



Small Signal Zener Diodes



DESIGN SUPPORT TOOLS

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3D
Models
Available

FEATURES

- Silicon planar Zener diodes
- Standard Zener voltage tolerance is $\pm 5\%$ with a "B" suffix (e.g.: MMSZ5225B-G), suffix "C" is $\pm 2\%$ tolerance
- AEC-Q101 qualified available (part number on request)
- ESD capability according to AEC-Q101:
Human body model $> 8\text{ kV}$
Machine model $> 800\text{ V}$
- Base P/N-G3 - green, commercial grade
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

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	
Circuit configuration	Single	

ORDERING INFORMATION

DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
MMSZ5225-G to MMSZ5267-G	MMSZ5225B-G3-08 to MMSZ5267B-G3-08	3000 (8 mm tape on 7" reel)	15 000/box
	MMSZ5225C-G3-08 to MMSZ5267C-G3-08		
	MMSZ5225B-G3-18 to MMSZ5267B-G3-18	10 000 (8 mm tape on 13" reel)	10 000/box
	MMSZ5225C-G3-18 to MMSZ5267C-G3-18		

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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	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, maximum		T_j	150	°C
Storage temperature range		T_{stg}	-65 to +175	°C
Operating temperature range		T_{op}	-55 to +150	°C

**ELECTRICAL CHARACTERISTICS** ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

PART NUMBER	MARKING CODE		ZENER VOLTAGE RANGE ⁽¹⁾	TEST CURRENT		REVERSE LAEKAGE CURRENT		DYNAMIC RESISTANCE ⁽²⁾		TEMPERATURE COEFFICIENT
	$\pm 2\%$	$\pm 5\%$	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		%/ $^{\circ}\text{C}$
			NOM.			MAX.		MAX.	MAX.	TYP.
MMSZ5225-G	C.0	C0	3	20	0.25	50	1	30	1600	-0.075
MMSZ5226-G	D.6	D6	3.3	20	0.25	25	1	28	1600	-0.07
MMSZ5227-G	D.7	D7	3.6	20	0.25	15	1	24	1700	-0.065
MMSZ5228-G	D.8	D8	3.9	20	0.25	10	1	23	1900	-0.06
MMSZ5229-G	D.9	D9	4.3	20	0.25	5	1	22	2000	-0.055
MMSZ5230-G	D.0	D0	4.7	20	0.25	5	2	19	1900	± 0.030
MMSZ5231-G	E.6	E6	5.1	20	0.25	5	2	17	1600	± 0.030
MMSZ5232-G	E.7	E7	5.6	20	0.25	5	3	11	1600	0.038
MMSZ5233-G	E.8	E8	6	20	0.25	5	3.5	7	1600	0.038
MMSZ5234-G	E.9	E9	6.2	20	0.25	5	4	7	1000	0.045
MMSZ5235-G	E.0	E0	6.8	20	0.25	3	5	5	750	0.05
MMSZ5236-G	F.6	F6	7.5	20	0.25	3	6	6	500	0.058
MMSZ5237-G	F.7	F7	8.2	20	0.25	3	6.5	8	500	0.062
MMSZ5238-G	F.8	F8	8.7	20	0.25	3	6.5	8	600	0.065
MMSZ5239-G	F.9	F9	9.1	20	0.25	3	7	10	600	0.068
MMSZ5240-G	F.0	F0	10	20	0.25	3	8	17	600	0.075
MMSZ5241-G	H.6	H6	11	20	0.25	2	8.4	22	600	0.076
MMSZ5242-G	H.7	H7	12	20	0.25	1	9.1	30	600	0.077
MMSZ5243-G	H.8	H8	13	9.5	0.25	0.5	9.9	13	600	0.079
MMSZ5244-G	H.9	H9	14	9	0.25	0.1	10	15	600	0.082
MMSZ5245-G	H.0	H0	15	8.5	0.25	0.1	11	16	600	0.082
MMSZ5246-G	J.6	J6	16	7.8	0.25	0.1	12	17	600	0.083
MMSZ5247-G	J.7	J7	17	7.4	0.25	0.1	13	19	600	0.084
MMSZ5248-G	J.8	J8	18	7	0.25	0.1	14	21	600	0.085
MMSZ5249-G	J.9	J9	19	6.6	0.25	0.1	14	23	600	0.086
MMSZ5250-G	J.0	J0	20	6.2	0.25	0.1	15	25	600	0.086
MMSZ5251-G	K.6	K6	22	5.6	0.25	0.1	17	29	600	0.087
MMSZ5252-G	K.7	K7	24	5.2	0.25	0.1	18	33	600	0.087
MMSZ5253-G	K.8	K8	25	5	0.25	0.1	19	35	600	0.089
MMSZ5254-G	K.9	K9	27	4.6	0.25	0.1	21	41	600	0.09
MMSZ5255-G	K.0	K0	28	4.5	0.25	0.1	21	44	600	0.091
MMSZ5256-G	M.6	M6	30	4.2	0.25	0.1	23	49	600	0.091
MMSZ5257-G	M.7	M7	33	3.8	0.25	0.1	25	58	700	0.092
MMSZ5258-G	M.8	M8	36	3.4	0.25	0.1	27	70	700	0.093
MMSZ5259-G	M.9	M9	39	3.2	0.25	0.1	30	80	800	0.094
MMSZ5260-G	M.0	M0	43	3	0.25	0.1	33	93	900	0.095
MMSZ5261-G	N.6	N6	47	2.7	0.25	0.1	36	105	1000	0.095
MMSZ5262-G	N.7	N7	51	2.5	0.25	0.1	39	125	1100	0.096
MMSZ5263-G	N.8	N8	56	2.2	0.25	0.1	43	150	1300	0.096
MMSZ5264-G	N.9	N9	60	2.1	0.25	0.1	46	170	1400	0.097
MMSZ5265-G	N.0	N0	62	2	0.25	0.1	47	185	1400	0.097
MMSZ5266-G	P.6	P6	68	1.8	0.25	0.1	52	230	1600	0.097
MMSZ5267-G	P.7	P7	75	1.7	0.25	0.1	56	270	1700	0.098

