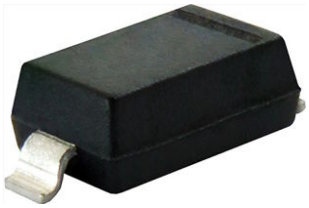
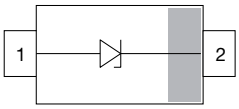
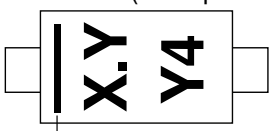
Small Signal Zener Diodes





MARKING (example only)



X.Y = type code
Y4 = date code

23210

LINKS TO ADDITIONAL RESOURCES

3D Models

SPICE Models

FEATURES

AUTOMOTIVE GRADE Available

Pb-free

e3

RoHS COMPLIANT

- 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_A - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

PRIMARY CHARACTERISTICS

PARAMETER	VALUE	UNIT
V_Z range nom.	3.0 to 75	V
Test current I_{ZT}	1.7 to 20	mA
V_Z specification	Thermal equilibrium	
Circuit configuration	Single	

ORDERING INFORMATION

DEVICE NAME	ORDERING CODE	ZENER VOLTAGE TOLERANCE	AEC-Q101 QUALIFIED	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
MMSZ5225 to MMSZ5267	MMSZ5225B-E3-08 to MMSZ5267B-E3-08	5 %	no	3000 (8 mm tape on 7" reel)	15 000/box
	MMSZ5225C-E3-08 to MMSZ5267C-E3-08	2 %	no		
	MMSZ5225B-HE3_A-08 to MMSZ5267B-HE3_A-08	5 %	yes		
	MMSZ5225C-HE3_A-08 to MMSZ5267C-HE3_A-08	2 %	yes		
	MMSZ5225B-E3-18 to MMSZ5267B-E3-18	5 %	no	10 000 (8 mm tape on 13" reel)	10 000/box
	MMSZ5225C-E3-18 to MMSZ5267C-E3-18	2 %	no		
	MMSZ5225B-HE3_A-18 to MMSZ5267B-HE3_A-18	5 %	yes		
	MMSZ5225C-HE3_A-18 to MMSZ5267C-HE3_A-18	2 %	yes		

PACKAGE

PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SOD-123	10.6 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	R_{thJL} = 250 K/W	P_{tot}	500	mW
	On FR-4 board with recommended soldering footprint	P_{tot}	300	mW
Thermal resistance junction to lead		R_{thJL}	250	K/W
Thermal resistance junction to ambient	According to JEDEC® 51-3 on FR-4 board with recommended soldering footprint	R_{thJA}	420	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		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
	± 2 %	± 5 %	NOM.			MAX.		MAX.	MAX.	TYP.
MMSZ5225	C.0	C0	3	20	0.25	50	1	30	1600	-0.06
MMSZ5226	D.6	D6	3.3	20	0.25	25	1	28	1600	-0.057
MMSZ5227	D.7	D7	3.6	20	0.25	15	1	24	1700	-0.056
MMSZ5228	D.8	D8	3.9	20	0.25	10	1	23	1900	-0.045
MMSZ5229	D.9	D9	4.3	20	0.25	5	1	22	2000	-0.029
MMSZ5230	D.0	D0	4.7	20	0.25	5	2	19	1900	0.00
MMSZ5231	E.6	E6	5.1	20	0.25	5	2	17	1600	0.00
MMSZ5232	E.7	E7	5.6	20	0.25	5	3	11	1600	0.032
MMSZ5233	E.8	E8	6	20	0.25	5	3.5	7	1600	0.035
MMSZ5234	E.9	E9	6.2	20	0.25	5	4	7	1000	0.039
MMSZ5235	E.0	E0	6.8	20	0.25	3	5	5	750	0.045
MMSZ5236	F.6	F6	7.5	20	0.25	3	6	6	500	0.052
MMSZ5237	F.7	F7	8.2	20	0.25	3	6.5	8	500	0.056
MMSZ5238	F.8	F8	8.7	20	0.25	3	6.5	8	600	0.058
MMSZ5239	F.9	F9	9.1	20	0.25	3	7	10	600	0.060
MMSZ5240	F.0	F0	10	20	0.25	3	8	17	600	0.064
MMSZ5241	H.6	H6	11	20	0.25	2	8.4	22	600	0.067
MMSZ5242	H.7	H7	12	20	0.25	1	9.1	30	600	0.070
MMSZ5243	H.8	H8	13	9.5	0.25	0.5	9.9	13	600	0.073
MMSZ5244	H.9	H9	14	9	0.25	0.1	10	15	600	0.076
MMSZ5245	H.0	H0	15	8.5	0.25	0.1	11	16	600	0.078
MMSZ5246	J.6	J6	16	7.8	0.25	0.1	12	17	600	0.080
MMSZ5247	J.7	J7	17	7.4	0.25	0.1	13	19	600	0.081
MMSZ5248	J.8	J8	18	7	0.25	0.1	14	21	600	0.082
MMSZ5249	J.9	J9	19	6.6	0.25	0.1	14	23	600	0.083
MMSZ5250	J.0	J0	20	6.2	0.25	0.1	15	25	600	0.084
MMSZ5251	K.6	K6	22	5.6	0.25	0.1	17	29	600	0.085
MMSZ5252	K.7	K7	24	5.2	0.25	0.1	18	33	600	0.087
MMSZ5253	K.8	K8	25	5	0.25	0.1	19	35	600	0.088
MMSZ5254	K.9	K9	27	4.6	0.25	0.1	21	41	600	0.09
MMSZ5255	K.0	K0	28	4.5	0.25	0.1	21	44	600	0.091
MMSZ5256	M.6	M6	30	4.2	0.25	0.1	23	49	600	0.092
MMSZ5257	M.7	M7	33	3.8	0.25	0.1	25	58	700	0.092
MMSZ5258	M.8	M8	36	3.4	0.25	0.1	27	70	700	0.093
MMSZ5259	M.9	M9	39	3.2	0.25	0.1	30	80	800	0.094
MMSZ5260	M.0	M0	43	3	0.25	0.1	33	93	900	0.095
MMSZ5261	N.6	N6	47	2.7	0.25	0.1	36	105	1000	0.095
MMSZ5262	N.7	N7	51	2.5	0.25	0.1	39	125	1100	0.096
MMSZ5263	N.8	N8	56	2.2	0.25	0.1	43	150	1300	0.096
MMSZ5264	N.9	N9	60	2.1	0.25	0.1	46	170	1400	0.097
MMSZ5265	N.0	N0	62	2	0.25	0.1	47	185	1400	0.097
MMSZ5266	P.6	P6	68	1.8	0.25	0.1	52	230	1600	0.097
MMSZ5267	P.7	P7	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 with typ. R_{thJA} of 370 K/W

