



## Small Signal Zener Diodes



### DESIGN SUPPORT TOOLS

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### 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 kV Machine model > 800 V
- Base P/N-G3 - green, commercial grade
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V <sub>Z</sub> range nom.	3 to 75	V
Test current I <sub>ZT</sub>	1.7 to 20	mA
V <sub>Z</sub> specification	Thermal equilibrium	
Circuit configuration	Single	

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
MMSZ5225-G to MMBZ5267-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 <sub>amb</sub> = 25 °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 <sub>tot</sub>	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 <sub>thJA</sub>	340	K/W	
Junction temperature, maximum		T <sub>j</sub>	150	°C	
Storage temperature range		T <sub>stg</sub>	-65 to +175	°C	
Operating temperature range		T <sub>op</sub>	-55 to +150	°C	



ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)										
PART NUMBER	MARKING CODE		ZENER VOLTAGE RANGE <sup>(1)</sup>	TEST CURRENT		REVERSE LAEKAGE CURRENT		DYNAMIC RESISTANCE <sup>(2)</sup>		TEMPERATURE COEFFICIENT
	± 2 %	± 5 %	V <sub>Z</sub> at I <sub>ZT1</sub>	I <sub>ZT1</sub>	I <sub>ZT2</sub>	I <sub>R</sub> at V <sub>R</sub>		Z <sub>Z</sub> at I <sub>ZT1</sub>	Z <sub>ZK</sub> at I <sub>ZT2</sub>	α <sub>VZ</sub>
			V	mA		μA	V	Ω		%/°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<sub>F</sub> = 0.9 V, at I<sub>F</sub> = 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<sub>ZT1</sub> or I<sub>ZT2</sub>) is superimposed on I<sub>ZT1</sub> or I<sub>ZT2</sub>. Zener Impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units

