

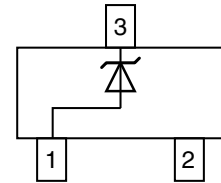
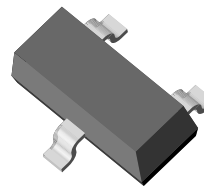
## Small Signal Zener Diodes

### Features

- Silicon planar power Zener diodes.
- Standard Zener voltage tolerance is  $\pm 5\%$  with a "B" suffix (e.g.: MMBZ5225B-V), suffix "C" is  $\pm 2\%$  tolerance.
- High temperature soldering guaranteed: 260 °C/ 4x 10 s at terminals.
- These diodes are also available in MiniMELF case with the type designation ZMM5225 to ZMM5267, SOD-123 case with the type designation MMSZ5225-V to MMSZ5267-V.
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



**RoHS**  
COMPLIANT



18078

### Mechanical Data

**Case:** SOT-23

**Weight:** approx. 8.8 mg

#### Packaging codes/options:

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

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

### Absolute Maximum Ratings

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

Parameter	Test condition	Symbol	Value	Unit
Zener current (see table "Characteristics")				
Power dissipation		$P_{tot}$	225 <sup>1)</sup>	mW
		$P_{tot}$	300 <sup>2)</sup>	mW

#### Notes

<sup>1)</sup> On FR - 5 board using recommended solder pad layout

<sup>2)</sup> On alumina substrate

### Thermal Characteristics

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

Parameter	Test condition	Symbol	Value	Unit
Thermal resistance junction to ambient air		$R_{thJA}$	556 <sup>1)</sup>	°C/W
Maximum junction temperature		$T_j$	150	°C
Storage temperature range		$T_{stg}$	- 65 to + 175	°C

#### Note

<sup>1)</sup> On FR - 5 board using recommended solder pad layout

# MMBZ5225-V to MMBZ5267-V



Vishay Semiconductors

## Electrical Characteristics

Maximum  $V_F = 0.9$  V, at  $I_F = 10$  mA

Part number	Marking code	Nominal Zener voltage	Test current	Maximum dynamic impedance <sup>1)</sup>		Typical temp. of coefficient	Maximum reverse leakage current	
		$V_Z$ at $I_{ZT1}$ <sup>2)</sup>	$I_{ZT1}$	$Z_{ZT}$ at $I_{ZT}$	$Z_{ZK}$ at $I_{ZK} = 0.25$ mA	$\alpha_{VZ}$	$I_R$	$V_R$
		V	mA	$\Omega$	$\Omega$	%/°C	$\mu$ A	V
MMBZ5225-V	18E	3	20	30	1600	- 0.075	50	1
MMBZ5226-V	8A	3.3	20	28	1600	- 0.07	25	1
MMBZ5227-V	8B	3.6	20	24	1700	- 0.065	15	1
MMBZ5228-V	8C	3.9	20	23	1900	- 0.06	10	1
MMBZ5229-V	8D	4.3	20	22	2000	- 0.055	5	1
MMBZ5230-V	8E	4.7	20	19	1900	$\pm$ 0.030	5	2
MMBZ5231-V	8F	5.1	20	17	1600	$\pm$ 0.030	5	2
MMBZ5232-V	8G	5.6	20	11	1600	0.038	5	3
MMBZ5233-V	8H	6	20	7	1600	0.038	5	3.5
MMBZ5234-V	8J	6.2	20	7	1000	0.045	5	4
MMBZ5235-V	8K	6.8	20	5	750	0.05	3	5
MMBZ5236-V	8L	7.5	20	6	500	0.058	3	6
MMBZ5237-V	8M	8.2	20	8	500	0.062	3	6.5
MMBZ5238-V	8N	8.7	20	8	600	0.065	3	6.5
MMBZ5239-V	8P	9.1	20	10	600	0.068	3	7
MMBZ5240-V	8Q	10	20	17	600	0.075	3	8
MMBZ5241-V	8R	11	20	22	600	0.076	2	8.4
MMBZ5242-V	8S	12	20	30	600	0.077	1	9.1
MMBZ5243-V	8T	13	9.5	13	600	0.079	0.5	9.9
MMBZ5244-V	8U	14	9	15	600	0.082	0.1	10
MMBZ5245-V	8V	15	8.5	16	600	0.082	0.1	11
MMBZ5246-V	8W	16	7.8	17	600	0.083	0.1	12
MMBZ5247-V	8X	17	7.4	19	600	0.084	0.1	13
MMBZ5248-V	8Y	18	7	21	600	0.085	0.1	14
MMBZ5249-V	8Z	19	6.6	23	600	0.086	0.1	14
MMBZ5250-V	81A	20	6.2	25	600	0.086	0.1	15
MMBZ5251-V	81B	22	5.6	29	600	0.087	0.1	17
MMBZ5252-V	81C	24	5.2	33	600	0.087	0.1	18
MMBZ5253-V	81D	25	5	35	600	0.089	0.1	19
MMBZ5254-V	81E	27	4.6	41	600	0.090	0.1	21
MMBZ5255-V	81F	28	4.5	44	600	0.091	0.1	21
MMBZ5256-V	81G	30	4.2	49	600	0.091	0.1	23
MMBZ5257-V	81H	33	3.8	58	700	0.092	0.1	25
MMBZ5258-V	81J	36	3.4	70	700	0.093	0.1	27
MMBZ5259-V	81K	39	3.2	80	800	0.094	0.1	30
MMBZ5260-V	18F	43	3	93	900	0.095	0.1	33
MMBZ5261-V	81M	47	2.7	105	1000	0.095	0.1	36
MMBZ5262-V	81N	51	2.5	125	1100	0.096	0.1	39
MMBZ5263-V	81P	56	2.2	150	1300	0.096	0.1	43
MMBZ5264-V	81Q	60	2.1	170	1400	0.097	0.1	46
MMBZ5265-V	81R	62	2	185	1400	0.097	0.1	47
MMBZ5266-V	81S	68	1.8	230	1600	0.097	0.1	52
MMBZ5267-V	81T	75	1.7	270	1700	0.098	0.1	56

