



## SOD-123 Plastic-Encapsulate Diodes

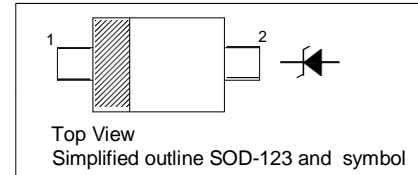
### MMSZ5221B Thru MMSZ5267B MMSZ5221B-CAR Thru MMSZ5267B-CAR

#### PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode

#### FEATURES

- Planar Die Construction
- Ultra-Small Surface Mount Package
- General purpose, Medium Current
- Ideally Suited for Automated Assembly Processes
- -CAR for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable



#### Maximum Ratings ( $T_a=25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Value	Unit
Forward Voltage (Note 2) @ $I_F = 10\text{mA}$	$V_F$	0.9	V
Power Dissipation (Note 1)	$P_d$	350	mW
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_j, T_{STG}$	-65~ +150	$^\circ\text{C}$

Notes: 1. Device mounted on ceramic PCB; 7.6 mm x 9.4 mm x 0.87 mm with pad areas 25 mm<sup>2</sup>.

2. Tested with pulses,  $T_p \leq 1.0\text{ms}$ .

#### Electrical Characteristics ( $T_a=25^\circ\text{C}$ unless otherwise specified)

Type Number	Code	Zener Voltage Range (Note 2)				Maximum Zener Impedance (Note 4)			Maximum Reverse Current	
		$V_Z @ I_{ZT}$			$I_{ZT}$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	$I_{ZK}$	$I_R$	$V_R$
		Nom(V)	Min(V)	Max(V)	mA	$\Omega$	mA	$\mu\text{A}$	V	
MMSZ5221B	C1,Z2V4	2.4	2.28	2.52	20	30	1200	0.25	100	1.0
MMSZ5223B	C3,Z2V7	2.7	2.57	2.84	20	30	1300	0.25	75	1.0
MMSZ5225B	C5,Z3V0	3.0	2.85	3.15	20	30	1600	0.25	50	1.0
MMSZ5226B	G1,Z3V3	3.3	3.14	3.47	20	28	1600	0.25	25	1.0
MMSZ5227B	G2,Z3V6	3.6	3.42	3.78	20	24	1700	0.25	15	1.0
MMSZ5228B	G3,Z3V9	3.9	3.71	4.10	20	23	1900	0.25	10	1.0
MMSZ5229B	G4,Z4V3	4.3	4.09	4.52	20	22	2000	0.25	5	1.0
MMSZ5230B	G5,Z4V7	4.7	4.47	4.94	20	19	1900	0.25	5	2.0
MMSZ5231B	E1,Z5V1	5.1	4.85	5.36	20	17	1600	0.25	5	2.0
MMSZ5232B	E2,Z5V6	5.6	5.32	5.88	20	11	1600	0.25	5	3.0



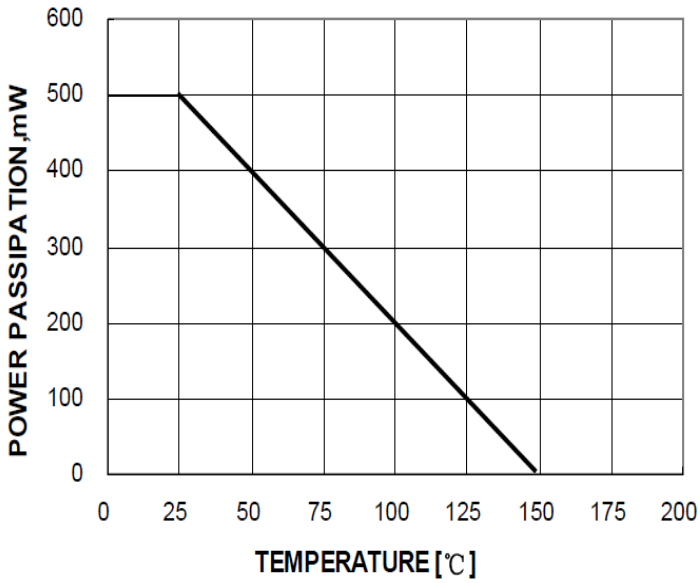
## Electrical Characteristics( $T_a= 25^{\circ}\text{C}$ unless otherwise specified )

