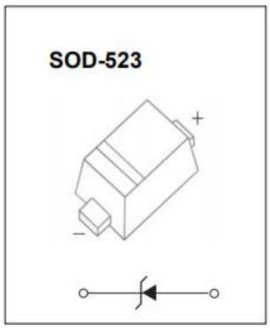
Planar Plastic Zener Diode

Version: A1 2024-07-29

Features

- 150mW Power Dissipation
- Zener Voltages From 2.4 V to 43V
- Tolerance approximately: ±6%
- SOD-523 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- General Purpose, Medium Current
- Epoxy UL: 94V-0

Exterior



Application Information

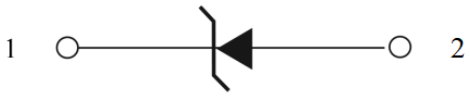
- Cellular handsets
- Tablets
- Other portable devices

Package (top view)

Agency Approvals

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

Schematic



Maximum Ratings(Ta=25℃ unless otherwise specified)

Parameters	Symbol	Value	Unit
Forward Voltage @IF=10mA	VF	0.9	V
Power Dissipation(Note1)	Pd	150	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	˚C/W
Junction temperature、Storage temperature range	Tj,Tstg	-55 to +150	℃

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Part Number and Electrical Parameter (Ta=25℃ unless otherwise specified)

Part Number	Type Code	Zener Voltage(Note2)				Zener Impedance(Note 3)			Maximum Reverse Current	
		VZ@IZT			IZT	ZZT@IZT	ZZK@IZK	I ZK	I R	VR
		Nom(V)	Min(V)	Max(V)	(mA)	(Ω)		(mA)	(μ A)	(V)
BW-D5Z2V4T1G-6	Z11	2.4	2.20	2.60	5	100	600	1.0	50	1.0
BW-D5Z2V7T1G-6	Z12	2.7	2.5	2.9	5	100	600	1.0	20	1.0
BW-D5Z3V0T1G-6	Z13	3.0	2.8	3.2	5	95	600	1.0	10	1.0
BW-D5Z3V3T1G-6	Z14	3.3	3.1	3.5	5	95	600	1.0	5	1.0
BW-D5Z3V6T1G-6	Z15	3.6	3.4	3.8	5	90	600	1.0	5	1.0
BW-D5Z3V9T1G-6	Z16	3.9	3.7	4.1	5	90	600	1.0	3	1.0
BW-D5Z4V3T1G-6	Z17	4.3	4.0	4.6	5	90	600	1.0	3	1.0
BW-D5Z4V7T1G-6	Z1	4.7	4.4	5.0	5	80	500	1.0	3	2.0
BW-D5Z5V1T1G-6	Z2	5.1	4.8	5.4	5	60	480	1.0	2	2.0
BW-D5Z5V6T1G-6	Z3	5.6	5.2	6.0	5	40	400	1.0	1	2.0
BW-D5Z6V2T1G-6	Z4	6.2	5.8	6.6	5	10	150	1.0	3	4.0
BW-D5Z6V8T1G-6	Z5	6.8	6.4	7.2	5	15	80	1.0	2	4.0
BW-D5Z7V5T1G-6	Z6	7.5	7.0	7.9	5	15	80	1.0	1	5.0
BW-D5Z8V2T1G-6	Z7	8.2	7.7	8.7	5	15	80	1.0	0.7	5.0
BW-D5Z9V1T1G-6	Z8	9.1	8.5	9.6	5	15	100	1.0	0.5	6.0
BW-D5Z10VT1G-6	Z9	10	9.4	10.6	5	20	150	1.0	0.2	7.0
BW-D5Z11VT1G-6	Y1	11	10.4	11.6	5	20	150	1.0	0.1	8.0
BW-D5Z12VT1G-6	Y2	12	11.4	12.7	5	25	150	1.0	0.1	8.0
BW-D5Z13VT1G-6	Y3	13	12.4	14.1	5	30	170	1.0	0.1	8.0
BW-D5Z15VT1G-6	Y4	15	13.8	15.6	5	30	200	1.0	0.1	10.5
BW-D5Z16VT1G-6	Y5	16	15.3	17.1	5	40	200	1.0	0.1	11.2
BW-D5Z18VT1G-6	Y6	18	16.8	19.1	5	45	225	1.0	0.1	12.6
BW-D5Z20VT1G-6	Y7	20	18.8	21.2	5	55	225	1.0	0.1	14.0
BW-D5Z22VT1G-6	Y8	22	20.8	23.3	5	55	250	1.0	0.1	15.4
BW-D5Z24VT1G-6	Y9	24	22.8	25.6	5	70	250	1.0	0.1	16.8
BW-D5Z27VT1G-6	Y10	27	25.1	28.9	2	80	300	0.5	0.1	18.9
BW-D5Z30VT1G-6	Y11	30	28.0	32.0	2	80	300	0.5	0.1	21.0
BW-D5Z33VT1G-6	Y12	33	31.0	35.0	2	80	325	0.5	0.1	23.1
BW-D5Z36VT1G-6	Y13	36	34.0	38.0	2	90	350	0.5	0.1	25.2
BW-D5Z39VT1G-6	Y14	39	37.0	41.0	2	130	350	0.5	0.1	27.3
BW-D5Z43VT1G-6	Y15	43	40.0	46.0	2	100	700	1	0.1	32

