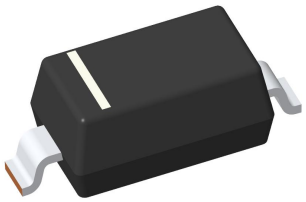
DACO®

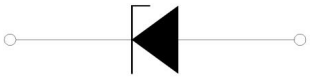
MM1ZXXC Series

SOD-123 Plastic-Encapsulate Zener Diode

Features

- SOD-123 Package
- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 3
- High temperature soldering guaranteed 260℃/10seconds at terminals





Application

- Linear voltage regulator
- DC regulator
- Small-signal surge protection

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MM1ZxxC Series	SOD-123	XX	3000

Absolute Maximum Ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbols	Value	Units
Power Dissipation.(Note 1)	Pd	500	mW
Forward Voltage @IF=10mA.(Note 2)	Vf	0.9	V
Thermal Resistance Junction to Ambient Air	RθJA	250	℃/W
Junction temperature	Tj	-65-+150	℃
Storage temperature range	Tstg	-65-+150	℃

1)Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm^2 .

2)Short duration test pulse used to minimize self-heating effect.

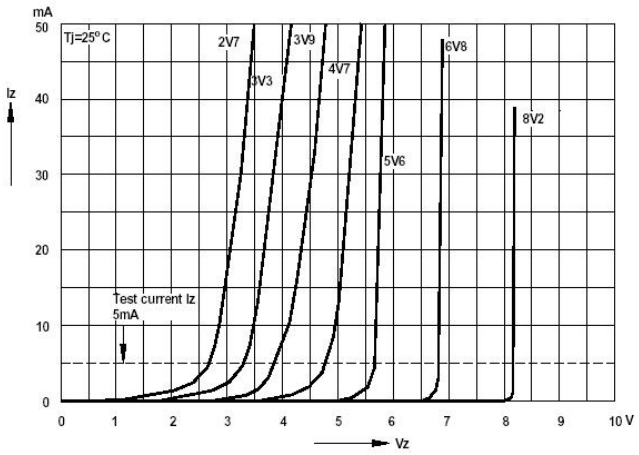
3)f=1KHz

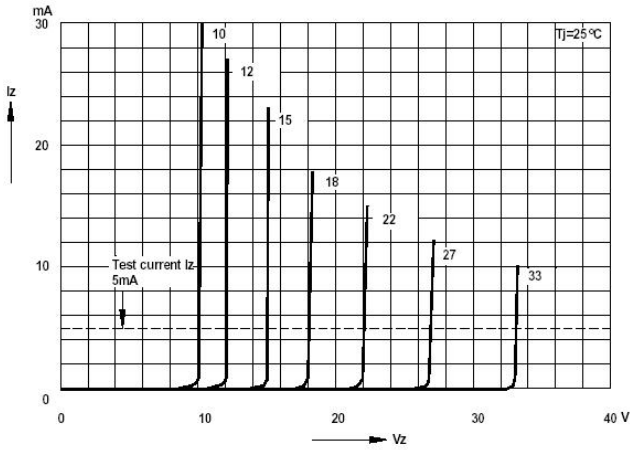
Electrical Characteristics (Ta=25℃,unless otherwise noted)

