

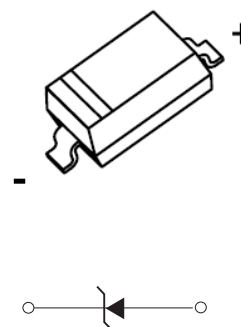
## SOD-123 Plastic-Encapsulate Diodes

ZENER DIODE

SOD-123

### FEATURE

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



### Maximum Ratings(Ta=25°C unless otherwise specified)

Characteristic	Symbol	Value	Unit
Forward Voltage (Note 2) @ I <sub>F</sub> = 10mA	V <sub>F</sub>	0.9	V
Power Dissipation(Note 1)	P <sub>d</sub>	500	mW
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	357	°C/W
Operation Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 ~ +150	°C

## ELECTRICAL CHARACTERISTICS

T<sub>a</sub>=25°C unless otherwise specified

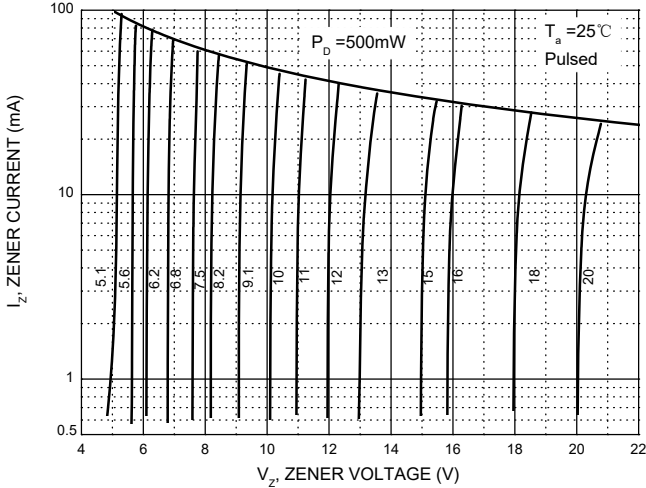
Type Number	Type Code	Zener Voltage Range (Note 2)				Maximum Zener Impedance (Note 3)			Maximum Reverse Current		Typical Temperature Coefficient @I <sub>ZTC</sub>		Test Current I <sub>ZTC</sub>
		V <sub>Z</sub> @I <sub>ZT</sub>			I <sub>ZT</sub>	Z <sub>ZT</sub> @I <sub>ZT</sub>	Z <sub>ZK</sub> @I <sub>ZK</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	
MM1Z2B4	2WX/5Y1	2.4	2.35	2.45	5	100	600	1.0	50	1.0	-3.5	0	5
MM1Z2B7	2W1/5Z1	2.7	2.65	2.75	5	100	600	1.0	20	1.0	-3.5	0	5
MM1Z3B0	2W2/6A1	3.0	2.94	3.06	5	95	600	1.0	10	1.0	-3.5	0	5
MM1Z3B3	2W3/6B1	3.3	3.23	3.37	5	95	600	1.0	5	1.0	-3.5	0	5
MM1Z3B6	2W4/6C1	3.6	3.53	3.67	5	90	600	1.0	5	1.0	-3.5	0	5
MM1Z3B9	2W5/6D1	3.9	3.82	3.98	5	90	600	1.0	3	1.0	-3.5	0	5
MM1Z4B3	2W6/6E1	4.3	4.21	4.39	5	90	600	1.0	3	1.0	-3.5	0	5
MM1Z4B7	2W7/6F1	4.7	4.61	4.79	5	80	500	1.0	3	2.0	-3.5	0.2	5
MM1Z5B1	2W8/6G1	5.1	5.00	5.20	5	60	480	1.0	2	2.0	-2.7	1.2	5
MM1Z5B6	2W9/6H1	5.6	5.49	5.71	5	40	400	1.0	1	2.0	-2.0	2.5	5
MM1Z6B2	2WA/6J1	6.2	6.08	6.32	5	10	150	1.0	3	4.0	0.4	3.7	5
MM1Z6B8	2WB/6K1	6.8	6.66	6.94	5	15	80	1.0	2	4.0	1.2	4.5	5
MM1Z7B5	2WC/6L1	7.5	7.35	7.65	5	15	80	1.0	1	5.0	2.5	5.3	5
MM1Z8B2	2WD/6M1	8.2	8.04	8.36	5	15	80	1.0	0.7	5.0	3.2	6.2	5
MM1Z9B1	2WE/6N1	9.1	8.92	9.28	5	15	100	1.0	0.5	6.0	3.8	7.0	5
MM1Z10B	2WF/6P1	10	9.80	10.20	5	20	150	1.0	0.2	7.0	4.5	8.0	5
MM1Z11B	2WG/6Q1	11	10.78	11.22	5	20	150	1.0	0.1	8.0	5.4	9.0	5
MM1Z12B	2WH/6R1	12	11.76	12.24	5	25	150	1.0	0.1	8.0	6.0	10.0	5
MM1Z13B	2WI/6S1	13	12.74	13.26	5	30	170	1.0	0.1	8.0	7.0	11.0	5
MM1Z15B	2WJ/6T1	15	14.70	15.30	5	30	200	1.0	0.1	10.5	9.2	13.0	5
MM1Z16B	2WK/6U1	16	15.68	16.32	5	40	200	1.0	0.1	11.2	10.4	14.0	5
MM1Z18B	2WL/6W1	18	17.64	18.36	5	45	225	1.0	0.1	12.6	12.4	16.0	5
MM1Z20B	2WM/6X1	20	19.60	20.40	5	55	225	1.0	0.1	14.0	14.4	18.0	5
MM1Z22B	2WN/6Y1	22	21.56	22.44	5	55	250	1.0	0.1	15.4	16.4	20.0	5
MM1Z24B	2WO/6Z1	24	23.52	24.48	5	70	250	1.0	0.1	16.8	18.4	22.0	5
MM1Z27B	2WP/7A1	27	26.46	27.54	2	80	300	0.5	0.1	18.9	21.4	25.3	2
MM1Z30B	2WQ/7B1	30	29.40	30.60	2	80	300	0.5	0.1	21.0	24.4	29.4	2
MM1Z33B	2WR/7C1	33	32.34	33.66	2	80	325	0.5	0.1	23.1	27.4	33.4	2
MM1Z36B	2WS/7D1	36	35.28	36.72	2	90	350	0.5	0.1	25.2	30.4	37.4	2
MM1Z39B	2WT/7E1	39	38.22	39.78	2	130	350	0.5	0.1	27.3	33.4	41.2	2
MM1Z43B	2WU/7F1	43	41.16	42.84	2	130	350	0.5	0.1	29.4	36.4	45.2	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

