

ZENER DIODE

FEATURES

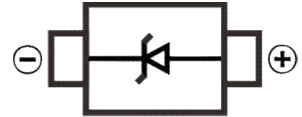
- Medium current
- 500mW power dissipation
- Planar die construction
- Surface mount device

MECHANICAL DATA

- Case: SOD-123
- Case material: Molded plastic. UL flammability
- Classification rating: 94V-0
- Terminals: Tin plated, solderable per MIL-STD-202, Method 208
- Weight: 0.005 grams (approximate)



SOD-123

**MAXIMUM RATINGS** ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Forward voltage @ $I_F = 10\text{mA}$	V_F	1	V
Power dissipation	P_D	500	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	350	$^\circ\text{C/W}$
Junction and storage temperature	T_J, T_{STG}	-65 ~ +150	$^\circ\text{C}$

Note 1. Valid provide the electrodes are kept at ambient temperature.

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ELECTRICAL CHARACTERISTICS (T_A= 25°C unless otherwise specified)

Part Number	V _Z @I _{ZT} (Volt)			I _{ZT} (mA)	Z _{ZT} @ I _{ZT} (Ω) Max	I _{ZK} (mA)	Z _{ZK} @ I _{ZK} (Ω) Max	I _R @ V _R (μA) Max	V _R (V)
	Min	Nom	Max						
BZT52C2V4	2.28	2.40	2.52	5	100	1	564	45	1.0
BZT52C2V7	2.57	2.70	2.84	5	100	1	564	18	1.0
BZT52C3V0	2.85	3.00	3.15	5	100	1	564	9	1.0
BZT52C3V3	3.14	3.30	3.47	5	95	1	564	4.5	1.0
BZT52C3V6	3.42	3.60	3.78	5	90	1	564	4.5	1.0
BZT52C3V9	3.71	3.90	4.10	5	90	1	564	2.7	1.0
BZT52C4V3	4.09	4.30	4.52	5	90	1	564	2.7	1.0
BZT52C4V7	4.47	4.70	4.94	5	80	1	470	2.7	2.0
BZT52C5V1	4.85	5.10	5.36	5	60	1	451	1.8	2.0
BZT52C5V6	5.32	5.60	5.88	5	40	1	376	0.9	2.0
BZT52C6V2	5.89	6.20	6.51	5	10	1	141	2.7	4.0
BZT52C6V8	6.46	6.80	7.14	5	15	1	75	1.8	4.0
BZT52C7V5	7.11	7.50	7.86	5	15	1	75	0.9	5.0
BZT52C8V2	7.79	8.20	8.61	5	15	1	75	0.63	5.0
BZT52C9V1	8.65	9.10	9.56	5	15	1	94	0.45	6.0
BZT52C10	9.50	10.00	10.5	5	20	1	141	0.18	7.0
BZT52C11	10.45	11.00	11.55	5	20	1	141	0.09	8.0
BZT52C12	11.40	12.00	12.60	5	25	1	141	0.09	8.0
BZT52C13	12.35	13.00	13.65	5	30	1	160	0.09	8.0
BZT52C15	14.25	15.00	15.75	5	30	1	188	0.045	10.5
BZT52C16	15.20	16.00	16.80	5	40	1	188	0.045	11.2
BZT52C18	17.10	18.00	18.90	5	45	1	212	0.045	12.6
BZT52C20	19.00	20.00	21.00	5	55	1	212	0.045	14.0
BZT52C22	20.90	22.00	23.10	5	55	1	235	0.045	15.4
BZT52C24	22.80	24.00	25.20	5	70	1	235	0.045	16.8
BZT52C27	25.65	27.00	28.35	2	80	0.5	282	0.045	18.9
BZT52C30	28.50	30.00	31.50	2	80	0.5	282	0.045	21.0
BZT52C33	31.35	33.00	34.65	2	80	0.5	306	0.045	23.0
BZT52C36	34.20	36.00	37.80	2	90	0.5	329	0.045	25.2
BZT52C39	37.05	39.00	40.95	2	130	0.5	329	0.045	27.3
BZT52C43	40.85	43.00	45.15	2	150	0.5	353	0.045	30.1
BZT52C47	44.65	47.00	49.35	2	170	0.5	353	0.045	33.0
BZT52C51	48.45	51.00	53.55	2	180	0.5	376	0.045	35.7
BZT52C56	53.20	56.00	58.80	2	200	0.5	400	0.045	39.2
BZT52C62	58.90	62.00	65.10	2	215	0.5	423	0.045	43.4
BZT52C68	64.60	68.00	71.40	2	240	0.5	447	0.045	47.6
BZT52C75	71.25	75.00	78.75	2	255	0.5	470	0.045	52.5

Notes : 1. The Zener voltage (V_Z) is tested under pulse condition of 10ms.

