

DATA SHEET

MMSZ5221B SERIES

SURFACE MOUNT ZENER DIODE

VOLTAGE 2.4~43 Volts **POWER** 500 mW

FEATURES

- PLANAR DIE CONSTRUCTION
- 500mW POWER DISSIPATION
- ZENER VOLTAGE FROM 2.4~43 V
- IDEALLY SUITED FOR AUTOMATED ASSEMBLY PROCESSES
- LEAD FREE AND HALOGEN-FREE

MECHANICAL DATA

- CASE: SOD-123, MOLDED PLASTIC
- TERMINALS: SOLDERABLE PER MIL-STD-202, METHOD 208
- POLARITY: SEE DIAGRAM BELOW
- APPROX. WEIGHT: 0.008 GRAMS
- MOUNTING POSITION: ANY



CASE: SOD-123

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

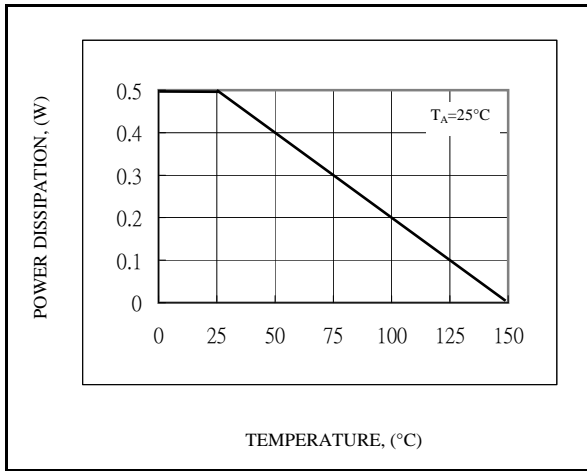
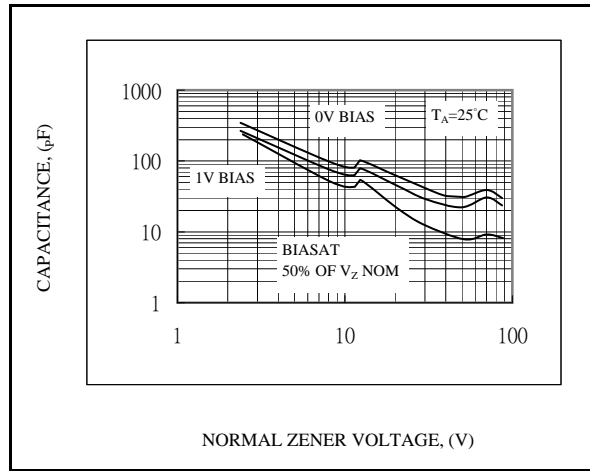
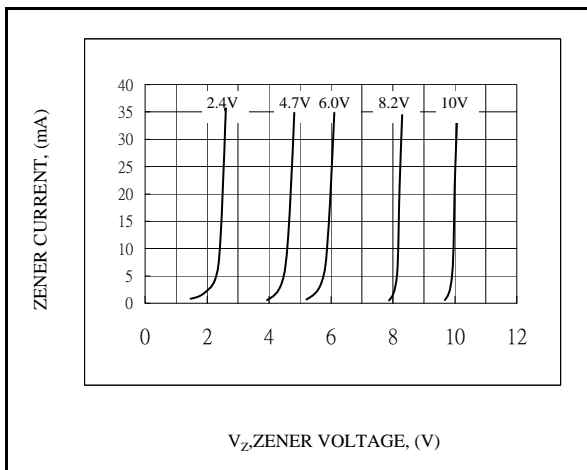
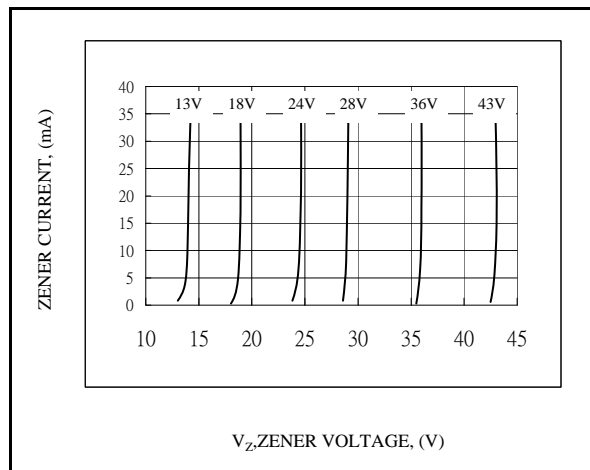
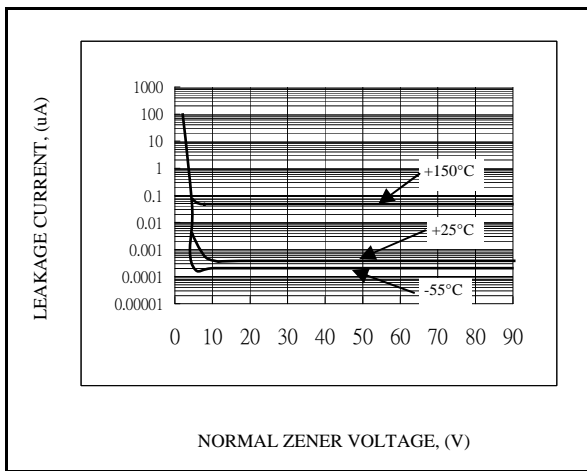
RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED.

