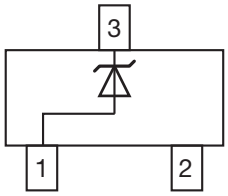
Small Signal Zener Diodes



FEATURES

- Silicon planar power Zener diodes
- Standard Zener voltage tolerance is ± 5 % with a “B” suffix (e.g.: MMBZ5225B), suffix “C” is ± 2 % tolerance.
- High temperature soldering guaranteed: 260 °C/4 x 10 s at terminals
- AEC-Q101 qualified
- ESD capability according to AEC-Q101:
  Human body model > 8 kV
  Machine model > 800 V
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	3 to 75	V
Test current I_{ZT}	1.7 to 20	mA
V_Z specification	Thermal equilibrium	
Int. construction	Single	

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
MMBZ5225 to MMBZ5267	MMBZ5225B-E3-08 to MMBZ5267B-E3-08	3000 (8 mm tape on 7" reel)	15 000/box
	MMBZ5225C-E3-08 to MMBZ5267C-E3-08		
	MMBZ5225B-HE3-08 to MMBZ5267B-HE3-08		
	MMBZ5225C-HE3-08 to MMBZ5267C-HE3-08		
	MMBZ5225B-E3-18 to MMBZ5267B-E3-18	10 000 (8 mm tape on 13" reel)	10 000/box
	MMBZ5225C-E3-18 to MMBZ5267C-E3-18		
	MMBZ5225B-HE3-18 to MMBZ5267B-HE3-18		
	MMBZ5225C-HE3-18 to MMBZ5267C-HE3-18		

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SOT-23	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	On FR - 5 board using recommended solder pad layout	P_{tot}	225	mW
	On alumina substrate	P_{tot}	300	mW
Zener current	See table “Electrical Characteristics”			
Thermal resistance, junction to ambient air	On FR - 5 board using recommended solder pad layout	R_{thJA}	556	K/W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	- 65 to + 150	°C
Operating temperature range		T_{op}	- 55 to + 150	°C

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE (1)	TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE (2)		TEMPERATURE COEFFICIENT
		V_Z at I_{ZT1}	I_{ZT1}	I_{ZT2}	I_R at V_R		Z_Z at I_{ZT1}	Z_{ZK} at I_{ZT2}	α_{VZ}
		V	mA		µA	V	Ω		%/°C
		NOM.			MAX.		MAX.	MAX.	TYP.
MMBZ5225	18E	3	20	0.25	50	1	30	1600	- 0.075
MMBZ5226	8A	3.3	20	0.25	25	1	28	1600	- 0.07
MMBZ5227	8B	3.6	20	0.25	15	1	24	1700	- 0.065
MMBZ5228	8C	3.9	20	0.25	10	1	23	1900	- 0.06
MMBZ5229	8D	4.3	20	0.25	5	1	22	2000	- 0.055
MMBZ5230	8E	4.7	20	0.25	5	2	19	1900	± 0.030
MMBZ5231	8F	5.1	20	0.25	5	2	17	1600	± 0.030
MMBZ5232	8G	5.6	20	0.25	5	3	11	1600	0.038
MMBZ5233	8H	6	20	0.25	5	3.5	7	1600	0.038
MMBZ5234	8J	6.2	20	0.25	5	4	7	1000	0.045
MMBZ5235	8K	6.8	20	0.25	3	5	5	750	0.05
MMBZ5236	8L	7.5	20	0.25	3	6	6	500	0.058
MMBZ5237	8M	8.2	20	0.25	3	6.5	8	500	0.062
MMBZ5238	8N	8.7	20	0.25	3	6.5	8	600	0.065
MMBZ5239	8P	9.1	20	0.25	3	7	10	600	0.068
MMBZ5240	8Q	10	20	0.25	3	8	17	600	0.075
MMBZ5241	8R	11	20	0.25	2	8.4	22	600	0.076
MMBZ5242	8S	12	20	0.25	1	9.1	30	600	0.077
MMBZ5243	8T	13	9.5	0.25	0.5	9.9	13	600	0.079
MMBZ5244	8U	14	9	0.25	0.1	10	15	600	0.082
MMBZ5245	8V	15	8.5	0.25	0.1	11	16	600	0.082
MMBZ5246	8W	16	7.8	0.25	0.1	12	17	600	0.083
MMBZ5247	8X	17	7.4	0.25	0.1	13	19	600	0.084
MMBZ5248	8Y	18	7	0.25	0.1	14	21	600	0.085
MMBZ5249	8Z	19	6.6	0.25	0.1	14	23	600	0.086
MMBZ5250	81A	20	6.2	0.25	0.1	15	25	600	0.086
MMBZ5251	81B	22	5.6	0.25	0.1	17	29	600	0.087
MMBZ5252	81C	24	5.2	0.25	0.1	18	33	600	0.087
MMBZ5253	81D	25	5	0.25	0.1	19	35	600	0.089
MMBZ5254	81E	27	4.6	0.25	0.1	21	41	600	0.09
MMBZ5255	81F	28	4.5	0.25	0.1	21	44	600	0.091
MMBZ5256	81G	30	4.2	0.25	0.1	23	49	600	0.091
MMBZ5257	81H	33	3.8	0.25	0.1	25	58	700	0.092
MMBZ5258	81J	36	3.4	0.25	0.1	27	70	700	0.093
MMBZ5259	81K	39	3.2	0.25	0.1	30	80	800	0.094
MMBZ5260	18F	43	3	0.25	0.1	33	93	900	0.095
MMBZ5261	81M	47	2.7	0.25	0.1	36	105	1000	0.095
MMBZ5262	81N	51	2.5	0.25	0.1	39	125	1100	0.096
MMBZ5263	81P	56	2.2	0.25	0.1	43	150	1300	0.096
MMBZ5264	81Q	60	2.1	0.25	0.1	46	170	1400	0.097
MMBZ5265	81R	62	2	0.25	0.1	47	185	1400	0.097
MMBZ5266	81S	68	1.8	0.25	0.1	52	230	1600	0.097
MMBZ5267	81T	75	1.7	0.25	0.1	56	270	1700	0.098

