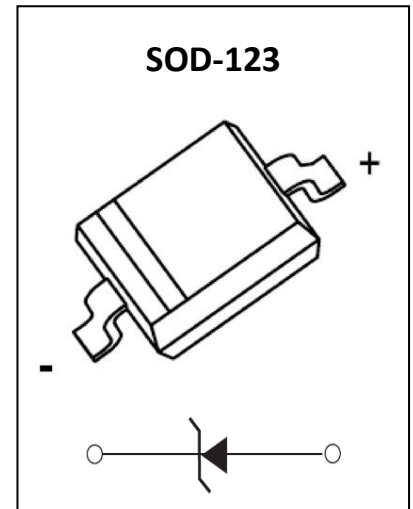




#### MM1Z5221B~MM1Z5267B ZENER DIODE

##### Feature

- Total power dissipation: Max. 500 mW
- Small plastic package suitable for surface mounted design
- Tolerance approximately  $\pm 5\%$



#### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Forward Voltage @ $I_F = 10\text{mA}$	$V_F$	0.9	V
Power Dissipation (Note1)	$P_D$	500	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	325	$^\circ\text{C/W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise noted)

Type	Marking Code	Zener Voltage Range <sup>1)</sup>				Dynamic Impedance <sup>2)</sup>				Reverse Current	
		V <sub>znom</sub>	V <sub>ZT</sub>		at I <sub>ZT</sub>	Z <sub>ZT</sub>	at I <sub>ZT</sub>	Z <sub>ZK</sub>	at I <sub>ZK</sub>	I <sub>R</sub>	at V <sub>R</sub>
		V	Min. (v)	Max.(v)	(mA)	Max. (Ω)	(mA)	Max. (Ω)	(mA)	Max.(μA)	(V)
MM1Z5221B	A4	2.4	2.28	2.52	20	30	20	1200	0.25	100	1
MM1Z5223B	B4	2.7	2.57	2.84	20	30	20	1300	0.25	75	1
MM1Z5225B	C4	3.0	2.85	3.15	20	29	20	1600	0.25	50	1
MM1Z5226B	D4	3.3	3.14	3.47	20	28	20	1600	0.25	25	1
MM1Z5227B	E4	3.6	3.42	3.78	20	24	20	1700	0.25	15	1
MM1Z5228B	F4	3.9	3.71	4.1	20	23	20	1900	0.25	10	1
MM1Z5229B	H4	4.3	4.09	4.52	20	22	20	2000	0.25	5	1
MM1Z5230B	J4	4.7	4.47	4.94	20	19	20	1900	0.25	5	2
MM1Z5231B	K4	5.1	4.85	5.36	20	17	20	1600	0.25	5	2
MM1Z5232B	M4	5.6	5.32	5.88	20	11	20	1600	0.25	5	3
MM1Z5234B	N4	6.2	5.89	6.51	20	7	20	1000	0.25	5	4
MM1Z5235B	P4	6.8	6.46	7.14	20	5	20	750	0.25	3	5