PARAMETER	SYMBOL	VALUE	UNITS
MAXIMUM FORWARD VOLTAGE AT $I_F=10\text{mA}$	V_F	0.9	V
MAXIMUM POWER DISSIPATION AT 25°C (NOTE.1)	P_D	500	mW
JUNCTION TEMPERATURE	T_J	-65 to +150	°C
STORAGE TEMPERATURE RANGE	T_{STG}	-65 to +150	°C
THERMAL RESISTANCE, JUNCTION TO AMBIENT (NOTE.1)	$R_{\theta JA}$	350	°C/W

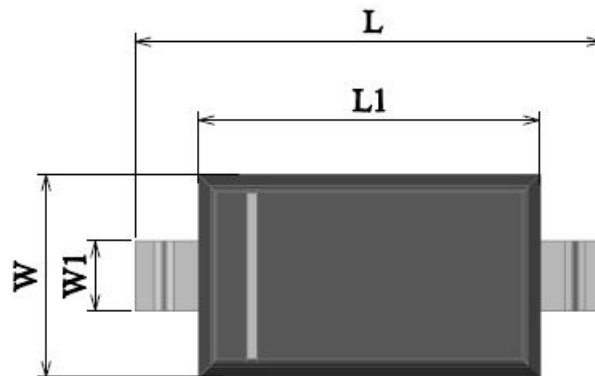
NOTE:

1. DEVICE MOUNTED ON CERAMIC PCB: 7.6mm x 9.4mm x 0.87mm WITH PAD AREAS 25mm²
2. TESTED WITH PULSES, $T_p \leq 1.0\text{ms}$