2. The device numbers listed have a standard tolerance on the normal Zener voltage of ±5%.

3. The Zener impedance is derived from the 60-cycle AC voltage, which results when an AC current having an RMS value equal to 10% of the DC Zener current(I_{ZT} or I_{ZK}) is superimposed to I_{ZT} or I_{ZK}.

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TYPICAL CHARACTERISTICS

Fig. 1 Typical Forward Characteristics

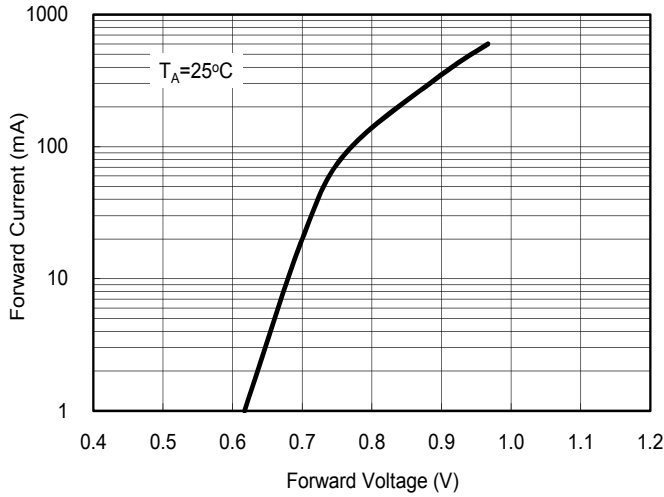


Fig. 2 Zener Breakdown Characteristics

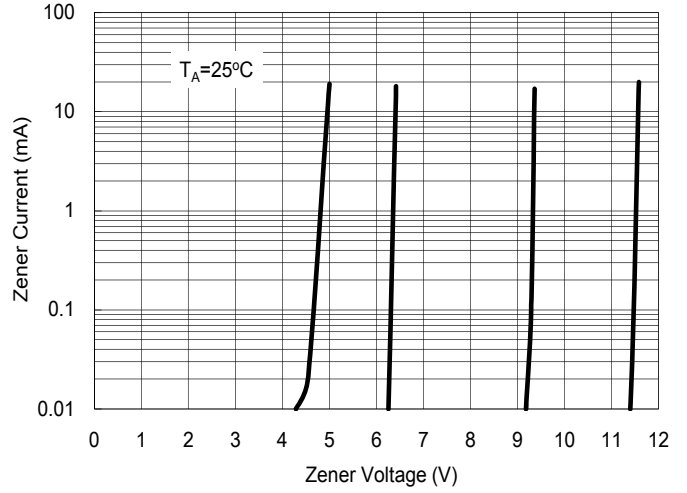


Fig. 3 Zener Breakdown Characteristics

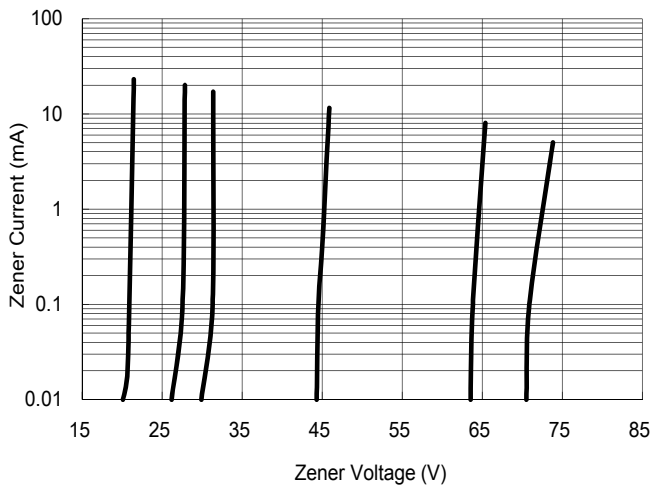


Fig. 4 Power Dissipation Curve

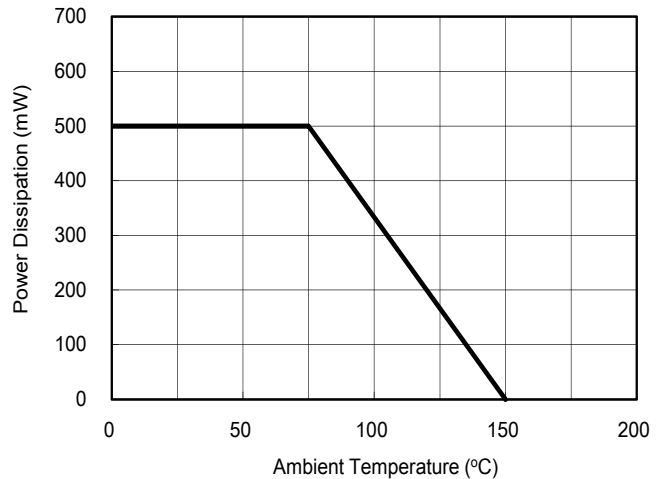


Fig. 5 Typical Capacitance

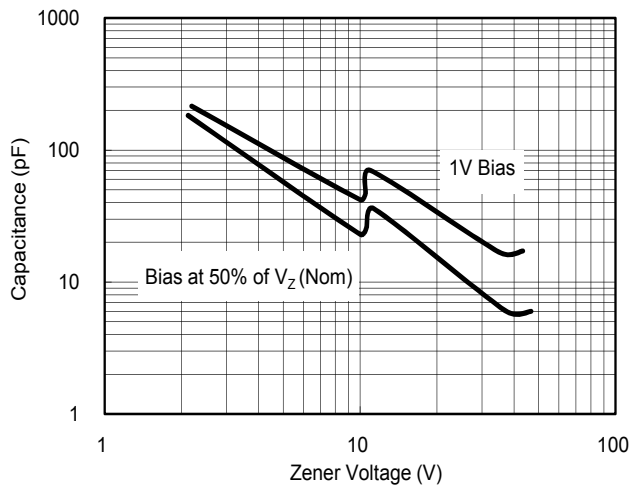
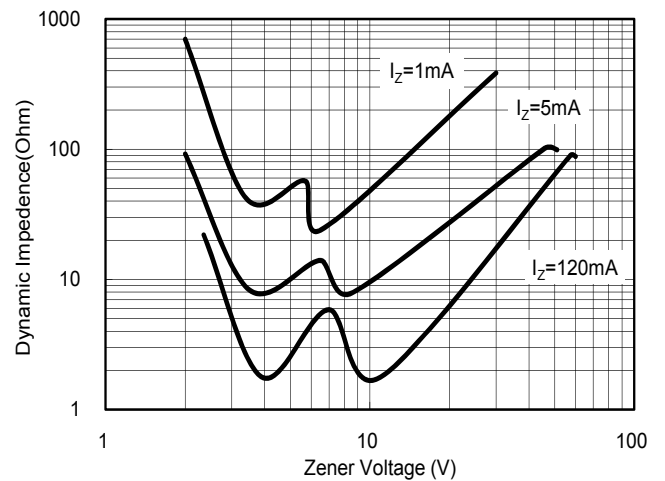
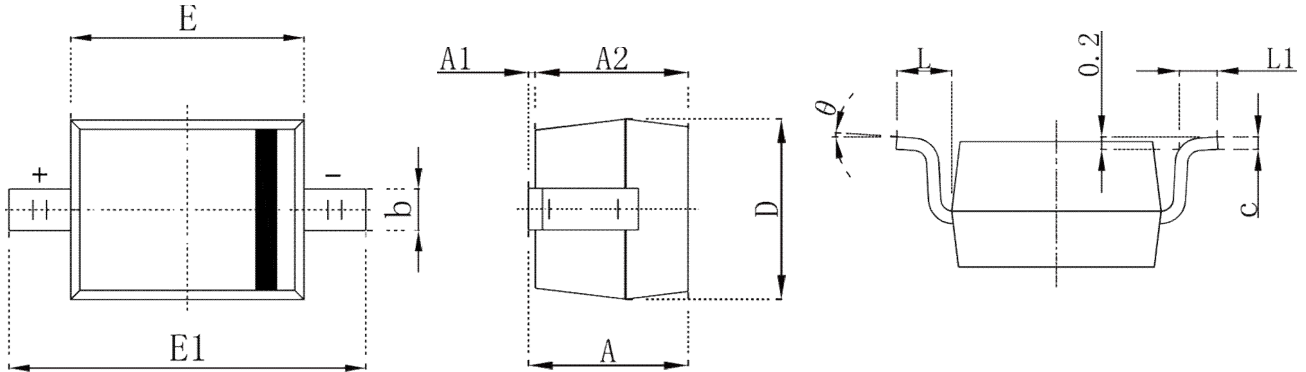


