

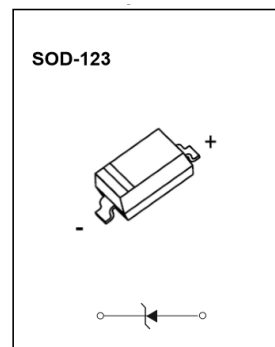
Planar Plastic Zener Diode

Version: A0 2020-09-22

Features

- Planar Die Construction
- 350mW Power Dissipation on Ceramic PCB
- General Purpose, Medium Current
- Ideally Suited for Automated Assembly Processes
- Available in Lead Free Version
- Tolerance approximately: $\pm 6\%$

Exterior



Application Information

- Cellular handsets
- Tablets
- Other portable devices

Package (top view)



Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003
	Mean lead free

Schematic(top view)



Maximum Ratings($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Characteristic	Symbol	VALUE	UNIT
Forward Voltage (Note 2) @ $I_F=10\text{mA}$	V_F	0.9	V
Power Dissipation(Note 1)	P_d	350	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature range	T_{stg}	-55~+150	$^{\circ}\text{C}$

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Part Number and Electrical Parameter

Part Number	Type Code	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Temperature Coefficient of Zener voltage @ IZT=5mA mV/° C		Test Current IZTC
		VZ@IZT			IZT	Z _{ZT} @IZT	Z _{ZK} @I _{ZK}	I _{ZK}	I _R	V _R	Min	Max	mA
		Nom(V)	Min(V)	Max(V)	(mA)	(Ω)		(mA)	(μA)	(V)			
BW-D1D2V4T1G-6	WX	2.4	2.20	2.60	5	100	600	1.0	50	1.0	-3.5	0	5
BW-D1D2V7T1G-6	W1	2.7	2.5	2.9	5	100	600	1.0	20	1.0	-3.5	0	5
BW-D1D3V0T1G-6	W2	3.0	2.8	3.2	5	95	600	1.0	10	1.0	-3.5	0	5
BW-D1D3V3T1G-6	W3	3.3	3.1	3.5	5	95	600	1.0	5	1.0	-3.5	0	5
BW-D1D3V6T1G-6	W4	3.6	3.4	3.8	5	90	600	1.0	5	1.0	-3.5	0	5
BW-D1D3V9T1G-6	W5	3.9	3.7	4.1	5	90	600	1.0	3	1.0	-3.5	0	5
BW-D1D4V3T1G-6	W6	4.3	4.0	4.6	5	90	600	1.0	3	1.0	-3.5	0	5
BW-D1D4V7T1G-6	W7	4.7	4.4	5.0	5	80	500	1.0	3	2.0	-3.5	0.2	5
BW-D1D5V1T1G-6	W8	5.1	4.8	5.4	5	60	480	1.0	2	2.0	-2.7	1.2	5
BW-D1D5V6T1G-6	W9	5.6	5.2	6.0	5	40	400	1.0	1	2.0	-2.0	2.5	5
BW-D1D6V2T1G-6	WA	6.2	5.8	6.6	5	10	150	1.0	3	4.0	0.4	3.7	5
BW-D1D6V8T1G-6	WB	6.8	6.4	7.2	5	15	80	1.0	2	4.0	1.2	4.5	5
BW-D1D7V5T1G-6	WC	7.5	7.0	7.9	5	15	80	1.0	1	5.0	2.5	5.3	5
BW-D1D8V2T1G-6	WD	8.2	7.7	8.7	5	15	80	1.0	0.7	5.0	3.2	6.2	5
BW-D1D9V1T1G-6	WE	9.1	8.5	9.6	5	15	100	1.0	0.5	6.0	3.8	7.0	5
BW-D1D10VT1G-6	WF	10	9.4	10.6	5	20	150	1.0	0.2	7.0	4.5	8.0	5
BW-D1D11VT1G-6	WG	11	10.4	11.6	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BW-D1D12VT1G-6	WH	12	11.4	12.7	5	25	150	1.0	0.1	8.0	6.0	10.0	5
BW-D1D13VT1G-6	WI	13	12.4	14.1	5	30	170	1.0	0.1	8.0	7.0	11.0	5
BW-D1D15VT1G-6	WJ	15	13.8	15.6	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BW-D1D16VT1G-6	WK	16	15.3	17.1	5	40	200	1.0	0.1	11.2	10.4	14.0	5
BW-D1D18VT1G-6	WL	18	16.8	19.1	5	45	225	1.0	0.1	12.6	12.4	16.0	5
BW-D1D20VT1G-6	WM	20	18.8	21.2	5	55	225	1.0	0.1	14.0	14.4	18.0	5
BW-D1D22VT1G-6	WN	22	20.8	23.3	5	55	250	1.0	0.1	15.4	16.4	20.0	5
BW-D1D24VT1G-6	WO	24	22.8	25.6	5	70	250	1.0	0.1	16.8	18.4	22.0	5
BW-D1D27VT1G-6	WP	27	25.1	28.9	2	80	300	0.5	0.1	18.9	21.4	25.3	2
BW-D1D30VT1G-6	WQ	30	28.0	32.0	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BW-D1D33VT1G-6	WR	33	31.0	35.0	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BW-D1D36VT1G-6	WS	36	34.0	38.0	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BW-D1D39VT1G-6	WT	39	37.0	41.0	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BW-D1D43VT1G-6	WU	43	40.0	46.0	2	100	700	1.0	0.1	32	10.0	12.0	5