Notes

- Maximum $V_F = 0.9\text{ V}$, at $I_F = 10\text{ mA}$

⁽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

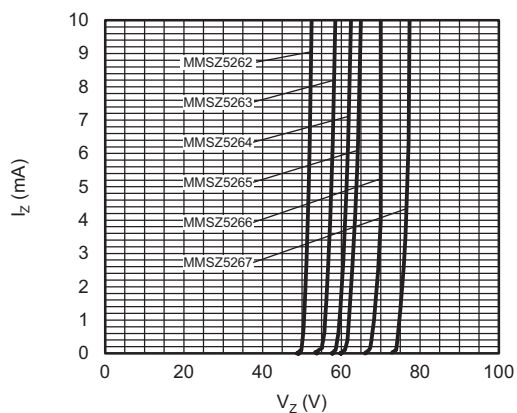


Fig. 1 - Breakdown Characteristics

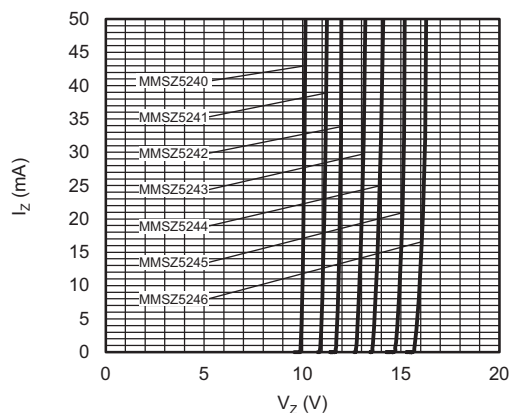


Fig. 4 - Breakdown Characteristics

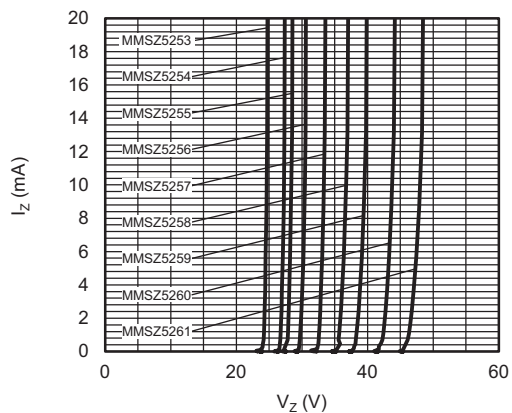


Fig. 2 - Breakdown Characteristics

