

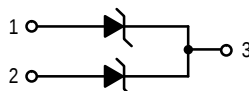
15 Volt SOT-23 Bipolar Zener Overvoltage Transient Suppressor

MMBZ15VDLT1

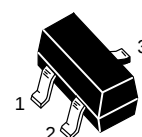
This monolithic silicon zener device is designed for applications requiring transient overvoltage protection capability. It is intended for use in voltage and ESD sensitive equipment such as computers, business machines, communication systems, medical equipment and other applications. The convenient SOT-23 package allows for easy handling and is ideal for situations where space is at a premium.

Specification Features:

- Dual Package Provides for Bidirectional or Separate Unidirectional Configurations
- Economical SOT-23 Surface Mount Package
- Peak Power — 40 Watts @ 1 ms (Bidirectional)
- Maximum Clamping Voltage @ Peak Pulse Current
- Low Leakage < 100 nA



**SOT-23 BIPOLAR
ZENER OVERVOLTAGE
TRANSIENT SUPPRESSOR
15 VOLT
40 WATTS PEAK POWER**



**CASE 318-07
TO-236AB
LOW PROFILE SOT-23**

Mechanical Characteristics:

Case: Void free, transfer-molded, thermosetting plastic

Finish: All external surfaces are corrosion resistant and leads are readily solderable

Packaging: Available in 8 mm embossed tape and reel (3000 devices per reel)

Pinout: Terminal 1 — Anode

Terminal 2 — Anode

Terminal 3 — Cathode

MAXIMUM RATINGS (T_C = 25°C Unless Otherwise Noted.)

Rating	Symbol	Value	Unit
Peak Power Dissipation (1) @ T _A ≤ 25°C	P _{pk}	40	Watts
Total Power Dissipation on FR-5 Board (2) @ T _A = 25°C Derate above 25°C	P _D	225 1.8	mW mW/°C
Total Power Dissipation on Alumina Substrate (3) @ T _A = 25°C Derate above 25°C	P _D	300 2.4	mW mW/°C
Operating and Storage Temperature Range	T _J , T _{stg}	–55 to +150	°C

(1) Nonrepetitive current pulse per Figure 5 and derate above T_A = 25°C per Figure 6.

(2) FR-5 = 1.0 x 0.75 x 0.62 in.

(3) Alumina = 0.4 x 0.3 x 0.024 in., 99.5% alumina

THERMAL CHARACTERISTICS

Thermal Resistance — Junction to Ambient	R _{θJA}	556	°C/W
Maximum Lead Temperature for Soldering Purposes (10 seconds max.)	T _L	230	°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

BIDIRECTIONAL (Circuit tied to pins 1 and 2)

Breakdown Voltage			@ I _T mA	Working Peak Reverse Voltage V _{RWM} (Volts)	Maximum Reverse Leakage Current I _{RWM} I _R (nA)	Maximum Reverse Surge Current I _{RSM} [†] (Amps)	Maximum Reverse Voltage @ I _{RSM} [†] (Clamping Voltage) V _{RSM} (Volts)	Maximum Temperature Coefficient of V _{BR} (mV/°C)
V _{BR} ^{††} (Volts)	Min	Nom	Max					
	14.3	15	15.8	1.0	12.8	100	21.2	12

[†] Surge current waveform per Figure 5 and derate per Figure 6.

^{††} V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.