Notes: 1. Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm²

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

3. f = 1kHz.

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Part Numbering System

Mark

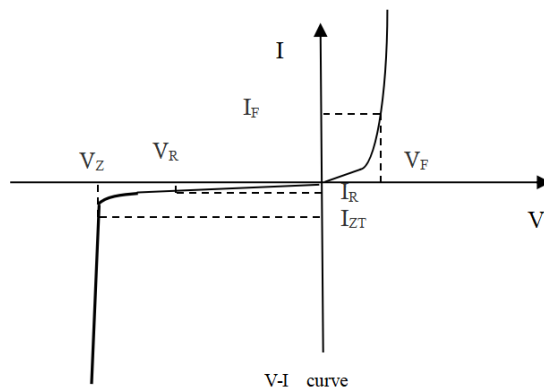
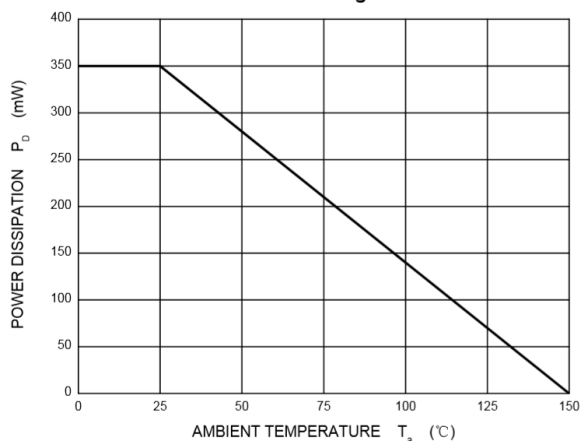
BW	D1	D	XXX	T1	G	6
(1)	(2)	(3)	(4)	(5)	(6)	(7)



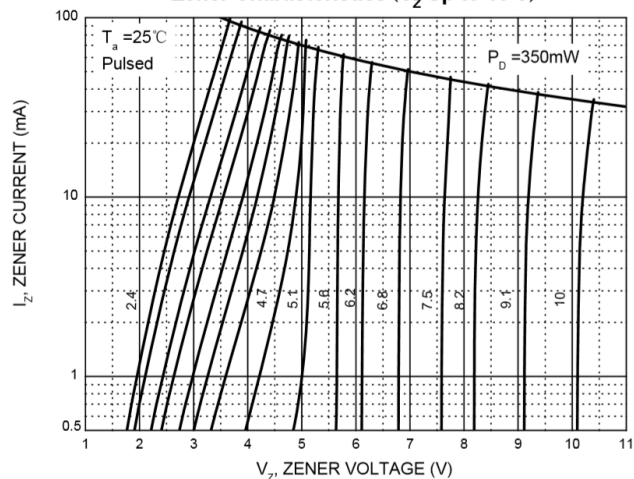
- (1) Bencent Zener Diode
- (2) Package: SOD-123
- (3) Power Dissipation: 350mW
- (4) Work Voltage: 2.4V-43V
- (5) Package type: Taping, 3K/R
- (6) Green
- (7) Tolerance of accuracy: $\pm 6\%$

