ZENER DIODE

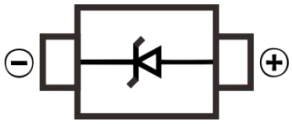
FEATURES

- Planar Die Construction
- Ultra-Small Surface Mount Package
- General purpose, Medium Current
- Ideally Suited for Automated Assembly Processes

SOD-123

MECHANICAL DATA

- Case: SOD-123
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.005 grams (approximate)



MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation at T_A = 25°C (Note 1)	Pd	500	mW
Forward Voltage @ I_F = 10mA	V_F	0.9	V
Thermal Resistance Junction to Ambient (Note 1)	$R_{\theta JA}$	340	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-65 to +150	°C

Note: 1. Diode on ceramic substrate 10mm x 8mm x 0.7mm.

ZENER DIODE

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

Type Number (Note 1)	Device Marking Code	Zener Voltage Range (Note 2)			Maximum Zener Impedance (Note 3)				Max Reverse Leakage Current		Typical Temp. Coefficient of Zener Voltage
		V_Z @ I_{ZT}			Z_{ZT} @ I_{ZT}		Z_{ZK} @ I_{ZK}		I_R	@ V_R	
		Nom (V)	Min (V)	Max (V)	(Ω)	(mA)	(Ω)	(mA)	(μA)	(V)	(%/K)
MMSZ5221B	C1	2.4	2.28	2.52	30	20	1200	0.25	100	1.0	-0.075
MMSZ5222B	C2	2.5	2.38	2.63	30	20	1250	0.25	100	1.0	-0.075
MMSZ5223B	C3	2.7	2.57	2.84	30	20	1300	0.25	75	1.0	-0.075
MMSZ5225B	C5	3.0	2.85	3.15	30	20	1600	0.25	50	1.0	-0.075
MMSZ5226B	D1	3.3	3.14	3.47	28	20	1600	0.25	25	1.0	-0.070
MMSZ5227B	D2	3.6	3.42	3.78	24	20	1700	0.25	15	1.0	-0.065
MMSZ5228B	D3	3.9	3.71	4.10	23	20	1900	0.25	10	1.0	-0.060
MMSZ5229B	D4	4.3	4.09	4.52	22	20	2000	0.25	5.0	1.0	-0.055
MMSZ5230B	D5	4.7	4.47	4.94	19	20	1900	0.25	5.0	2.0	±0.030
MMSZ5231B	E1	5.1	4.85	5.36	17	20	1600	0.25	5.0	2.0	±0.030
MMSZ5232B	E2	5.6	5.32	5.88	11	20	1600	0.25	5.0	3.0	+0.038
MMSZ5234B	E4	6.2	5.89	6.51	7.0	20	1000	0.25	5.0	4.0	+0.045
MMSZ5235B	E5	6.8	6.46	7.14	5.0	20	750	0.25	3.0	5.0	+0.050
MMSZ5236B	F1	7.5	7.13	7.88	6.0	20	500	0.25	3.0	6.0	+0.058
MMSZ5237B	F2	8.2	7.79	8.61	8.0	20	500	0.25	3.0	6.0	+0.062
MMSZ5239B	F4	9.1	8.65	9.56	10	20	600	0.25	3.0	6.5	+0.068
MMSZ5240B	F5	10	9.50	10.50	17	20	600	0.25	3.0	8.0	+0.075
MMSZ5241B	H1	11	10.45	11.55	22	20	600	0.25	2.0	8.4	+0.076
MMSZ5242B	H2	12	11.40	12.60	30	20	600	0.25	1.0	9.1	+0.077
MMSZ5243B	H3	13	12.35	13.65	13	9.5	600	0.25	0.5	9.9	+0.079
MMSZ5245B	H5	15	14.25	15.75	16	8.5	600	0.25	0.1	11	+0.082
MMSZ5246B	J1	16	15.20	16.80	17	7.8	600	0.25	0.1	12	+0.083
MMSZ5248B	J3	18	17.10	18.90	21	7.0	600	0.25	0.1	14	+0.085
MMSZ5250B	J5	20	19.00	21.00	25	6.2	600	0.25	0.1	15	+0.086
MMSZ5251B	K1	22	20.90	23.10	29	5.6	600	0.25	0.1	17	+0.087
MMSZ5252B	K2	24	22.80	25.20	33	5.2	600	0.25	0.1	18	+0.087
MMSZ5254B	K4	27	25.65	28.35	41	5.0	600	0.25	0.1	21	+0.090
MMSZ5255B	K5	28	26.60	29.40	44	4.5	600	0.25	0.1	21	+0.091
MMSZ5256B	M1	30	28.50	31.50	49	4.2	600	0.25	0.1	23	+0.091
MMSZ5257B	M2	33	31.35	34.65	58	3.8	700	0.25	0.1	25	+0.092
MMSZ5258B	M3	36	34.20	37.80	70	3.4	700	0.25	0.1	27	+0.093
MMSZ5259B	M4	39	37.05	40.95	80	3.2	800	0.25	0.1	30	+0.094
MMSZ5260B	M5	43	40.85	45.15	93	3.0	900	0.25	0.1	33	+0.095
MMSZ5261B	N1	47	44.65	49.35	105	2.7	1000	0.25	0.1	36	+0.095
MMSZ5262B	N2	51	48.45	53.55	125	2.5	1100	0.25	0.1	39	+0.096