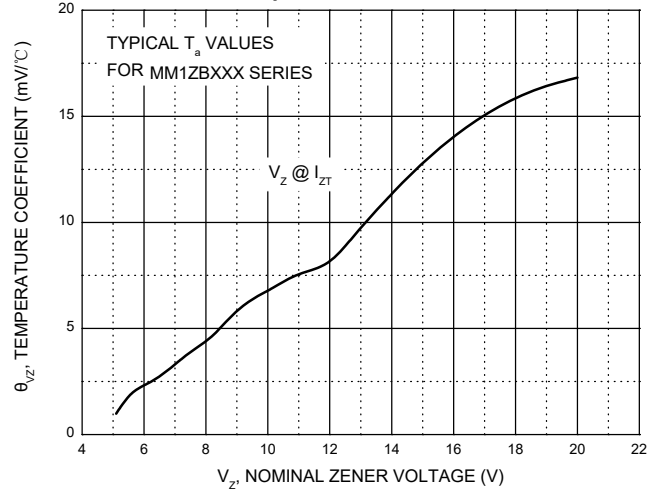
## Typical Characteristics

Notes: Our company currently provide 5.1 V - 20 V products only

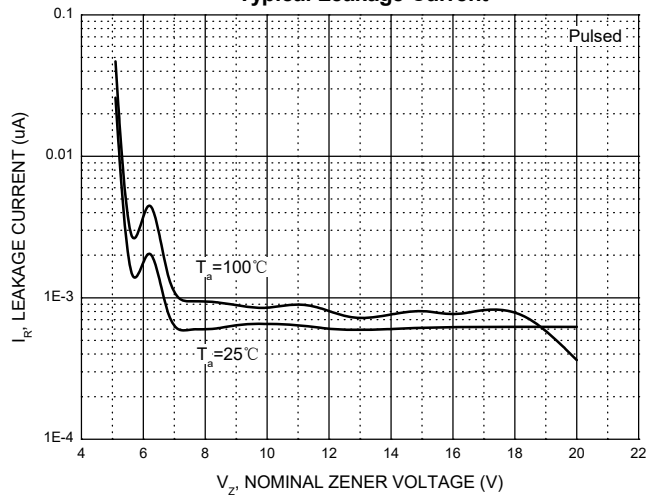
**Zener Characteristics ( $V_z$  5.1V to 20 V)**