Part Number	Nominal Zener Voltage			Max. Zener Impedance				Max Reverse Leakage Current	
	$V_Z @ I_{ZT}$			$Z_{ZT} @ I_{ZT}$		$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$	
	Nom. V	Min. V	Max. V	Ω	mA	Ω	mA	μA	V
500 mWatts Zener Diodes									
MMSZ5221B	2.4	2.28	2.52	30	20	1200	0.25	100	1
MMSZ5223B	2.7	2.57	2.84	30	20	1300	0.25	75	1
MMSZ5225B	3.0	2.85	3.15	30	20	1600	0.25	50	1
MMSZ5226B	3.3	3.14	3.47	28	20	1600	0.25	25	1
MMSZ5227B	3.6	3.42	3.78	24	20	1700	0.25	15	1
MMSZ5228B	3.9	3.71	4.10	23	20	1900	0.25	10	1
MMSZ5229B	4.3	4.09	4.52	22	20	2000	0.25	5.0	1
MMSZ5230B	4.7	4.47	4.94	19	20	1900	0.25	5.0	2
MMSZ5231B	5.1	4.85	5.36	17	20	1600	0.25	5.0	2
MMSZ5232B	5.6	5.32	5.88	11	20	1600	0.25	5.0	3
MMSZ5233B	6.0	5.70	6.30	7	20	1600	0.25	5.0	3.5
MMSZ5234B	6.2	5.89	6.51	7	20	1000	0.25	5.0	4
MMSZ5235B	6.8	6.46	7.14	5	20	750	0.25	3.0	5
MMSZ5236B	7.5	7.13	7.88	6	20	500	0.25	3.0	6
MMSZ5237B	8.2	7.79	8.61	8	20	500	0.25	3.0	6.5
MMSZ5238B	8.7	8.27	9.14	8	20	600	0.25	3.0	6.5
MMSZ5239B	9.1	8.65	9.56	10	20	600	0.25	3.0	7
MMSZ5240B	10	9.50	10.50	17	20	600	0.25	3.0	8
MMSZ5241B	11	10.45	11.55	22	20	600	0.25	2.0	8.4
MMSZ5242B	12	11.40	12.60	30	20	600	0.25	1.0	9.1
MMSZ5243B	13	12.35	13.65	13	9.5	600	0.25	0.5	9.9
MMSZ5244B	14	13.30	14.70	15	9.0	600	0.25	0.1	10
MMSZ5245B	15	14.25	15.75	16	8.5	600	0.25	0.1	11
MMSZ5246B	16	15.20	16.80	17	7.8	600	0.25	0.1	12
MMSZ5248B	18	17.10	18.90	21	7.0	600	0.25	0.1	14
MMSZ5250B	20	19.00	21.00	25	6.2	600	0.25	0.1	15
MMSZ5251B	22	20.90	23.10	29	5.6	600	0.25	0.1	17
MMSZ5252B	24	22.80	25.20	33	5.2	600	0.25	0.1	18
MMSZ5254B	27	25.65	28.35	41	5.0	600	0.25	0.1	21
MMSZ5255B	28	26.60	29.40	44	4.5	600	0.25	0.1	21
MMSZ5256B	30	28.50	31.50	49	4.2	600	0.25	0.1	23
MMSZ5257B	33	31.35	34.65	58	3.8	700	0.25	0.1	25
MMSZ5258B	36	34.20	37.80	70	3.4	700	0.25	0.1	27
MMSZ5259B	39	37.05	40.95	80	3.2	800	0.25	0.1	30
MMSZ5260B	43	40.85	45.15	93	3.0	900	0.25	0.1	33


Fig.1-STEADY STATE POWER DERATING

Fig.2-TYPICAL CAPACITANCE

Fig.3A-V_Z=2.4 THRU 10 VOLTS

Fig.3B-V_Z=12 THRU 43 VOLTS

Fig.4-TYPICAL LEAKAGE CURRENT

SOD-123 DIMENSION

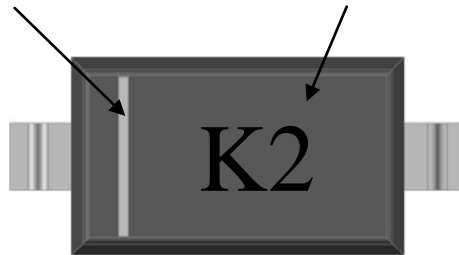


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
L	3.55	3.85	0.140	0.152
L1	2.60	2.80	0.102	0.110
W	1.50	1.70	0.059	0.067
W1	0.45	0.65	0.018	0.026
H	1.05	1.25	0.041	0.049
H1	0.55	0.75	0.022	0.030

