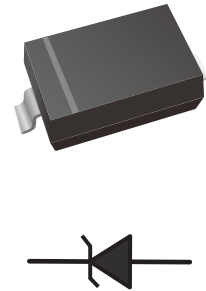


## Zener Diodes

### Features

- Low Zener Impedance
- Power Dissipation of 500mW
- High Stability and High Reliability
- Lead free in comply with EU RoHS 2011/65/EU directives



### Mechanical Data

- Case: SOD-123
- Package Polarity: Color band denotes cathode end
- Epoxy UL: 94V-0
- Mounting Position: Any

### Ordering Information

Part Number	Shipping	Reel
LT1ZxxWT-TR3	3000PCS Tape&Reel	7 inchs
LT1ZxxWT-TR12	12000PCS Tape&Reel	13 inchs

### Maximum Ratings and Electrical Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

Parameters	Symbol	Value	Unit
Power Dissipation	Pd	500 <sup>1)</sup>	mW
Forward Voltage @IF=10mA	Vf	0.9 <sup>2)</sup>	V
Storage and junction temperature range	Ts ,Tj	-55-+150	°C
Thermal Resistance Junction to Ambient air	RθJA	250	°C/W

Note : (1) Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>

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

(3) f=1KHz



## Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified)

Device	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature coefficient @ IZTC=mV/°C		Test Current IZTC
		Vz@Izt			Izt	Zzt @Izt	Zzk @Izk	Izk	IR	VR	Min	Max	
		Nom(V)	Min(V)	Max(V)	mA	Ω	mA	uA	V				
LT1Z3V0WT	W2	3.0	2.8	3.2	5	95	600	1.0	10	1.0	-3.5	0	5
LT1Z3V3WT	W3	3.3	3.1	3.5	5	95	600	1.0	5	1.0	-3.5	0	5
LT1Z3V6WT	W4	3.6	3.4	3.8	5	90	600	1.0	5	1.0	-3.5	0	5
LT1Z3V9WT	W5	3.9	3.7	4.1	5	90	600	1.0	3	1.0	-3.5	0	5
LT1Z4V3WT	W6	4.3	4.0	4.6	5	90	600	1.0	3	1.0	-3.5	0	5
LT1Z4V7WT	W7	4.7	4.4	5.0	5	80	500	1.0	3	2.0	-3.5	0.2	5
LT1Z5V1WT	W8	5.1	4.8	5.4	5	60	480	1.0	2	2.0	-2.7	1.2	5
LT1Z5V6WT	W9	5.6	5.2	6.0	5	40	400	1.0	1	2.0	-2.0	2.5	5
LT1Z6V2WT	WA	6.2	5.8	6.6	5	10	150	1.0	3	4.0	0.4	3.7	5
LT1Z6V8WT	WB	6.8	6.4	7.2	5	15	80	1.0	2	4.0	1.2	4.5	5
LT1Z7V5WT	4Y	7.5	7.0	7.9	5	15	80	1.0	1	5.0	2.5	5.3	5
LT1Z8V2WT	WD	8.2	7.7	8.7	5	15	80	1.0	0.7	5.0	3.2	6.2	5
LT1Z9V1WT	WE	9.1	8.5	9.6	5	15	100	1.0	0.5	6.0	3.8	7.0	5
LT1Z10WT	WF	10	9.4	10.6	5	20	150	1.0	0.2	7.0	4.5	8.0	5
LT1Z11WT	WG	11	10.4	11.6	5	20	150	1.0	0.1	8.0	5.4	9.0	5
LT1Z12WT	WH	12	11.4	12.7	5	25	150	1.0	0.1	8.0	6.0	10.0	5
LT1Z13WT	WI	13	12.4	14.1	5	30	170	1.0	0.1	8.0	7.0	11.0	5
LT1Z15WT	WJ	15	13.8	15.6	5	30	200	1.0	0.1	10.5	9.2	13.0	5
LT1Z16WT	5H	16	15.3	17.1	5	40	200	1.0	0.1	11.2	10.4	14.0	5
LT1Z18WT	WL	18	16.8	19.1	5	45	225	1.0	0.1	12.6	12.4	16.0	5
LT1Z20WT	WM	20	18.8	21.2	5	55	225	1.0	0.1	14.0	14.4	18.0	5
LT1Z22WT	WN	22	20.8	23.3	5	55	250	1.0	0.1	15.4	16.4	20.0	5
LT1Z24WT	WO	24	22.8	25.6	5	70	250	1.0	0.1	16.8	18.4	22.0	5
LT1Z27WT	WP	27	25.1	28.9	2	80	300	0.5	0.1	18.9	21.4	25.3	2
LT1Z30WT	WQ	30	28.0	32.0	2	80	300	0.5	0.1	21.0	24.4	29.4	2
LT1Z33WT	WR	33	31.0	35.0	2	80	325	0.5	0.1	23.1	27.4	33.4	2
LT1Z36WT	WS	36	34.0	38.0	2	90	350	0.5	0.1	25.2	30.4	37.4	2
LT1Z39WT	WT	39	37.0	41.0	2	130	350	0.5	0.1	27.3	33.4	41.2	2
LT1Z43WT	WU	43	40.0	46.0	2	100	700	1.0	0.1	32.0	10.0	12.0	5



