

## 500mW, 2.4V - 75V Surface Mount Zener Diode

### FEATURES

- AEC-Q101 qualified
- Zener voltage range selection: 2.4V to 75V
- Vz tolerance selection of  $\pm 5\%$
- Ideally suited for automated assembly processes
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$P_D$	500	mW
$V_Z$	2.4 - 75	V
$T_{J\text{MAX}}$	150	$^{\circ}\text{C}$
$V_F$ at $I_F=10\text{mA}$	0.9	V
Configuration	Single die	

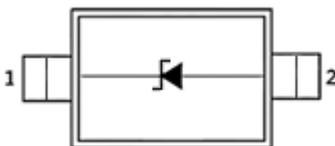
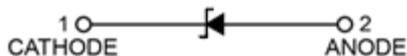
### APPLICATIONS

- General regulation functions

### MECHANICAL DATA

- Case: SOD-123
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 10.97mg (approximately)



PACKAGE: SOD-123	PIN CONFIGURATION	CIRCUIT DIAGRAM
		

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Power dissipation <sup>(1)</sup>	$P_D$	500	mW
Forward voltage @ $I_F=10\text{mA}$	$V_F$	0.9	V
Junction temperature	$T_J$	-55 to +150	$^{\circ}\text{C}$
Storage temperature	$T_{STG}$	-55 to +150	$^{\circ}\text{C}$

#### Note:

1. Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated, 3.9 x 5.9 inches pad

### THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance <sup>(1)</sup>	$R_{\theta JA}$	250	$^{\circ}\text{C}/\text{W}$

#### Thermal Performance Note:

1. Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated, 3.9 x 5.9 inches pad

**ELECTRICAL SPECIFICATIONS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

PART NUMBER	DEVICE MARKING	ZENER VOLTAGE			TEST CURRENT	REGULAR IMPEDANCE		TEST CURRENT	LEAKAGE CURRENT	
		$V_z @ I_{zT}$			$I_{zT}$	$Z_{zT} @ I_{zT}$	$Z_{zK} @ I_{zK}$	$I_{zK}$	$I_R @ V_R$	
		V			mA	$\Omega$	$\Omega$	mA	$\mu\text{A}$	V
		Min	Nom	Max		Max	Max		Max	
MMSZ5221BH	<u>C</u> 1	2.28	2.4	2.52	20	30	1200	0.25	100	1.0
MMSZ5222BH	<u>C</u> 2	2.38	2.5	2.63	20	30	1200	0.25	100	1.0
MMSZ5223BH	<u>C</u> 3	2.57	2.7	2.84	20	30	1300	0.25	75	1.0
MMSZ5225BH	<u>C</u> 5	2.85	3.0	3.15	20	30	1600	0.25	50	1.0
MMSZ5226BH	<u>G</u> 1	3.14	3.3	3.47	20	28	1600	0.25	25	1.0
MMSZ5227BH	<u>G</u> 2	3.42	3.6	3.78	20	24	1700	0.25	15	1.0
MMSZ5228BH	<u>G</u> 3	3.71	3.9	4.10	20	23	1900	0.25	10	1.0
MMSZ5229BH	<u>G</u> 4	4.09	4.3	4.52	20	22	2000	0.25	5	1.0
MMSZ5230BH	<u>G</u> 5	4.47	4.7	4.94	20	19	1900	0.25	5	2.0
MMSZ5231BH	<u>E</u> 1	4.85	5.1	5.36	20	17	1600	0.25	5	2.0
MMSZ5232BH	<u>E</u> 2	5.32	5.6	5.88	20	11	1600	0.25	5	3.0
MMSZ5233BH	<u>E</u> 3	5.70	6.0	6.30	20	7	1600	0.25	5	3.5
MMSZ5234BH	<u>E</u> 4	5.89	6.2	6.51	20	7	1000	0.25	5	4.0
MMSZ5235BH	<u>E</u> 5	6.46	6.8	7.14	20	5	750	0.25	3	5.0
MMSZ5236BH	<u>F</u> 1	7.13	7.5	7.88	20	6	500	0.25	3	6.0
MMSZ5237BH	<u>F</u> 2	7.79	8.2	8.61	20	8	500	0.25	3	6.5
MMSZ5238BH	<u>F</u> 3	8.27	8.7	9.14	20	8	600	0.25	3	6.5
MMSZ5239BH	<u>F</u> 4	8.65	9.1	9.56	20	10	600	0.25	3	7.0
MMSZ5240BH	<u>F</u> 5	9.50	10	10.50	20	17	600	0.25	3	8.0
MMSZ5241BH	<u>H</u> 1	10.45	11	11.55	20	22	600	0.25	2	8.4
MMSZ5242BH	<u>H</u> 2	11.40	12	12.60	20	30	600	0.25	1	9.1
MMSZ5243BH	<u>H</u> 3	12.35	13	13.65	9.5	13	600	0.25	0.5	9.9
MMSZ5244BH	<u>H</u> 4	13.30	14	14.70	9.0	15	600	0.25	0.1	10
MMSZ5245BH	<u>H</u> 5	14.25	15	15.75	8.5	16	600	0.25	0.1	11
MMSZ5246BH	<u>J</u> 1	15.20	16	16.80	7.8	17	600	0.25	0.1	12
MMSZ5247BH	<u>J</u> 2	16.15	17	17.85	7.4	19	600	0.25	0.1	13
MMSZ5248BH	<u>J</u> 3	17.10	18	18.90	7.0	21	600	0.25	0.1	14
MMSZ5250BH	<u>J</u> 5	19.00	20	21.00	6.2	25	600	0.25	0.1	15
MMSZ5251BH	<u>K</u> 1	20.90	22	23.10	5.6	29	600	0.25	0.1	17
MMSZ5252BH	<u>K</u> 2	22.80	24	25.20	5.2	33	600	0.25	0.1	18
MMSZ5253BH	<u>K</u> 3	23.75	25	26.25	5.0	35	600	0.25	0.1	19
MMSZ5254BH	<u>K</u> 4	25.65	27	28.35	5.0	41	600	0.25	0.1	21
MMSZ5255BH	<u>K</u> 5	26.60	28	29.40	4.5	44	600	0.25	0.1	21
MMSZ5256BH	<u>M</u> 1	28.50	30	31.50	4.2	49	600	0.25	0.1	23
MMSZ5257BH	<u>M</u> 2	31.35	33	34.65	3.8	58	700	0.25	0.1	25
MMSZ5258BH	<u>M</u> 3	34.20	36	37.80	3.4	70	700	0.25	0.1	27
MMSZ5259BH	<u>M</u> 4	37.05	39	40.95	3.2	80	800	0.25	0.1	30
MMSZ5260BH	<u>M</u> 5	40.85	43	45.15	3.0	93	900	0.25	0.1	33