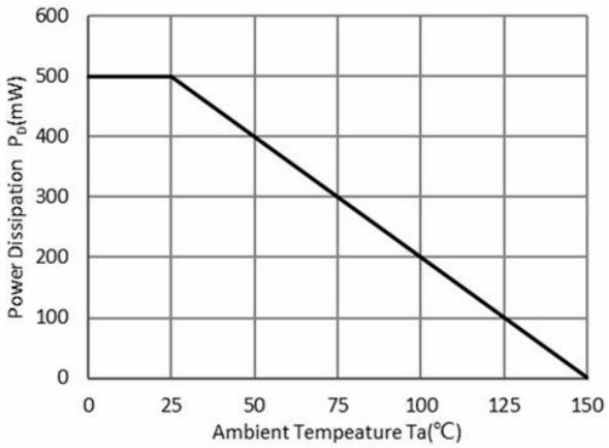
Device	Marking	Zener Voltage Range				Maximum Zenner Impedance			Maximum Reverse Current		Typical Temperature coefficient		Test Current
		V_Z@Izt			Izt	Z_{zt}@Izt	Z_{zk}@Izk	Izk	IR	VR	@I_{ZTC}=mV/℃		I_{ZTC}
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	uA	V	Min	Max	mA
MM1Z 2V0	WZ	2.0	1.8	2.2	5	100	600	1.0	120	0.5	-3.5	0	5
MM1Z 2V4	WX	2.4	2.2	2.6	5	100	600	1.0	50	1.0	-3.5	0	5
MM1Z 2V7	W1	2.7	2.5	2.9	5	100	600	1.0	20	1.0	-3.5	0	5
MM1Z 3V0	W2	3.0	2.8	3.2	5	95	600	1.0	10	1.0	-3.5	0	5
MM1Z 3V3	W3	3.3	3.1	3.5	5	95	600	1.0	5	1.0	-3.5	0	5
MM1Z 3V6	W4	3.6	3.4	3.8	5	90	600	1.0	5	1.0	-3.5	0	5
MM1Z 3V9	W5	3.9	3.7	4.1	5	90	600	1.0	3	1.0	-3.5	0	5
MM1Z 4V3	W6	4.3	4.0	4.6	5	90	600	1.0	3	1.0	-3.5	0	5
MM1Z 4V7	W7	4.7	4.4	5.0	5	80	500	1.0	3	2.0	-3.5	0.2	5
MM1Z 5V1	W8	5.1	4.8	5.4	5	60	480	1.0	2	2.0	-2.7	1.2	5
MM1Z 5V6	W9	5.6	5.2	6.0	5	40	400	1.0	1	2.0	-2.0	2.5	5
MM1Z 6V2	WA	6.2	5.8	6.6	5	10	150	1.0	3	4.0	0.4	3.7	5
MM1Z 6V8	WB	6.8	6.4	7.2	5	15	80	1.0	2	4.0	1.2	4.5	5
MM1Z 7V5	WC	7.5	7.0	7.9	5	15	80	1.0	1	5.0	2.5	5.3	5
MM1Z 8V2	WD	8.2	7.7	8.7	5	15	80	1.0	0.7	5.0	3.2	6.2	5
MM1Z 9V1	WE	9.1	8.5	9.6	5	15	100	1.0	0.5	6.0	3.8	7.0	5
MM1Z 10	WF	10	9.4	10.6	5	20	150	1.0	0.2	7.0	4.5	8.0	5
MM1Z 11	WG	11	10.4	11.6	5	20	150	1.0	0.1	8.0	5.4	9.0	5
MM1Z 12	WH	12	11.4	12.7	5	25	150	1.0	0.1	8.0	6.0	10.0	5
MM1Z 13	WI	13	12.4	14.1	5	30	170	1.0	0.1	8.0	7.0	11.0	5
MM1Z 15	WJ	15	13.8	15.6	5	30	200	1.0	0.1	10.5	9.2	13.0	5
MM1Z 16	WK	16	15.3	17.1	5	40	200	1.0	0.1	11.2	10.4	14.0	5
MM1Z 18	WL	18	16.8	19.1	5	45	225	1.0	0.1	12.6	12.4	16.0	5
MM1Z 20	WM	20	18.8	21.2	5	55	225	1.0	0.1	14.0	14.4	18.0	5
MM1Z 22	WN	22	20.8	23.3	5	55	250	1.0	0.1	15.4	16.4	20.0	5
MM1Z 24	WO	24	22.8	25.6	5	70	250	1.0	0.1	16.8	18.4	22.0	5
MM1Z 27	WP	27	25.1	28.9	2	80	300	0.5	0.1	18.9	21.4	25.3	2
MM1Z 30	WQ	30	28.0	32.0	2	80	300	0.5	0.1	21.0	24.4	29.4	2
MM1Z 33	WR	33	31.0	35.0	2	80	325	0.5	0.1	23.1	27.4	33.4	2
MM1Z 36	WS	36	34.0	38.0	2	90	350	0.5	0.1	25.2	30.4	37.4	2
MM1Z 39	WT	39	37.0	41.0	2	130	350	0.5	0.1	27.3	33.4	41.2	2

Device	Marking	Zener Voltage Range				Maximum Zenner Impedance			Maximum Reverse Current		Typical Temperature coefficient		Test Current
		Vz@Izt			Izt	Z_{zt}@Izt	Z_{zk}@Izk	Izk	IR	VR	@I_{ZTC}=mV/℃		I_{ZTC}
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	uA	V	Min	Max	mA
MM1Z 43	WU	43	40.0	46.0	2	100	700	1.0	0.1	32.0	10.0	12.0	2
MM1Z 47	WV	47	44.0	50.0	2	100	750	1.0	0.1	35.0	10.0	12.0	2
MM1Z 51	WW	51	48.0	54.0	2	125	700	1.0	0.1	36.0	10.0	12.0	2
MM1Z 56	XW	56	52.0	60.0	2	135	700	1.0	0.1	39.0	10.0	12.0	2