Characteristics Curve

Fig.1 Zener Characteristics ( $V_z$  Up to 10 V)

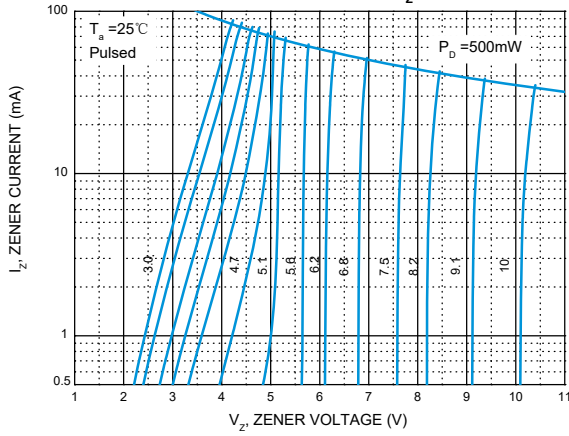


Fig.2 Zener Characteristics (11 V to 43 V)

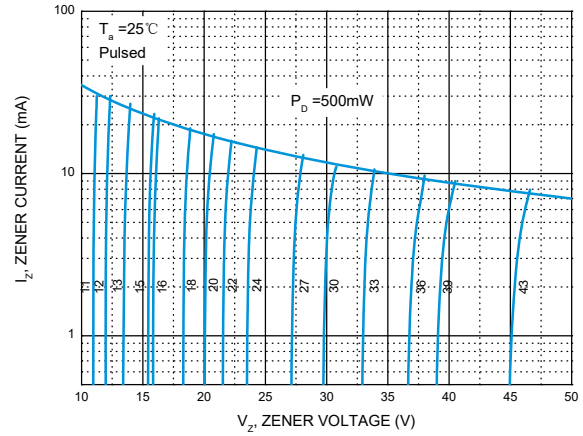


Fig.3 Temperature Coefficients

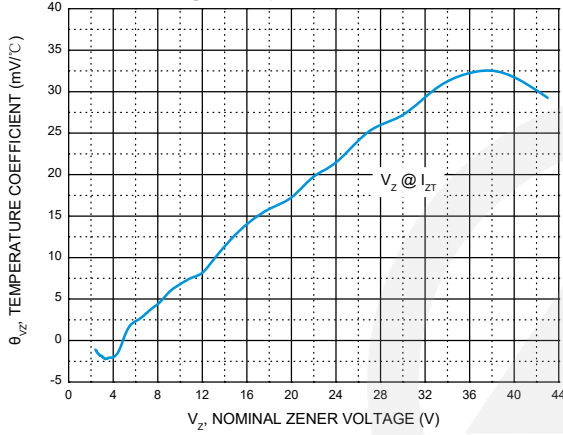


Fig.4 Typical Leakage Current

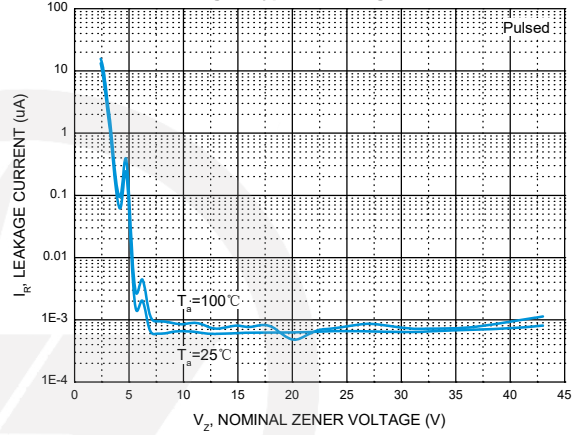


Fig.5 Typical Capacitance

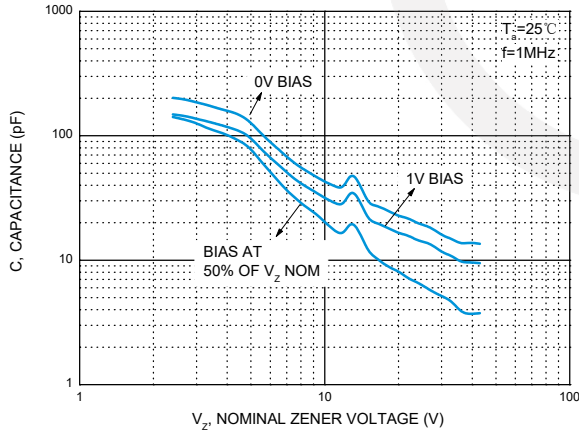