<sup>1)</sup> The Zener impedance is derived from the 1 kHz AC voltage which results when an AC current having an RMS value equal to 10 % of the Zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$ . Zener Impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

<sup>2)</sup> Measured at thermal equilibrium.

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

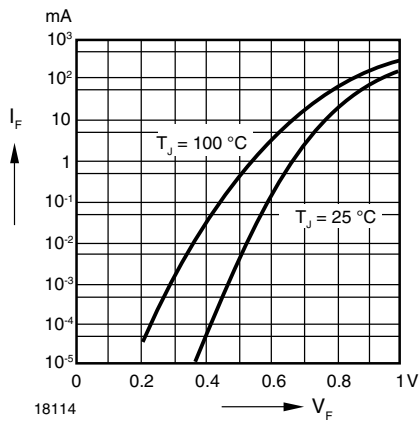


Figure 1. Forward Characteristics

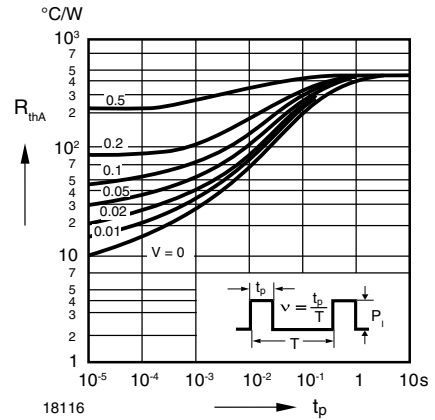


Figure 4. Pulse Thermal Resistance vs. Pulse Duration

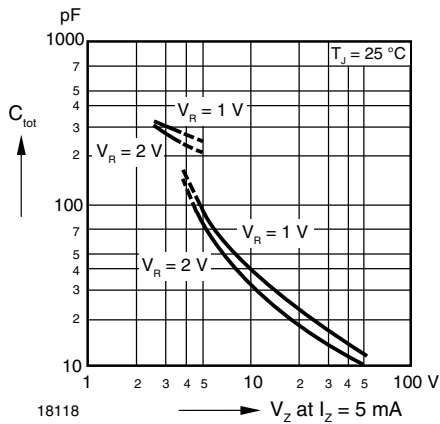


Figure 2. Capacitance vs. Zener Voltage

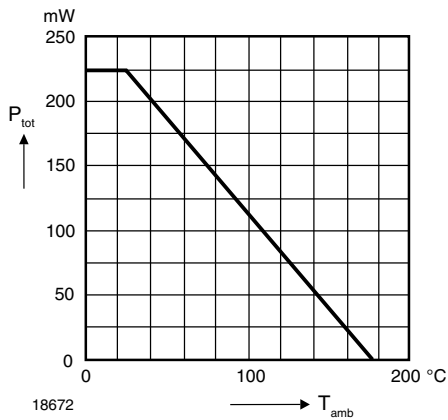


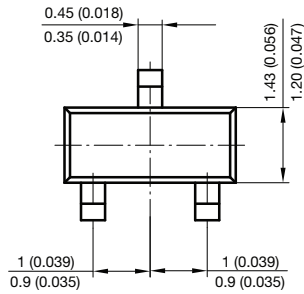
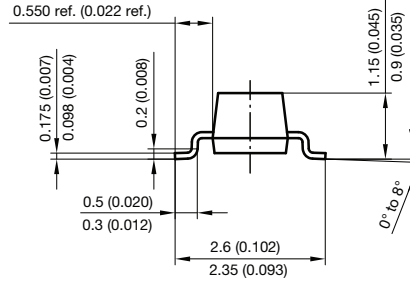
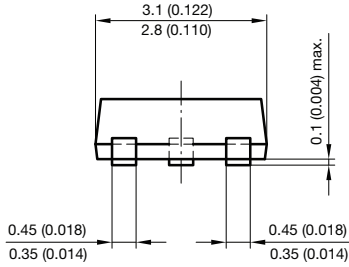
Figure 3. Admissible Power Dissipation vs. Ambient Temperature

# MMBZ5225-V to MMBZ5267-V

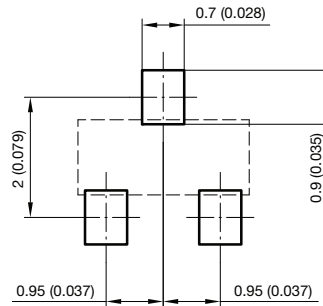


Vishay Semiconductors

Package Dimensions in millimeters (inches): **SOT-23**



Foot print recommendation:



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17418



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