Typical Characteristics

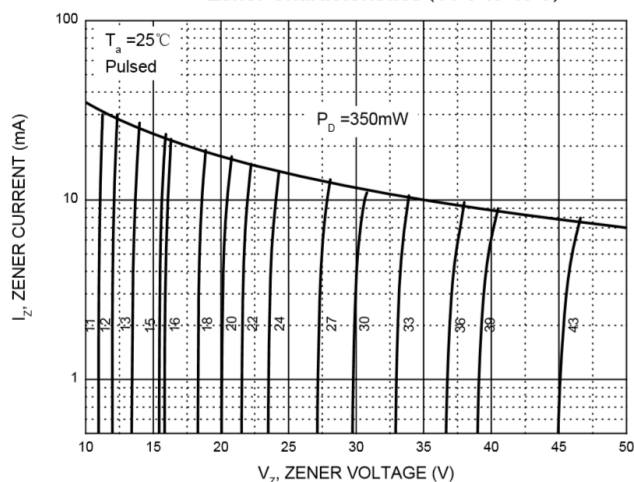
Power Derating Curve



Zener Characteristics (V_Z Up to 10 V)

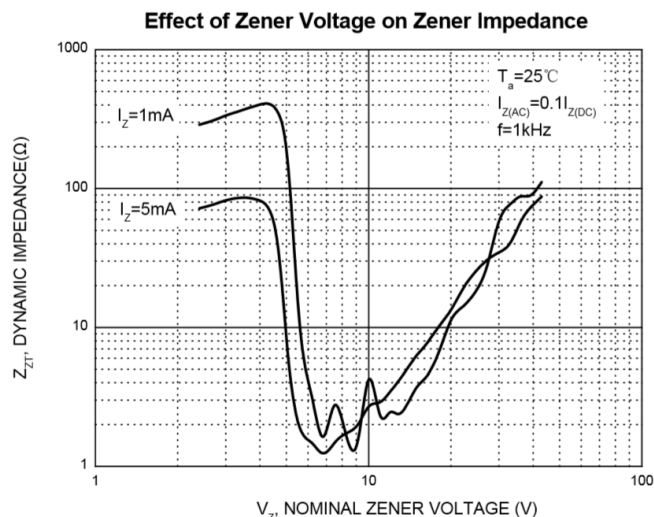
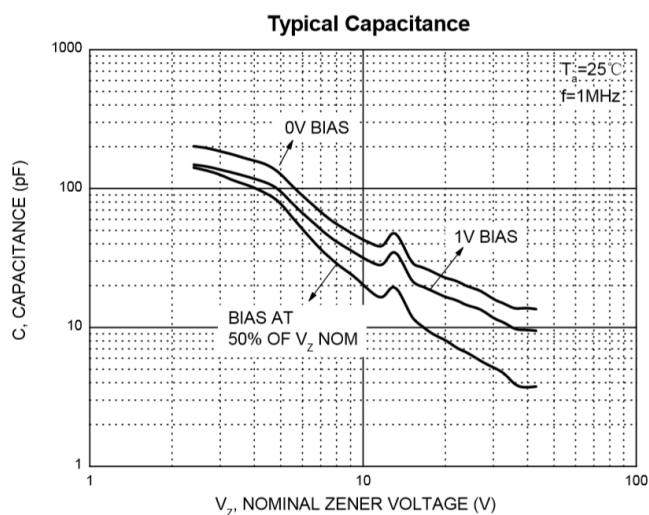
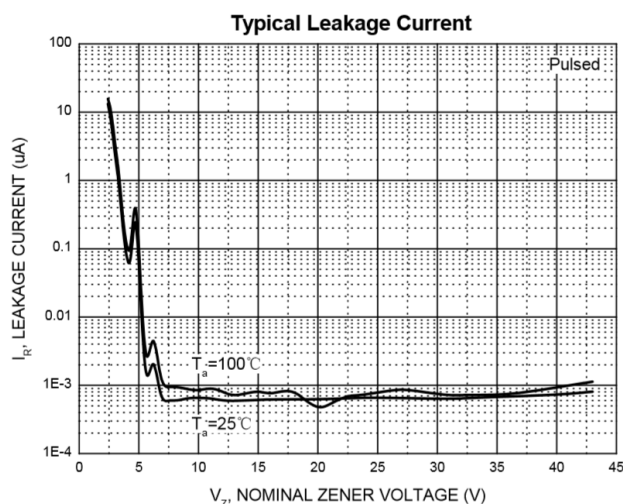
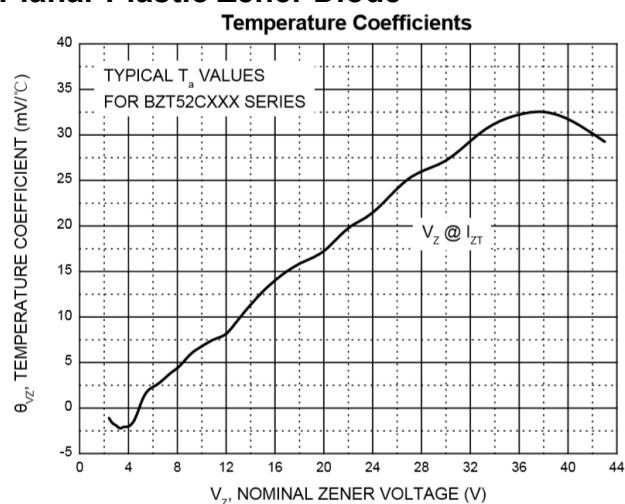


