BAL99/BAV99/BAW56/BAV70

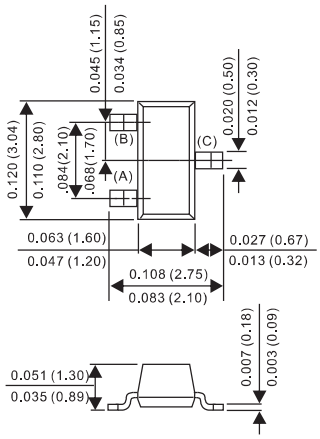
225mW Surface Mount Switching Diode- 70V

Features

- Fast speed switching.
- For general purpose switching application.
- High conductance.
- Silicon epitaxial planar chip.
- Lead-free parts meet RoHS requirments.
- Compliant to Halogen-free

Package outline

SOT-23



Dimensions in inches and (millimeters)

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

Maximum ratings (AT T_A=25°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=1.0us @ t=1.0s	I_{FSM}	2.0 1.0				A

Thermal Characteristics

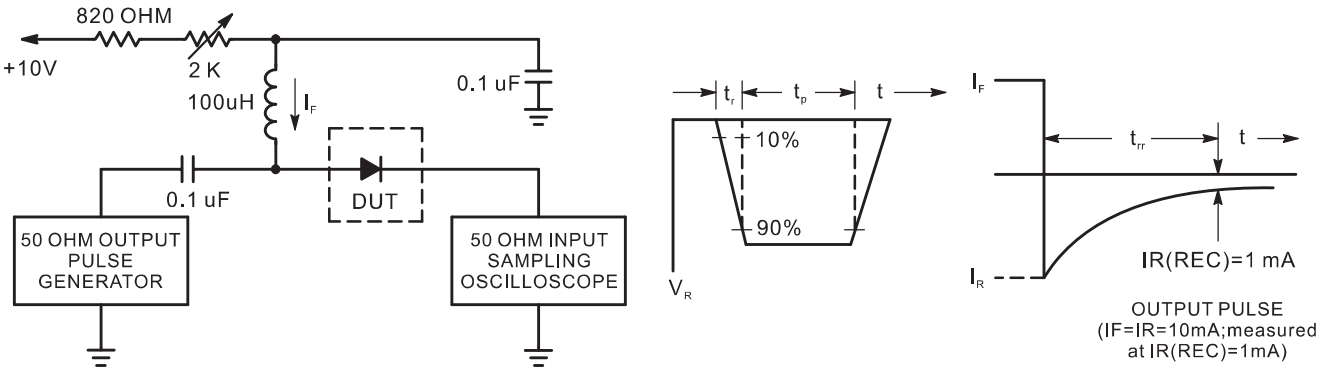
PARAMETER		SYMBOL	MAX.	UNIT
Total Device Dissipation FR-5	Board*[1], T_A = 25°C	P_D	225	mW
	Derate Above 25°C		1.8	mW/°C
Thermal Resistance Junction to Ambient		$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina	Substrate*[2], T_A = 25°C	P_D	300	mW
	Derate Above 25°C		2.4	mW/°C
Thermal Resistance Junction to Ambient		$R_{\theta JA}$	417	°C/W
Operating Temperature Range		T_J	-55 ~ +150	°C
Storage Temperature Range		T_{STG}	-65 ~ +150	°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.

Electrical Characteristics (AT T_A=25°C unless otherwise noted)

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

Recovery Time Equivalent Test Circuit



Notes : 1. A2.0 Kohm variable resistor adjusted for a forward Current (IF) of 10mA.
2. Input pulse is adjusted so IR(peak) is equal to 10 mA.
3. tp >> trr.