MM1Z5236B	R4	7.5	7.13	7.88	20	6	20	500	0.25	3	6
MM1Z5237B	X4	8.2	7.79	8.61	20	8	20	500	0.25	3	6.5
MM1Z5239B	Y4	9.1	8.65	9.56	20	10	20	600	0.25	3	7
MM1Z5240B	Z4	10	9.50	10.5	20	17	20	600	0.25	3	8
MM1Z5241B	A5	11	10.45	11.55	20	22	20	600	0.25	2	8.4
MM1Z5242B	B5	12	11.40	12.6	20	30	20	600	0.25	1	9.1
MM1Z5243B	C5	13	12.35	13.65	9.5	13	9.5	600	0.25	0.5	9.9
MM1Z5245B	D5	15	14.25	15.75	8.5	16	8.5	600	0.25	0.1	11
MM1Z5246B	E5	16	15.20	16.8	7.8	17	7.8	600	0.25	0.1	12
MM1Z5247B	G5	17	16.15	17.85	7.4	19	7.4	600	0.25	0.1	13
MM1Z5248B	F5	18	17.10	18.9	7	21	7	600	0.25	0.1	14
MM1Z5249B	K9	19	18.05	19.95	6.6	23	6.6	600	0.25	0.1	14
MM1Z5250B	H5	20	19.00	21	6.2	25	6.2	600	0.25	0.1	15
MM1Z5251B	J5	22	20.90	23.1	5.6	29	5.6	600	0.25	0.1	17
MM1Z5252B	K5	24	22.80	25.2	5.2	33	5.2	600	0.25	0.1	18
MM1Z5253B	M9	25	23.75	26.25	5	35	5	600	0.25	0.1	19
MM1Z5254B	M5	27	25.65	28.35	4.6	41	4.6	600	0.25	0.1	21
MM1Z5256B	N5	30	28.50	31.5	4.2	49	4.2	600	0.25	0.1	23
MM1Z5257B	P5	33	31.35	34.65	3.8	58	3.8	700	0.25	0.1	25
MM1Z5258B	R5	36	34.20	37.8	3.4	70	3.4	700	0.25	0.1	27
MM1Z5259B	X5	39	37.05	40.95	3.2	80	3.2	800	0.25	0.1	30
MM1Z5260B	Y5	43	40.85	45.15	3	93	3	900	0.25	0.1	33
MM1Z5261B	Z5	47	44.65	49.35	2.7	105	2.7	1000	0.25	0.1	36
MM1Z5262B	A6	51	48.45	53.55	2.5	125	2.5	1100	0.25	0.1	39
MM1Z5263B	B6	56	53.20	58.8	2.2	150	2.2	1300	0.25	0.1	43
MM1Z5265B	C6	62	58.90	65.1	2	185	2	1400	0.25	0.1	47
MM1Z5266B	D6	68	64.60	71.4	1.8	230	1.8	1600	0.25	0.1	52
MM1Z5267B	E6	75	71.25	78.75	1.7	270	1.7	1700	0.25	0.1	56