Type Number	Code	Zener Voltage Range (Note 2)				Maximum Zener Impedance (Note 4)			Maximum Reverse Current	
		$V_Z@I_{ZT}$			$I_{ZT}$	$Z_{ZT}@I_{ZT}$	$Z_{ZK}@I_{ZK}$	$I_{ZK}$	$I_R$	$V_R$
		Nom(V)	Min(V)	Max(V)	mA	$\Omega$		mA	$\mu\text{A}$	V
MMSZ5233B	E3,Z6V0	6.0	5.70	6.30	20	7	1600	0.25	5	3.5
MMSZ5234B	E4,Z6V2	6.2	5.89	6.51	20	7	1000	0.25	5	4.0
MMSZ5235B	E5,Z6V8	6.8	6.46	7.14	20	5	750	0.25	3	5.0
MMSZ5236B	F1,Z7V5	7.5	7.13	7.88	20	6	500	0.25	3	6.0
MMSZ5237B	F2,Z8V2	8.2	7.79	8.61	20	8	500	0.25	3	6.5
MMSZ5238B	F3,Z8V7	8.7	8.27	9.14	20	8	600	0.25	3	6.5
MMSZ5239B	F4,Z9V1	9.1	8.65	9.56	20	10	600	0.25	3	7.0
MMSZ5240B	F5,Z10V	10	9.50	10.50	20	17	600	0.25	3	8.0
MMSZ5241B	H1,Z11V	11	10.45	11.55	20	22	600	0.25	2.0	8.4
MMSZ5242B	H2,Z12V	12	11.40	12.60	20	30	600	0.25	1.0	9.1
MMSZ5243B	H3,Z13V	13	12.35	13.65	9.5	13	600	0.25	0.5	9.9
MMSZ5244B	H4,Z14V	14	13.30	14.70	9.0	15	600	0.25	0.1	10
MMSZ5245B	H5,Z15V	15	14.25	15.75	8.5	16	600	0.25	0.1	11
MMSZ5246B	J1,Z16V	16	15.20	16.80	7.8	17	600	0.25	0.1	12
MMSZ5248B	J3,Z18V	18	17.10	18.90	7.0	21	600	0.25	0.1	14
MMSZ5250B	J5,Z20V	20	19.00	21.00	6.2	25	600	0.25	0.1	15
MMSZ5251B	K1,Z22V	22	20.90	23.10	5.6	29	600	0.25	0.1	17
MMSZ5252B	K2,Z24V	24	22.80	25.20	5.2	33	600	0.25	0.1	18
MMSZ5253B	K3,Z25V	25	23.75	26.25	5.0	35	600	0.25	0.1	19
MMSZ5254B	K4,Z27V	27	25.65	28.35	5.0	41	600	0.25	0.1	21
MMSZ5255B	K5,Z28V	28	26.60	29.40	4.5	44	600	0.25	0.1	21
MMSZ5256B	M1,Z30V	30	28.50	31.50	4.2	49	600	0.25	0.1	23
MMSZ5257B	M2,Z33V	33	31.35	34.65	3.8	58	700	0.25	0.1	25
MMSZ5258B	M3,Z36V	36	34.20	37.80	3.4	70	700	0.25	0.1	27
MMSZ5259B	M4,Z39V	39	37.05	40.95	3.2	80	800	0.25	0.1	30
MMSZ5260B	M5,Z43V	43	40.85	45.15	3	93	900	0.25	0.1	33
MMSZ5261B	N1,Z47V	47	44.65	49.35	2.7	105	1000	0.25	0.1	36
MMSZ5262B	N2,Z51V	51	48.45	53.55	2.5	125	1100	0.25	0.1	39
MMSZ5263B	N3,Z56V	56	53.2	58.8	2.2	150	1300	0.25	0.1	43
MMSZ5265B	N5,Z62V	62	58.9	65.1	2	185	1400	0.25	0.1	47
MMSZ5266B	P1,Z68V	68	64.6	71.4	1.8	230	1600	0.25	0.1	52
MMSZ5267B	P2,Z75V	75	71.25	78.75	1.7	270	1700	0.25	0.1	56