MOTOROLA

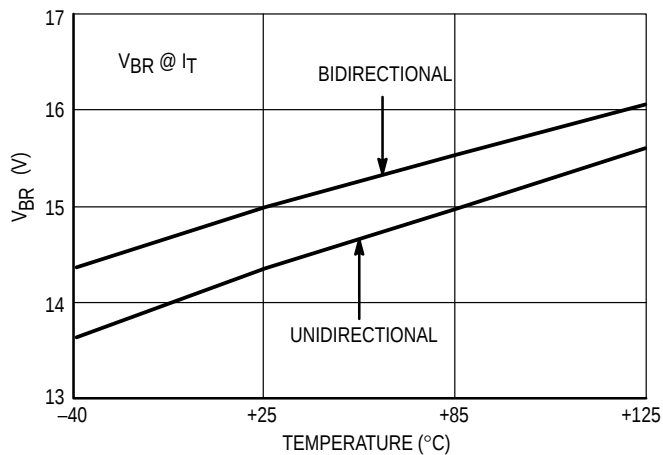


Figure 1. Typical V_{BR} versus Temperature

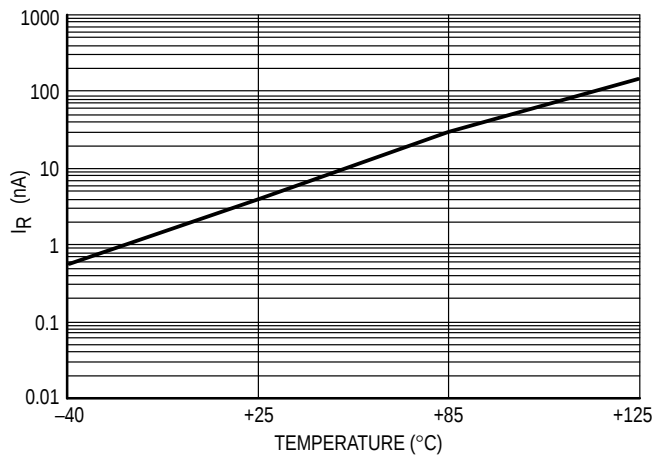


Figure 2. Typical Leakage Current versus Temperature

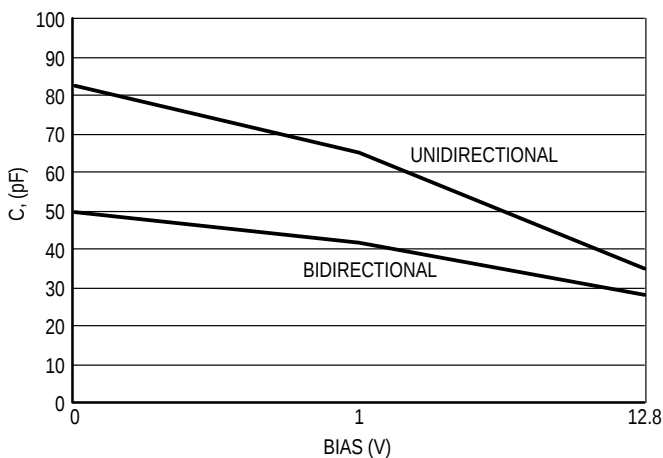


Figure 3. Typical Capacitance versus Bias Voltage

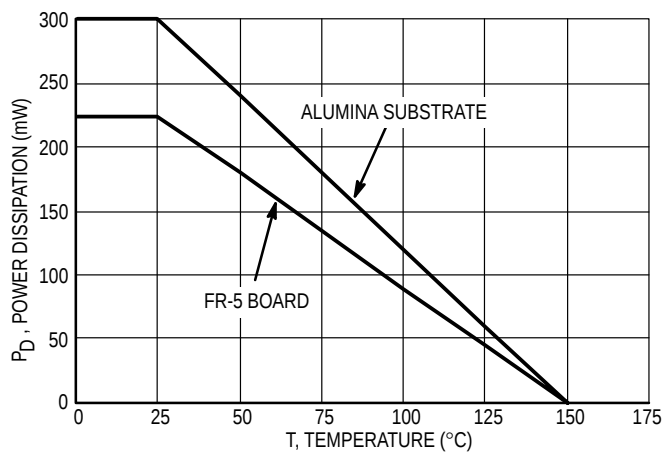


Figure 4. Steady State Power Derating Curve

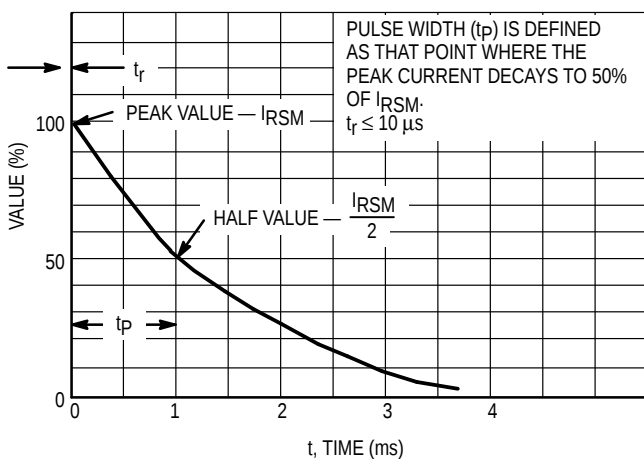


Figure 5. Pulse Waveform

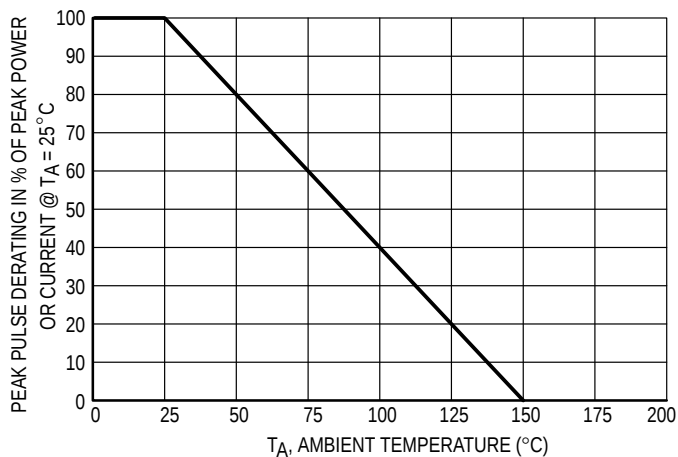


Figure 6. Pulse Derating Curve

Transient Voltage Suppressors — Surface Mounted

40 Watt Peak Power