Fig.6 Effect of Zener Voltage on Zener Impedance

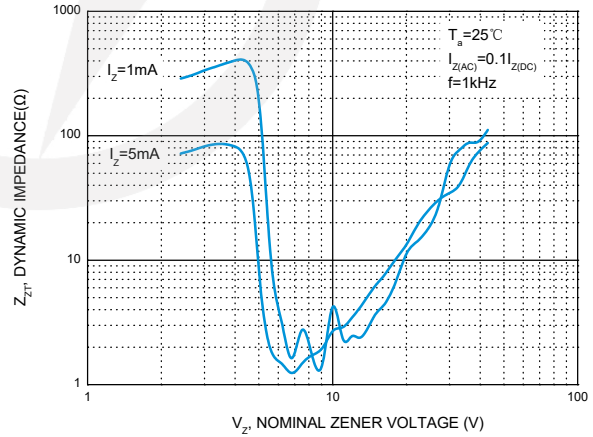
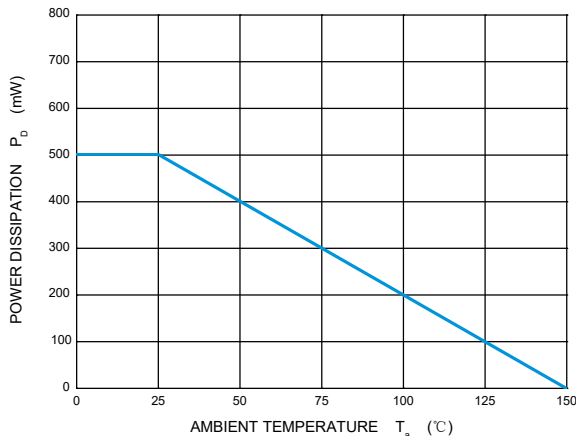
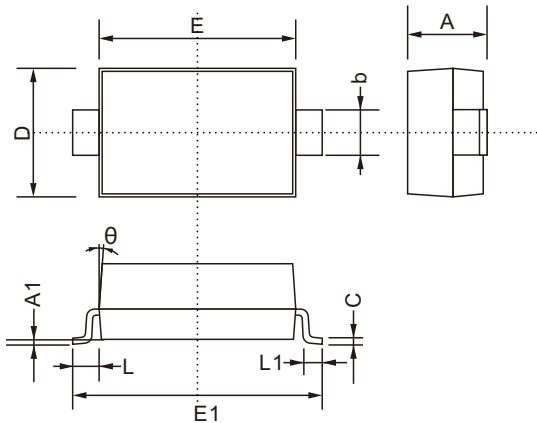


Fig.7 Power Derating Curve



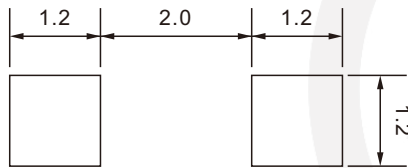
## SOD-123 Package Outline

Unit: mm



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.300
A1	0.000	0.200
b	0.450	0.750
C	0.080	0.230
D	1.500	1.800
E	2.500	2.800
E1	3.550	3.900
L1	0.250	0.450
L	0.5REF	
$\theta$	8°	