Note: 1. Type numbers listed have standard tolerance on the nominal zener voltage of ±5%.
2. Measured with pulses t_p = 1ms.
3. f = 1KHz

Typical Characteristics

FIG 1 Typical Forward Voltage

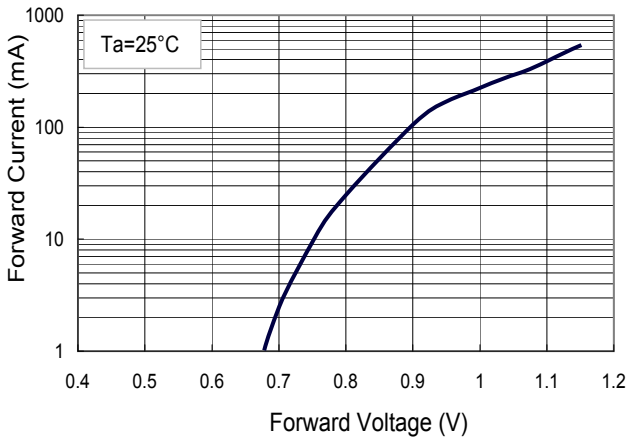


FIG 2 Zener Breakdown Characteristics

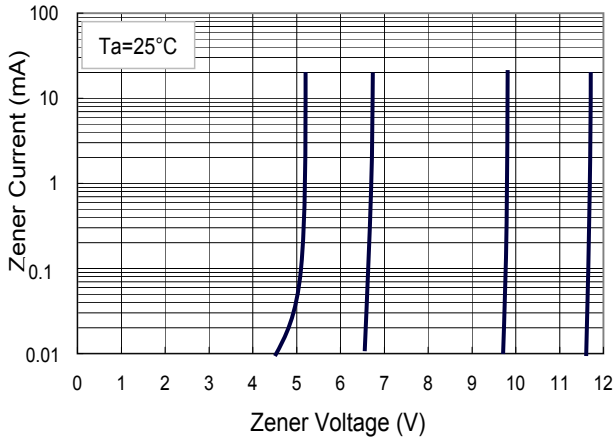


FIG 3 Zener Breakdown Characteristics

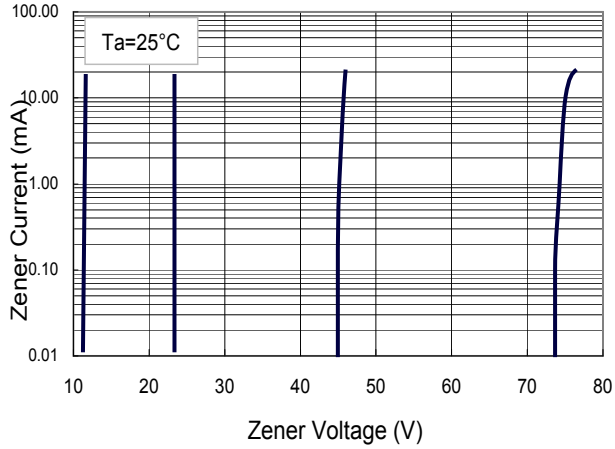


FIG 4 Power Dissipation vs. Ambient Temp.

