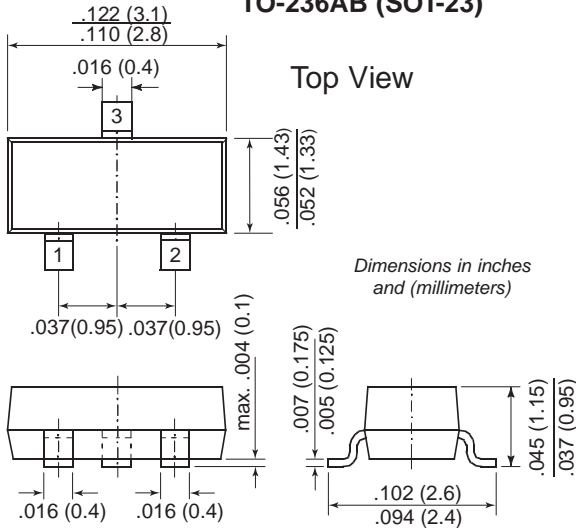


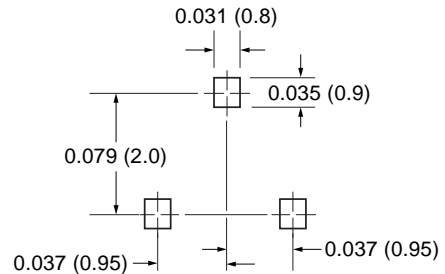


## Dual Zener Transient Voltage Suppressor Diodes for ESD Protection

### TO-236AB (SOT-23)



### Mounting Pad Layout

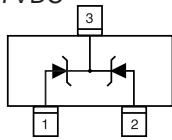


### Marking:

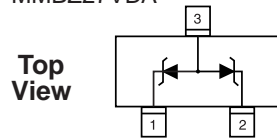
MMBZ15VDC = TC5      MMBZ15VDA = TA5  
 MMBZ27VDC = TC7      MMBZ27VDA = TA7  
 MMBZ6V8DC = ?      MMBZ6V8DA = ?

MMBZ15VDC  
 MMBZ27VDC

MMBZ15VDA  
 MMBZ27VDA



### Common Cathode



### Common Anode

## Mechanical Data

**Case:** SOT-23 Plastic Package

**Weight:** approx. 0.008g

**Terminals:** Solderable per MIL-STD-750, method 2026

### Packaging Codes/Options:

E8/10K per 13" reel (8mm tape)  
 E9/3K per 7" reel (8mm tape)

## Features

- Dual Silicon Planar Zener Diodes with Common Cathode or Common Anode configurations.
- Dual package provides for Bidirectional or separate unidirectional configurations.
- The dual configurations protect two separate lines with only one device.
- Peak Power: 40 watts @ 1ms (Bidirectional) .
- High temperature Soldering Guaranteed: 230°C for 10 seconds.
- Ideal for ESD Protection.
- For bidirectional operation, circuit connected to pins 1 and 2. For unidirectional operation, circuit connected to pins 1 and 3 or pins 2 and 3.

## Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Power Dissipation <sup>(1)</sup> @ T <sub>A</sub> ≤ 25°C	P <sub>pk</sub>	40 <sup>(4)</sup>	W
Total Power Dissipation on FR-5 Board <sup>(2)</sup>	P <sub>D</sub>	at T <sub>A</sub> = 25°C	225
Derate above 25°C		1.8	
Total Power Dissipation on Alumina Substrate <sup>(3)</sup>	P <sub>D</sub>	at T <sub>A</sub> = 25°C	300
Derate above 25°C		2.4	
Thermal Resistance Junction to Ambient Air	R <sub>θJA</sub>	556	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C

### Notes:

- (1) Nonrepetitive current pulse per Figure 2 and derate above T<sub>A</sub> = 25°C per Figure 3.
- (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.
- (4) The MMBZ6V8DC/A is rated at 24V

