

BAV99WT1, SBAV99WT1G, BAV99RWT1, SBAV99RWT1G

Preferred Devices

Dual Series Switching Diodes

The BAV99WT1 is a smaller package, equivalent to the BAV99LT1.

Features

- AEC-Q101 Qualified and PPAP Capable
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- Pb-Free Packages are Available*

Suggested Applications

- ESD Protection
- Polarity Reversal Protection
- Data Line Protection
- Inductive Load Protection
- Steering Logic

MAXIMUM RATINGS (Each Diode)

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	V
Average Rectified Forward Current (Note 1) (averaged over any 20 ms period)	$I_{F(AV)}$	715	mA
Repetitive Peak Forward Current	I_{FRM}	450	mA
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	A

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. $FR-5 = 1.0 \times 0.75 \times 0.062$ in.

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

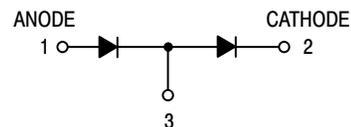


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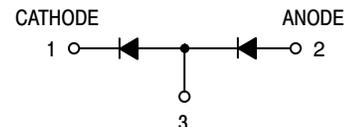
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SC-70
CASE 419

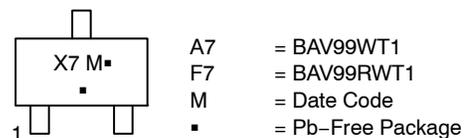


BAV99WT1
SC-70, CASE 419, STYLE 9



BAV99RWT1
SC-70, CASE 419, STYLE 10

MARKING DIAGRAM



ORDERING INFORMATION

Device	Package	Shipping†
BAV99WT1	SC-70	3,000 / Tape & Reel
BAV99WT1G	SC-70 (Pb-Free)	3,000 / Tape & Reel
SBAV99WT1G	SC-70 (Pb-Free)	3,000 / Tape & Reel
BAV99RWT1	SC-70	3,000 / Tape & Reel
BAV99RWT1G	SC-70 (Pb-Free)	3,000 / Tape & Reel
SBAV99RWT1G	SC-70 (Pb-Free)	3,000 / 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.

Preferred devices are recommended choices for future use and best overall value.

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	200 1.6	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

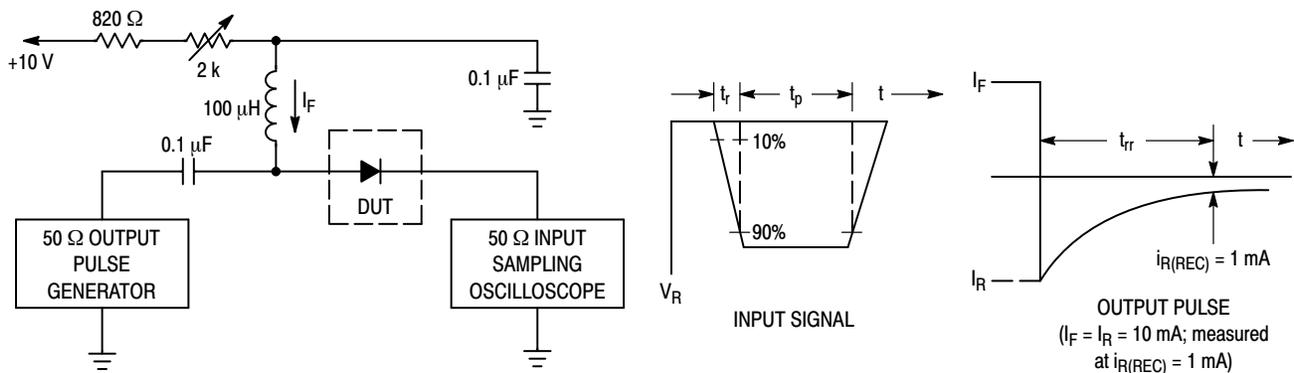
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Each Diode)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Reverse Breakdown Voltage ($I_{(BR)} = 100 \mu\text{A}$)	$V_{(BR)}$	70	-	Vdc
Reverse Voltage Leakage Current ($V_R = 70 \text{ Vdc}$) ($V_R = 25 \text{ Vdc}, T_J = 150^\circ\text{C}$) ($V_R = 70 \text{ Vdc}, T_J = 150^\circ\text{C}$)	I_R	- - -	2.5 30 50	μA dc
Diode Capacitance ($V_R = 0, f = 1.0 \text{ MHz}$)	C_D	-	1.5	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	- - - -	715 855 1000 1250	mVdc
Reverse Recovery Time ($I_F = I_R = 10 \text{ mA}$, $i_{R(REC)} = 1.0 \text{ mA}$) (Figure 1) $R_L = 100 \Omega$	t_{rr}	-	6.0	ns
Forward Recovery Voltage ($I_F = 10 \text{ mA}, t_r = 20 \text{ ns}$)	V_{FR}	-	1.75	V

- FR-5 = $1.0 \times 0.75 \times 0.062 \text{ in.}$
- Alumina = $0.4 \times 0.3 \times 0.024 \text{ in.}$ 99.5% alumina.



