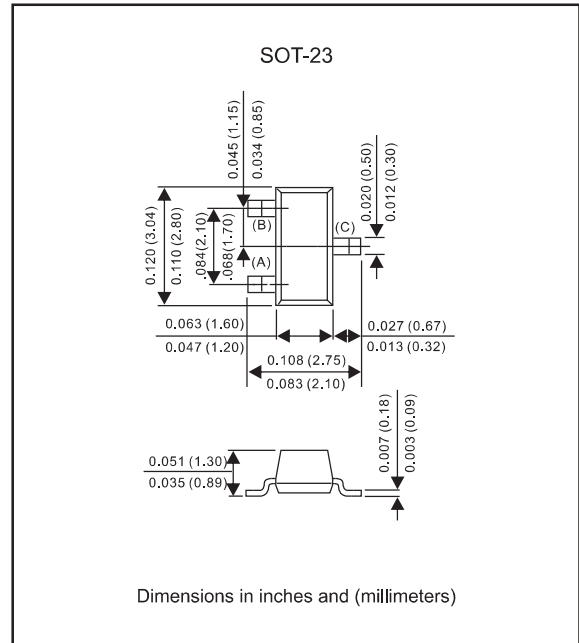


BAL99/BAV99/BAW56/BAV70**225mW Surface Mount
Switching Diode- 70V****Features**

- Fast speed switching.
- For general purpose switching application.
- High conductance.
- Silicon epitaxial planar chip.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex. BAL99-H.

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.008 gram

Package outline**Maximum ratings** (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	BAL99	BAV99	BAW56	BAV70	UNIT
Reverse Voltage	V_R	70				V
Forward Current	I_F	100	215	200		mA
Peak Forward Surge Current	I_{FM}	500				mA
Non-Repetitive Peak Forward Surge Current @ $t=1.0\mu\text{s}$ @ $t=1.0\text{s}$	I_{FSM}	2.0		1.0		A

Thermal Characteristics

PARAMETER	SYMBOL	MAX.	UNIT
Total Device Dissipation FR-5 Board* ¹ , $T_A = 25^\circ\text{C}$ Derate Above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate* 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	$^\circ\text{C}/\text{W}$
Operating Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65 ~ +150	$^\circ\text{C}$

1. FR-5 = 1.0 x 0.75 x 0.062 in.

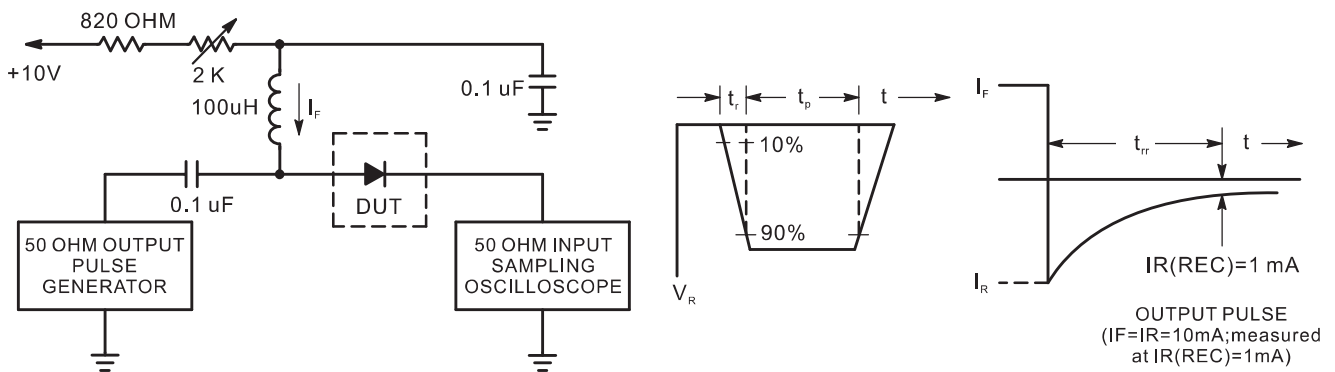
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

BAL99/BAV99/BAW56/BAV70

Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	MIN.	MAX.	UNIT
Reverse Breakdown Voltage($I_{BR}=100\mu\text{Adc}$)	V_{BR}	70		V
Reverse Voltage Leakage Current (at $V_R = 70\text{V}$, $T_J = 25^\circ\text{C}$)BAL99/BAV99/BAW56/BAV70 (at $V_R = 25\text{V}$, $T_J = 150^\circ\text{C}$)BAL99/BAV99/BAW56 (at $V_R = 25\text{V}$, $T_J = 150^\circ\text{C}$)BAV70 (at $V_R = 70\text{V}$, $T_J = 150^\circ\text{C}$)BAL99/BAV99/BAW56 (at $V_R = 70\text{V}$, $T_J = 150^\circ\text{C}$)BAV70	I_R		2.5 30 60 50 100	μA
Diode Capacitance($V_R = 0\text{V}$, $f = 1.0\text{MHz}$) BAL99/BAV99/BAV70 BAW56	C_D		1.5 2.0	pF
Reverse Recovery Time($I_F = I_R = 10\text{mA}$, $V_R = 5.0\text{Vdc}$, $I_R(\text{REC}) = 1.0\text{mA}$, $R_L = 100_{\text{OHM}}$)	t_{rr}		6.0	ns
Forward Voltage (at $I_F = 1.0\text{mA}$) (at $I_F = 10\text{mA}$) (at $I_F = 50\text{mA}$) (at $I_F = 150\text{mA}$)	V_F		715 855 1000 1250	mV

Recovery Time Equivalent Test Circuit



- Notes :
1. A2.0 Kohm variable resistor adjusted for a forward Current (I_F) of 10mA.
 2. Input pulse is adjusted so $I_R(\text{peak})$ is equal to 10 mA.
 3. $t_p \gg t_{rr}$.

