

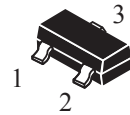
Surface Mount Switching Diode

(Pb) Lead(Pb)-Free

Features:

- *Low Current Leakage
- *Low Forward Voltage
- *Reverse Recover Time $T_{rr} \leq 6ns$
- *Small Outline Surface Mount SOT-23 Package

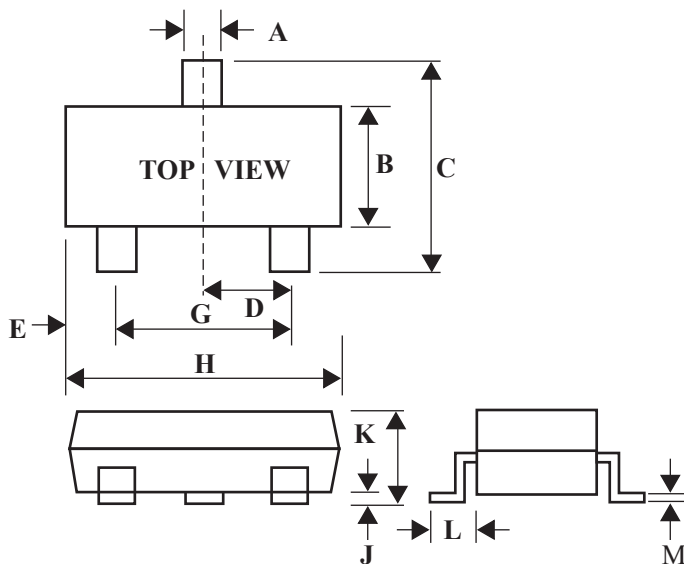
SWITCHING DIODE
200-215m AMPERRES
70-75 VOLTS



SOT-23

SOT-23 Outline Dimensions

Unit:mm



Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25

Maximum Ratings (EACH DIODE)

Characteristic	Symbol	BAS16	BAV70	BAW56	BAV99	Unit
Reverse Voltage	V _R	75	70			Volts
Forward Current	I _F	200			215	mAdc
Peak Forward Surge Current	I _{FM}	500				mAdc
Non-Repetitive Peak Forward Surge Current @ t=1.0us	I _{FSM}			2.0		Adc
@ t=1.0s				1.0		

Thermal Characteristics

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board *1, TA=25°C Derate Above 25°C	P _D	225	mW
		1.8	mW/°C
Thermal Resistance Junction to Ambient	R _{θJA}	556	°C/W
Total Device Dissipation Alumina Substrate*2 TA=25°C Derate Above 25°C	P _D	300	mW
		2.4	mW/°C
Thermal Resistance Junction to Ambient	R _{θJA}	417	°C/W
Junction and Storage Temperature	T _J , T _{stg}	-55 to + 150	°C

*1 ER-5=1.0x0.75x0.062 in

*2 Alumina=0.4x0.3x0.024 in 99.5% Alumina

Electrical Characteristics (TA=25°C Unless Otherwise Note) (Each Diode)

Characteristic	Symbol	Min	Max	Unit
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Off Characteristics

Reverse Breakdown Voltage BAS16 (I _{BR} =100 μAdc) BAV70/BAW56/BAV99	V _{BR}	75		Vdc
		70		
Reverse Voltage Leakage Current V _R =75V BAS16	I _R		1.0	μAdc
V _R =70V BAV70/BAW56/BAV99			2.5	
V _R =25V, T _J =150°C BAS16/BAW56/BAV99			30.0	
V _R =25V, T _J =150°C BAV70			60.0	
V _R =75V, T _J =150°C BAS16			50.0	
V _R =70V, T _J =150°C BAW56/BAV99		50.0		
V _R =70V, T _J =150°C BAV70		100.0		

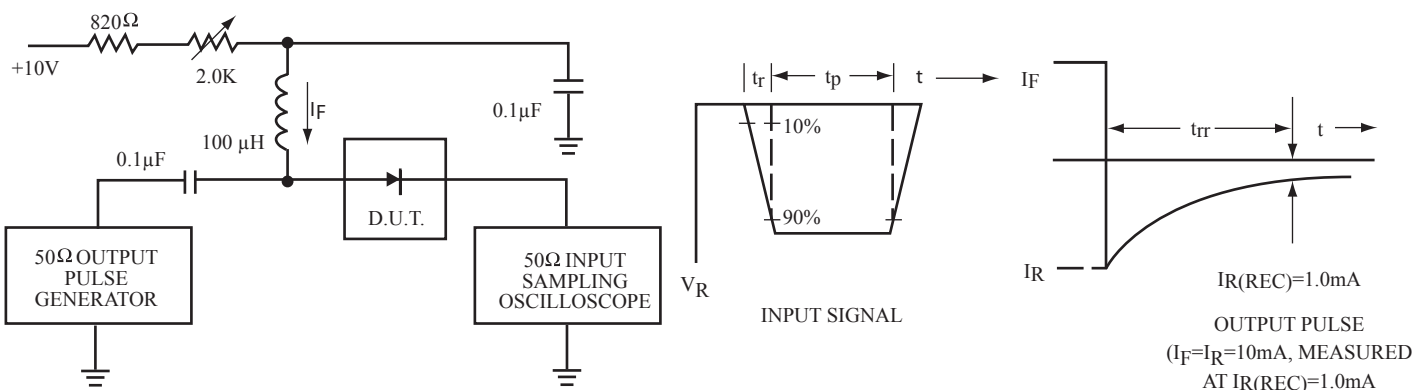
Off Characteristic

Characteristic	Symbol	Min	Max	Unit
Diode Capacitance ($V_R=0, f=1.0\text{MHz}$)	C_D		2.0 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 (Figure 1.) $I_F=I_R=10\text{mA}$, $V_R=5.0\text{Vdc}$ $I_R(\text{REC})=1.0\text{mA}$, $R_L=100\Omega$	t_{rr}		6.0	nS