Notes:

1. **Valid provided that device terminals are kept at ambient temperature.**
2. **Tested with pulses, period=5ms,pulse width =300μs.**
3. **f=1kHz.**

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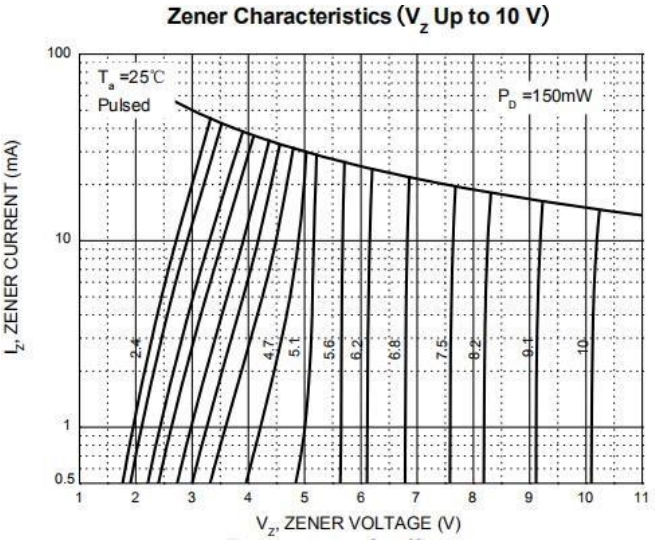
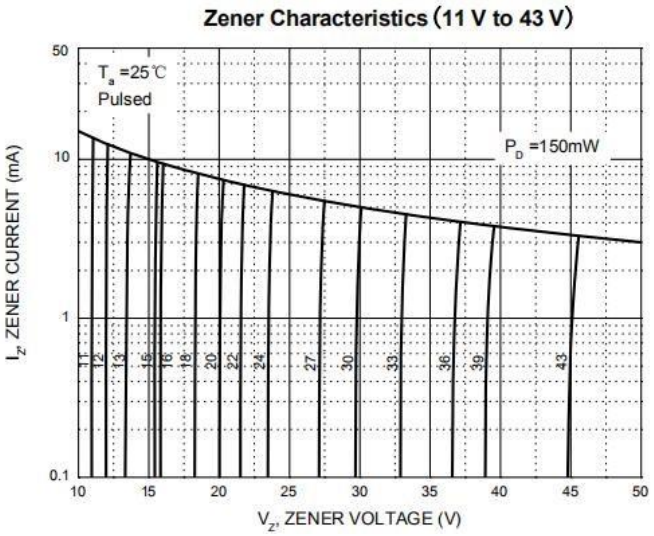
Part Numbering System