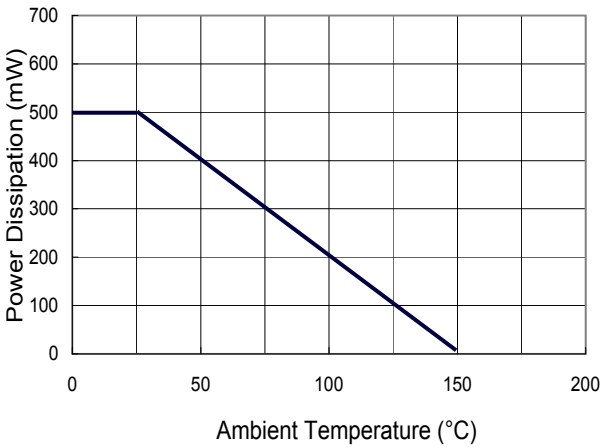


FIG 5 Typical Capacitance

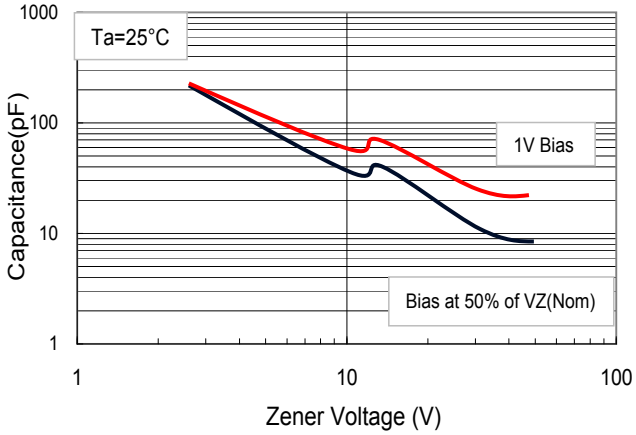
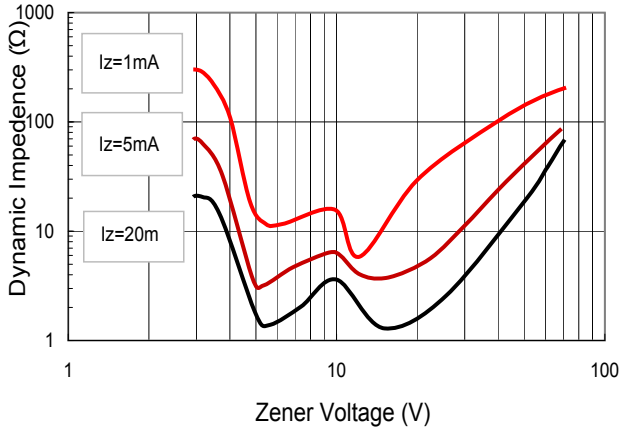
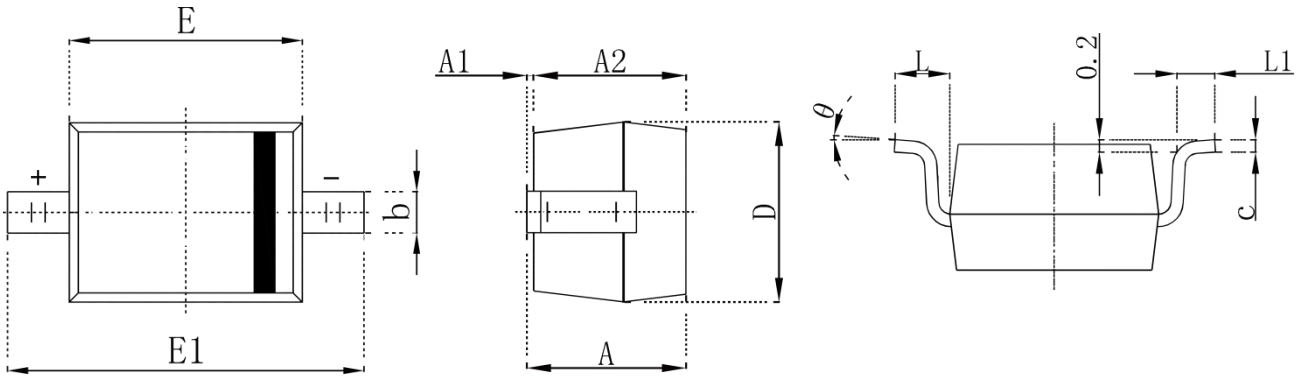


FIG 6 Effect of Zener Voltage on Impedence

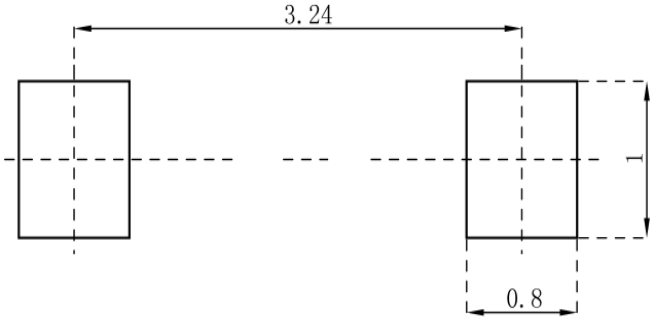


SOD-123 Package Outline Dimensions



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:

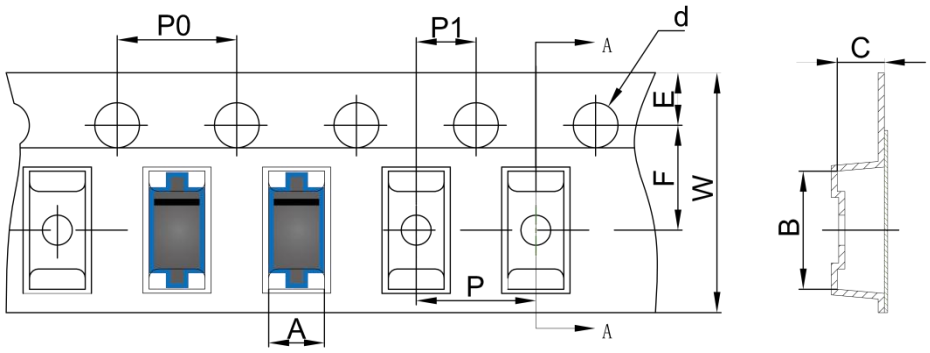
1.Controlling dimension: in millimeters

2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

SOD-123 Tape and Reel

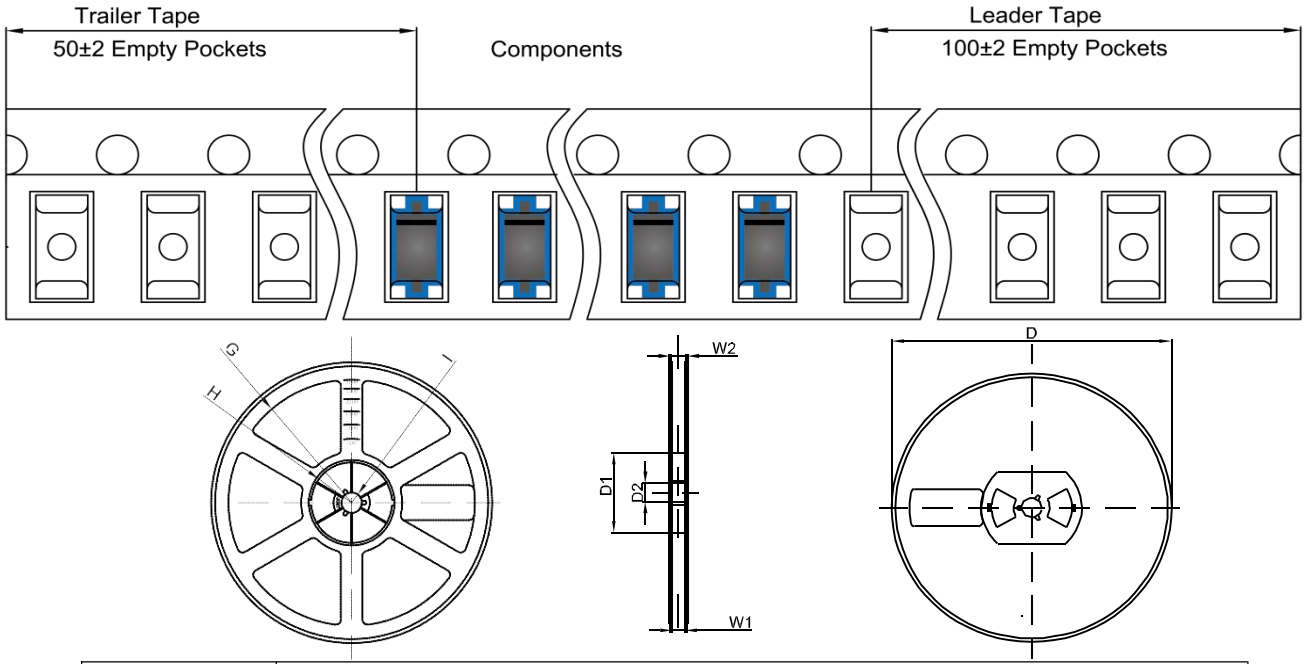
SOD-123 Embossed Carrier Tape



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