Typical Performance Characteristics

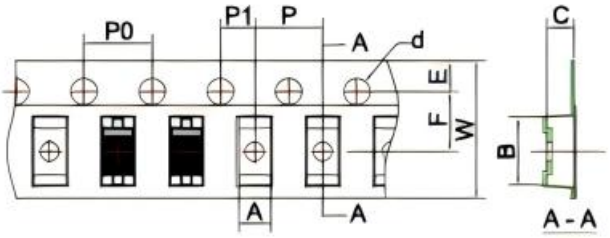




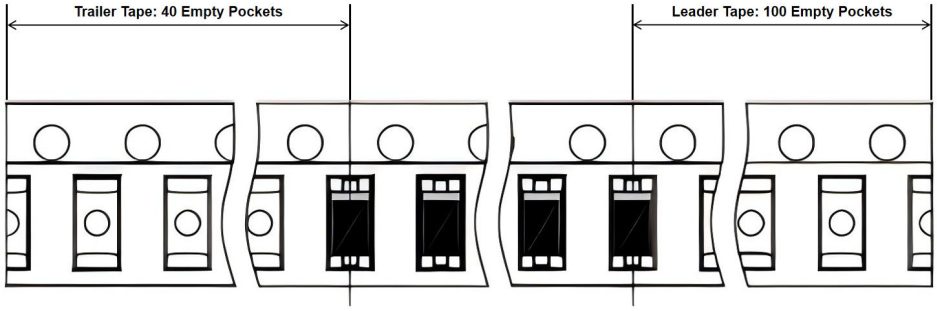


Package Information

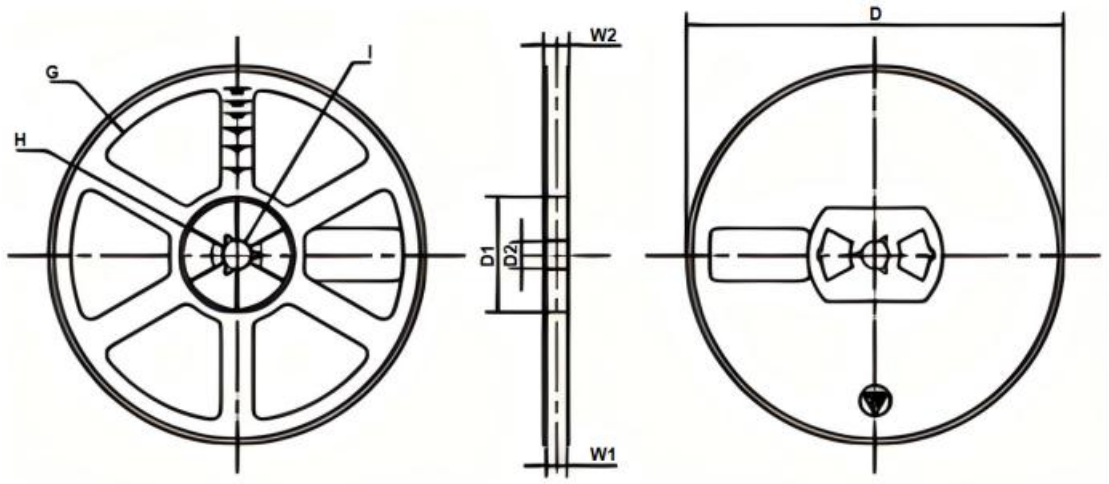
Carrier Dimension(mm)



Dimensions are in millimeter										
Pkg Type	A	B	C	d	E	F	P0	P	P1	W
SOD-123	1.85	3.94	1.57	1.55	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	+0.06/-0.1



Reel Dimension(mm)