Zener Characteristics (11 V to 43 V)

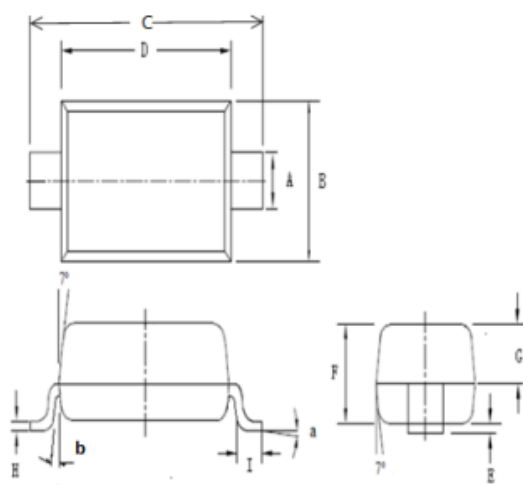


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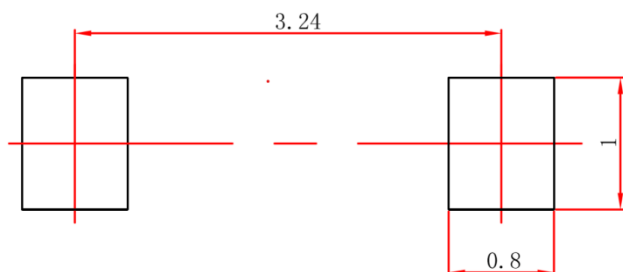
Product Dimensions



SOD123

REF	mm	inch
A	0.45~0.65	0.018~0.026
B	1.40~1.70	0.055~0.067
C	3.55~3.85	0.140~0.152
D	2.55~2.85	0.100~0.112
E	0.00~0.10	0.000~0.004
F	1.20max	0.047max
G	0.60~0.70	0.024~0.028
H	0.075~0.125	0.003~0.005
I	0.25~0.45	0.010~0.018
a	0°~6°	
b	0.4°~0.8°	