<sup>1)</sup> V<sub>ZT</sub> is tested with pulses (20 ms)

<sup>2)</sup> Z<sub>ZT</sub> and Z<sub>ZK</sub> are measured by dividing the AC voltage drop across the device by the AC current applied. The specified limits are for I<sub>Z(AC)</sub> = 0.1 I<sub>Z(DC)</sub> with the AC frequency = 1 KHz.

**Typical Characteristics**

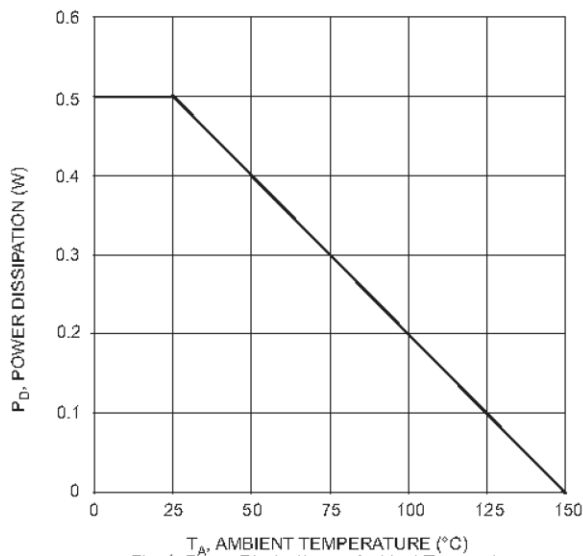


Fig. 1 Power Dissipation vs Ambient Temperature

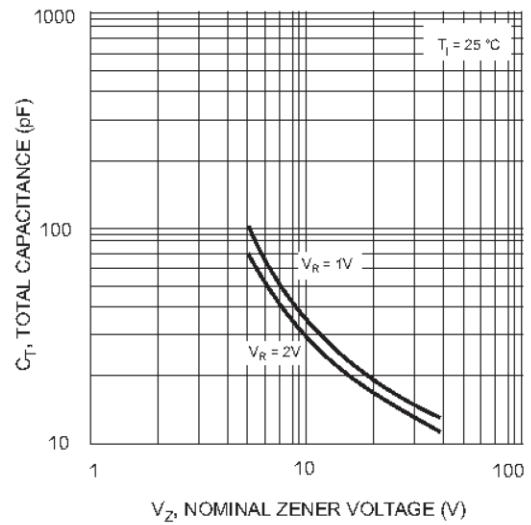


Fig. 2 Total Capacitance vs Nominal Zener Voltage

