



# MMBZ...VDA and C Series

Vishay Semiconductors

## Small Signal Zener Diodes, Dual

### 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 W @ 1 ms (Bidirectional).
- 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.

### Mechanical Data

**Case:** SOT-23 Plastic case

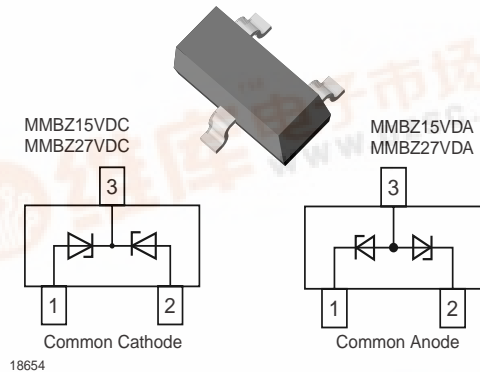
**Weight:** approx. 8.8 mg

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

### Packaging Codes/Options:

GS18/ 10 k per 13 " reel (8 mm tape), 10 k/box

GS08/ 3 k per 7 " reel (8 mm tape), 15 k/box



### Marking:

MMBZ15VDC = TC5

MMBZ27VDC = TC7

MMBZ15VDA = TA5

MMBZ27VDA = TA7

### Absolute Maximum Ratings

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Peak power dissipation <sup>1)</sup>		$P_{PK}$	40 <sup>4)</sup>	W
Power dissipation on FR-5 Board <sup>2)</sup>	$T_{amb} = 25\text{ }^{\circ}\text{C}$ Derate above 25 $^{\circ}\text{C}$	$P_{tot}$	225 1.8	mW mW/ $^{\circ}\text{C}$
Power dissipation on Alumina Substrate <sup>3)</sup>	$T_{amb} = 25\text{ }^{\circ}\text{C}$ Derate above 25 $^{\circ}\text{C}$	$P_{tot}$	300 2.4	mW mW/ $^{\circ}\text{C}$

<sup>1)</sup> Nonrepetitive current pulse per Figure 2 and derate above  $T_{amb} = 25\text{ }^{\circ}\text{C}$  per Figure 3.

<sup>2)</sup> FR-5 = 1.0 x 0.75 x 0.62 in.

<sup>3)</sup> Alumina = 0.4 x 0.3 x 0.024 in., 99.5 % alumina.

<sup>4)</sup> The MMBZ6V8DC/A is rated at 24 V.

### Thermal Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Thermal resistance junction to ambient air		$R_{thJA}$	556	$^{\circ}\text{C}/\text{W}$
Operating and storage temperature range		$T_j, T_{stg}$	- 55 to + 150	$^{\circ}\text{C}$



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## Electrical Characteristics

Partnumber	Breakdown Voltage <sup>1)</sup>		Test Current	Working Peak Reverse Voltage	Max. Reverse Leakage Current	Max. Reverse Surge Current	Max. Reverse Voltage (Clamping Voltage)	Max. Temperature Coefficient	Max. Forward Voltage	
	$V_{BR}$ at $I_T$		$I_T$	$V_{RWM}$	$I_R$	$I_{PP}$	$V_C$ @ $I_{RSM}^{2)}$	at $V_{BR}$	$V_F$	@ $I_F$
	V		mA	V	nA	A	V	mV/°C	V	mA
	min	max								
MMBZ15VDA	14.70	15.30	1.0	12.8	100	1.9	21.2	16	0.9	200
MMBZ27VDA	26.46	27.54	1.0	22.0	80	1.0	38.0	30	1.1	200
MMBZ15VDC	14.30	15.80	1.0	12.8	100	1.9	21.2	16	0.9	200
MMBZ27VDC	25.65	28.35	1.0	22.0	80	1.0	38.0	30	1.1	200

Note:

<sup>1)</sup>  $V_{BR}$  measured at pulse test current  $I_T$  at an ambient temperature of 25 °C

