

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Power Dissipation: MMBZ5V6AL - MMBZ10VAL (Note 7)	P _{PK}	24	W
Peak Power Dissipation: MMBZ15VAL - MMBZ33VAL (Note 7)	P _{PK}	40	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	225	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	R _{θJA}	556	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

24 Watt (V_F = 0.9V max @ I_F = 10mA)

Type Number	Marking Code	V _{RWM}	Max Reverse Current, I _R @ V _{RWM} (Note 8)	Breakdown Voltage			@ I _T	Max. Clamping Voltage, V _C @ I _{PP} (Note 7)		Typical Temperature Coefficient of Reverse Voltage T _C (mV/°C)
				V _{BR} (Note 8) (V)				V _C	I _{PP}	
				Volts	μA	Min		Nom	Max	
MMBZ5V6AL	K9A	3	5.0	5.32	5.6	5.88	20	8.0	3.0	1.8

24 Watt (V_F = 0.9V max @ I_F = 10mA)

Type Number	Marking Code	V _{RWM}	Max Reverse Current, I _R @ V _{RWM} (Note 8)	Breakdown Voltage			@ I _T	Max. Clamping Voltage, V _C @ I _{PP} (Note 7)		Typical Temperature Coefficient of Reverse Voltage T _C (%/°C)
				V _{BR} (Note 8) (V)				V _C	I _{PP}	
				Volts	μA	Min		Nom	Max	
MMBZ6V2AL	K9B	3.0	0.5	5.89	6.2	6.51	1.0	8.7	2.76	+0.04
MMBZ6V8AL	K9C	4.5	0.5	6.46	6.8	7.14	1.0	9.6	2.5	+0.045
MMBZ9V1AL	K9D	6.0	0.3	8.65	9.1	9.56	1.0	14	1.7	+0.065
MMBZ10VAL	K9E	6.5	0.3	9.50	10	10.5	1.0	14.2	1.7	+0.065

40 Watt (V_F = 0.9V max @ I_F = 10mA)

Type Number	Marking Code	V _{RWM}	Max. Reverse Current, I _R @ V _{RWM} (Note 8)	Breakdown Voltage			@ I _T	Max. Clamping Voltage, V _C @ I _{PP} (Note 7)		Typical Temperature Coefficient of Reverse Voltage T _C (%/°C)
				V _{BR} (Note 8) (V)				V _C	I _{PP}	
				Volts	nA	Min		Nom	Max	
MMBZ15VAL	K9K	12	50	14.25	15	15.75	1.0	21	1.9	+0.080
MMBZ18VAL	K9L	14.5	50	17.10	18	18.90	1.0	25	1.6	+0.090
MMBZ20VAL	K9N	17	50	19.00	20	21.00	1.0	28	1.4	+0.090
MMBZ27VAL	K9Q	22	50	25.65	27	28.35	1.0	40	1.0	+0.090
MMBZ33VAL	K9T	26	50	31.35	33	34.65	1.0	46	0.87	+0.090

Notes: 6. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes website at <http://www.diodes.com/package-outlines.html>.