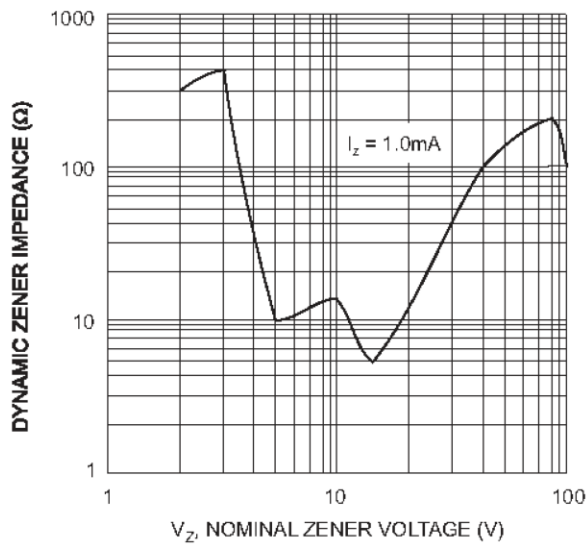


Fig. 3 Zener Voltage vs. Zener Impedence

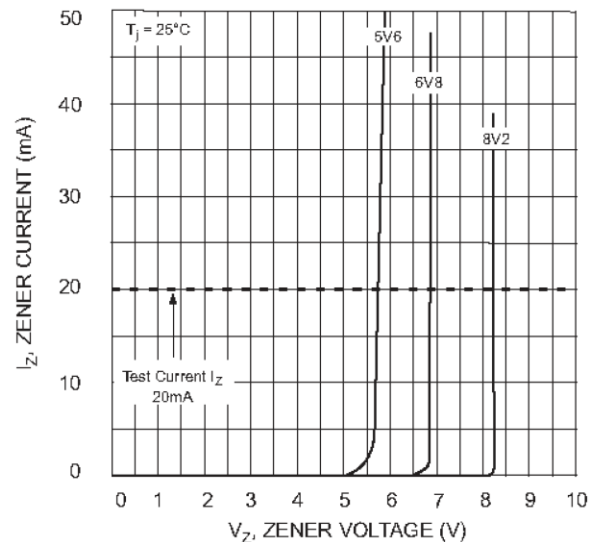


Fig. 4 Zener Breakdown Characteristics

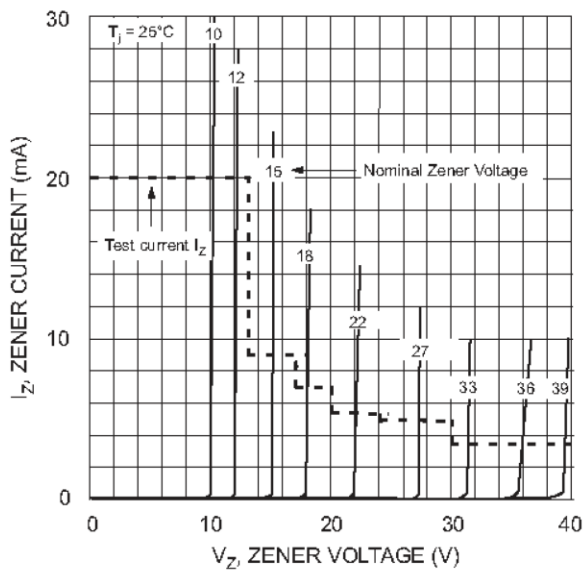
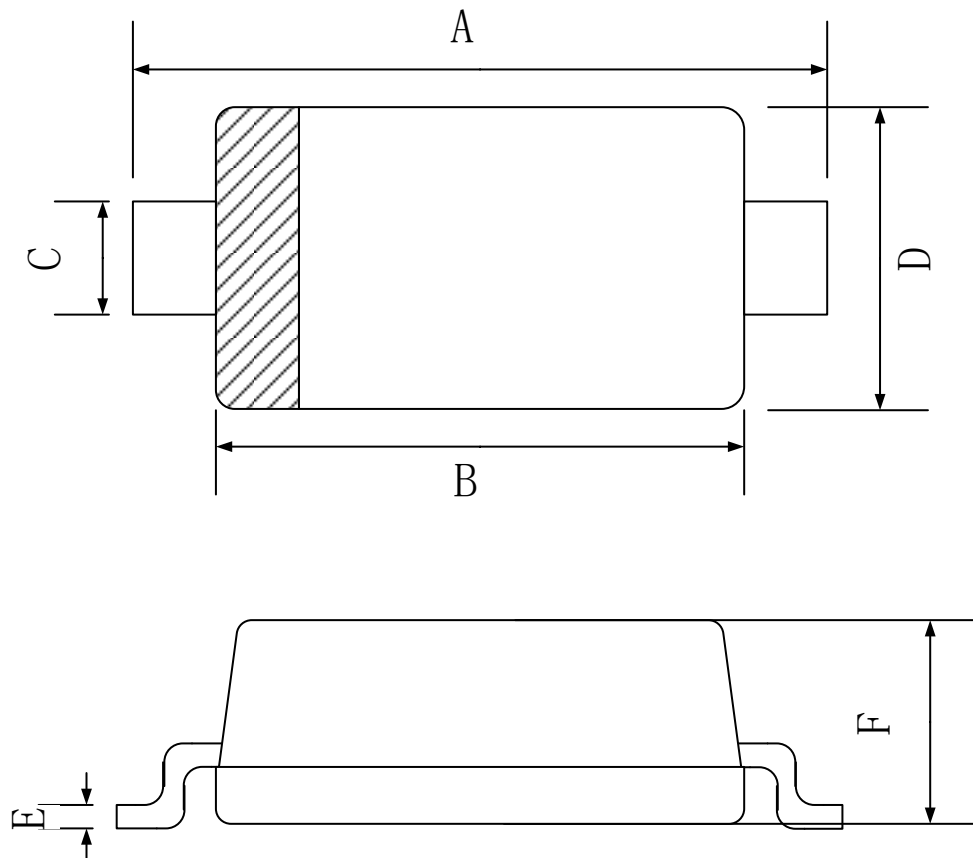


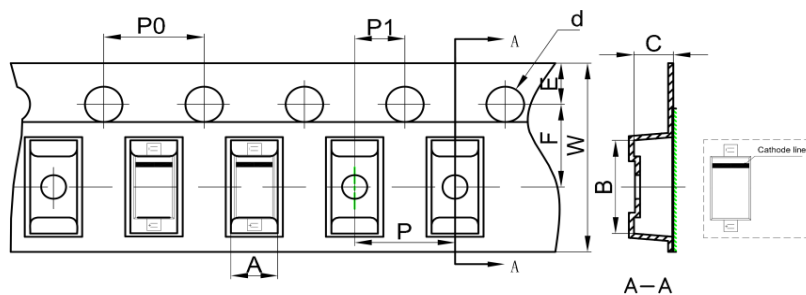
Fig. 5 Zener Breakdown Characteristics

**SOD-123 Package Outline Dimensions**


Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	3.45	3.65	3.85
B	2.55	2.65	2.75
C	0.45	0.55	0.65
D	1.50	1.60	1.70
E	0.09	0.105	0.12
F	0.95	1.15	1.35

