MMBZ15VDL, MMBZ27VCL

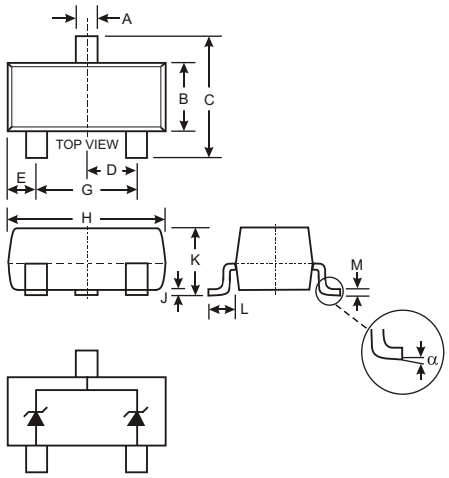
40W PEAK POWER DUAL SURFACE MOUNT TVS

Features

- Dual TVS in Common Cathode Configuration for ESD Protection
- 40 Watt Peak Power Dissipation @1.0ms (Unidirectional)
- 225 mW Power Dissipation
- Ideally Suited for Automatic Insertion
- Low Leakage
- **Lead Free/RoHS Compliant (Note 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Rating Classification 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Polarity: See Diagram
- Date Code: See Page 3
- Marking Code: See Table Below
- Weight: 0.008 grams (approximate)



SOT-23		
Dim	**Min**	**Max**
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
	0	8
All Dimensions in mm		

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P_d	225	mW
Peak Power Dissipation (Note 2)	P_{PK}	40	W
Thermal Resistance, Junction to Ambient Air (Note 1)	$R_{\theta JA}$	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

V_F = 0.9V max @ I_F = 10mA (Note 3)

Type Number	Marking Code	V_{RWM}	I_R @ V_{RWM}	Breakdown Voltage				V_C @ I_{PP} (Note 2)		Typical Temperature Coefficient
				V_{BR} (Note 3) (V)			@ I_T	V_C	I_{PP}	
		Volts	nA	Min	Nom	Max	mA	V	A	T_C (%/°C)
MMBZ15VDL	KVJ	12.8	100	14.3	15	15.8	1.0	21.2	1.9	+0.080

V_F = 1.1V max @ I_F = 200mA (Note 3)

Type Number	Marking Code	V_{RWM}	I_R @ V_{RWM}	Breakdown Voltage				V_C @ I_{PP} (Note 2)		Typical Temperature Coefficient
				V_{BR} (Note 3) (V)			@ I_T	V_C	I_{PP}	
		Volts	nA	Min	Nom	Max	mA	V	A	T_C (%/°C)
MMBZ27VCL	KVP	22	50	25.65	27	28.35	1.0	38	1.0	+0.090

Note:
1. Device mounted on FR-5 PCB 1.0 x 0.75 x 0.062 inch pad layout as shown on Diodes Inc. suggested pad layout AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf. 200mW per element must not be exceeded.
2. Non-repetitive current pulse per Figure 2 and derate above T_A = 25°C per Figure 1.
3. Short duration test pulse used to minimize self-heating effect.
4. No purposefully added lead.

