

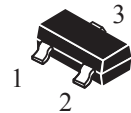
## Surface Mount Switching Diode

**(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
- \*Device per Reel Mount : 3k/Reel

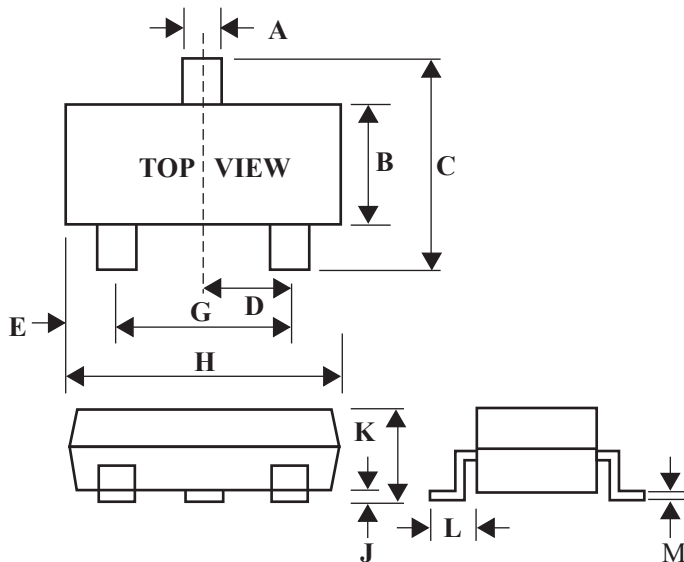
**SWITCHING DIODE**  
**200-215m AMPERRES**  
**70-75 VOLTS**



**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 <sub>R</sub>	75	70			Volts
Forward Current	I <sub>F</sub>	200			215	mAdc
Peak Forward Surge Current	I <sub>FM</sub>	500				mAdc
Non-Repetitive Peak Forward Surge Current @ t=1.0us	I <sub>FSM</sub>	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 <sub>D</sub>	225	mW mW/°C
		1.8	
Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	556	°C/W
Total Device Dissipation Alumina Substrate*2 TA=25°C Derate Above 25°C	P <sub>D</sub>	300	mW mW/°C
		2.4	
Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	417	°C/W
Junction and Storage Temperature	T <sub>J</sub> , T <sub>stg</sub>	-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 <sub>BR</sub> =100 μAdc ) BAV70/BAW56/BAV99	V <sub>BR</sub>	75		Vdc
		70		
Reverse Voltage Leakage Current V <sub>R</sub> =75V BAS16 V <sub>R</sub> =70V BAV70/BAW56/BAV99	I <sub>R</sub>		1.0	μAdc
V <sub>R</sub> =25V, T <sub>J</sub> =150°C BAS16/BAW56/BAV99 V <sub>R</sub> =25V, T <sub>J</sub> =150°C BAV70			2.5	
V <sub>R</sub> =75V, T <sub>J</sub> =150°C BAS16 V <sub>R</sub> =70V, T <sub>J</sub> =150°C BAW56/BAV99			30.0	
V <sub>R</sub> =70V, T <sub>J</sub> =150°C BAV70			60.0	
V <sub>R</sub> =75V, T <sub>J</sub> =150°C BAS16 V <sub>R</sub> =70V, T <sub>J</sub> =150°C BAW56/BAV99			50.0	
V <sub>R</sub> =70V, T <sub>J</sub> =150°C BAV70			50.0	
			100.0	

