



## Features

- Planar Die Construction
- 500mW Power Dissipation on Ceramic PCB
- General Purpose, Medium Current
- Ideally Suited for Automated Assembly Processes
- Available in Lead Free Version



SOD-123

## Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MMSZ5221B- MMSZ5259B	SOD-123	XX	3000

XX=Device code, see table on page2 the marking code.

The marking bar indicates the cathode.



## Absolute Maximum Ratings(Ta=25°C)

Characteristic	Symbol	Value	Unit
Forward voltage @I <sub>F</sub> =10mA	V <sub>F</sub>	0.85	V
Power Dissipation	P <sub>D</sub>	500	mW
Thermal Resistance, Junction to Ambient Air	R <sub>θJA</sub>	556	°C/W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 ~ +150	°C

Notes: Device mounted on ceramic PCB;5.0mm×7.0mm with pad areas 35 mm<sup>2</sup>



**Electrical Characteristics (Ta=25°C unless otherwise specified)**

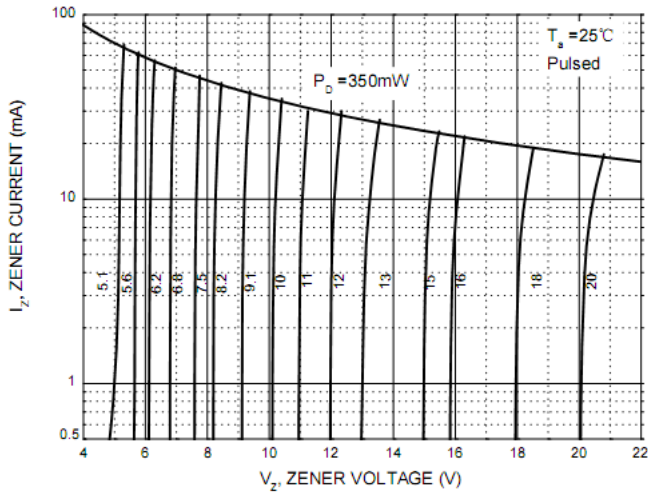
Type Number	Type Code	Zener Voltage Range (Note 2)				Maximum Zener Impedance (Note 3)			Maximum Reverse Current		Typical Temperature Coefficient @I <sub>ZTC</sub>		Test Current I <sub>ZTC</sub>
		V <sub>Z</sub> @I <sub>ZT</sub>			I <sub>ZT</sub>	Z <sub>ZT</sub> @I <sub>ZT</sub>	Z <sub>ZK</sub> @I <sub>ZK</sub>	I <sub>ZK</sub>	I <sub>R</sub>	V <sub>R</sub>	mV/°C		
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	μA	V	Min	Max	
MMSZ5221B	C1	2.4	2.35	2.45	5	100	600	1.0	50	1.0	-3.5	0	5
MMSZ5223B	C3	2.7	2.65	2.75	5	100	600	1.0	20	1.0	-3.5	0	5
MMSZ5225B	C5	3.0	2.94	3.06	5	95	600	1.0	10	1.0	-3.5	0	5
MMSZ5226B	G1	3.3	3.23	3.37	5	95	600	1.0	5	1.0	-3.5	0	5
MMSZ5227B	G2	3.6	3.53	3.67	5	90	600	1.0	5	1.0	-3.5	0	5
MMSZ5228B	G3	3.9	3.82	3.98	5	90	600	1.0	0.5	1.0	-3.5	0	5
MMSZ5229B	G4	4.3	4.21	4.39	5	90	600	1.0	0.5	1.0	-3.5	0	5
MMSZ5230B	G5	4.7	4.61	4.79	5	80	500	1.0	3	2.0	-3.5	0.2	5
MMSZ5231B	E1	5.1	5.00	5.20	5	60	480	1.0	2	2.0	-2.7	1.2	5
MMSZ5232B	E2	5.6	5.49	5.71	5	40	400	1.0	1	2.0	2.0	2.5	5
MMSZ5234B	E4	6.2	6.08	6.32	5	9.5	150	1.0	3	4.0	0.4	3.7	5
MMSZ5235B	E5	6.8	6.66	6.94	5	14.2	76	1.0	2	4.0	1.2	4.5	5
MMSZ5236B	F1	7.5	7.35	7.65	5	14.2	76	1.0	1	5.0	2.5	5.3	5
MMSZ5237B	F2	8.2	8.04	8.36	5	14.2	76	1.0	0.7	5.0	3.2	6.2	5
MMSZ5239B	F4	9.1	8.92	9.28	5	14.2	95	1.0	0.5	7.0	3.8	7.0	5
MMSZ5240B	F5	10	9.80	10.20	5	19	142.5	1.0	0.2	8.0	4.5	8.0	5
MMSZ5241B	H1	11	10.78	11.22	5	19	142.5	1.0	0.1	8.0	5.4	9.0	5
MMSZ5242B	H2	12	11.76	12.24	5	23.7	150	1.0	0.1	8.0	6.0	10.0	5
MMSZ5243B	H3	13	12.74	13.30	5	28.5	190	1.0	0.1	8.0	7.0	11.0	5
MMSZ5245B	H5	15	14.70	15.30	5	28.5	190	1.0	0.1	11.0	9.2	13.0	5
MMSZ5246B	J1	16	15.68	16.30	5	38	190	1.0	0.1	11.0	10.4	14.0	5
MMSZ5248B	J3	18	17.60	18.40	5	42.7	213	1.0	0.1	13.0	12.4	16.0	5
MMSZ5250B	J5	20	19.60	20.40	5	52.2	213	1.0	0.1	14.0	14.4	18.0	5
MMSZ5251B	K1	22	21.56	22.44	5	52.2	237	1.0	0.1	15.0	16.4	20.0	5
MMSZ5252B	K2	24	23.52	24.50	5	66.5	250	1.0	0.1	17.0	18.4	22.0	5
MMSZ5254B	K4	27	26.46	27.54	2	75	295	0.5	0.1	19.0	21.4	25.3	2
MMSZ5256B	M1	30	29.40	30.60	2	75	295	0.5	0.1	21.0	24.4	29.4	2
MMSZ5257B	M2	33	32.34	33.66	2	75	320	0.5	0.1	23.0	27.4	33.4	2
MMSZ5258B	M3	36	35.28	36.72	2	85	345	0.5	0.1	25.0	30.4	37.4	2
MMSZ5259B	M4	39	38.22	39.78	2	125	345	0.5	0.1	27.0	33.4	41.2	2
MMSZ5260B	M5	43	42.14	43.86	2	145	370	0.5	0.1	30.0	37.6	46.6	2