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

FIG.1-TYPICAL FORWARD CHARACTERISTICS

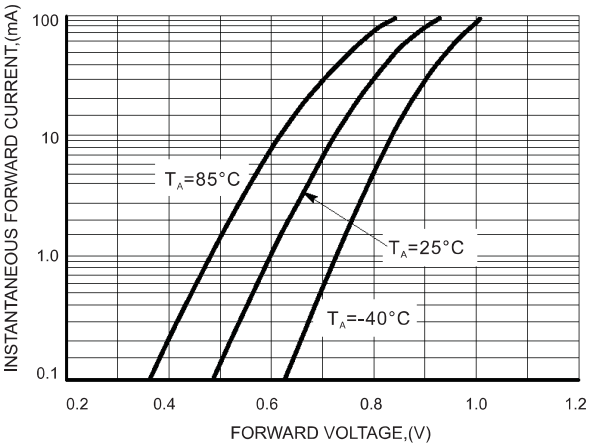


FIG.2 - TYPICAL REVERSE CHARACTERISTICS

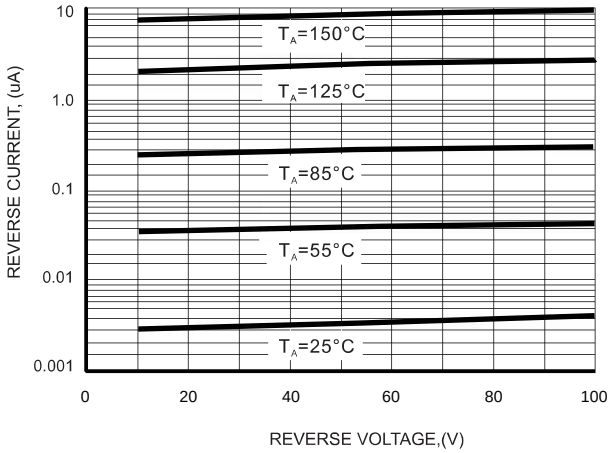


FIG.3a - TYPICAL DIODE CAPACITANCE BAL99/BAV99/BAV70

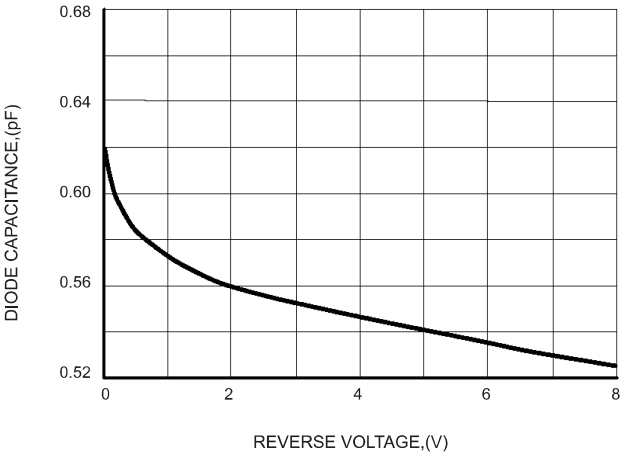
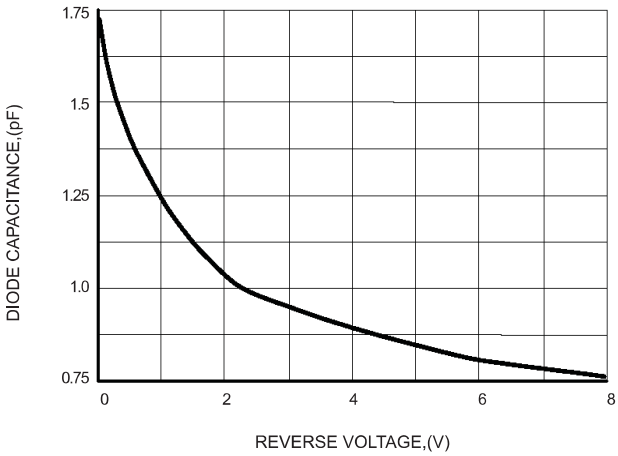
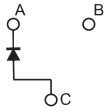
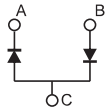
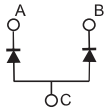
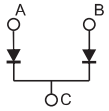


FIG.3b - TYPICAL DIODE CAPACITANCE BAW56

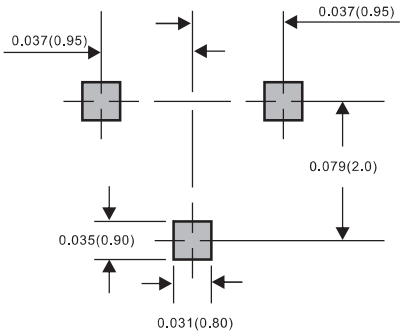


Pinning information

Type number	Marking code	Symbol
BAL99	L4, A6,JF	
BAV99	JG, A7	
BAW56	JC, A1	
BAV70	JA, A4	

Suggested solder pad layout

SOT-23



Dimensions in inches and (millimeters)