- Notes: (a) A 2.0 k Ω variable resistor adjusted for a Forward Current (I_F) of 10 mA.
 (b) Input pulse is adjusted so $I_{R(\text{peak})}$ is equal to 10 mA.
 (c) $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

BAV99WT1, SBAV99WT1G, BAV99RWT1, SBAV99RWT1G

CURVES APPLICABLE TO EACH DIODE

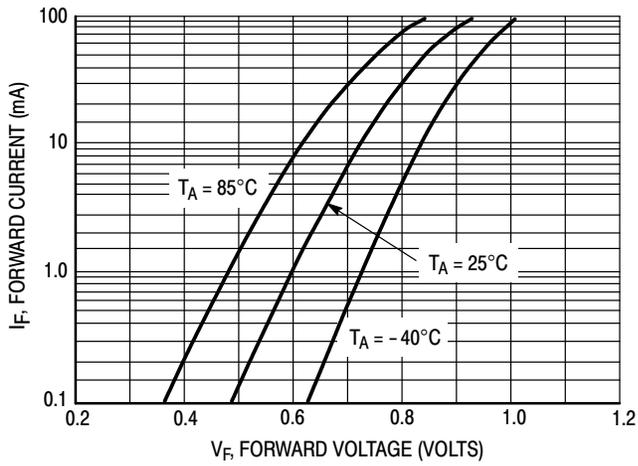


Figure 2. Forward Voltage

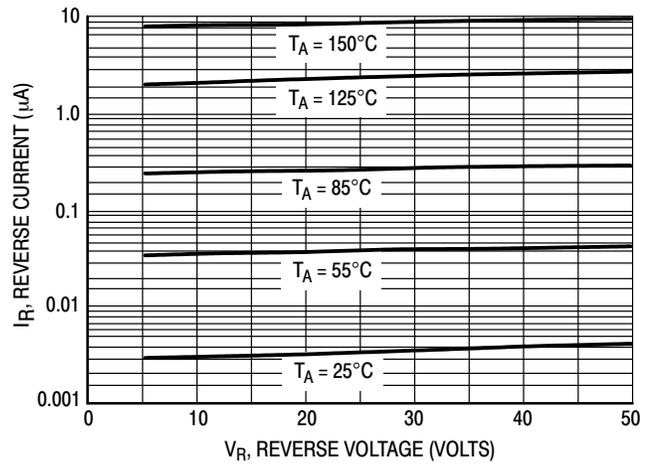


Figure 3. Leakage Current

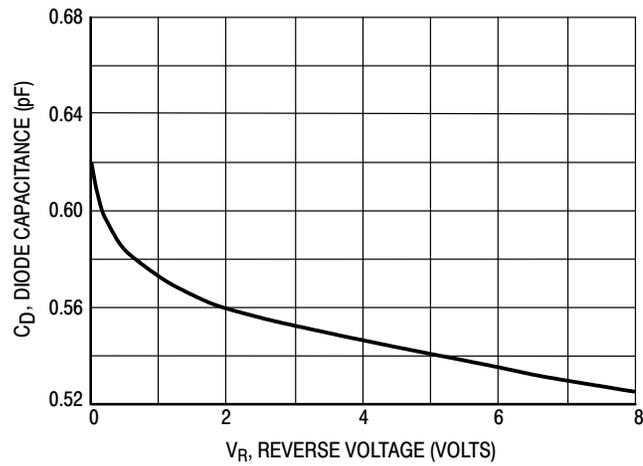
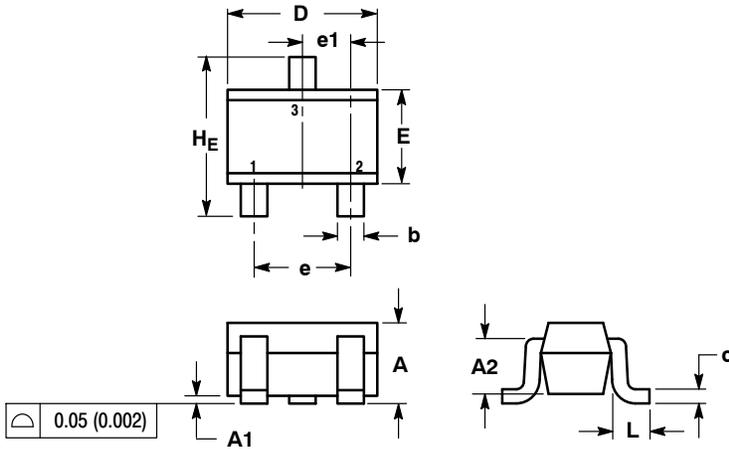


Figure 4. Capacitance

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PACKAGE DIMENSIONS

SC-70 (SOT-323)
CASE 419-04
ISSUE N

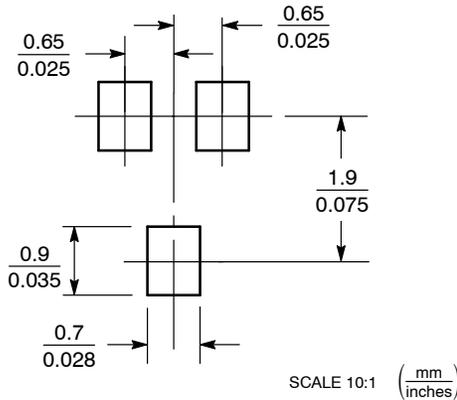


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.70 REF			0.028 REF		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1	0.65 BSC			0.026 BSC		
L	0.20	0.38	0.56	0.008	0.015	0.022
HE	2.00	2.10	2.40	0.079	0.083	0.095

- STYLE 9:
PIN 1. ANODE
2. CATHODE
3. CATHODE-ANODE
- STYLE 10:
PIN 1. CATHODE
2. ANODE
3. ANODE-CATHODE

SOLDERING FOOTPRINT*



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