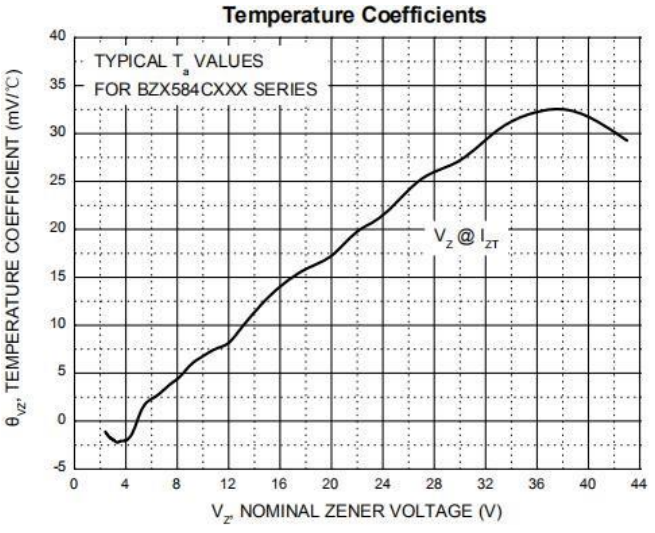
BW	D5	Z	XXX	T1	G	6
(1)	(2)	(3)	(4)	(5)	(6)	(7)

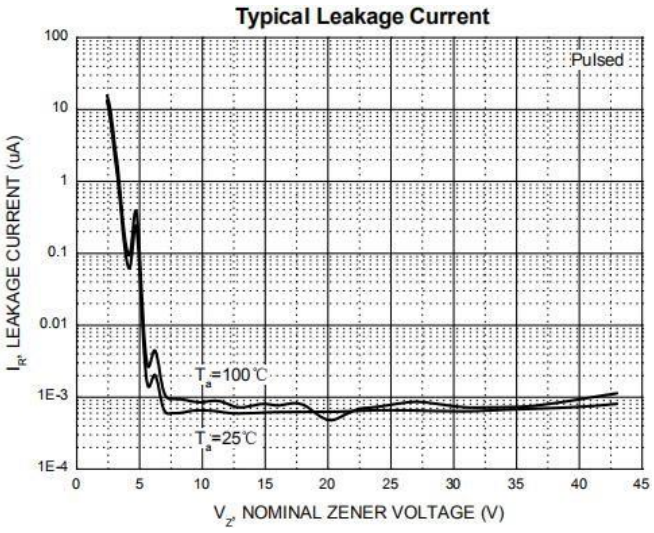
(1) Bencent Zener Diode
(2) Package: SOD-523
(3) Power Dissipation: 150mW
(4) Work Voltage: 2.4V-43V
(5) Package type: Taping, 3K/R
(6) Green
(7)Tolerance of accuracy: ±6%

Typical Characteristics









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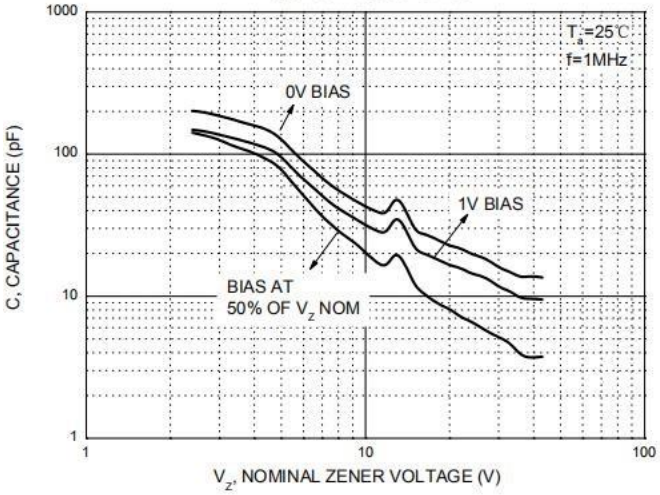
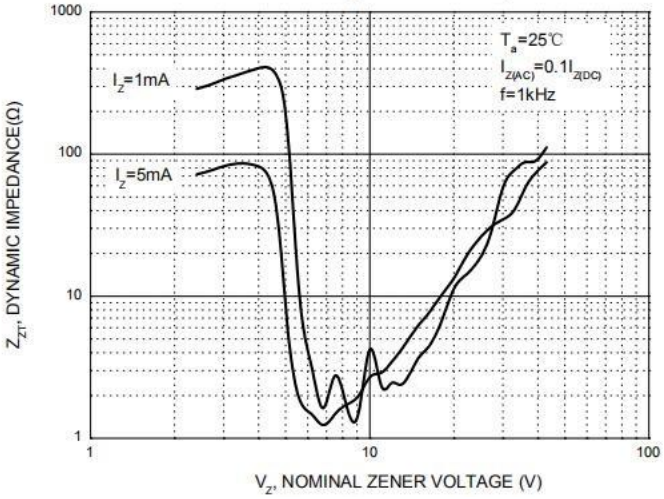
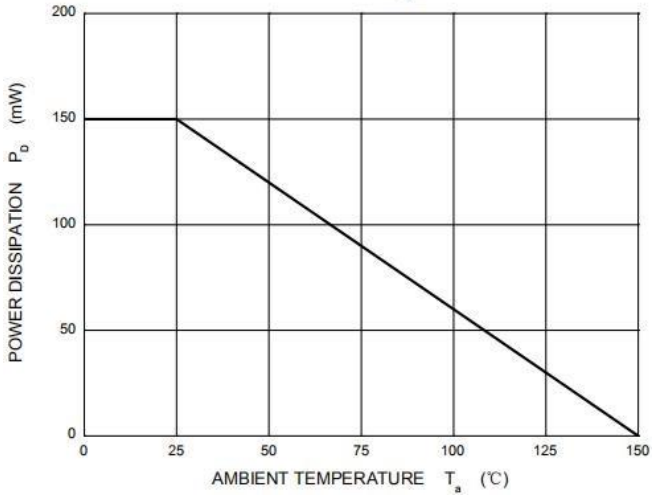
Typical Capacitance