SOD-123 Suggested Pad Layout

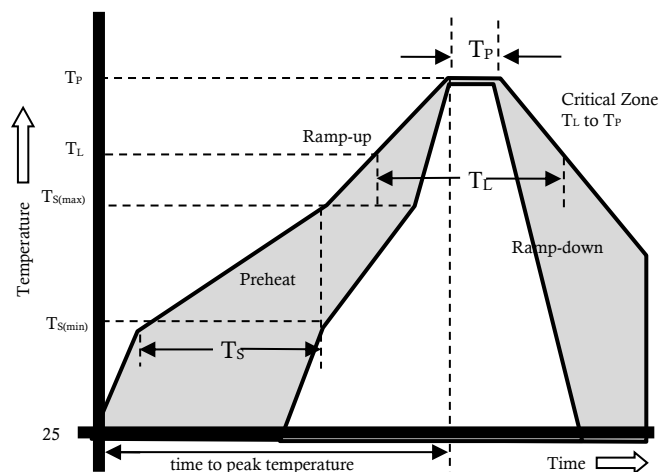


Notes:

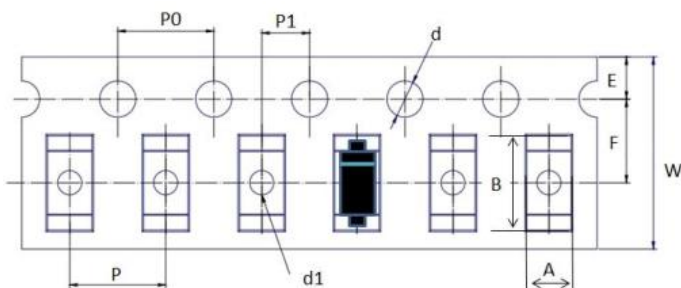
1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purpose only.

Reflow Profile

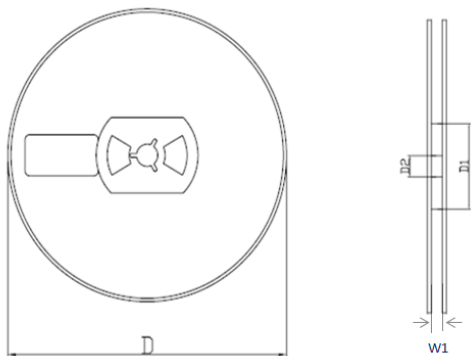
Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time (min to max)	60 – 180 secs
Average ramp up rate (Liquid T _{amp} (T _L) to peak		3°C/s max
T _S (max) to T _L - Ramp-up Rate		3°C/s max
Reflow	- Temperature (T _L) (Liquid)	217°C
	- Temperature (T _L)	60 – 150 secs
Peak Temperature (T _P)		260 $\pm$ 0/-5 °C
Time within 5°C of actual peak Temperature (T _P)		30secs
Ramp-down Rate		6°C/s max
Time 25°C to peak Temperature (T _P)		8 mins max.
Do not exceed		260°C



Package Reel Information



REF	mm	inch
A	1.90 $\pm$ 0.20	0.075 $\pm$ 0.008
B	4.10 $\pm$ 0.20	0.161 $\pm$ 0.008
d	1.50 $\pm$ 0.1/-0	0.059 $\pm$ 0.004/-0
d1	1.10 $\pm$ 0.10	0.043 $\pm$ 0.004
D	178.00 $\pm$ 2.00	7.008 $\pm$ 0.079
D1	55.00 $\pm$ 3.00	2.165 $\pm$ 0.118
D2	13.00 $\pm$ 0.50	0.512 $\pm$ 0.020



E	1.75+/-0.10	0.069+/-0.004
F	3.50+/-0.20	0.138+/-0.008
P	4.00+/-0.20	0.157+/-0.008
P0	4.00+/-0.20	0.157+/-0.008
P1	2.00+/-0.20	0.079+/-0.008
W	8.00+/-0.20	0.315+/-0.008
W1	9.50+/-1.00	0.374+/-0.039

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	3,000	90,000	178	390	370	220