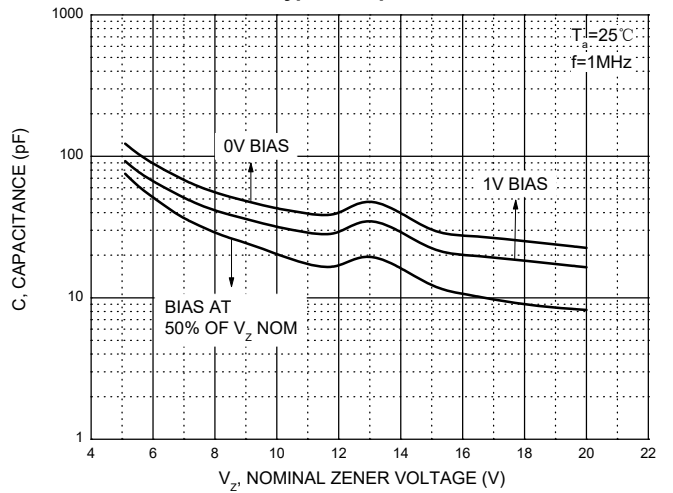
**Temperature Coefficients**



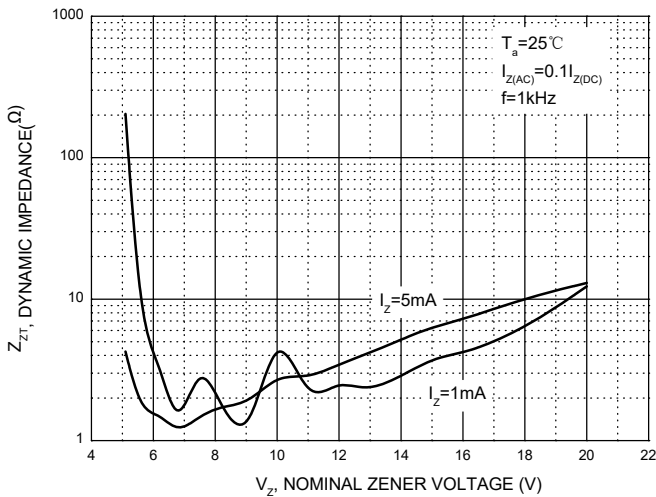
**Typical Leakage Current**



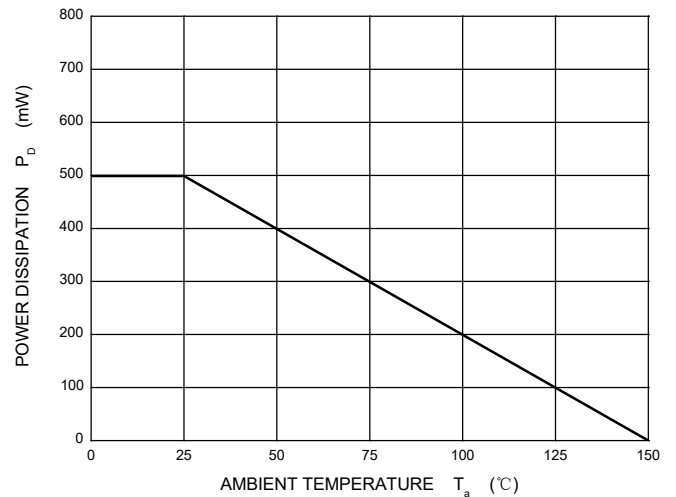
**Typical Capacitance**



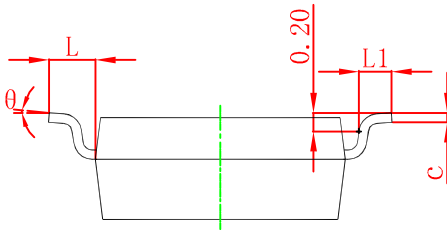
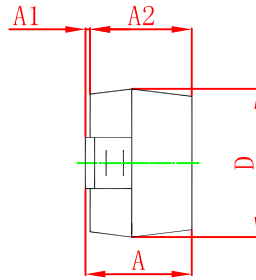
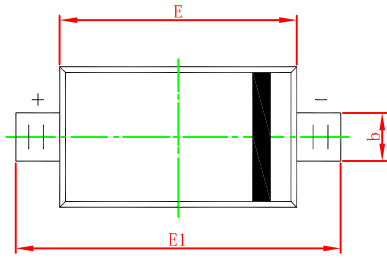
**Effect of Zener Voltage on Zener Impedance**



