Small Signal Zener Diodes



FEATURES

- Silicon planar Zener diodes
- Standard Zener voltage tolerance is ± 5 % with a “B” suffix (e.g.: MMSZ5225B), suffix “C” is ± 2 % tolerance
- AEC-Q101 qualified available
- 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

AUTOMOTIVE GRADE Available

Pb-free

e3

RoHS COMPLIANT

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	3.3 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
MMSZ5225 to MMSZ5267	MMSZ5225B-E3-08 to MMSZ5267B-E3-08	3000 (8 mm tape on 7" reel)	15 000/box
	MMSZ5225C-E3-08 to MMSZ5267C-E3-08		
	MMSZ5225B-HE3-08 to MMSZ5267B-HE3-08		
	MMSZ5225C-HE3-08 to MMSZ5267C-HE3-08		
	MMSZ5225B-E3-18 to MMSZ5267B-E3-18	10 000 (8 mm tape on 13" reel)	10 000/box
	MMSZ5225C-E3-18 to MMSZ5267C-E3-18		
	MMSZ5225B-HE3-18 to MMSZ5267B-HE3-18		
	MMSZ5225C-HE3-18 to MMSZ5267C-HE3-18		

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SOD-123	10.3 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	T_L = 75 °C, on FR - 4 or FR - 5 board with minimum recommended solder pad layout	P_{tot}	500	mW
Zener current	See table “Electrical Characteristics”			
Thermal resistance junction to ambient air	On FR - 4 or FR - 5 board with minimum recommended solder pad layout	R_{thJA}	340	K/W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-65 to +150	
Operating temperature range		T_{op}	-55 to +150	

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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.
MMSZ5225	C5	3	20	0.25	50	1	30	1600	-0.075
MMSZ5226	D1	3.3	20	0.25	25	1	28	1600	-0.07
MMSZ5227	D2	3.6	20	0.25	15	1	24	1700	-0.065
MMSZ5228	D3	3.9	20	0.25	10	1	23	1900	-0.06
MMSZ5229	D4	4.3	20	0.25	5	1	22	2000	-0.055
MMSZ5230	D5	4.7	20	0.25	5	2	19	1900	± 0.030
MMSZ5231	E1	5.1	20	0.25	5	2	17	1600	± 0.030
MMSZ5232	E2	5.6	20	0.25	5	3	11	1600	0.038
MMSZ5233	E3	6	20	0.25	5	3.5	7	1600	0.038
MMSZ5234	E4	6.2	20	0.25	5	4	7	1000	0.045
MMSZ5235	E5	6.8	20	0.25	3	5	5	750	0.05
MMSZ5236	F1	7.5	20	0.25	3	6	6	500	0.058
MMSZ5237	F2	8.2	20	0.25	3	6.5	8	500	0.062
MMSZ5238	F3	8.7	20	0.25	3	6.5	8	600	0.065
MMSZ5239	F4	9.1	20	0.25	3	7	10	600	0.068
MMSZ5240	F5	10	20	0.25	3	8	17	600	0.075
MMSZ5241	H1	11	20	0.25	2	8.4	22	600	0.076
MMSZ5242	H2	12	20	0.25	1	9.1	30	600	0.077
MMSZ5243	H3	13	9.5	0.25	0.5	9.9	13	600	0.079
MMSZ5244	H4	14	9	0.25	0.1	10	15	600	0.082
MMSZ5245	H5	15	8.5	0.25	0.1	11	16	600	0.082
MMSZ5246	J1	16	7.8	0.25	0.1	12	17	600	0.083
MMSZ5247	J2	17	7.4	0.25	0.1	13	19	600	0.084
MMSZ5248	J3	18	7	0.25	0.1	14	21	600	0.085
MMSZ5249	J4	19	6.6	0.25	0.1	14	23	600	0.086
MMSZ5250	J5	20	6.2	0.25	0.1	15	25	600	0.086
MMSZ5251	K1	22	5.6	0.25	0.1	17	29	600	0.087
MMSZ5252	K2	24	5.2	0.25	0.1	18	33	600	0.087
MMSZ5253	K3	25	5	0.25	0.1	19	35	600	0.089
MMSZ5254	K4	27	4.6	0.25	0.1	21	41	600	0.09
MMSZ5255	K5	28	4.5	0.25	0.1	21	44	600	0.091
MMSZ5256	M1	30	4.2	0.25	0.1	23	49	600	0.091
MMSZ5257	M2	33	3.8	0.25	0.1	25	58	700	0.092
MMSZ5258	M3	36	3.4	0.25	0.1	27	70	700	0.093
MMSZ5259	M4	39	3.2	0.25	0.1	30	80	800	0.094
MMSZ5260	M5	43	3	0.25	0.1	33	93	900	0.095
MMSZ5261	N1	47	2.7	0.25	0.1	36	105	1000	0.095
MMSZ5262	N2	51	2.5	0.25	0.1	39	125	1100	0.096
MMSZ5263	N3	56	2.2	0.25	0.1	43	150	1300	0.096
MMSZ5264	N4	60	2.1	0.25	0.1	46	170	1400	0.097
MMSZ5265	N5	62	2	0.25	0.1	47	185	1400	0.097
MMSZ5266	P1	68	1.8	0.25	0.1	52	230	1600	0.097
MMSZ5267	P2	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 with device junction in 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