## SOD-123 Suggested Pad Layout

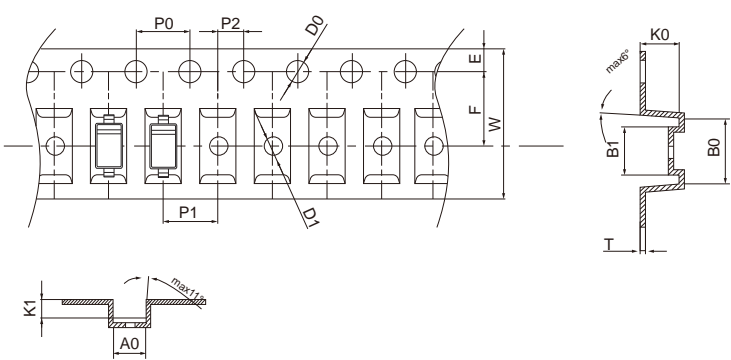


**Note:**

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

## Carrier Tape Dimensions

Unit : mm



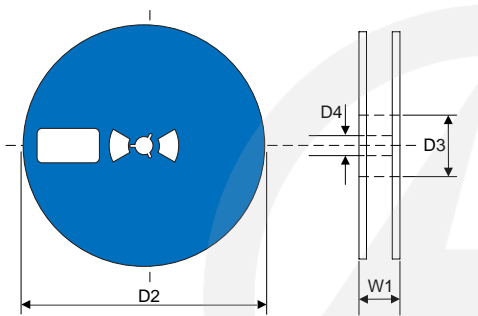
The diagram shows a top view and a cross-section of a carrier tape. The top view labels dimensions P0, P2, D0, E, F, W, P1, and D. The cross-section labels dimensions K0, B1, B0, T, and K1. A detail view shows a maximum thickness of 0.1mm.

Symbol	Spec	Symbol	Spec
A0	1.75±0.10	P2	2.00±0.05
B0	3.94±0.10	D0	1.55±0.05
B1	2.59±0.10	D1	1.00±0.10
K0	1.47±0.10	T	0.20±0.05
K1	1.30±0.05	E	1.75±0.10
P0	4.00±0.10	F	3.50±0.05
P1	4.00±0.10	W	8.00 <sup>+0.30</sup> <sub>-0.10</sub>

## Reel Dimensions

Unit : mm

7" Reel



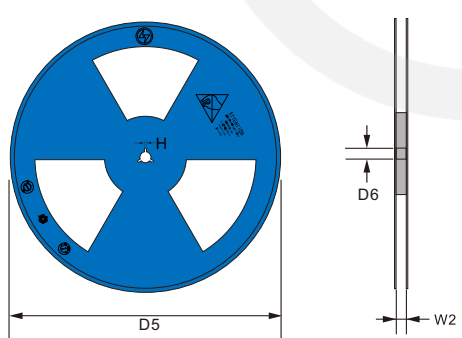
The diagram shows a top view and a side view of a 7-inch reel. The top view labels dimensions D2 and D4. The side view labels dimensions D3, D4, and W1.

D2	Φ178.0±2.0
D3	Φ50
D4	13.0±0.5
W1	12±0.5
Quantity: 3000PCS	

## Reel Dimensions

Unit : mm

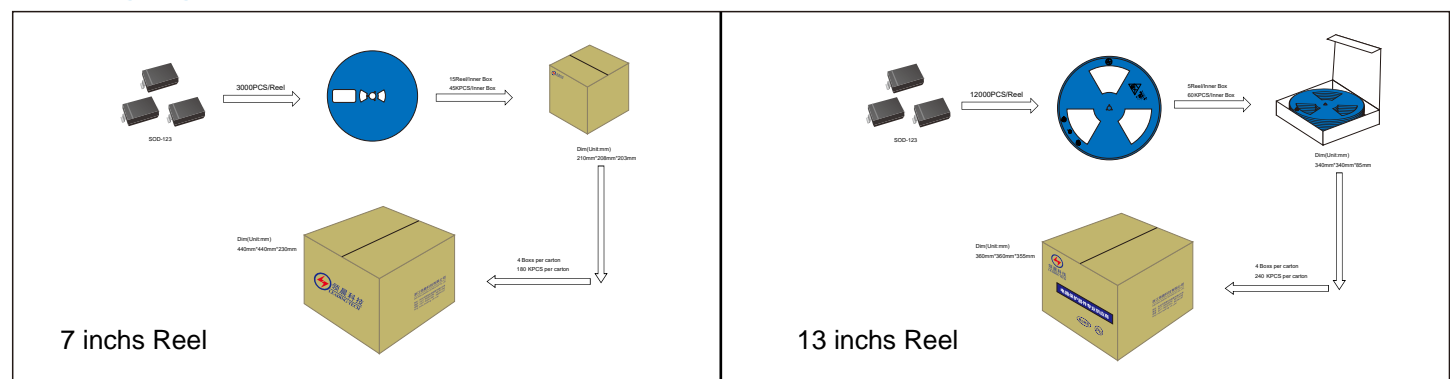
13" Reel



The diagram shows a top view and a side view of a 13-inch reel. The top view labels dimensions D5 and H. The side view labels dimensions D6 and W2.