Effect of Zener Voltage on Zener Impedance



Power Derating Curve



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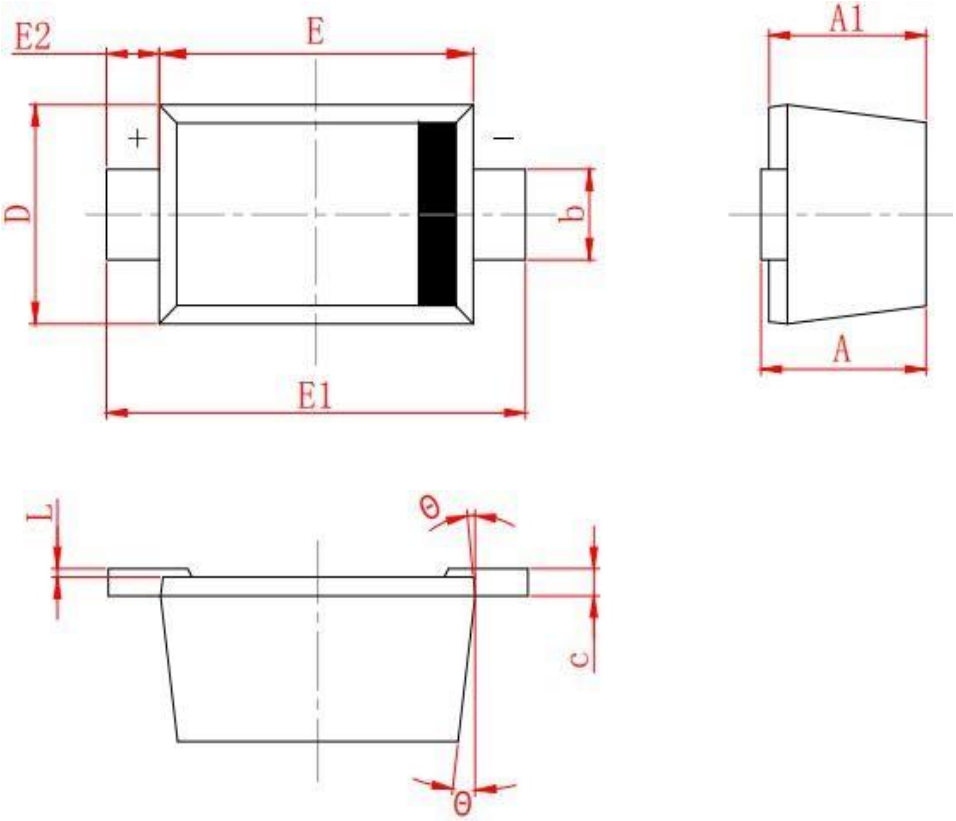
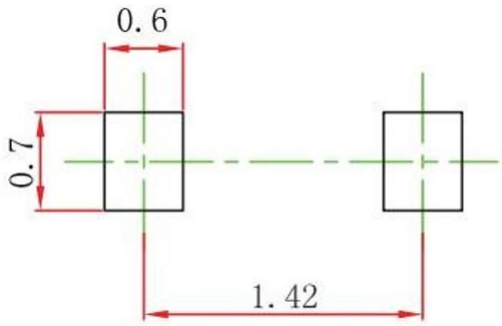
Product Dimensions