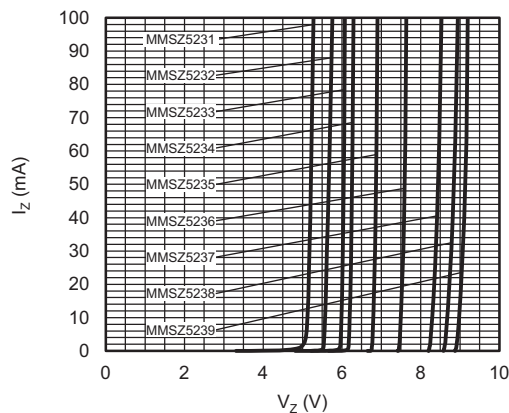


Fig. 5 - Breakdown Characteristics

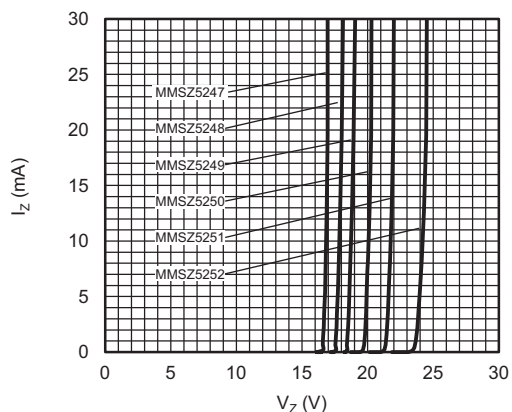


Fig. 3 - Breakdown Characteristics

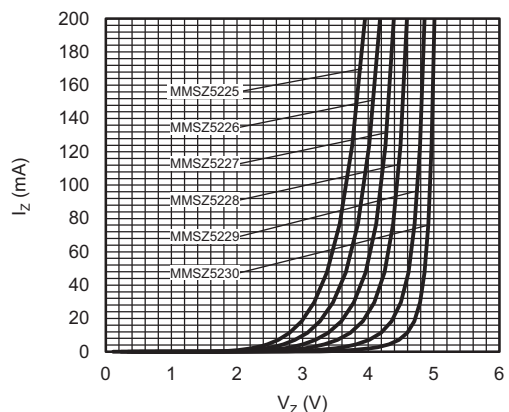
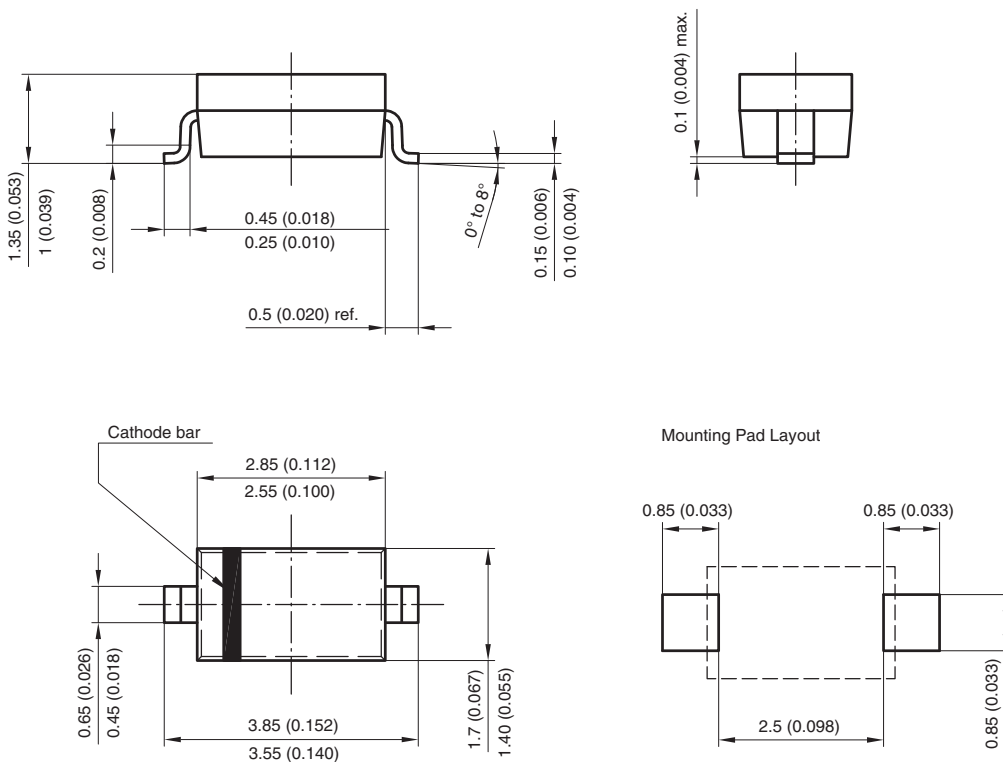


Fig. 6 - Breakdown Characteristics



PACKAGE DIMENSIONS in millimeters (inches): SOD-123



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