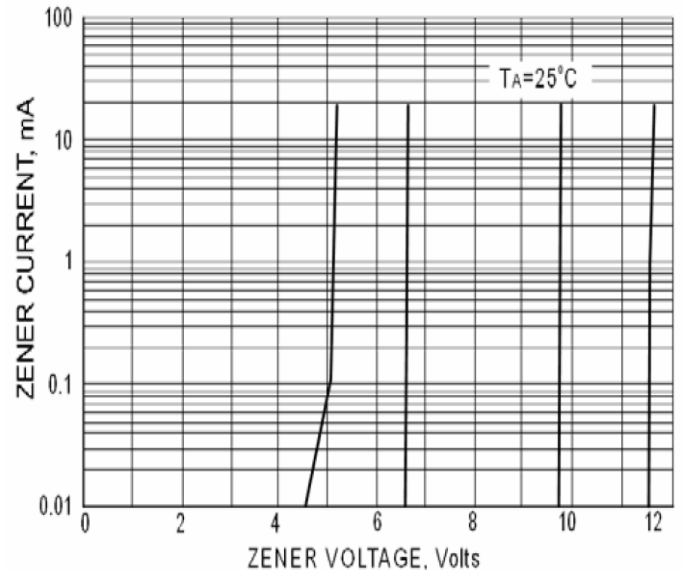


**MMSZ5221B THRU MMSZ5267B**  
**Typical Characteristics**

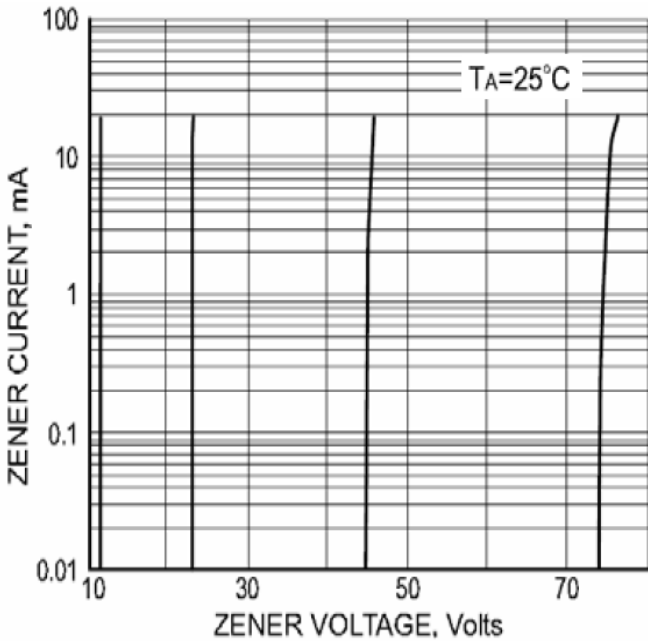
**Fig.1 Power Derating Curve**



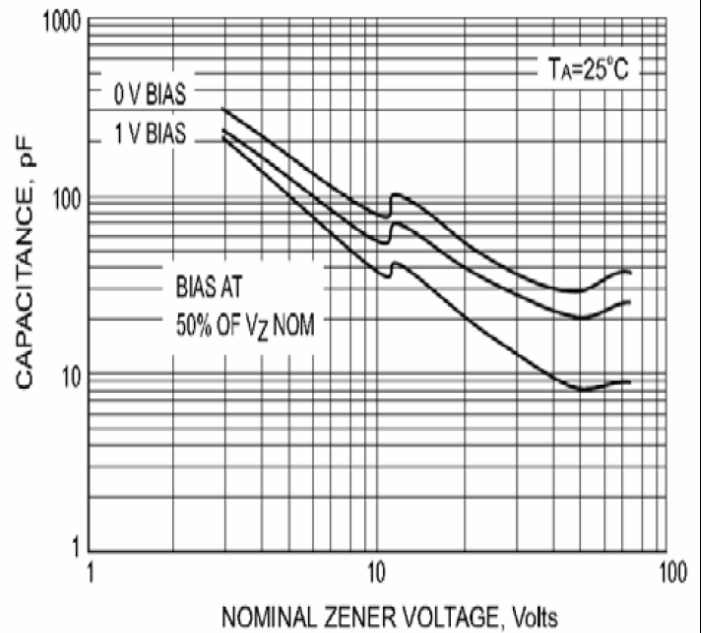
**Fig.2 Typical Zener Breakdown Characteristics**