- Notes: 1. Device mounted on ceramic PCB:7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>  
 2. Short duration test pulse used to minimize self-heating effect  
 3. f = 1kHz

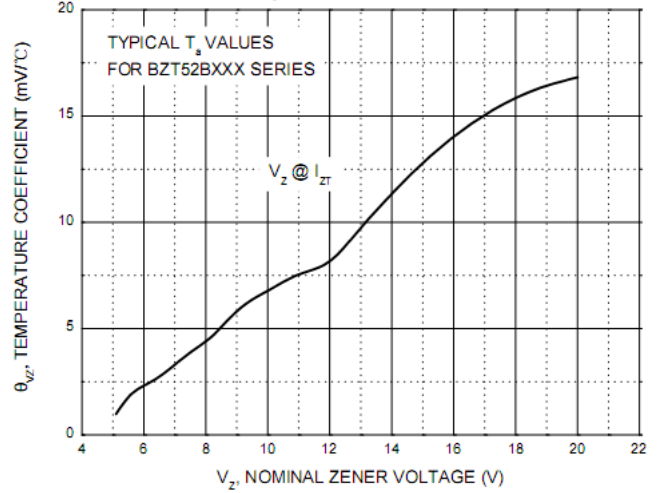


### Typical Characteristics

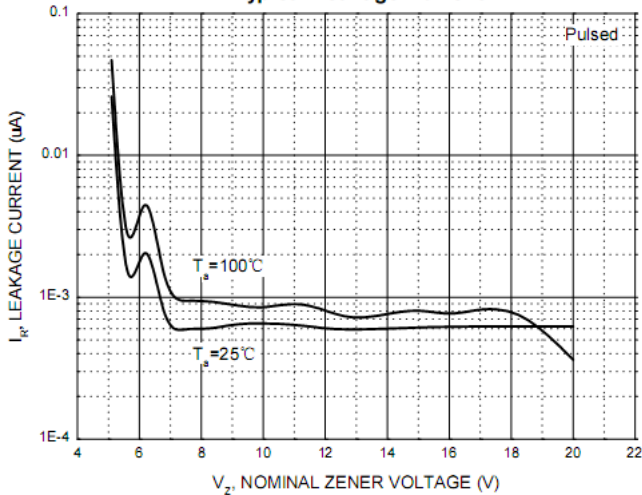
Zener Characteristics ( $V_z$  5.1V to 20 V)