<sup>2)</sup> Surge current waveform per Figure 2 and derate per Figure 3

## Typical Characteristics ( $T_{amb} = 25\text{ °C}$ unless otherwise specified)

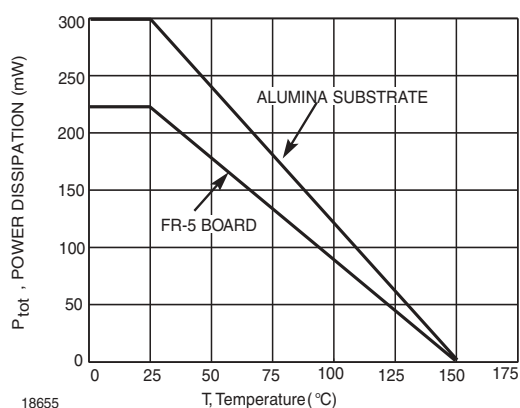


Figure 1. Steady State Power Derating Curve

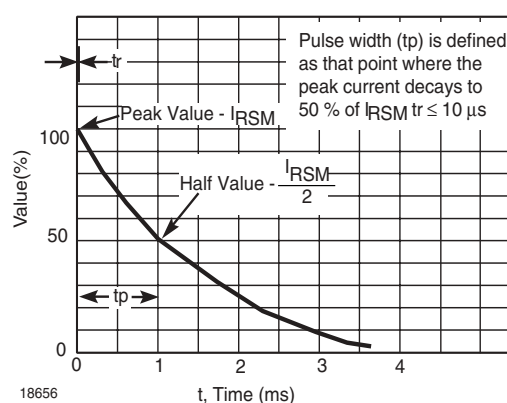


Figure 2. Pulse Waveform



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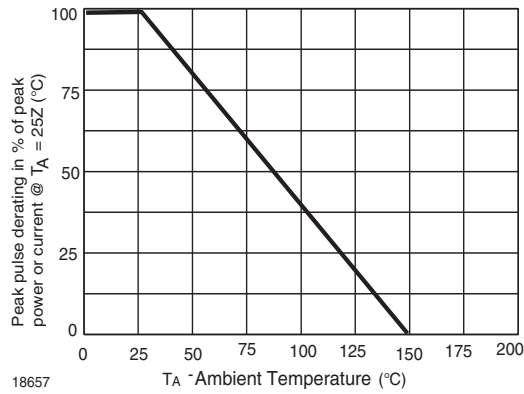
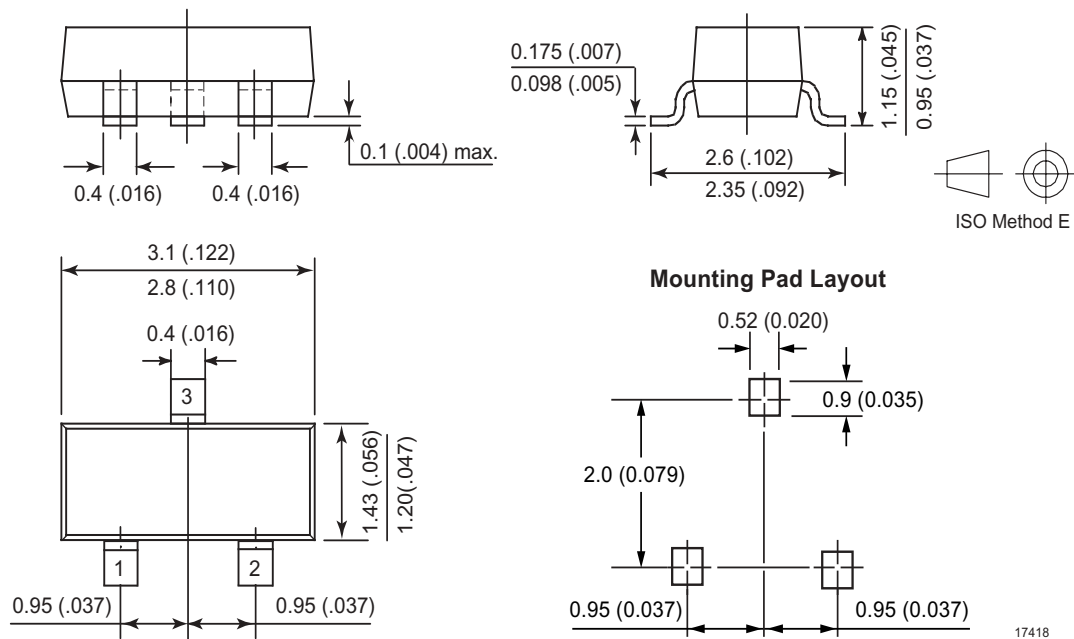


Figure 3. Pulse Derating Curve

## Package Dimensions in mm (Inches)





### Ozone Depleting Substances Policy Statement

It is the policy of **Vishay Semiconductor GmbH** to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

**Vishay Semiconductor GmbH** has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

**Vishay Semiconductor GmbH** can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

### **We reserve the right to make changes to improve technical design and may do so without further notice.**

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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