SYMBOL	MILLIMETER	
	MIN	MAX
A	0.530	0.730
A1	0.500	0.700
b	0.280	0.380
c	0.080	0.150
D	0.750	0.850
E	1.100	1.300
E1	1.500	1.700
E2	0.200 REF	
L	0.010	0.070
θ	7° REF	

SOD-523 Suggested Pad Layout



Notes:

1.Controlling dimension:in millimeters.

2.General tolerance:±0.05mm.

3.The pad layout is for reference purpose only.

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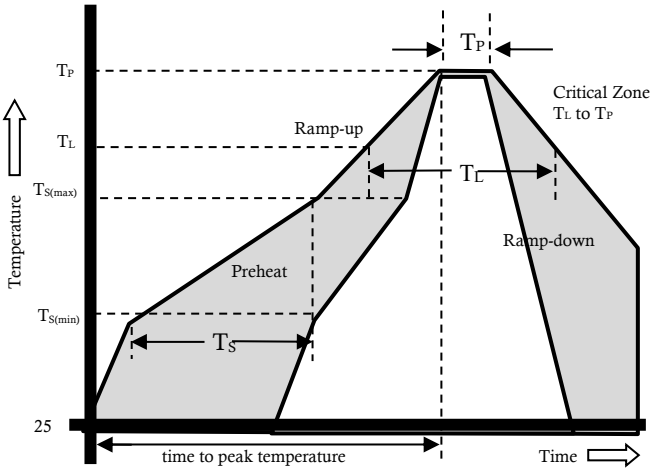
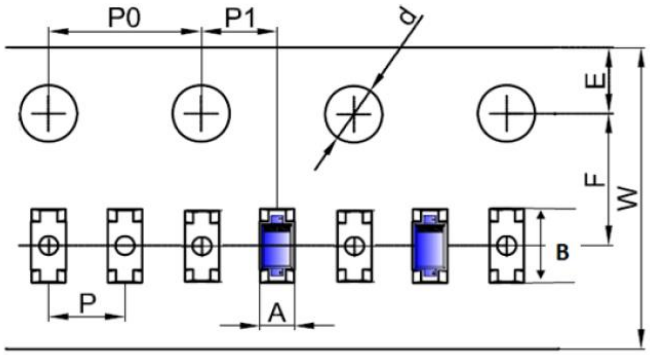
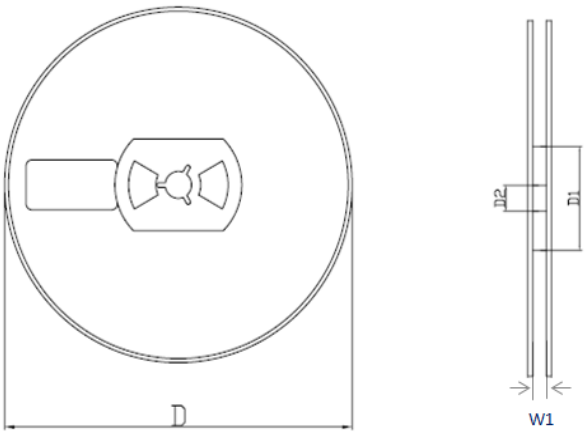
Reflow Profile

Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time （Min toMax）	60 – 180 secs
Average ramp up rate（Liquid） Tamp（T_L） to peal		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+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	0.95+/-0.10	0.037+/-0.004
B	1.95+/-0.10	0.077+/-0.004
d	1.50+0.1/-0	0.059+0.004/-0
D	178.00+/-2.00	7.008+/-0.079
D1	55.00+/-3.00	2.165+/-0.118
D2	13.00+/-0.50	0.512+/-0.020
E	1.75+/-0.10	0.069+/-0.004
F	3.50+/-0.20	0.138+/-0.008
P	2.00+/-0.20	0.079+/-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	8.60+/-1.00	0.339+/-0.039

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	3,000	90,000	178	380	220	205