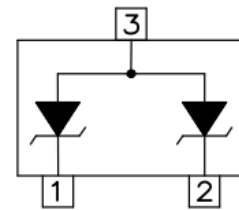


FEATURES

- ✧ SOT-23 package allows either two separate unidirectional configurations or a single bidirectional configuration.
- ✧ Working peak reverse voltage 6.0 V
- ✧ Standard Zener breakdown voltage 9.1V
- ✧ Peak power 24 or Watts @ 1.0ms (unidirectional) per Figure 6 Waveform
- ✧ ESD Rating:
 - Class 3B (>16kV) per the Human Body Model
 - Class C (>400V) per Machine Model
- ✧ ESD Rating of IEC61000-4-2 level 4, ± 30 kV contact Discharge
- ✧ Low leakage < 5.0 μ A



SOT-23



PIN Configuration

MACHANICAL DATA

- ✧ SOT-23 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed: 260°C/10s
- ✧ Reel size: 7 inch

ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
P_{PK}	Peak Power Dissipation @1.0ms	24	W
P_D	Total Power Dissipation	200	mW
T_{OPT}	Operating Temperature	-55/+150	°C
T_{STG}	Storage Temperature	-55/+150	°C

ELECTRICAL CHARACTERISTICS (Tamb=25°C)

UNIDIRECTIONAL (Circuit tied to Pins 1 and 3 or Pins 2 to 3)

Part Number	Device Marking	V_{RWM}	I_R	V_{BR}			Z_{ZT}	Z_{ZK}		V_C		
		(V)	(μ A)	(V)			(Ω)	(Ω)	(mA)	(V)	(A)	
			@ V_{RWM}	Min	Nom	Max	@ I_T	Max @ I_{ZT}	Max	@ I_{ZK}	Max	@ I_{PP}
MMBZ9V1AL	9A1	6.0	0.3	8.65	9.1	9.56	1.0	--	--	--	14	1.7

Typical Characteristics

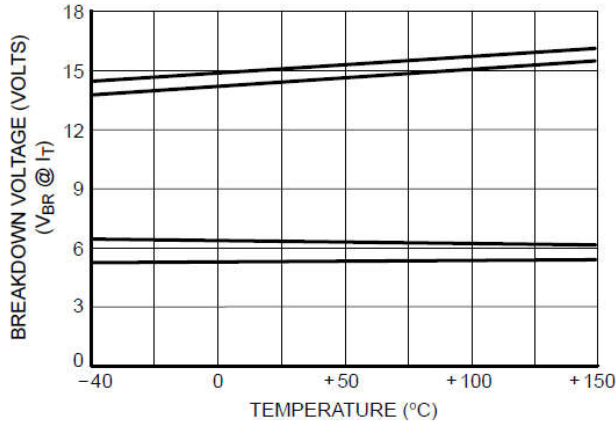


Figure 1. Typical Breakdown Voltage versus Temperature

(Upper curve for each voltage is bidirectional mode, lower curve is unidirectional mode)

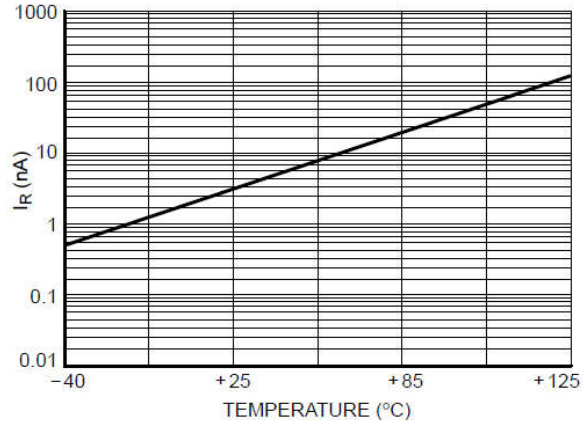


Figure 2. Typical Leakage Current versus Temperature

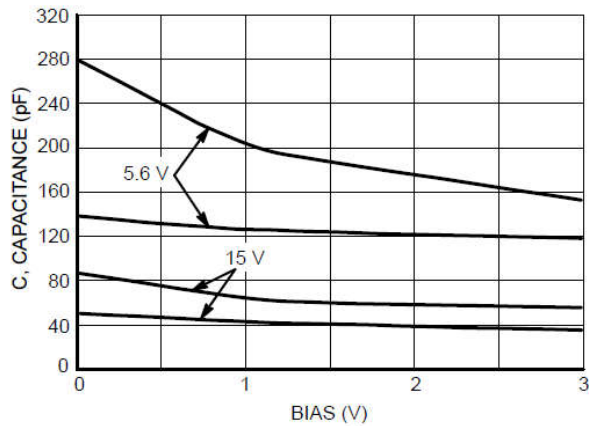


Figure 3. Typical Capacitance versus Bias Voltage

(Upper curve for each voltage is unidirectional mode, lower curve is bidirectional mode)