MMSZ5261BH	<u>N</u> 1	44.65	47	49.35	2.7	105	1000	0.25	0.1	36
MMSZ5262BH	<u>N</u> 2	48.45	51	53.55	2.5	125	1100	0.25	0.1	39
MMSZ5263BH	<u>M</u> 8	53.20	56	58.80	2.2	150	1300	0.25	0.1	43
MMSZ5265BH	<u>N</u> 5	58.90	62	65.10	2.0	185	1400	0.25	0.1	47
MMSZ5267BH	<u>P</u> 2	71.25	75	78.75	1.7	270	1700	0.25	0.1	56

**ORDERING INFORMATION**

<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
MMSZ52xxBH RHG	SOD-123	3,000 / 7" Tape & Reel

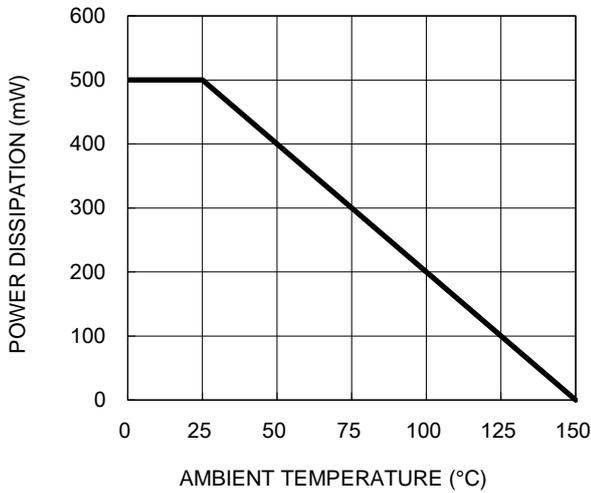
**Notes:**

1. "xx" defines voltage from 2.4V(MMSZ5221BH) to 75V(MMSZ5267BH)