Fig. 6 Effect of Zener Voltage on Impedance



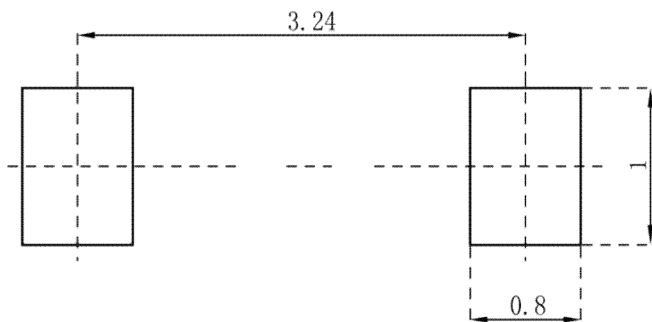
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SOD-123 Package Outline Dimensions



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	0.500REF		0.020 REF	
L1	0.250	0.450	0.010	0.018
θ	0°	8°	0°	8°

SOD-123 Suggested Pad Layout



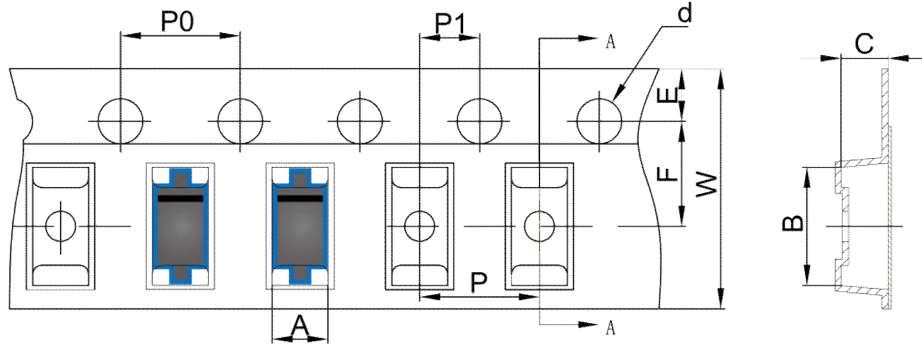
Note:

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

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SOD-123 Tape and Reel

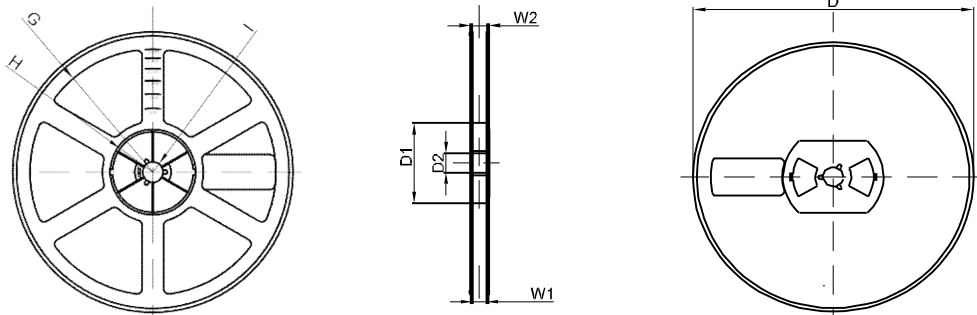
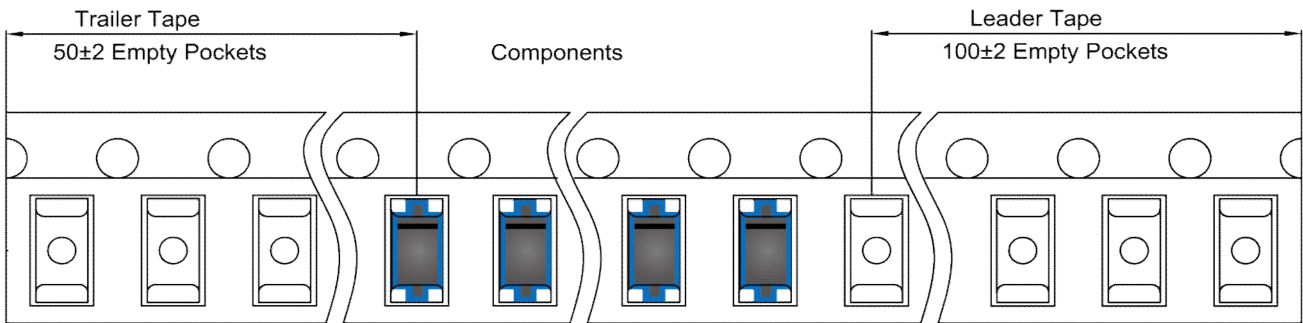
SOD-123 Embossed Carrier Tape



SOD-123 Tape Leader and Trailer

DIMENSIONS ARE IN MILLIMETER										
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
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOD-123 Reel



DIMENSIONS ARE IN MILLIMETER								
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	9.50	12.30
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1