7. Non-repetitive current pulse per Figure 2 and derate above T_A = +25°C per Figure 2.

8. Short duration pulse test used to minimize self-heating effect.

9. MMBZ5V6AL and MMBZ15VAL exceed 16kV ESD rating, all other voltages exceed 8kV ESD rating.

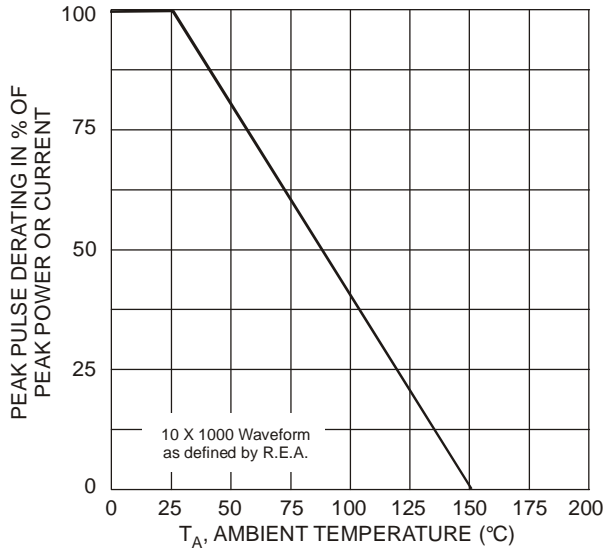


Fig. 1 Pulse Derating Curve

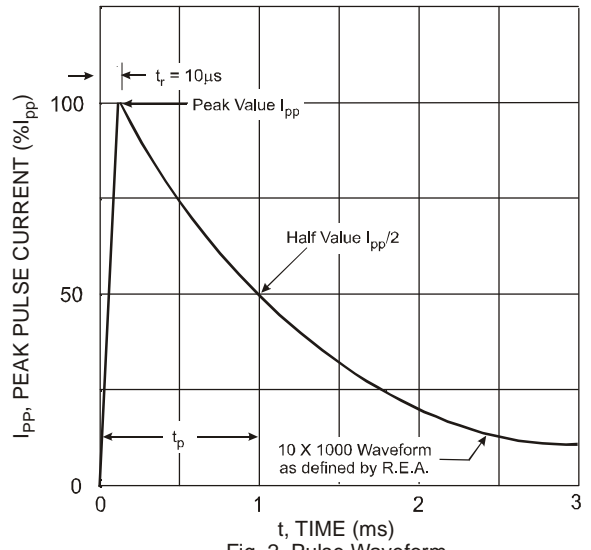


Fig. 2 Pulse Waveform

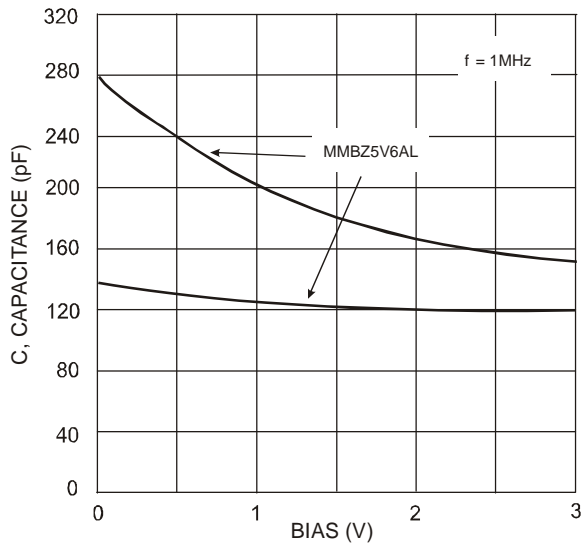


Fig. 3 Typical Capacitance vs. Bias Voltage
(Lower curve is Bidirectional mode,
Upper curve is Unidirectional mode)

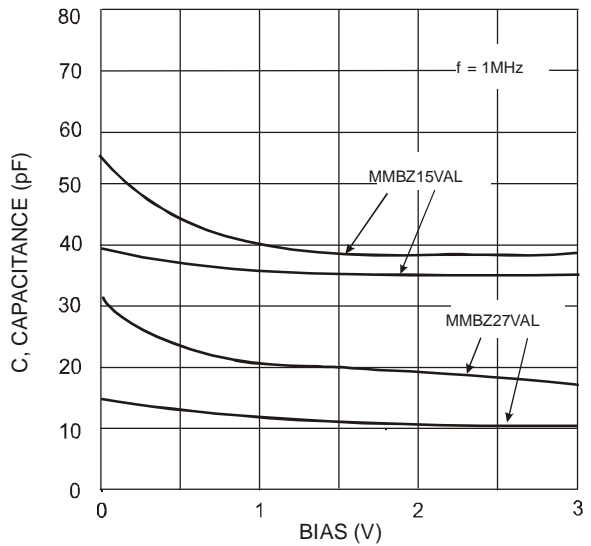


Fig. 4 Typical Capacitance vs. Bias Voltage
(Lower curve is Bidirectional mode,
Upper curve is Unidirectional mode)

