



## Small Signal Zener Diodes



### DESIGN SUPPORT TOOLS

[click logo to get started](#)



### 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

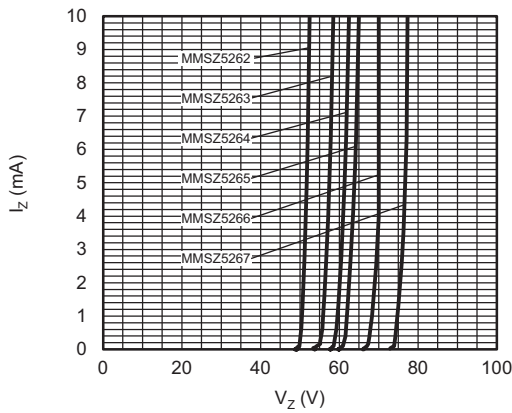


Fig. 1 - Breakdown Characteristics

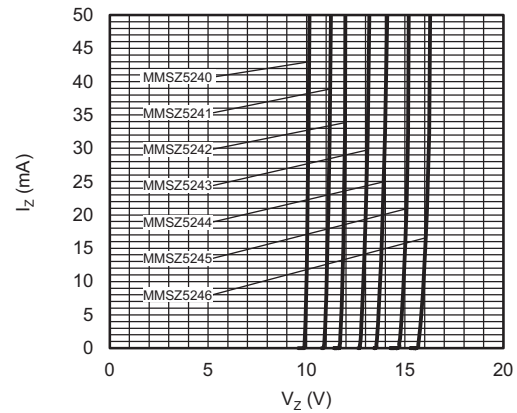


Fig. 4 - Breakdown Characteristics

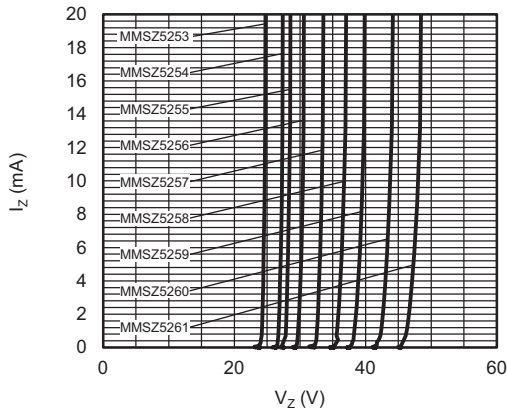


Fig. 2 - Breakdown Characteristics

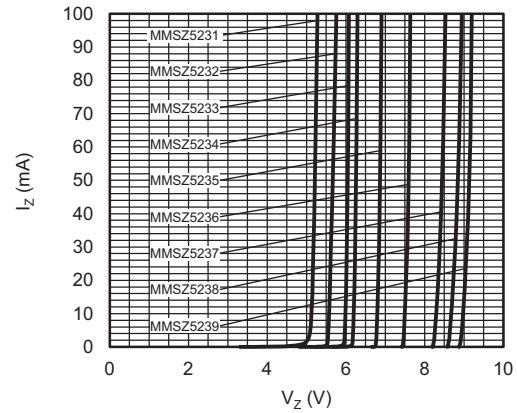


Fig. 5 - Breakdown Characteristics

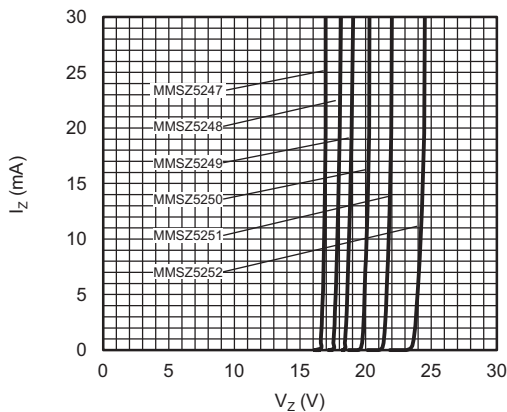


Fig. 3 - Breakdown Characteristics

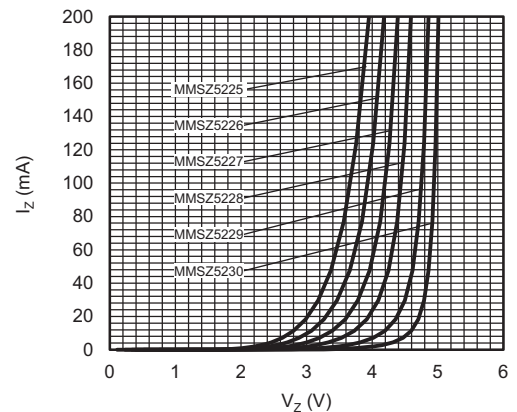
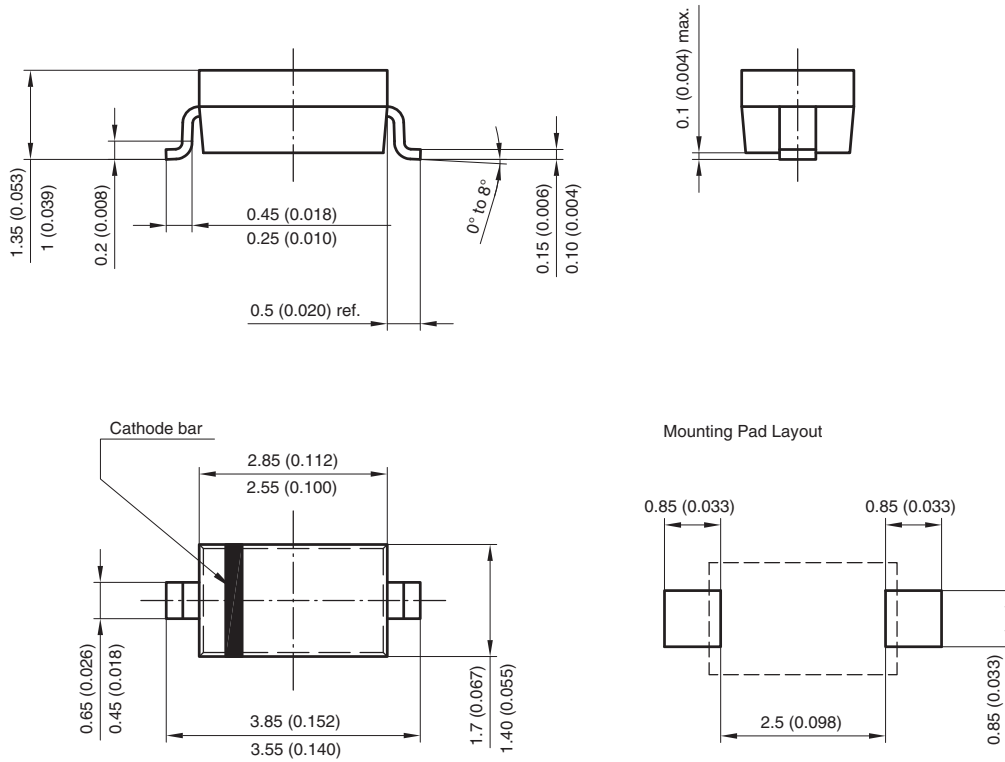


Fig. 6 - Breakdown Characteristics



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



Rev. 4 - Date: 24. Sep. 2009  
Document no.: S8-V-3910.01-001 (4)  
17432



## **Disclaimer**

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.