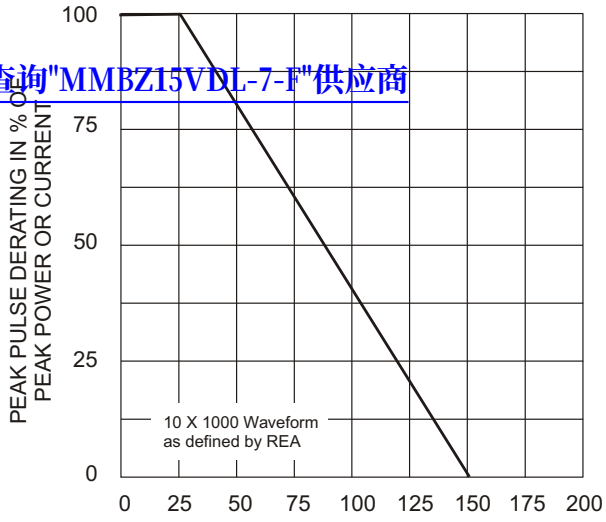


Fig. 1 Pulse Derating Curve

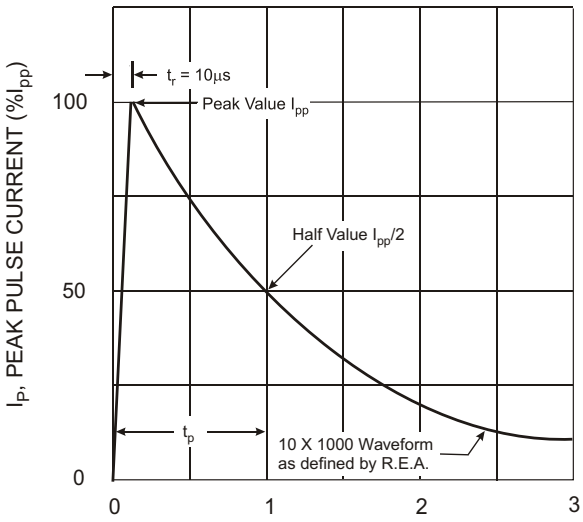


Fig. 2 Pulse Waveform

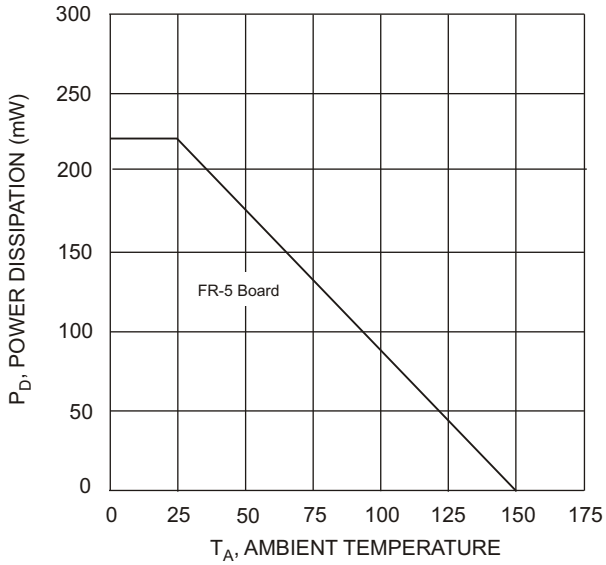


Fig. 3 Steady State Power Derating Curve

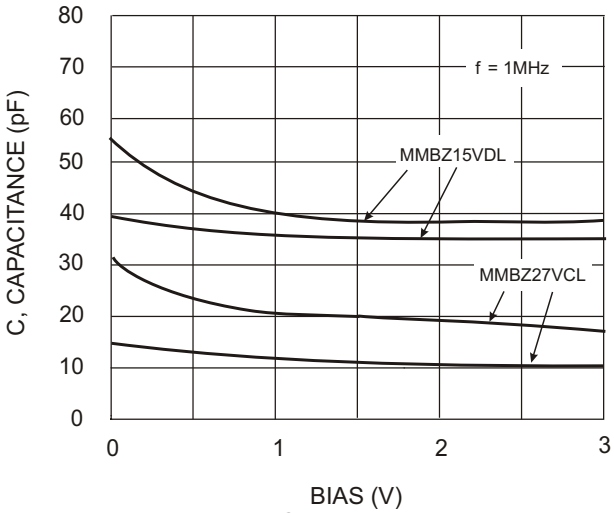


Fig. 4 Typical Capacitance vs. Bias Voltage
(Lower curve is Bidirectional mode,
Upper curve is Unidirectional mode)

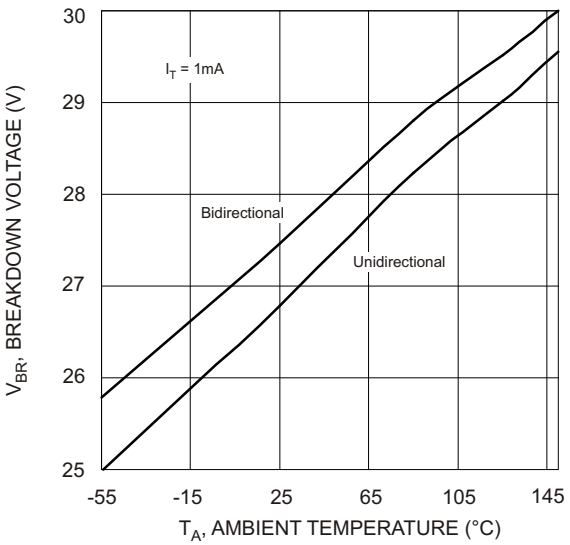


Fig. 5 Typical Breakdown Voltage
vs. Temperature (MMBZ27VCL)