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

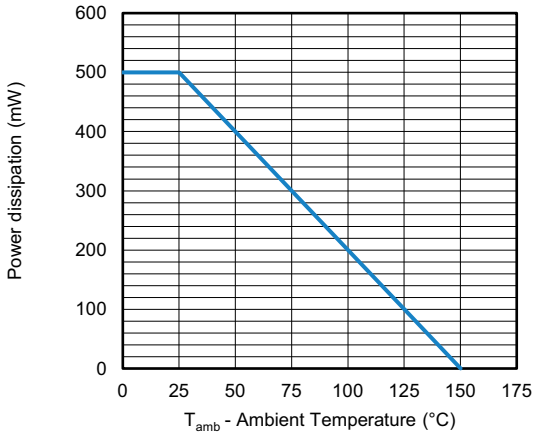

Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

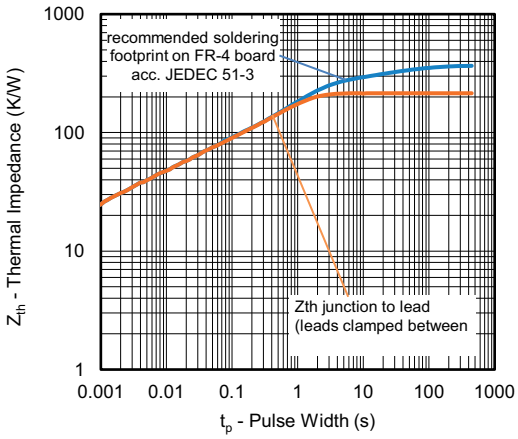

Fig. 2 - Thermal Impedance vs. Time

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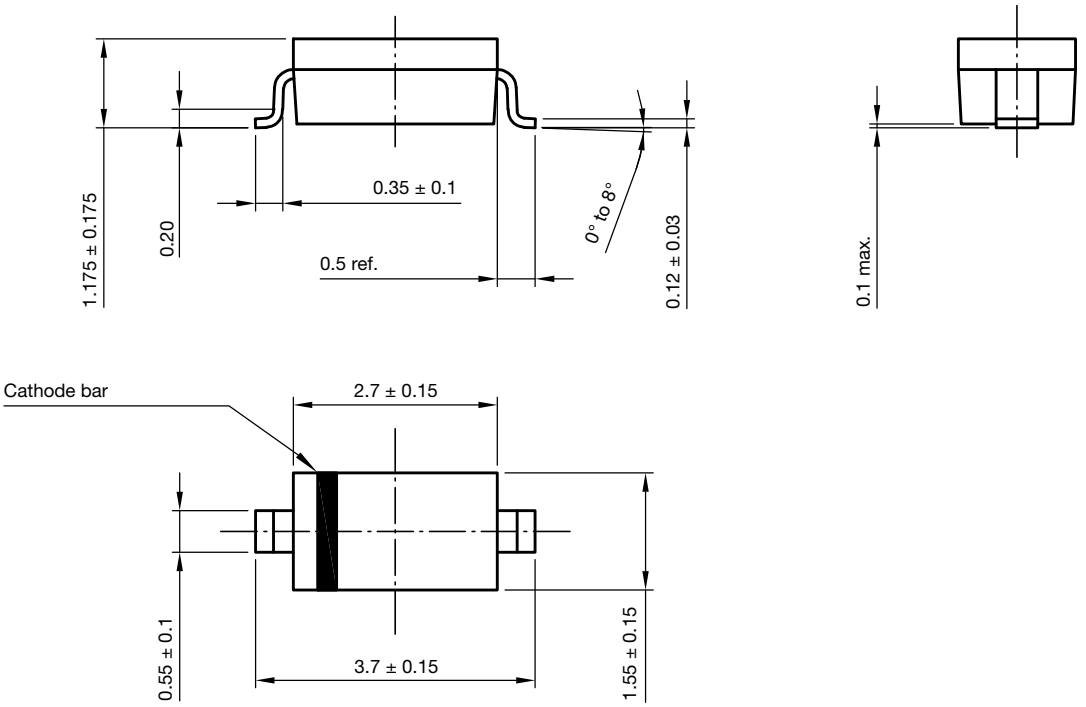
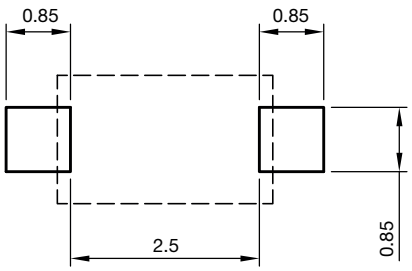