MARKING

CATHODE BAND

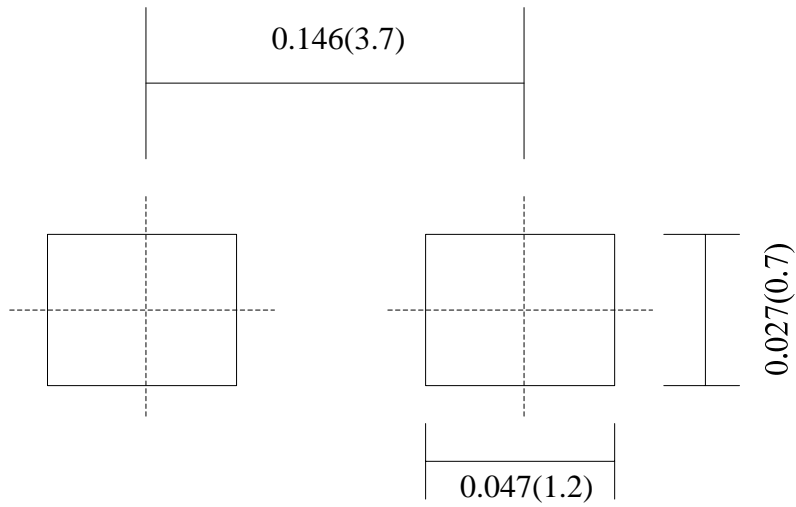
MARKING CODE



PAD LAYOUT

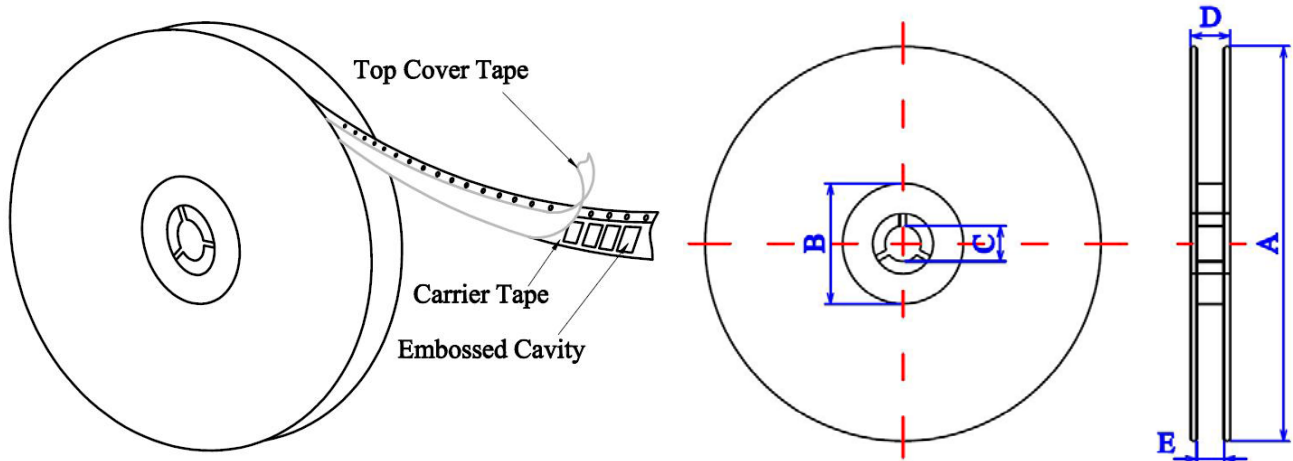
SOD-123

Unit: inch(mm)



