

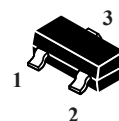
Surface Mount Switching Diode

 Lead(Pb)-Free

Features:

- *Low Current Leakage
- *Low Forward Voltage
- *Reverse Recover Time $T_{rr} \leq 4ns$
- *Small Outline Surface Mount SOT-23 Package

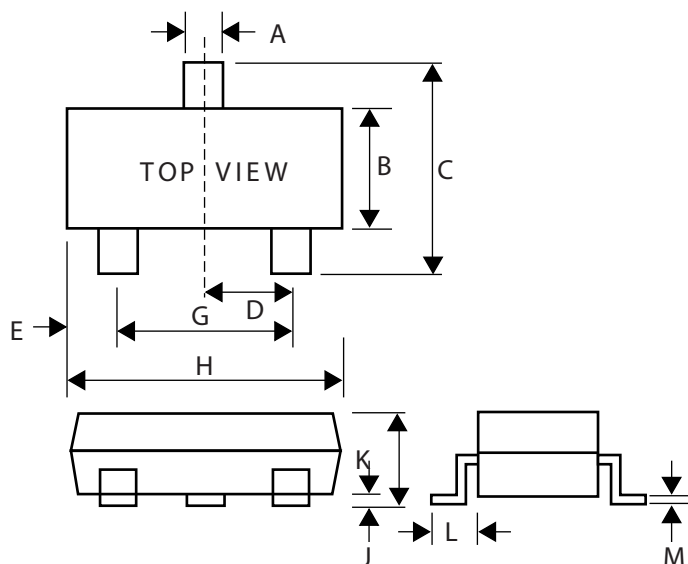
SWITCHING DIODE
200m AMPERES
75 VOLTS



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

Characteristic	Symbol	Value	Unit
Reverse Voltage	V_R	75	Volts
Average Forward Current	I_O	200	mAdc
Peak Forward Surge Current	I_{FM}	500	mAdc

Thermal Characteristics

Characteristic	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	$^\circ\text{C/W}$
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	$^\circ\text{C/W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to + 150	$^\circ\text{C}$

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

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

Electrical Characteristics ($T_A=25^\circ\text{C}$ Unless Otherwise Note) (Each Diode)

Characteristic	Symbol	Min	Max	Unit
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Off Characteristics

Reverse Breakdown Voltage $I_{BR}=100\mu\text{Adc}$	V_{BR}	75	-	Vdc
Reverse Voltage Leakage Current $V_R=50\text{V}$	I_R	-	0.1	μAdc

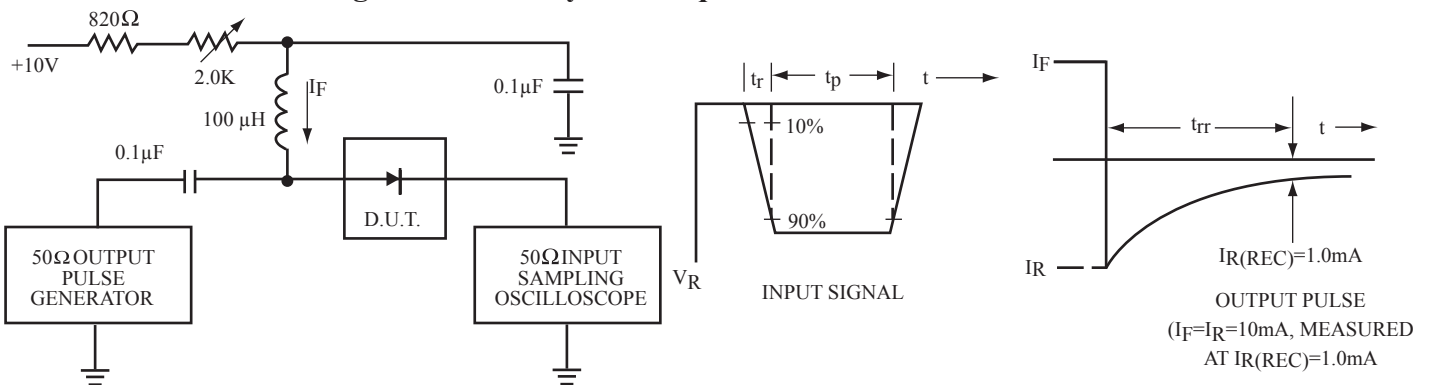
Off Characteristic

Characteristic	Symbol	Min	Max	Unit
Diode Capacitance $V_R=0, f=1.0\text{MHz}$	C_D	-	4.0	PF
Forward Voltage $I_F=10\text{ mAdc}$ $I_F=50\text{ mAdc}$ $I_F=100\text{ mAdc}$	V_F	-	1000 1000 1200	mVdc
Reverse Recovery Time (Figure 1.) $I_F=I_R=10\text{ mAdc}, V_R=5.0\text{Vdc}$ $I_{R(\text{REC})}=1.0\text{ mAdc}, R_L=100$	t_{rr}	-	4.0	nS