PACKAGE DIMENSIONS in millimeters (inches): **SOD-123**



foot print recommendation:



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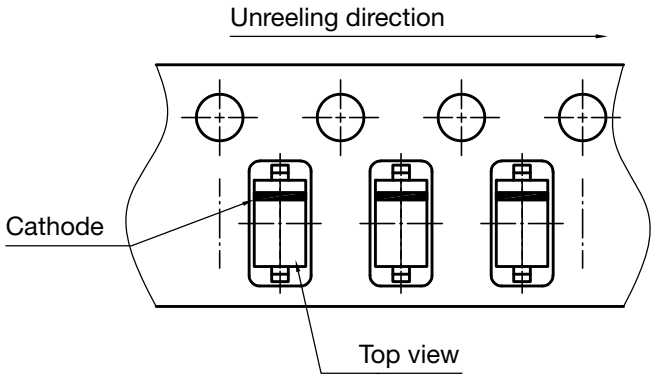
ORIENTATION IN CARRIER TAPE



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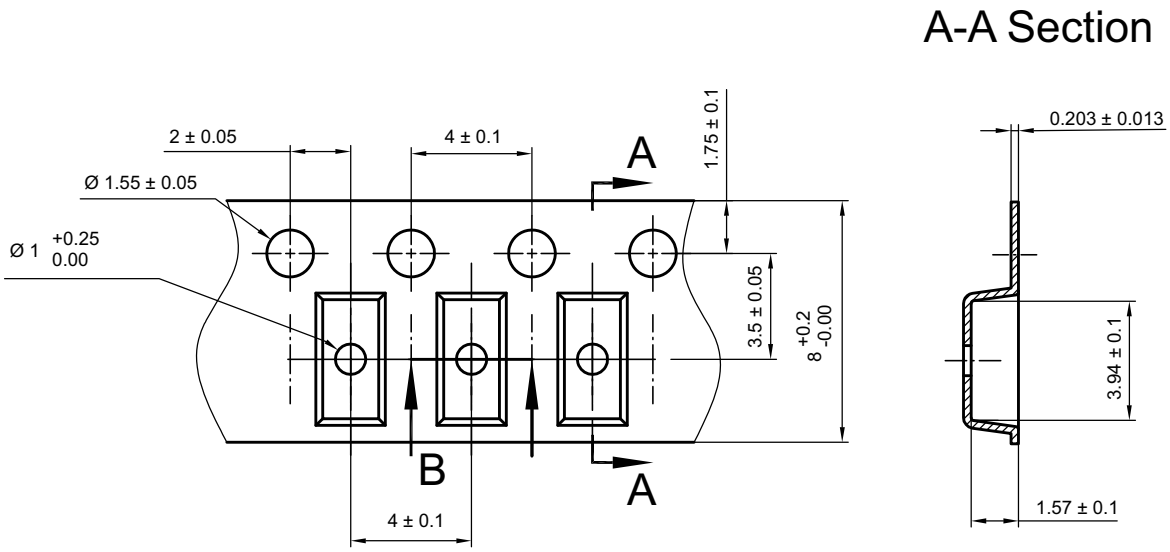

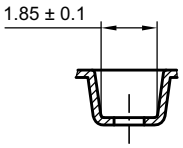

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