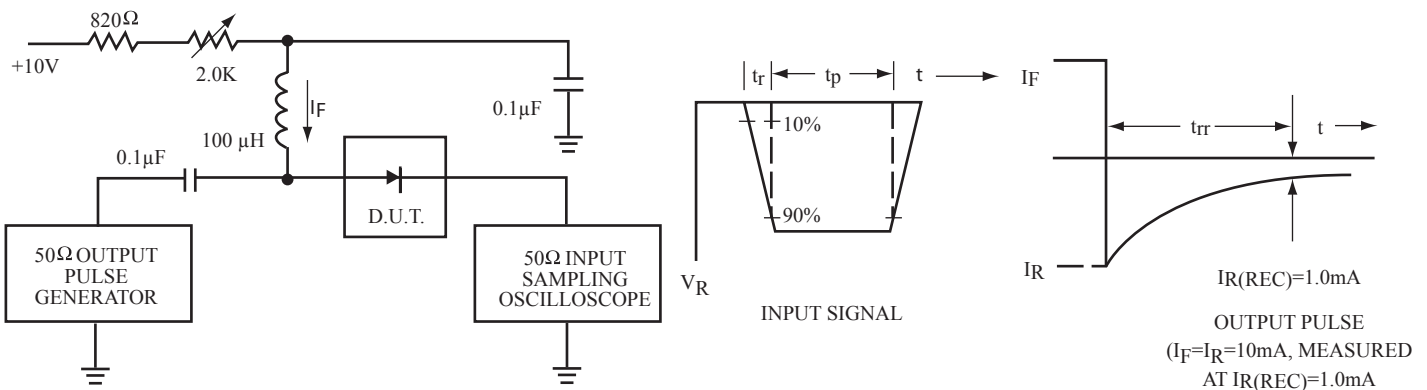
**Off Characteristic**

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**

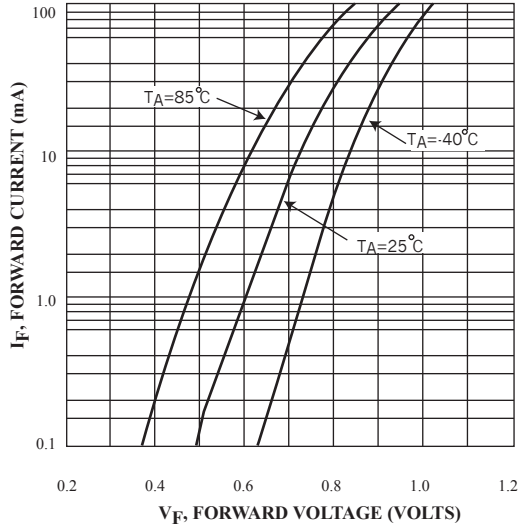
Item	Marking	Equivalent Circuit diagram
BAS16	A6	
BAV70	A4	
BAW56	A1	
BAV99	A7	

**Figure 1. Recovery Time Equivalent Test Circuit**

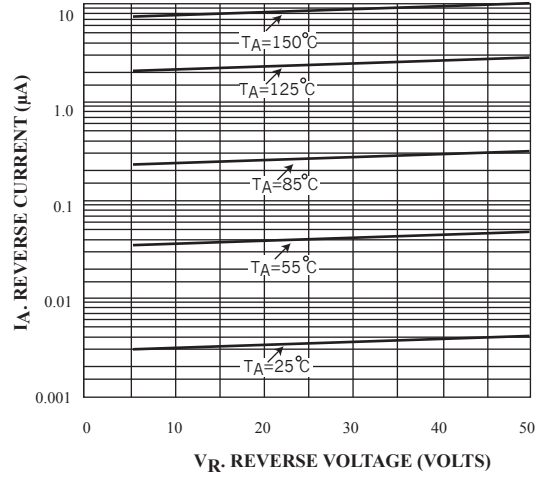


- Notes: 1. A 2.0 kΩ variable resistor for a Forward Current ( $I_F$ ) of 10 mA
- 2. Input pulse is adjusted so  $I_R(\text{peak})$  is equal to 10 mA
- 3.  $t_p \gg t_{rr}$

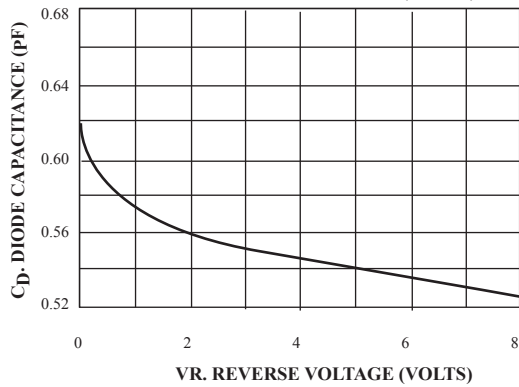
**FIGURE 2 .FORWARD VOLTAGE**



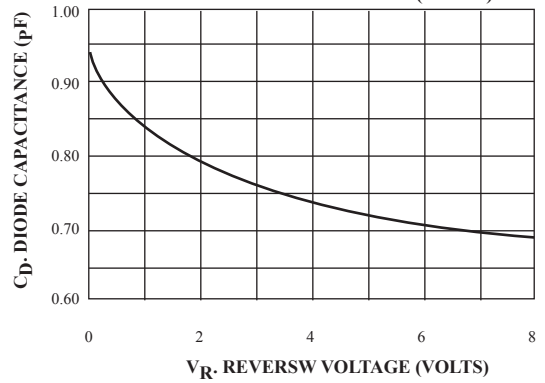
**FIGURE 3. LEAKAGE CURRENT**



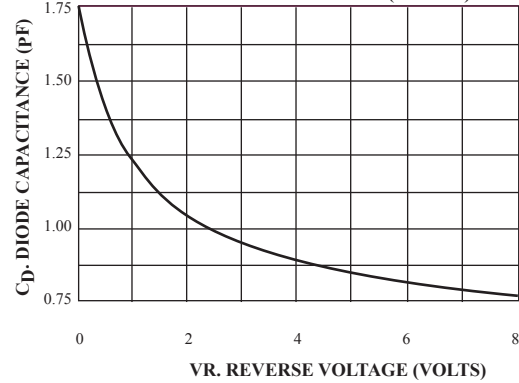
**FIGURE 4. CAPACITANCE(BAS16)**



**FIGURE 5. CAPACITANCE (BAV70)**



**FIGURE 6. CAPACITANCE(BAW56)**



**FIGURE 7. CAPACITANCE (BAV99)**