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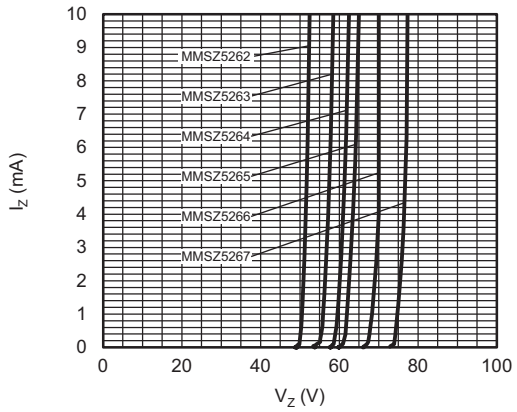


Fig. 1 - Breakdown Characteristics

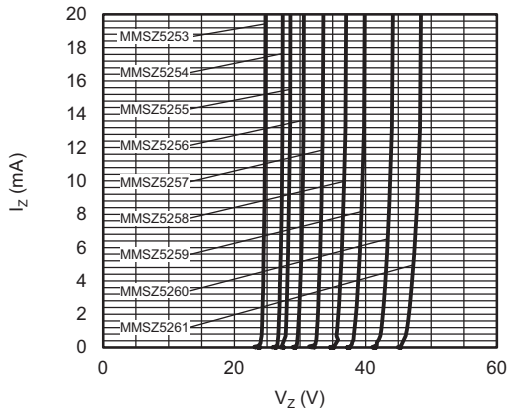


Fig. 2 - Breakdown Characteristics

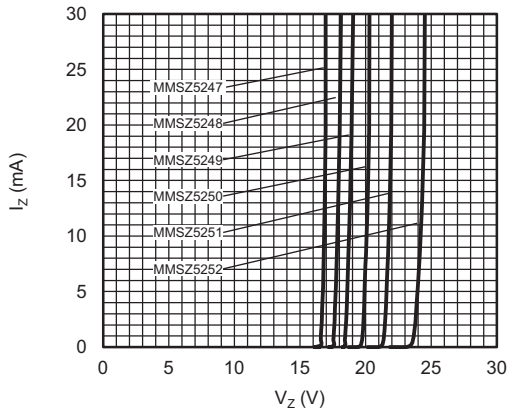


Fig. 3 - Breakdown Characteristics

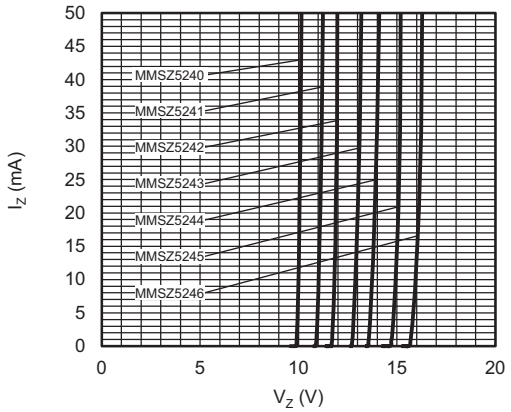


Fig. 4 - Breakdown Characteristics