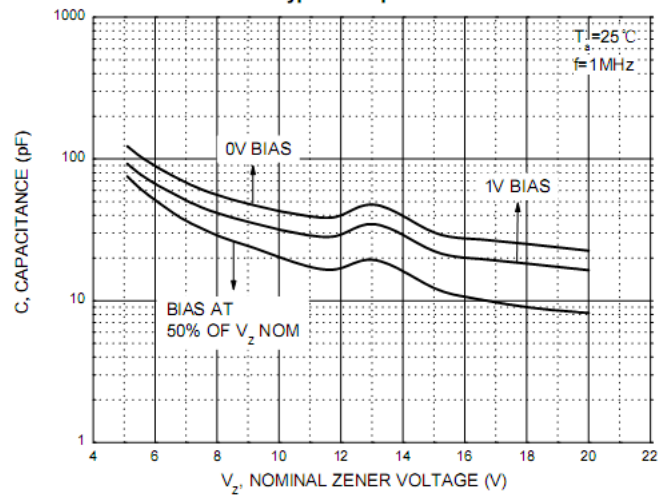
Temperature Coefficients



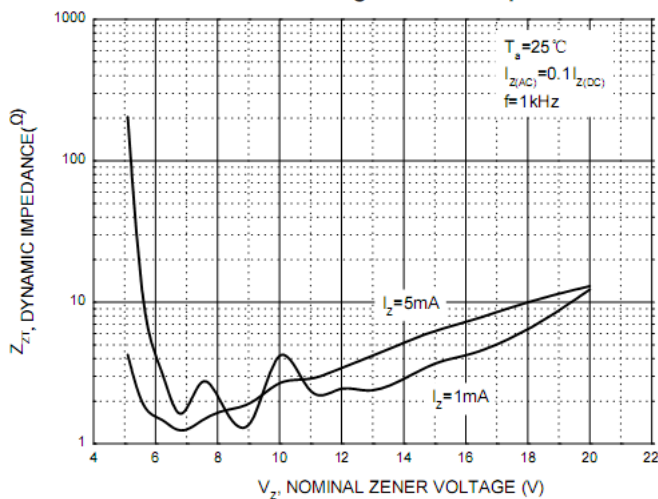
Typical Leakage Current



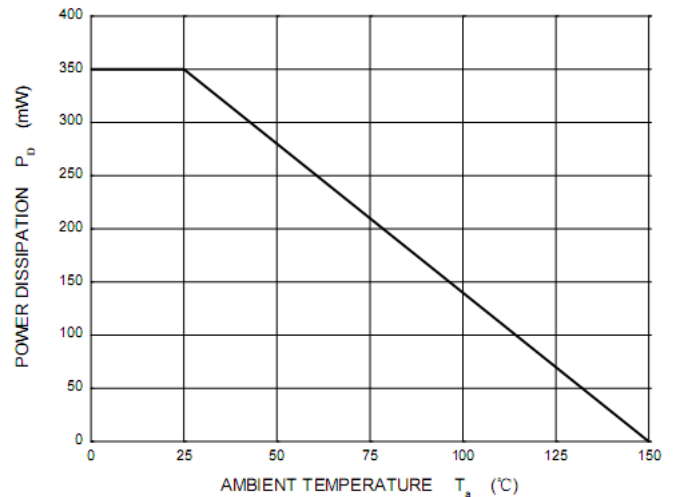
Typical Capacitance



Effect of Zener Voltage on Zener Impedance

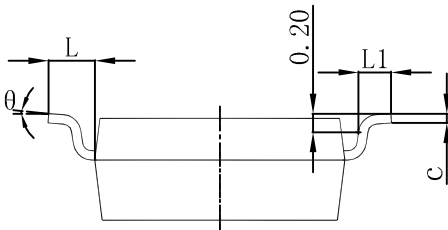
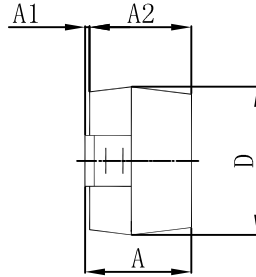
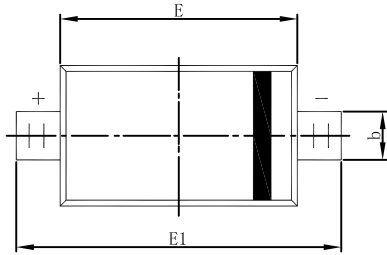


Power Derating Curve

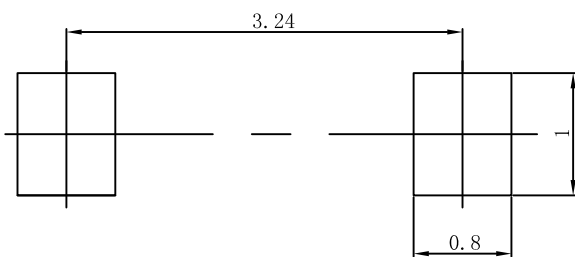




SOD-123 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.450	0.650	0.018	0.026
c	0.080	0.150	0.003	0.006
D	1.500	1.700	0.059	0.067
E	2.600	2.800	0.102	0.110
E1	3.550	3.850	0.140	0.152
L	0.500 REF		0.020 REF	
L1	0.250	0.450	0.010	0.018
θ	0° - 8°		0° - 8°	



- Note:**
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.



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