Rating and characteristic curves for each diode (BAL99/BAV99/BAW56/BAV70)

FIG.1-TYPICAL FORWARD CHARACTERISTICS

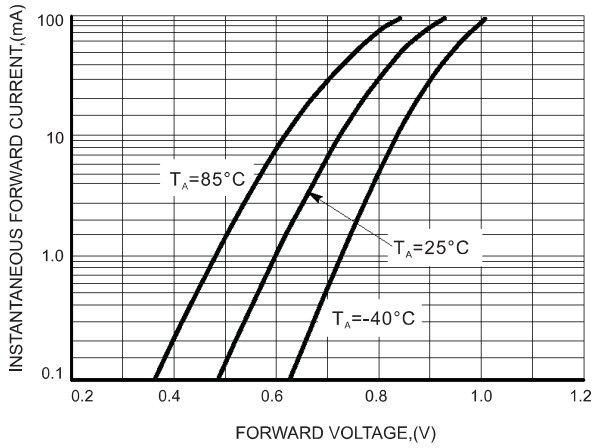


FIG.2 - TYPICAL REVERSE CHARACTERISTICS

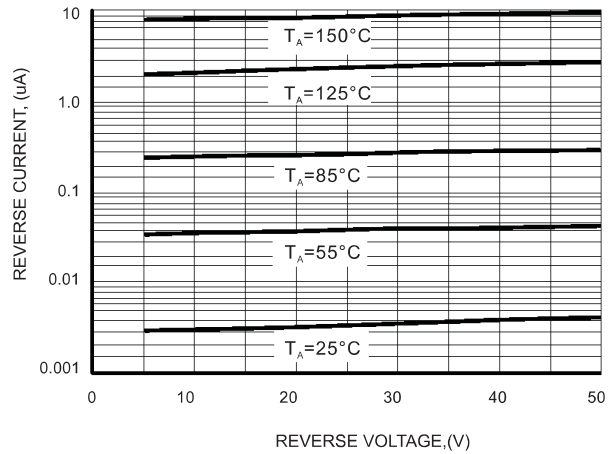


FIG.3a - TYPICAL DIODE CAPACITANCE BAL99/BAV99/BAV70

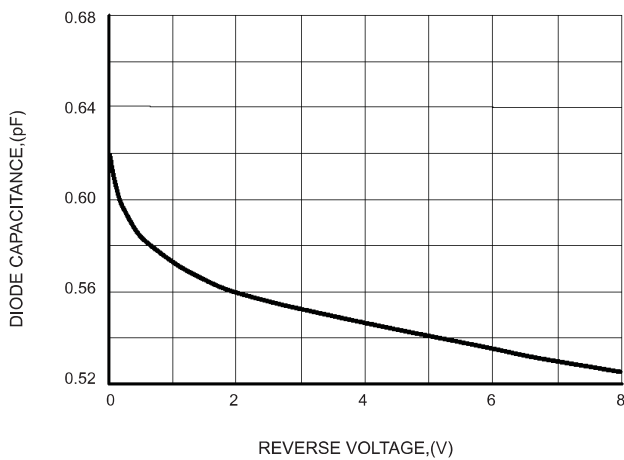
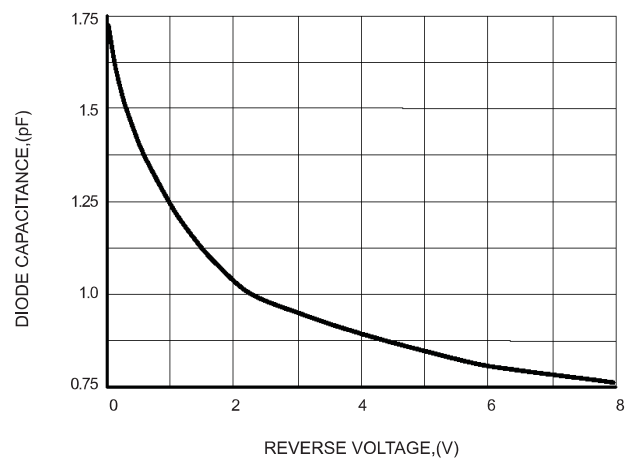


FIG.3b - TYPICAL DIODE CAPACITANCE BAW56



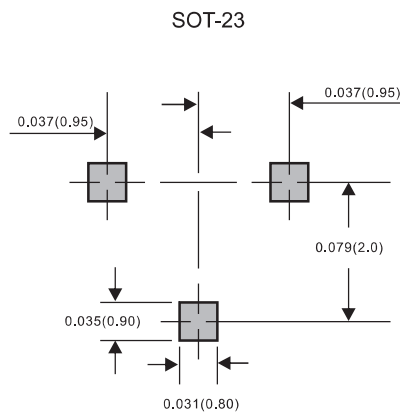
BAL99/BAV99/BAW56/BAV70

Pinning information

Type number	Marking code	Symbol
BAL99	JF	
BAV99	A7	
BAW56	A1	
BAV70	A4	

Note: Such as BAV99 marking, Marking A7 for line 1 production, Marking A7W for production line 2 production.

Suggested solder pad layout



Dimensions in inches and (millimeters)

Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-23	7"	3000	4.0	30,000	183*183*123	178	382*262*387	240,000	11.6