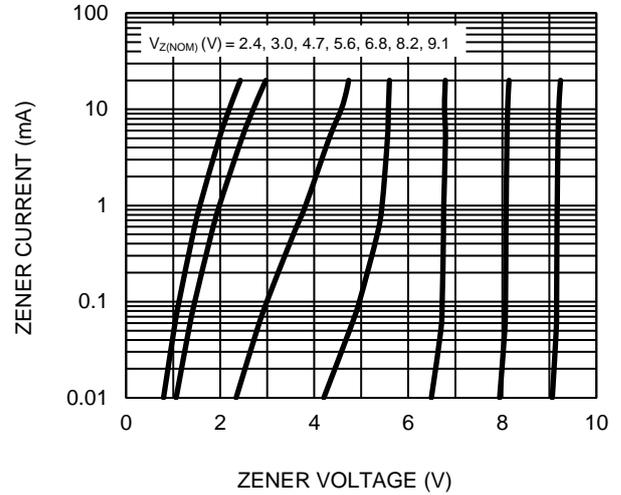
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

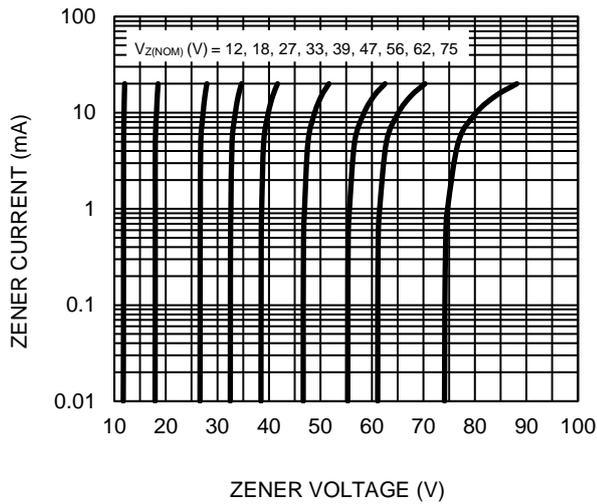
**Fig.1 Power Dissipation Curve**



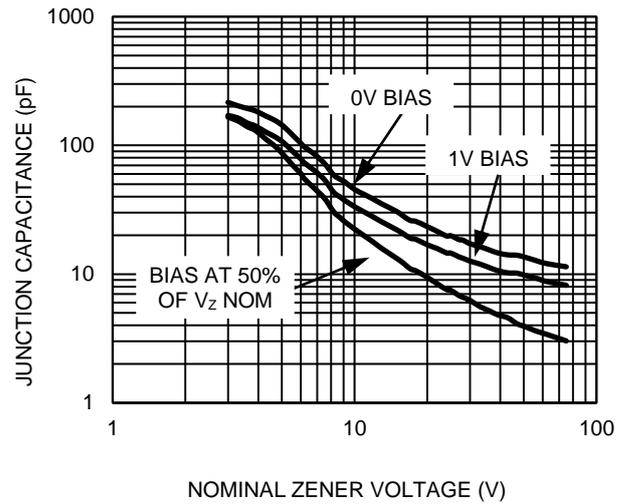
**Fig.2 Zener Breakdown Characteristics**



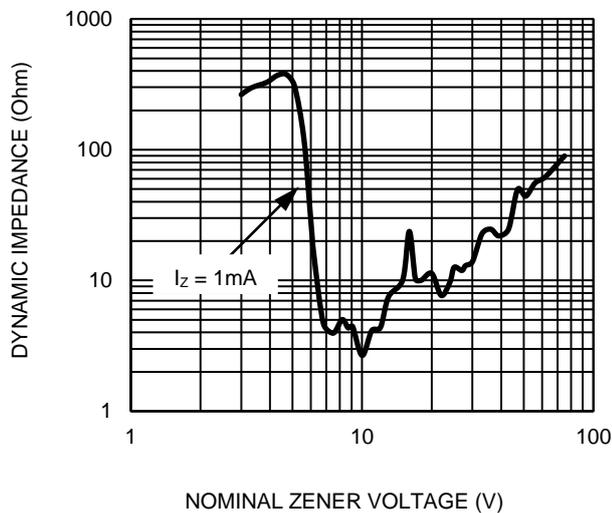
**Fig.3 Zener Breakdown Characteristics**