**Fig.3 Typical Zener Breakdown Characteristics**



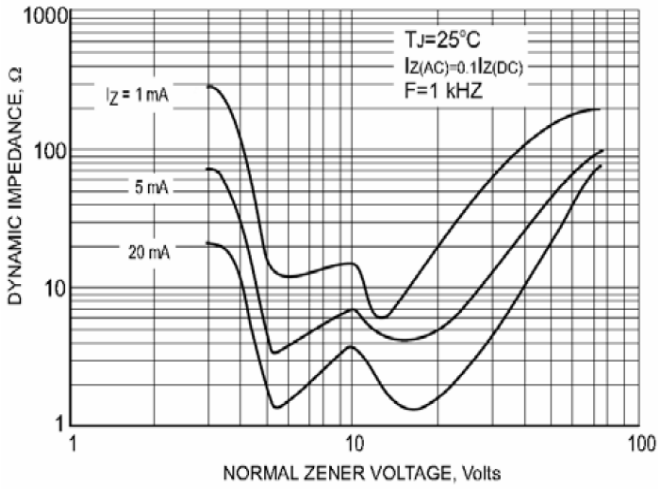
**Fig.4 Typical Total Capacitance vs. Nominal Zener Voltage**



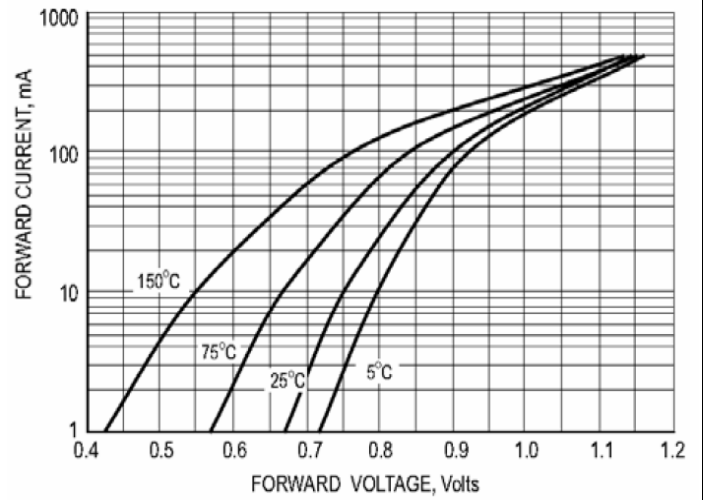


**MMSZ5221B THRU MMSZ5267B**  
**Typical Characteristics**

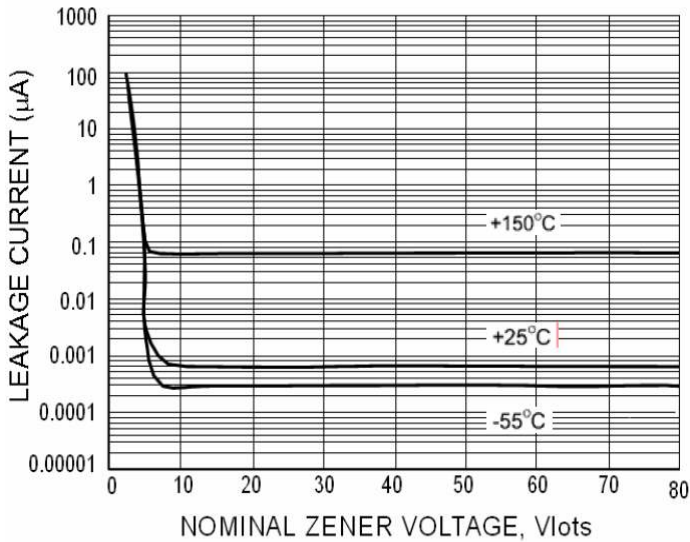
**Fig.5 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE**