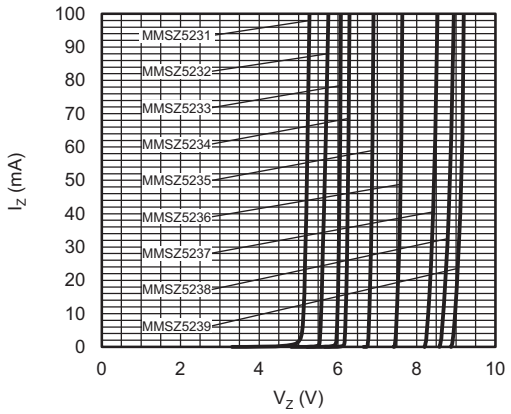


Fig. 5 - Breakdown Characteristics

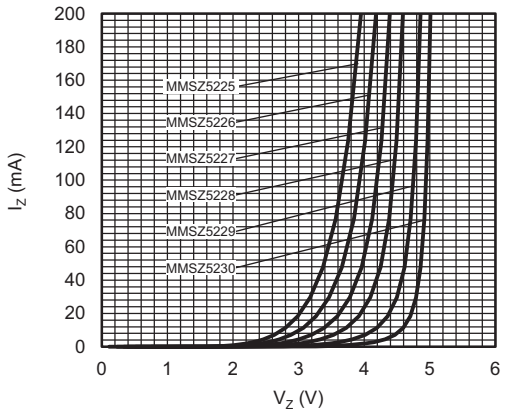
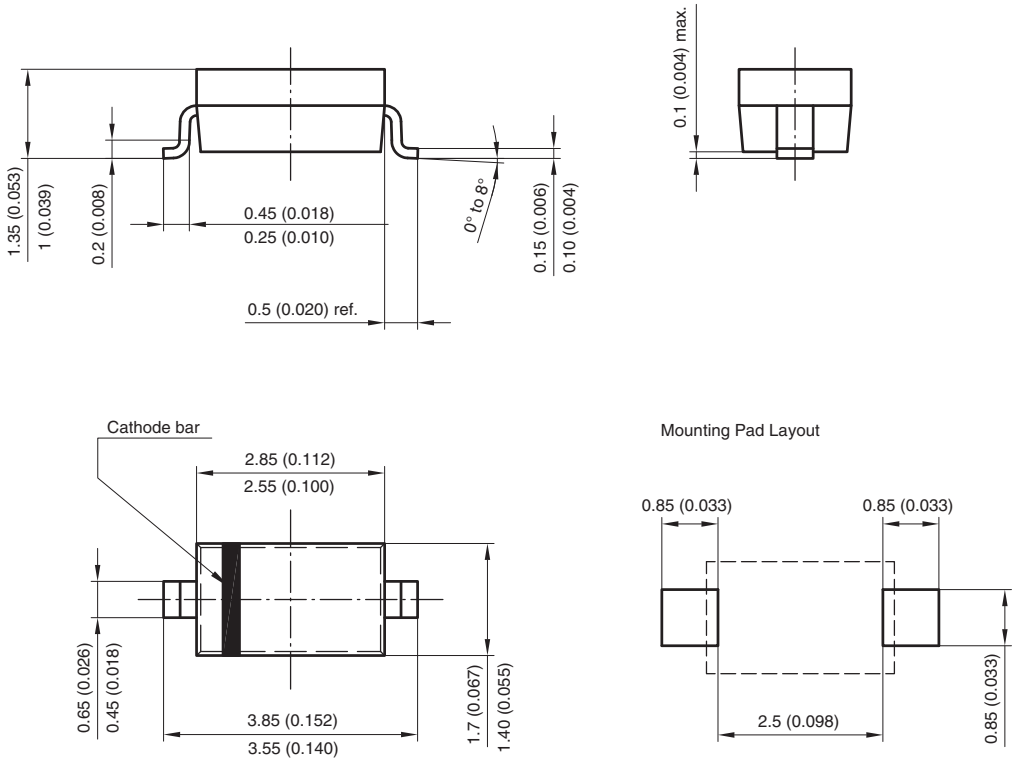


Fig. 6 - Breakdown Characteristics

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PACKAGE DIMENSIONS in millimeters (inches): **SOD-123**



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