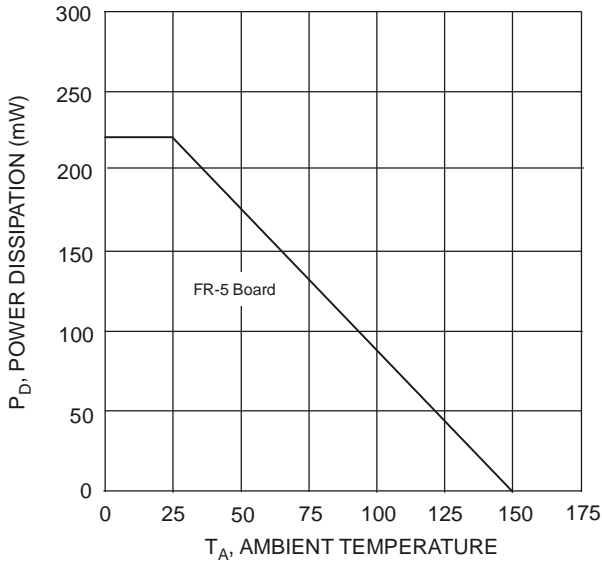


Fig. 5 Steady State Power Derating Curve

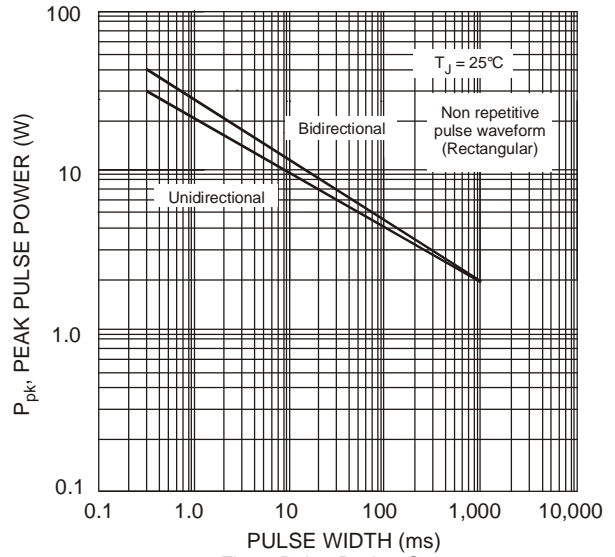


Fig. 6 Pulse Rating Curve, P_{pk} (W) vs. Pulse Width (ms)

Power is defined as $P_{pk} = V_C \times I_{pp}$

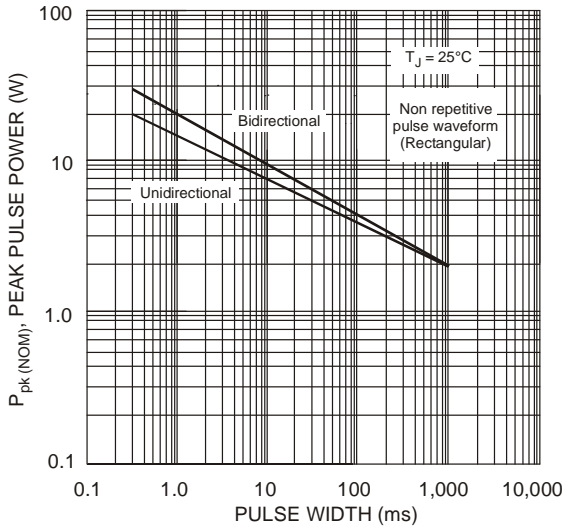


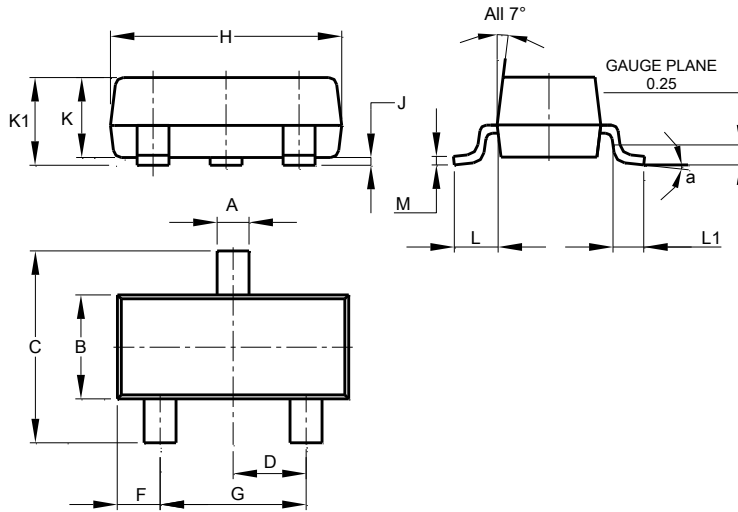
Fig. 7 Pulse Rating Curve, P_{pk(NOM)} (W) vs. Pulse Width (ms)

Power is defined as $P_{pk(NOM)} = V_{BR(NOM)} \times I_{pp}$
 where $V_{BR(NOM)}$ is the nominal reverse breakdown voltage measured at the low test current used for voltage classification

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23

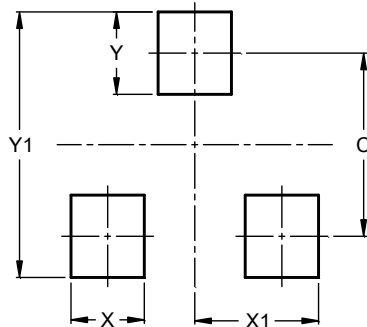


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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