**Fig.6 TYPICAL FORWARD VOLTAGE**



**Fig.7 TYPICAL LEAKGE CURRENT**

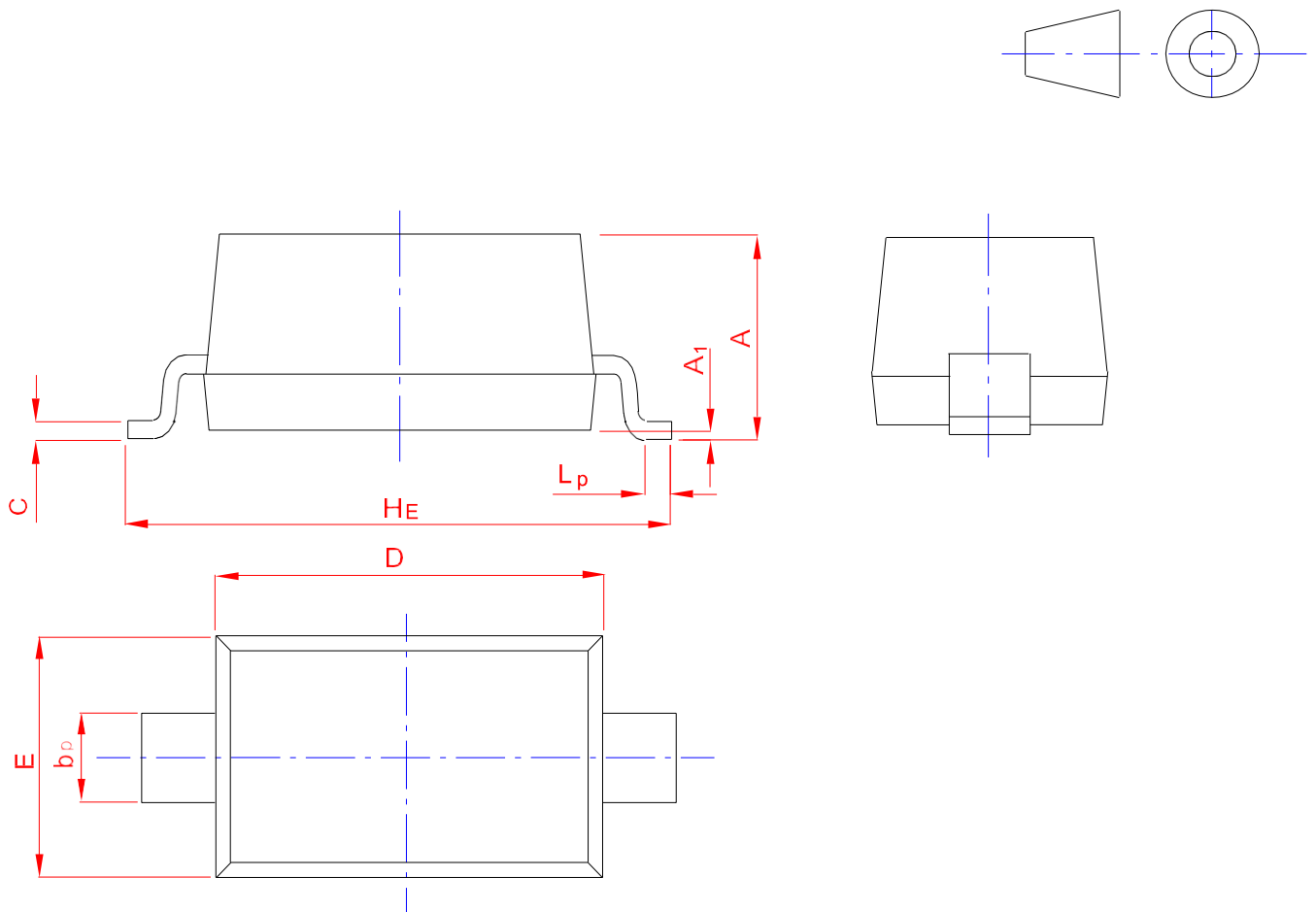




## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD-123



UNIT	A	b <sub>p</sub>	C	D	E	HE	A1	L <sub>p</sub>
mm	1.20 0.90	0.60 0.50	0.135 0.100	2.75 2.55	1.65 1.55	3.85 3.55	0.10 0.01	0.50 0.20