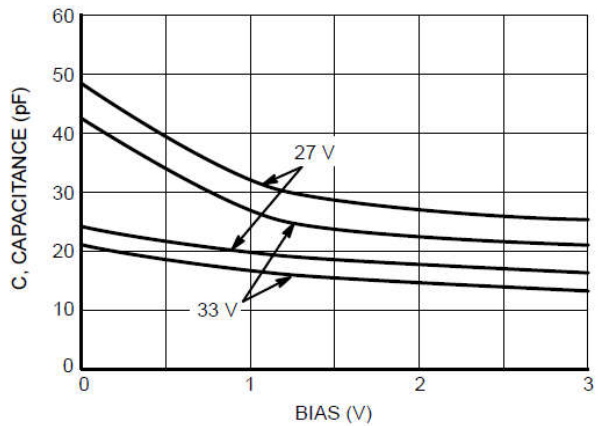


Figure 4. Typical Capacitance versus Bias Voltage

(Upper curve for each voltage is unidirectional mode, lower curve is bidirectional mode)

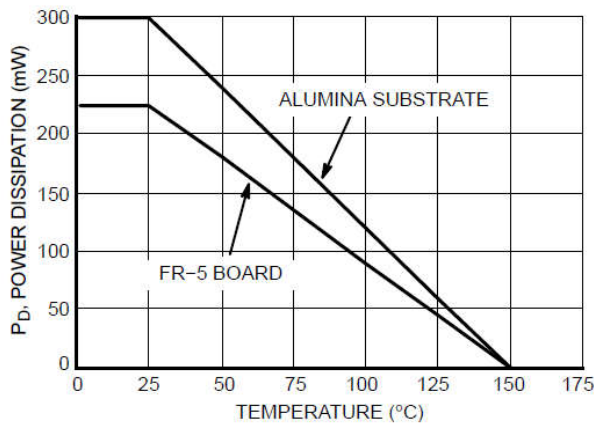


Figure 5. Steady State Power Derating Curve

Typical Characteristics

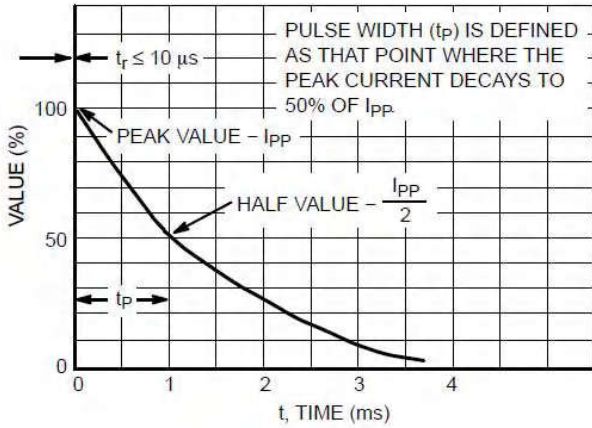


Figure 6. Pulse Waveform

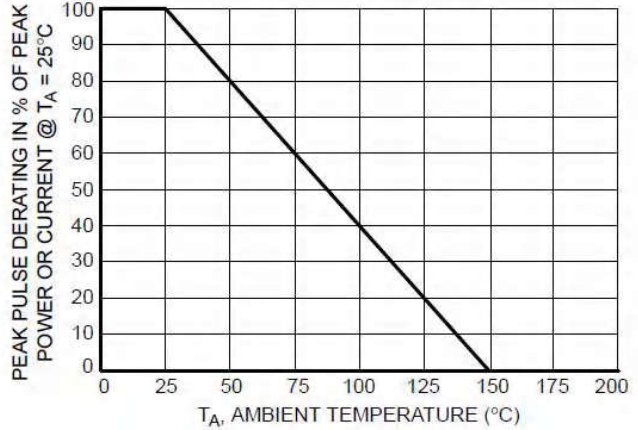


Figure 7. Pulse Derating Curve

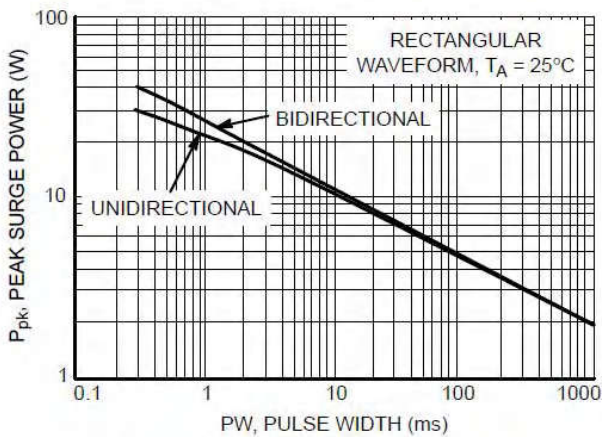


Figure 8. Maximum Non-repetitive Surge Power, P_{pk} versus PW