Device Marking

Item	Marking	Equivalent Circuit diagram
MMBD1009	A2	
MMBD1011	A6	

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 pulses is adjusted so $I_{R(\text{peak})}$ is equal to 10 mA
 3. $t_p \gg t_{rr}$

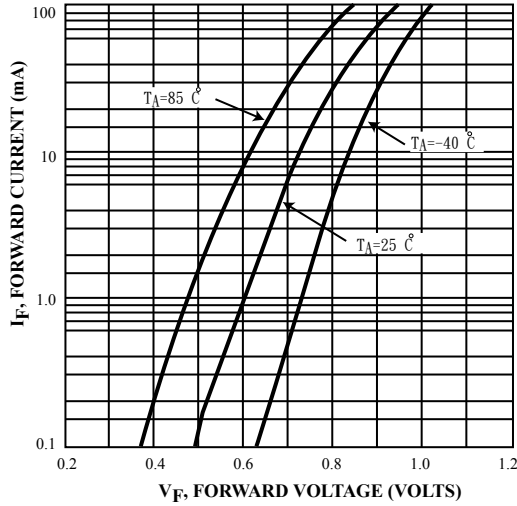


FIGURE 2 .FORWARD VOLTAGE

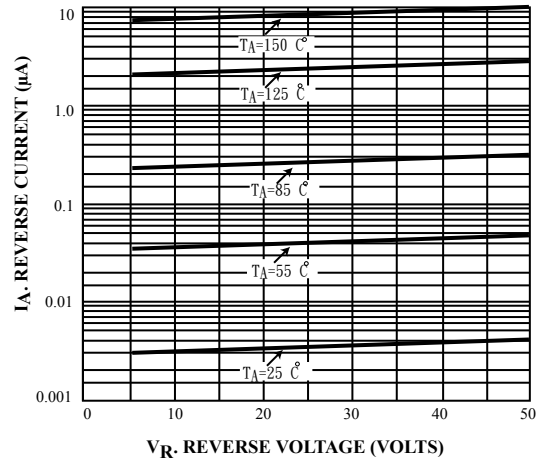


FIGURE 3. LEAKAGE CURRENT

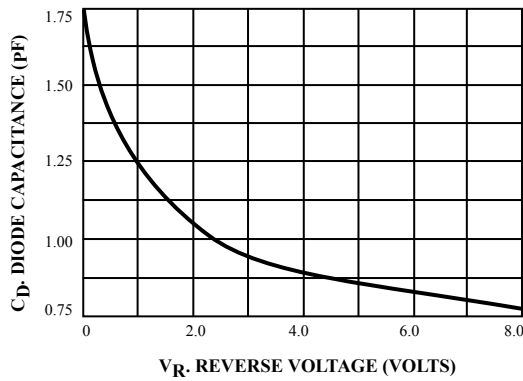


FIGURE 4. CAPACITANCE(2836)

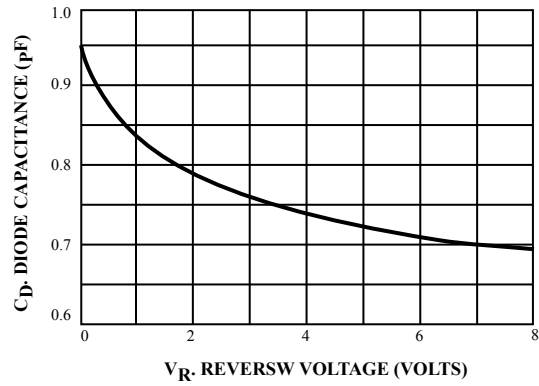


FIGURE 5. CAPACITANCE(2838)

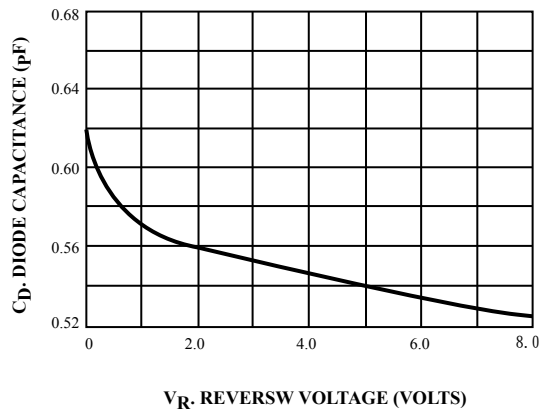


FIGURE 6. CAPACITANCE(7000)