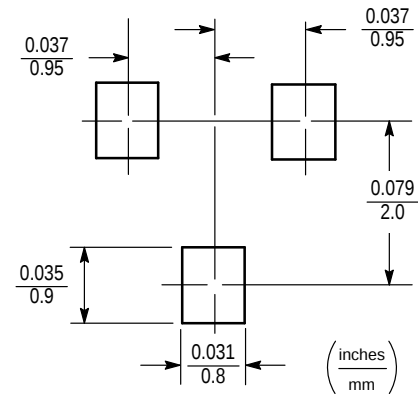
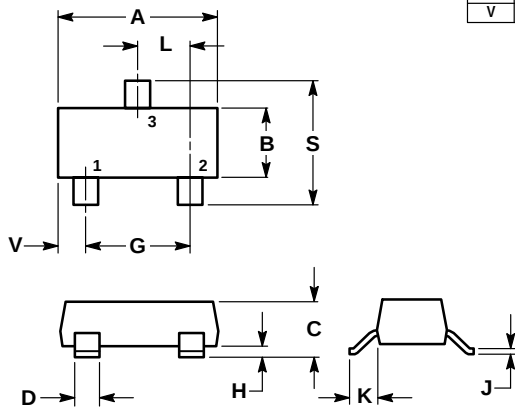
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0180	0.0236	0.45	0.60
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.0984	2.10	2.50
V	0.0177	0.0236	0.45	0.60

STYLE 9:

- PIN 1: ANODE
- ANODE
- CATHODE



SOT-23 Footprint

**CASE 318-07
PLASTIC**

(Refer to Section 10 for Surface Mount, Thermal Data and Footprint Information.)

MULTIPLE PACKAGE QUANTITY (MPQ) REQUIREMENTS

Package Option	Type No. Suffix	MPQ (Units)
Tape and Reel	T1	3K
Tape and Reel	T3	10K

(Refer to Section 10 for more information on Packaging Specifications.)