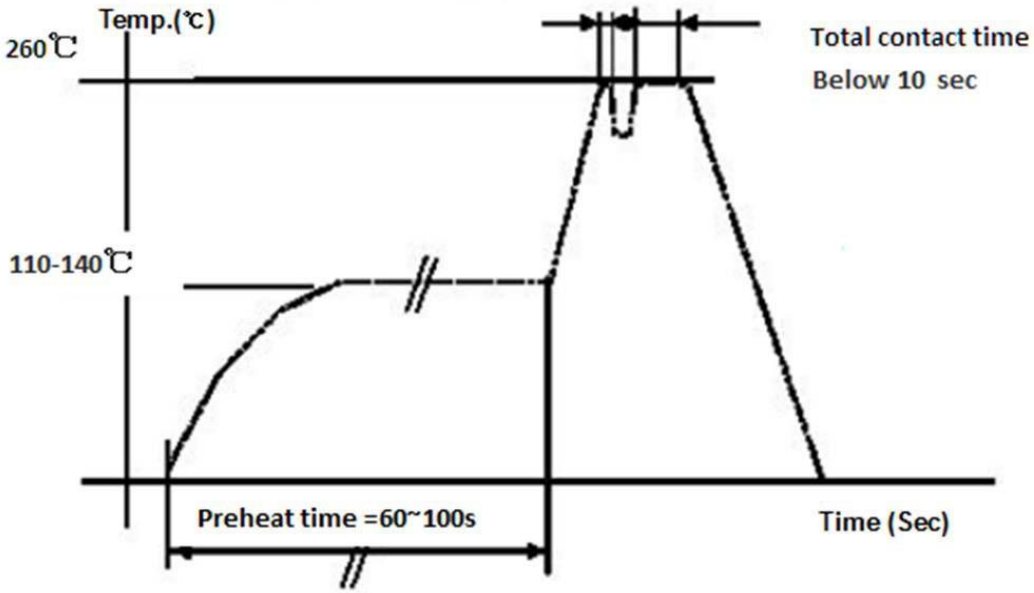
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Φ178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

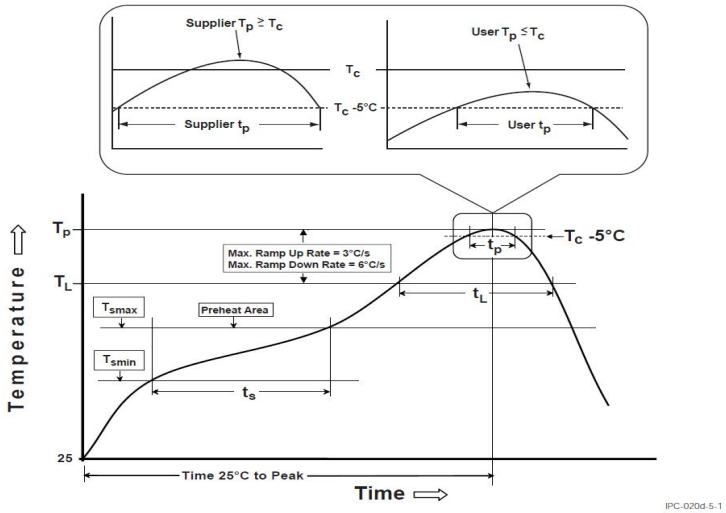
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOD123	7'	178	3	210*208*203	45	440*400*230	180

Recommended Soldering Profile for Rectifier Diodes (Pb Free)

a) Wave Soldering Profile



b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020

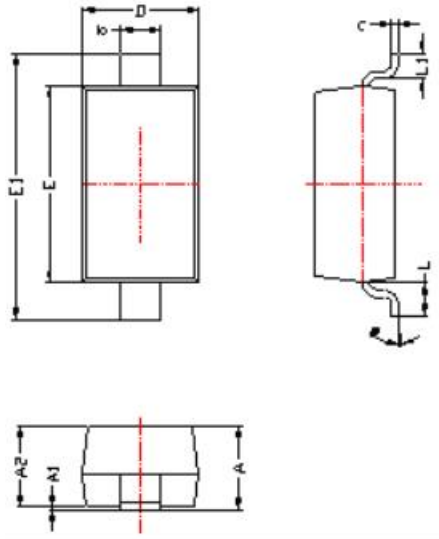


Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax)	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217℃
Ramp-up Rate to 217℃(Melting Point of Solder)	3℃/sec
Time at Temp.>217℃ (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5℃
Time within 5℃below Peak Temp.	20~40 Sec
Cooling Rate	6℃/sec (max)
Time from 25℃ to Peak Temp.	8min (max)

c) Manual Soldering

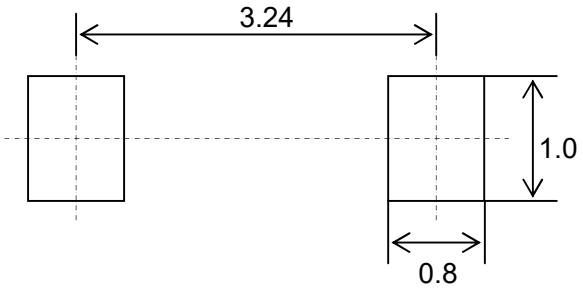
When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Package Mechanical Data



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.450	0.650
c	0.080	0.150
D	1.500	1.700
E	2.600	2.800
E1	3.550	3.850
L	0.500REF	
L1	0.250	0.450
θ	0°	8°

Suggested Pad Layout



Note:
1.Controlling dimension:In millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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