**Power Derating Curve**

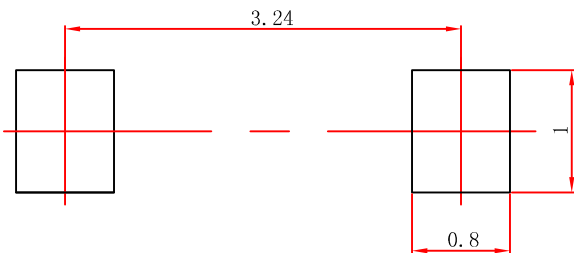


SOD-123 Package Outline Dimensions



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°

SOD-123 Suggested Pad Layout

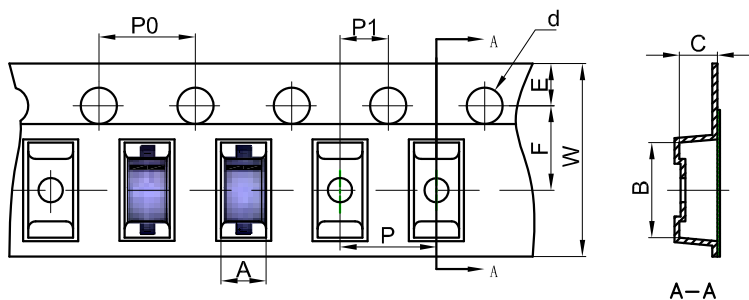


Note:

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

**SOD-123 Tape and Reel**

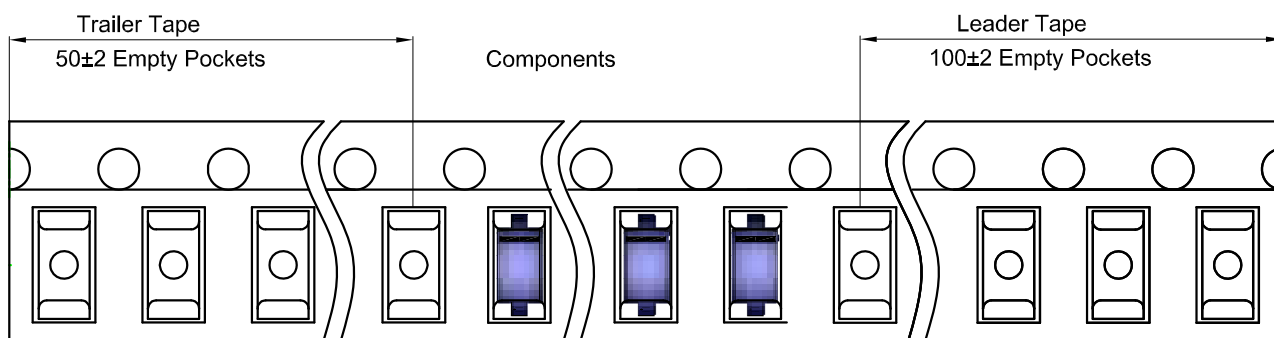
**SOD-123 Embossed Carrier Tape**



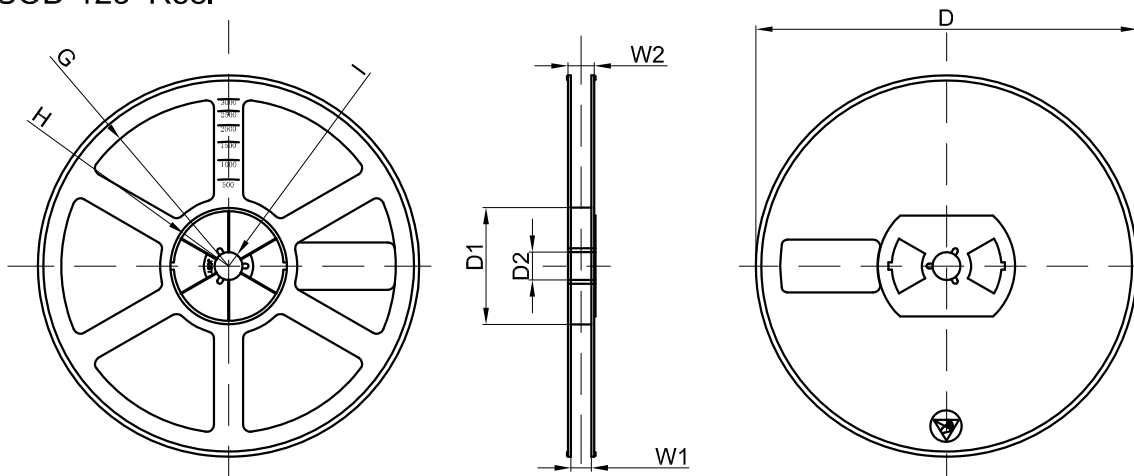
**Packaging Description:**  
 SOD-123 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOD-123	1.85	3.95	1.57	Ø1.55	1.75	3.50	4.00	4.00	2.00	8.00

**SOD-123 Tape Leader and Trailer**



**SOD-123 Reel**



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	