# MMBZ6V8DC/A thru MMBZ27VDC/A



Vishay Semiconductors  
formerly General Semiconductor

## Electrical Characteristics (T<sub>J</sub> = 25°C unless otherwise noted)

Type	Breakdown Voltage				Working Peak Reverse Voltage V <sub>RWM</sub> (Volts)	Max Reverse Leakage Current I <sub>R</sub> (nA)	Max Reverse Surge Current I <sub>PP</sub> (Amps)	Max Reverse Voltage @ I <sub>RSM</sub> <sup>(2)</sup> (Clamping Voltage) V <sub>C</sub> (Volts)	Max Temperature Coefficient of V <sub>BR</sub> (mV/°C)	Max Forward Voltage	
	V <sub>BR</sub> (Volts) <sup>(1)</sup>			@ I <sub>F</sub> (mA)						V <sub>F</sub> (Volts)	@ I <sub>F</sub> (mA)
	Min	Nom	Max								
MMBZ6V8D	6.48	6.8	7.14	1.0	4.5	500	2.5	9.6	3.4	1.1	200
MMBZ15VD	14.30	15.00	15.80	1.0	12.8	100	1.9	21.2	16	0.9	200
MMBZ27VD	25.65	27.00	28.35	1.0	22.0	80	1.0	38.0	30	1.1	200

Notes: (1) V<sub>BR</sub> measured at pulse test current I<sub>T</sub> at an ambient temperature of 25°C  
(2) Surge current waveform per Figure 2 and derate per Figure 3

## Ratings and Characteristic Curves (T<sub>A</sub> = 25°C unless otherwise noted)

### Layout for R<sub>θJA</sub> test

Thickness: Fiberglass 0.059 in (1.5 mm)  
Copper leads 0.012 in. (0.3mm)

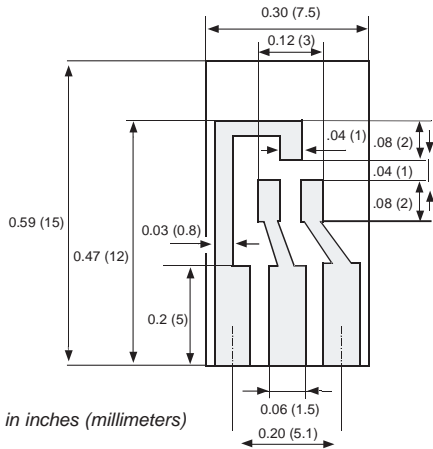


FIG. 1 - STEADY STATE POWER DERATING CURVE

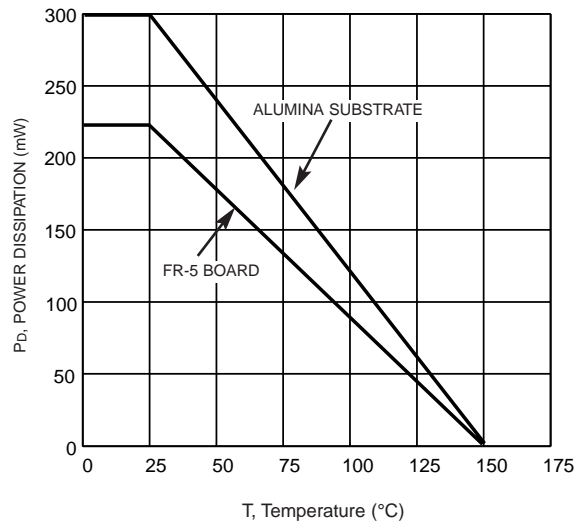


FIG. 2 - PULSE WAVEFORM

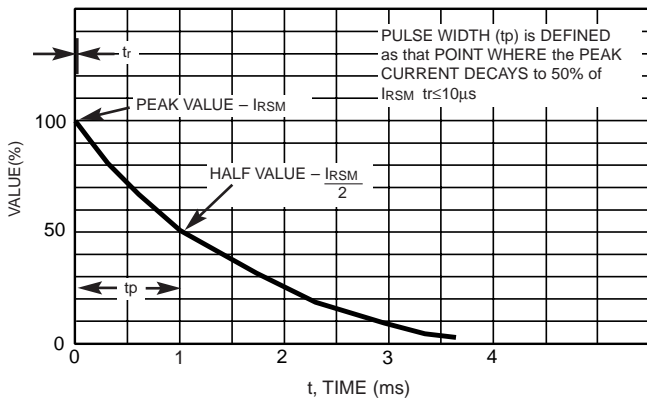


FIG. 3 - PULSE DERATING CURVE