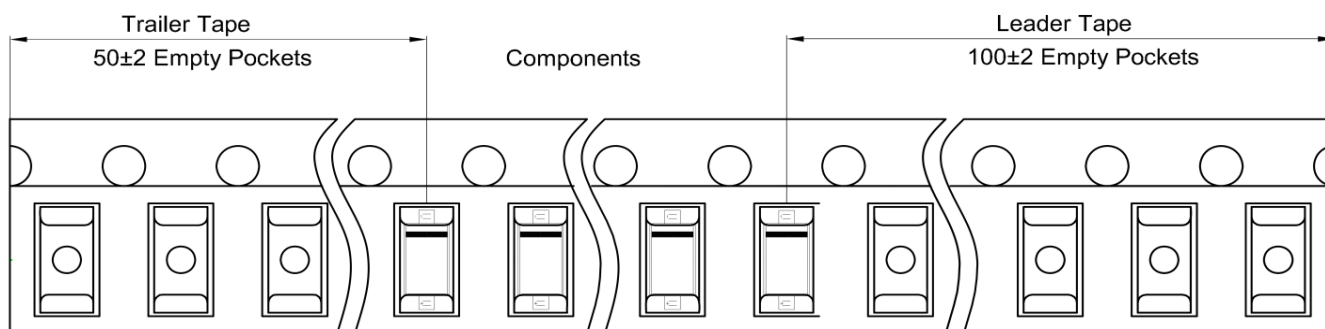
## SOD-123 Tape and Reel

### SOD-123 Embossed Carrier Tape

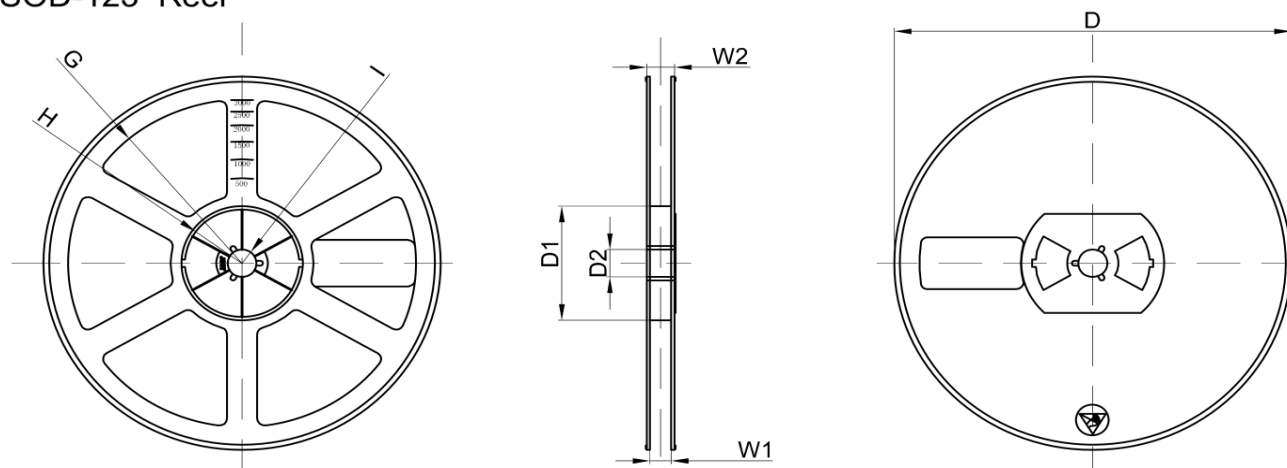


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOD-123	1.85	3.94	1.57	Ø1.55	1.75	3.50	4.00	4.00	2.00	8.00
(Tolerance)	+/-0.05	+/-0.05	+/-0.05	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+0.3/-0.1

### 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
Tolerance	+/-2	+/-1	+/-1	+/-1	+/-1	+/-1	+/-1	+/-1

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	