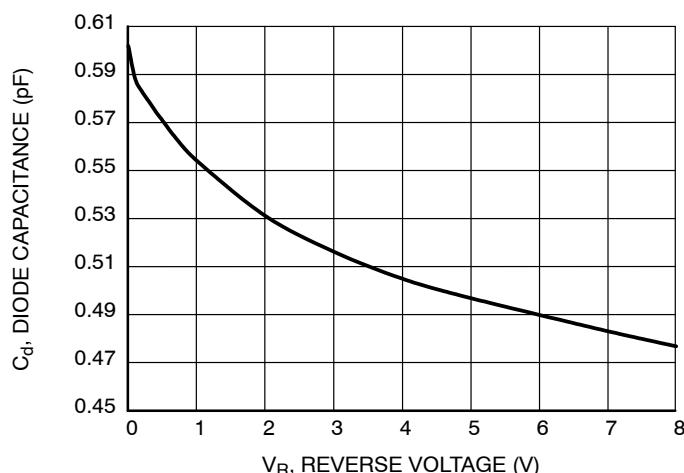
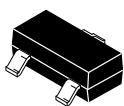


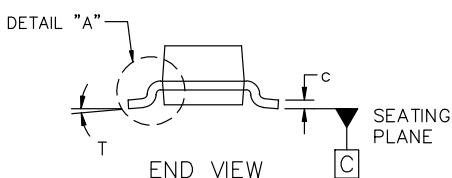
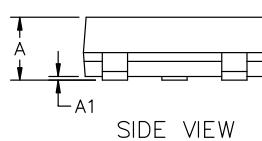
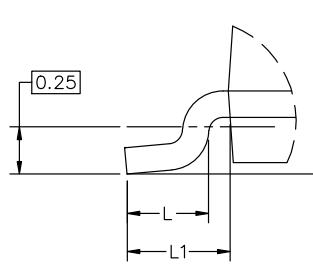
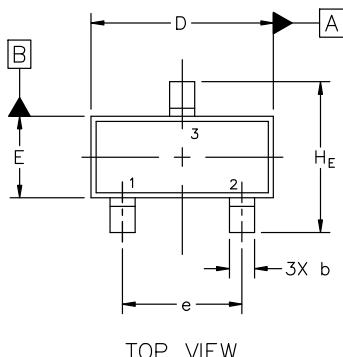
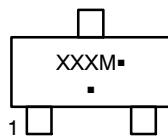
Figure 3. Capacitance



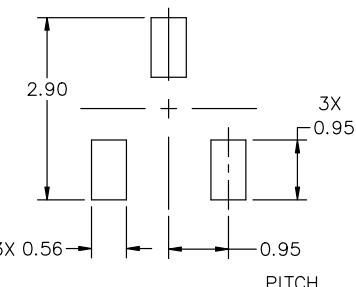
SCALE 4:1

SOT-23 (TO-236) 2.90x1.30x1.00 1.90P  
CASE 318  
ISSUE AU

DATE 14 AUG 2024

GENERIC  
MARKING DIAGRAM\*

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "■", may or may not be present. Some products may not follow the Generic Marking.

RECOMMENDED  
MOUNTING FOOTPRINT

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

MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.89	1.00	1.11
A1	0.01	0.06	0.10
b	0.37	0.44	0.50
c	0.08	0.14	0.20
D	2.80	2.90	3.04
E	1.20	1.30	1.40
e	1.78	1.90	2.04
L	0.30	0.43	0.55
L1	0.35	0.54	0.69
H <sub>E</sub>	2.10	2.40	2.64
T	0°	---	10°

## NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSIONS: 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.

## STYLES ON PAGE 2

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**SOT-23 (TO-236) 2.90x1.30x1.00 1.90P**

CASE 318

ISSUE AU

DATE 14 AUG 2024

**STYLE 1 THRU 5:**  
CANCELLED

**STYLE 6:**  
PIN 1. BASE  
2. Emitter  
3. Collector

**STYLE 7:**  
PIN 1. Emitter  
2. Base  
3. Collector

**STYLE 8:**  
PIN 1. Anode  
2. No Connection  
3. Cathode

**STYLE 9:**  
PIN 1. ANODE  
2. ANODE  
3. CATHODE

**STYLE 10:**  
PIN 1. DRAIN  
2. SOURCE  
3. GATE

**STYLE 11:**  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE-ANODE

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

**STYLE 13:**  
PIN 1. SOURCE  
2. DRAIN  
3. GATE

**STYLE 14:**  
PIN 1. CATHODE  
2. GATE  
3. ANODE

**STYLE 15:**  
PIN 1. GATE  
2. CATHODE  
3. ANODE

**STYLE 16:**  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE

**STYLE 17:**  
PIN 1. NO CONNECTION  
2. ANODE  
3. CATHODE

**STYLE 18:**  
PIN 1. NO CONNECTION  
2. CATHODE  
3. ANODE

**STYLE 19:**  
PIN 1. CATHODE  
2. ANODE  
3. CATHODE-ANODE

**STYLE 20:**  
PIN 1. CATHODE  
2. ANODE  
3. GATE

**STYLE 21:**  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

**STYLE 22:**  
PIN 1. RETURN  
2. OUTPUT  
3. INPUT

**STYLE 23:**  
PIN 1. ANODE  
2. ANODE  
3. CATHODE

**STYLE 24:**  
PIN 1. GATE  
2. DRAIN  
3. SOURCE

**STYLE 25:**  
PIN 1. ANODE  
2. CATHODE  
3. GATE

**STYLE 26:**  
PIN 1. CATHODE  
2. ANODE  
3. NO CONNECTION

**STYLE 27:**  
PIN 1. CATHODE  
2. CATHODE  
3. CATHODE

**STYLE 28:**  
PIN 1. ANODE  
2. ANODE  
3. ANODE

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