Device Marking

Item	Marking	Equivalent Circuit diagram
BAS16	A6	
BAV70	A4	
BAW56	A1	
BAV99	A7	

Figure 1. Recovery Time Equivalent Test Circuit



- Notes: 1. A 2.0 kΩ variable resistor for a Forward Current (I_F) of 10 mA
 2. Input pules is adjusted so $I_R(\text{peak})$ is equal to 10 mA
 3. $t_p \gg t_{rr}$

FIGURE 2 .FORWARD VOLTAGE

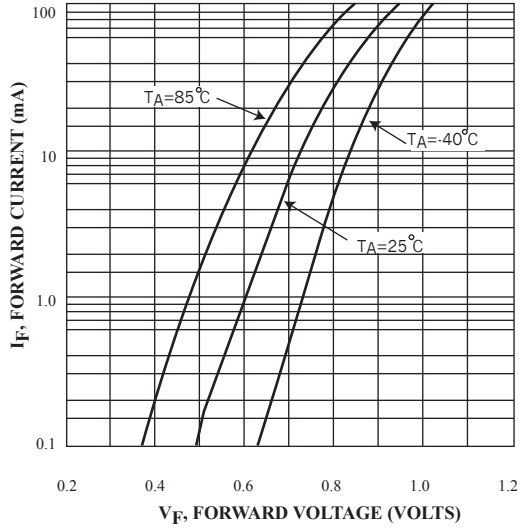


FIGURE 3. LEAKAGE CURRENT

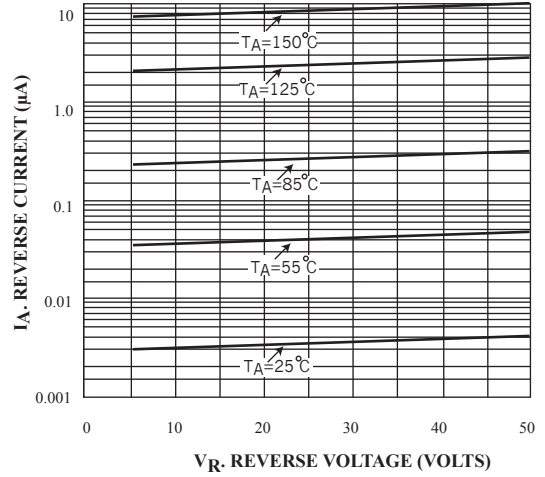


FIGURE 4. CAPACITANCE(BAS16)

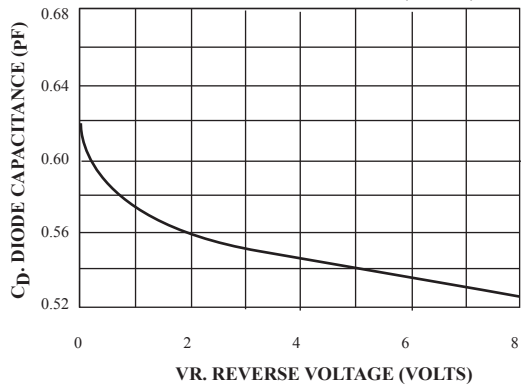


FIGURE 5. CAPACITANCE (BAV70)

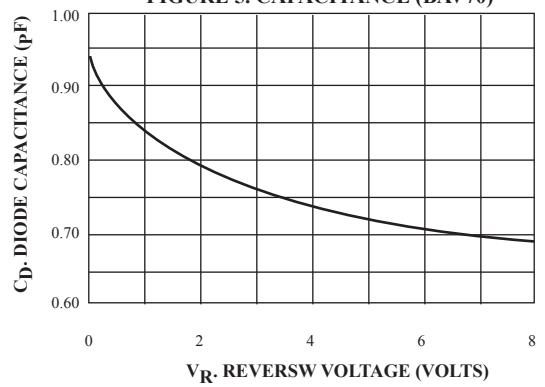


FIGURE 6. CAPACITANCE(BAW56)

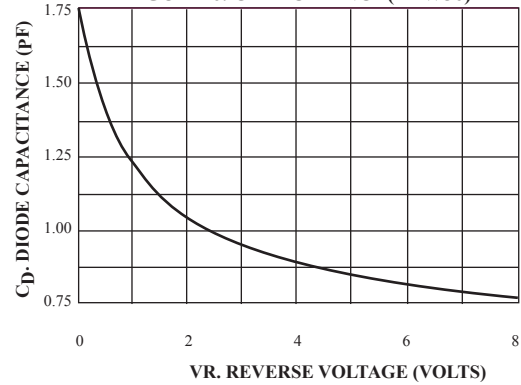


FIGURE 7. CAPACITANCE (BAV99)