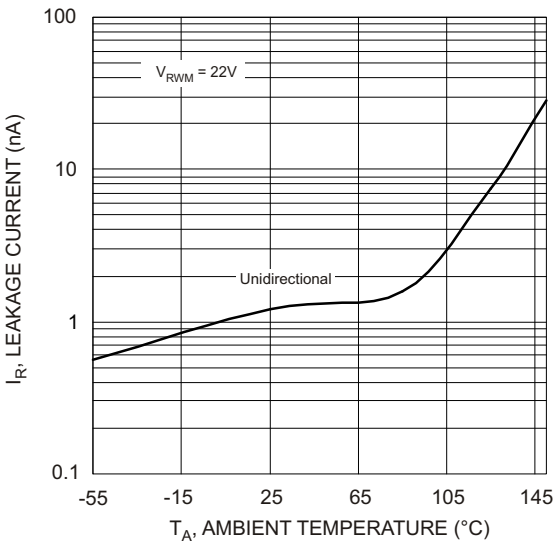


Fig. 6 Typical Leakage Current
vs. Temperature (MMBZ27VCL)

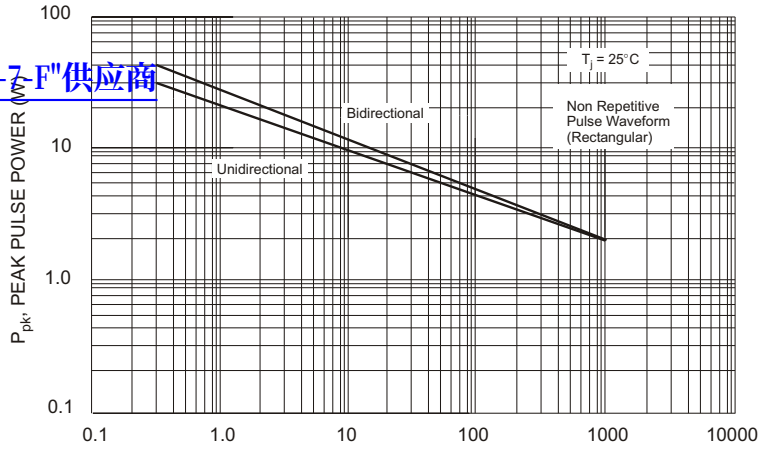


Fig. 7 Pulse Rating Curve,
P_{pk} (W) vs. Pulse Width (ms)

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

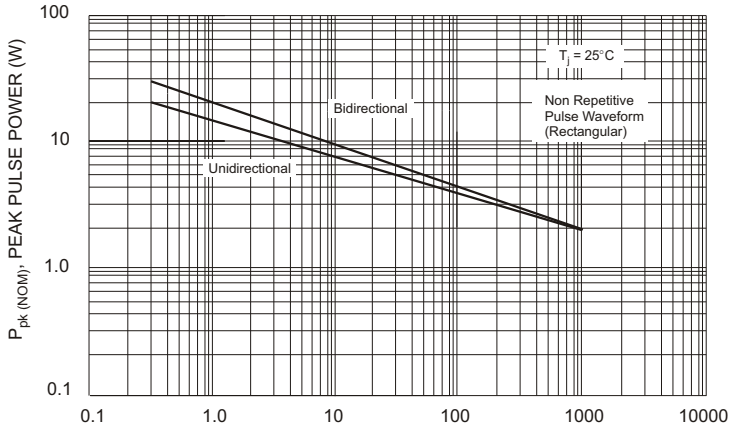


Fig. 8 Pulse Rating Curve,
$P_{pk\ (NOM)}$ (W) vs. Pulse Width (ms)

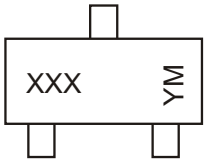
Power is defined as $P_{pk(NOM)} = V_{BR(NOM)} \times I_{pp}$
where $V_{BR(NOM)}$ is the nominal breakdown voltage

Ordering Information (Note 5)

Device	Packaging	Shipping
MMBZ15VDL-7-F MMBZ27VCL-7-F	SOT-23	3000/Tape & Reel

Notes: 5. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



XXX = Product Type Marking Code, ex: KVP = MMBZ27VCL
YM = Date Code Marking
Y = Year ex: N = 2002
M = Month ex: 9 = September

Date Code Key

Year	2001	2002	2003	2004	2005	2006	2007	2008
Code	M	N	P	R	S	T	U	V

Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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