Power is defined as $V_{RSM} \times I_Z(pk)$ where V_{RSM} is the clamping voltage at $I_Z(pk)$.

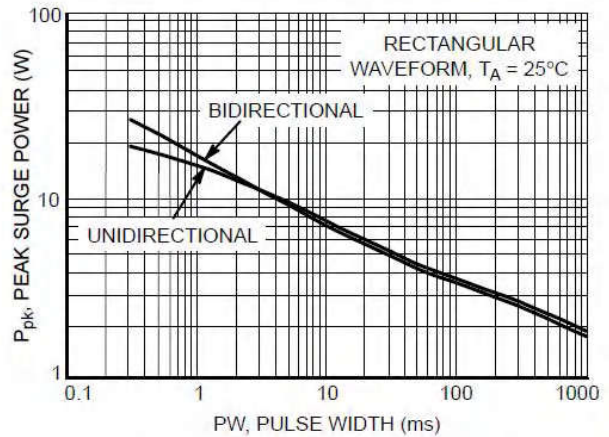
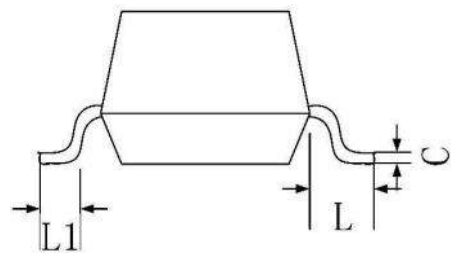
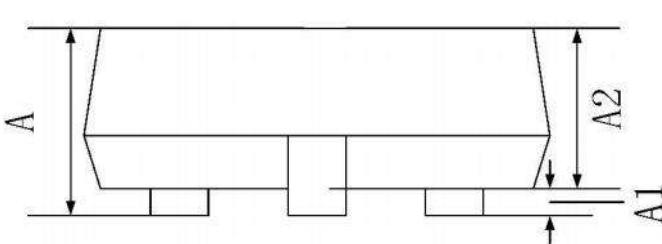
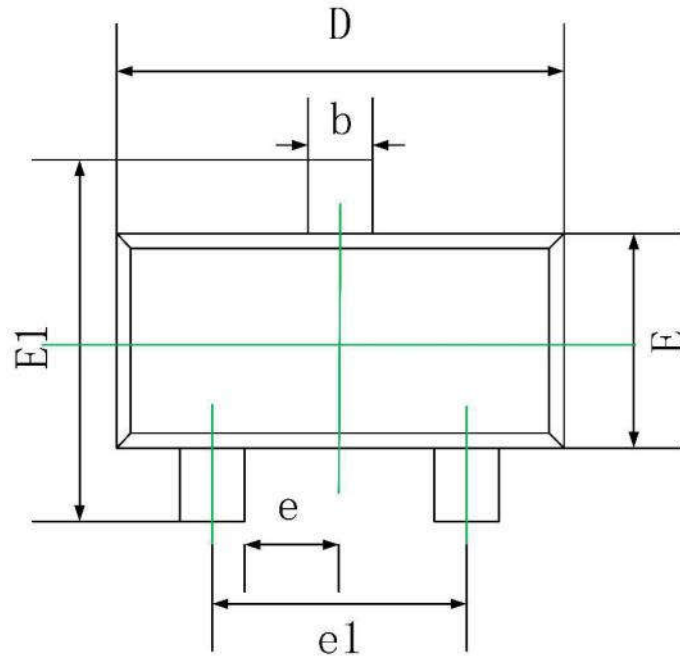


Figure 9. Maximum Non-repetitive Surge Power, $P_{pk}(NOM)$ versus PW

Power is defined as $V_Z(NOM) \times I_Z(pk)$ where $V_Z(NOM)$ is the nominal Zener voltage measured at the low test current used for voltage classification.

SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020

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