Notes

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

(1) Measured at thermal equilibrium

(2) 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_{ZT1} or I_{ZT2}) is superimposed on I_{ZT1} or I_{ZT2}. Zener Impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

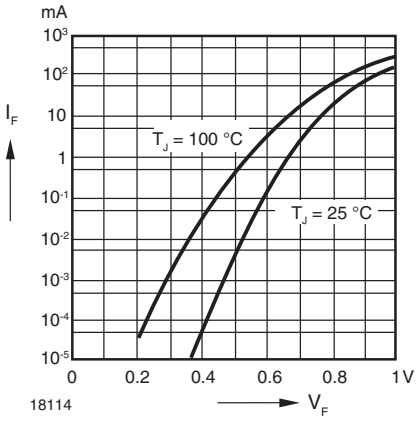


Fig. 1 - Forward Characteristics

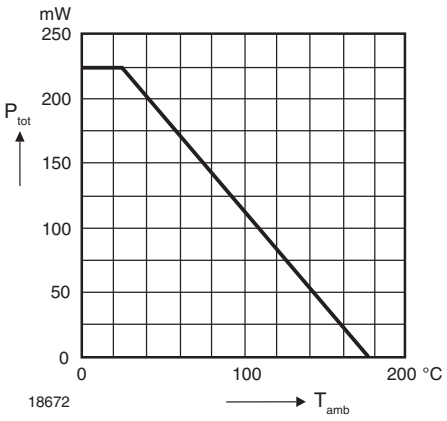
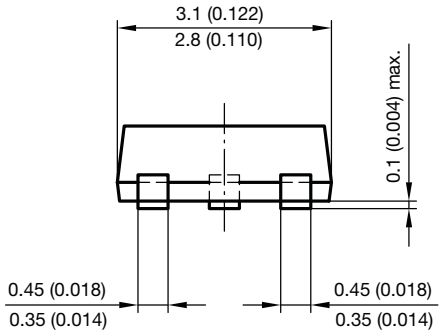
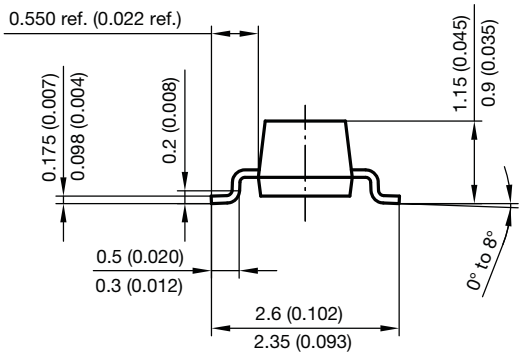
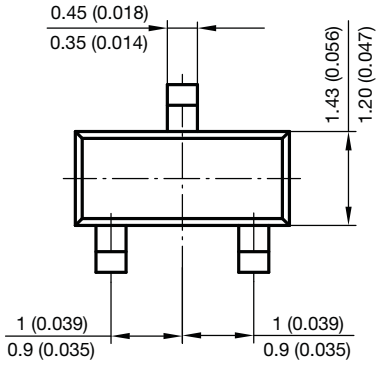


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

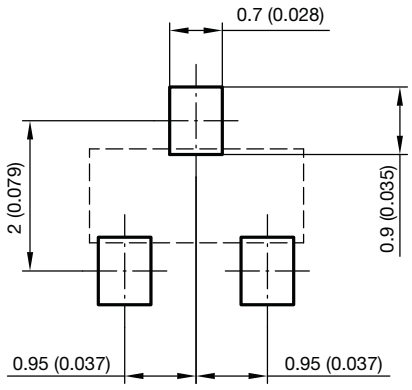
PACKAGE DIMENSIONS in millimeters (inches): SOT-23







Foot print recommendation:



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