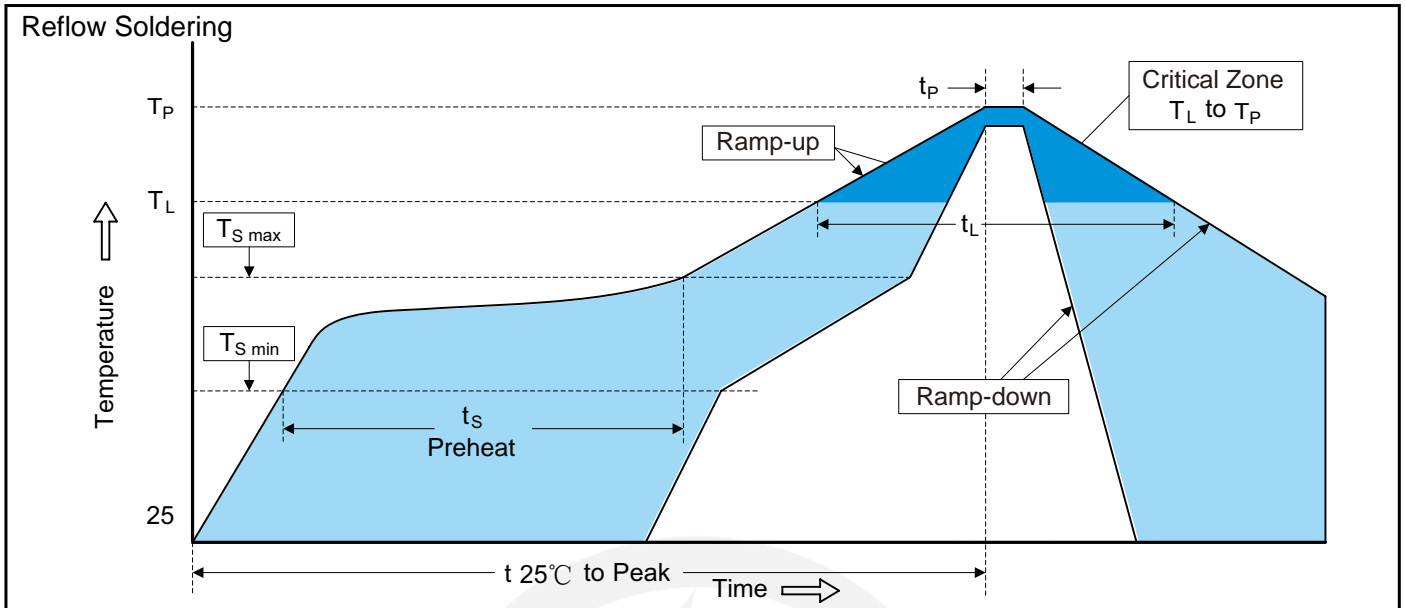
D5	Φ330.0±2.0
D6	Φ13.5±0.5
H	2.5±1.0
W2	12±2.0
Quantity: 12000PCS	

## Packaging





Recommended Soldering Conditions



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T <sub>L</sub> to T <sub>P</sub> )	3°C/second max.
Preheat	
-Temperature Min (T <sub>S min</sub> )	150°C
-Temperature Max (T <sub>S max</sub> )	200°C
-Time (min to max) (t <sub>s</sub> )	60-180 seconds
T <sub>S max</sub> to T <sub>L</sub>	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T <sub>L</sub> )	217°C
-Time (t <sub>L</sub> )	60-150 seconds
Peak Temperature (T <sub>P</sub> )	260°C
Time within 5°C of actual Peak Temperature (t <sub>p</sub> )	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

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## Version Update Information

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision content	Revision Reason	Revision Person	Note
01	2024.3.17	2024.3.17	3.0	New File	/	Ding	
02	2025.06.12	2025.06.12	3.1	Update packaging information	/	Ding	