**Fig.4 Typical Junction Capacitance**

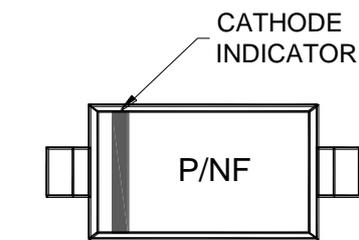
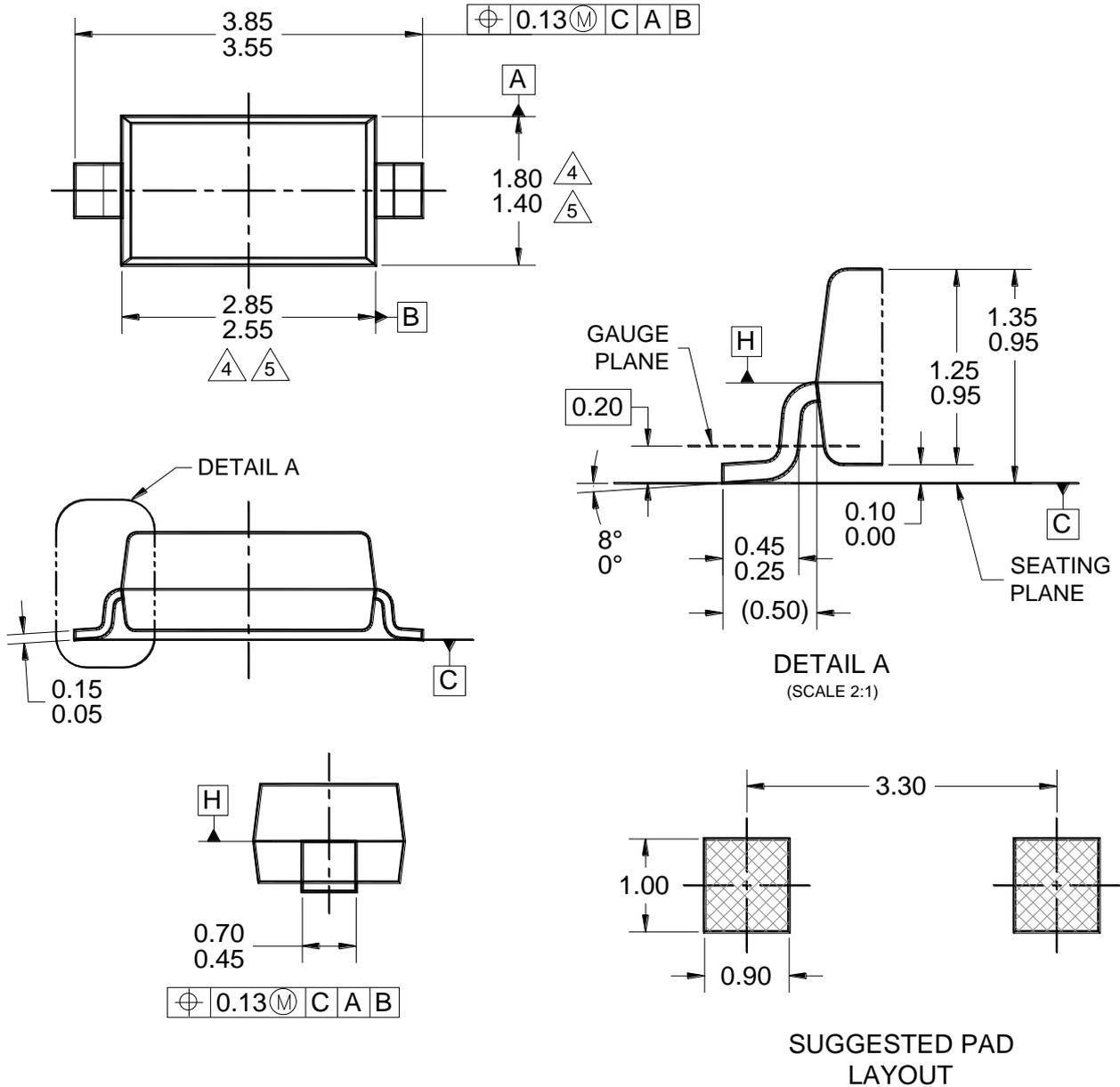


**Fig.5 Effect of Zener Voltage on Impedance**



**PACKAGE OUTLINE DIMENSION**

**SOD-123**



P/N = Device marking  
F = Factory code

**NOTES: UNLESS OTHERWISE SPECIFIED**

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-215, VARIATION AD, ISSUE D.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. MOLDED PLASTIC BODY LATERAL DIMENSIONS TO BE DETERMINED AT DATUM PLANE H.
6. DWG NO. REF: HQ2SD07-SOD123-046 REV A.

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