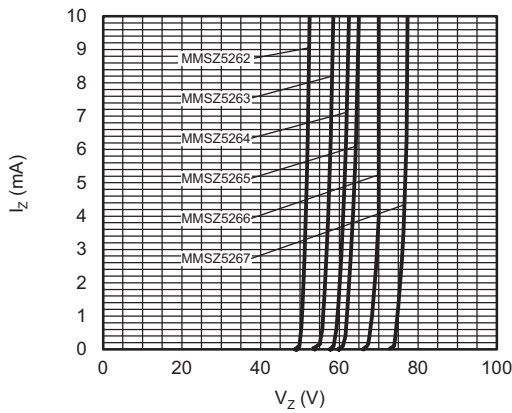


Fig. 1 - Breakdown Characteristics

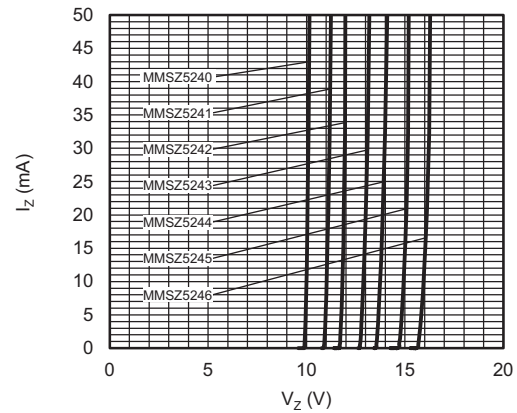


Fig. 4 - Breakdown Characteristics

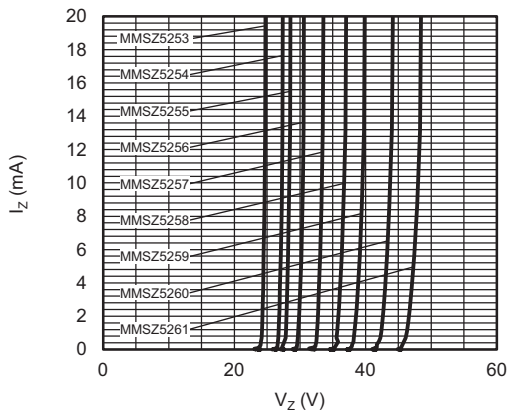


Fig. 2 - Breakdown Characteristics

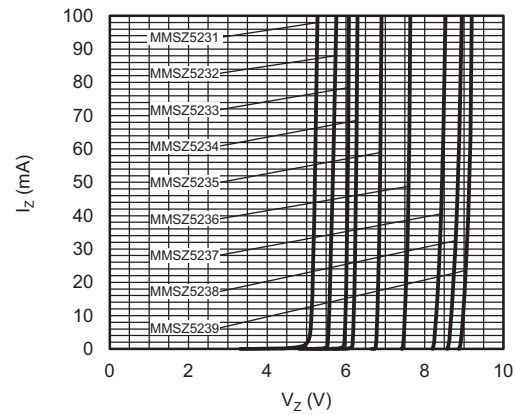


Fig. 5 - Breakdown Characteristics

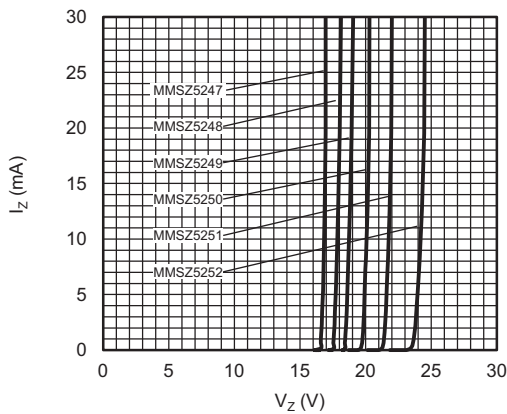


Fig. 3 - Breakdown Characteristics

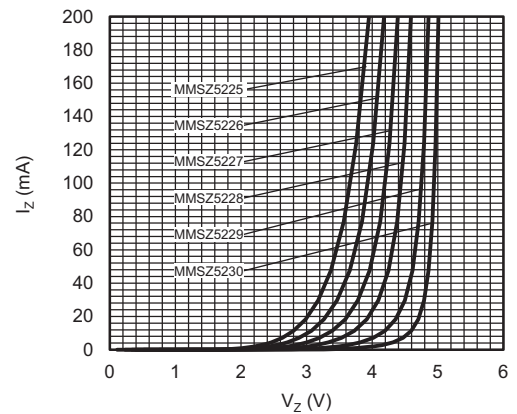
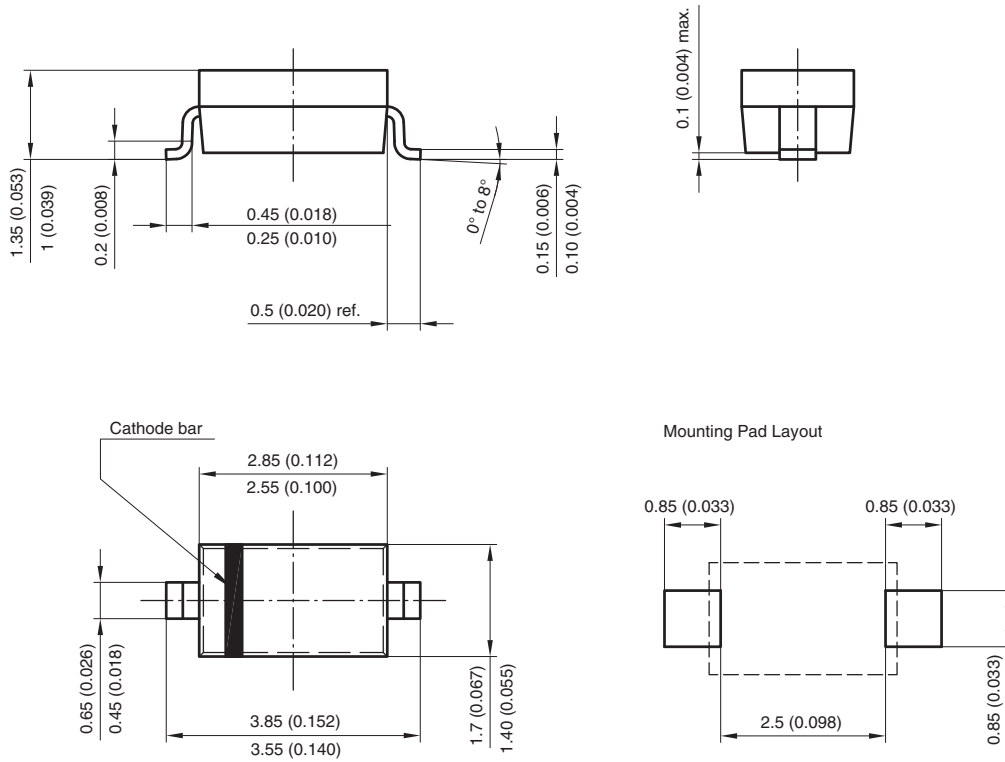


Fig. 6 - Breakdown Characteristics



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



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