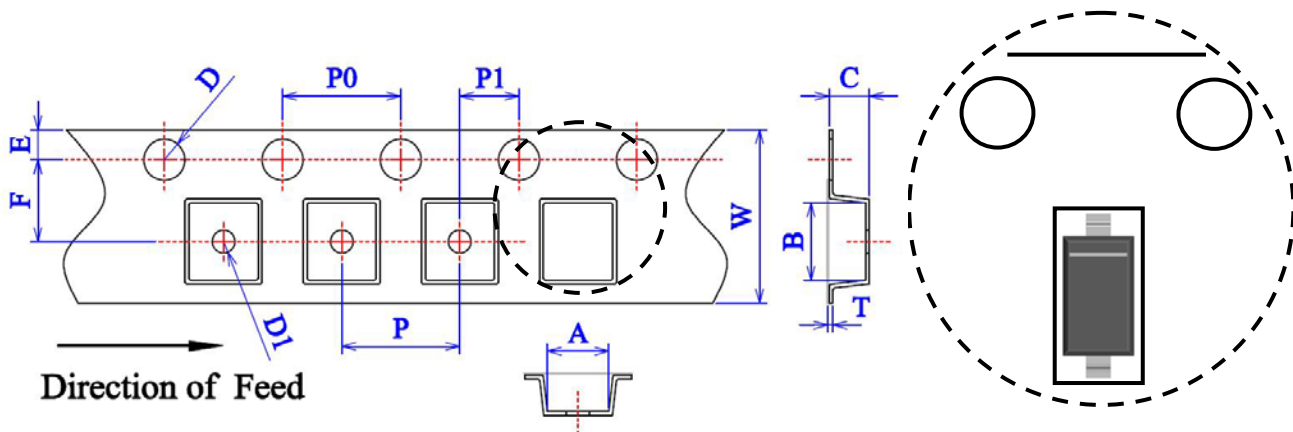
SOD-123 TAPING

Reel Dimension (Unit: mm)



A	B	C	D	E
178±1.0	54.4±0.4	13.0±0.2	12.3±0.2	9.5±0.2

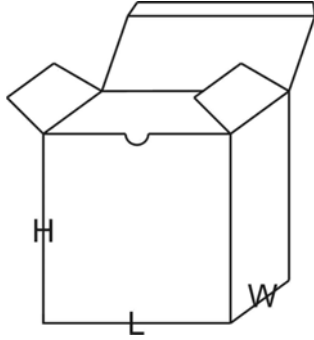
Carrier Tape Dimension (Unit: mm)



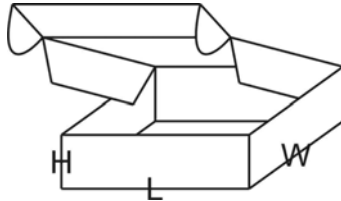
W	P	E	F	D	D1
8.0+0.2/-0.1	4.0±0.1	1.75±0.1	3.5±0.05	1.55±0.05	1.0+0.25/-0
P0	P1	A	B	C	T
4.0±0.1	2.0±0.05	1.85±0.1	3.94±0.1	1.57±0.1	0.203±0.013

PACKING

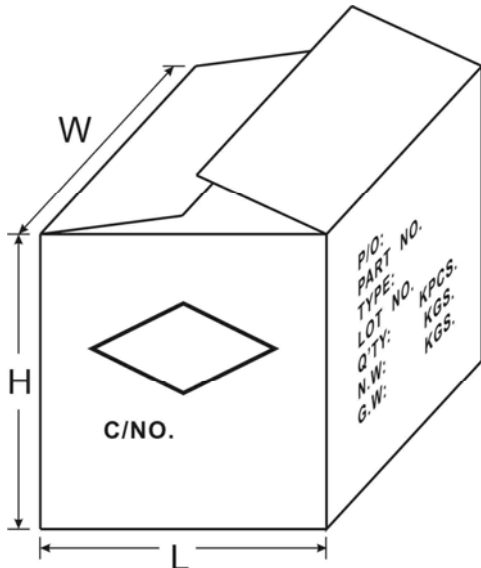
Inner Box

B1


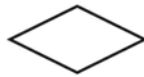
Box Type	Box Size	Reel /Box
	L*W*H(mm)	EA
B1	185*125*185	10
A1	185*180*65	5

A1


Carton



SHIPPING MARK


 C/NO.
PRODUCT COUNTRY

SIDE MARK

 P/O:
PART NO.
TYPE:
LOT NO.
Q'TY: KPCS.
N.W: KGS.
G.W: KGS.

Carton Type	Carton Size	B1 Box / Carton
	L*W*H(mm)	EA
E2	395*370*400	12
E1	395*260*430	8
D1	395*390*158	4

Package	Reel Size	Q'ty/Reel	Box Type	Q'ty /Box	Carton Type	Q'ty /Carton	Approximate Gross
	inch /mm	pcs	-	pcs	-	pcs	kg
SOD-123	7 /178	3,000	B1	30,000	D1	120,000	5.8