

**BZT52C2V4 THRU BZT52C75**  
PLASTIC-ENCAPSULATE ZENER DIODE



**VOLTAGE** 2.4~75 Volts      **POWER** 500 mW

**SOD-123**      **Marking and Polarity**

**FEATURES**

- Low Zener Impedance
- Power Dissipation of 500mW
- High Stability and High Reliability
- Zener Voltage Tolerance: ± 5%(C Series)

**MECHANICAL DATA**

**Package:** SOD-123  
**Epoxy UL:** 94V-0  
**Mounting position:** Any  
**Weight:** approx. 0.01g

Remark:

- ①. xx=Module code,xx=WX~X5
- ②. White band denotes cathode

**Maximum Ratings & Thermal Characteristics** (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbol	Value	Unit
Power Dissipation (Note1)	P <sub>D</sub>	500	mW
Maximum instantaneous forward voltage@IF=10mA (Note2)	V <sub>F</sub>	1.0	V
Operating Temperature Range	T <sub>OPR</sub>	-55~+150	°C
Storage temperature range	T <sub>STG</sub>	-55~+150	°C
Thermal Resistance, Junction to Ambient Air	R <sub>θJA</sub>	400 (Note1)	°C/W

- Notes: 1. Device mounted on ceramic PCB; 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>  
2. Pulse width < 10 ms

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Electrical Characteristic (Rating at 25°C ambient temperature unless otherwise specified).

Device	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current	
		V <sub>z</sub> @I <sub>zt</sub>			I <sub>zt</sub>	Z <sub>zt</sub> @I <sub>zt</sub>	Z <sub>zk</sub> @I <sub>zk</sub>	I <sub>zk</sub>	IR	VR
		Min(V)	Nom(V)	Max(V)	mA	Ω		mA	uA	V
BZT52C2V4	WX	2.28	2.4	2.52	5	100	600	1.0	50	1.0
BZT52C2V7	W1	2.57	2.7	2.84	5	100	600	1.0	20	1.0
BZT52C3V0	W2	2.85	3.0	3.15	5	95	600	1.0	10	1.0
BZT52C3V3	W3	3.14	3.3	3.47	5	95	600	1.0	5	1.0
BZT52C3V6	W4	3.42	3.6	3.78	5	90	600	1.0	5	1.0
BZT52C3V9	W5	3.71	3.9	4.10	5	90	600	1.0	3	1.0
BZT52C4V3	W6	4.09	4.3	4.52	5	90	600	1.0	3	1.0
BZT52C4V7	W7	4.47	4.7	4.94	5	80	500	1.0	3	2.0
BZT52C5V1	W8	4.85	5.1	5.36	5	60	480	1.0	2	2.0
BZT52C5V6	W9	5.32	5.6	5.88	5	40	400	1.0	1	2.0
BZT52C6V2	WA	5.89	6.2	6.51	5	10	150	1.0	3	4.0
BZT52C6V8	WB	6.46	6.8	7.14	5	15	80	1.0	2	4.0
BZT52C7V5	WC	7.13	7.5	7.88	5	15	80	1.0	1	5.0
BZT52C8V2	WD	7.79	8.2	8.61	5	15	80	1.0	0.7	5.0
BZT52C9V1	WE	8.65	9.1	9.56	5	15	100	1.0	0.5	6.0
BZT52C10	WF	9.50	10.0	10.50	5	20	150	1.0	0.2	7.0
BZT52C11	WG	10.45	11.0	11.55	5	20	150	1.0	0.1	8.0
BZT52C12	WH	11.40	12.0	12.60	5	25	150	1.0	0.1	8.0
BZT52C13	WI	12.35	13.0	13.65	5	30	170	1.0	0.1	8.0
BZT52C15	WJ	14.25	15.0	15.75	5	30	200	1.0	0.1	10.5
BZT52C16	WK	15.20	16.0	16.80	5	40	200	1.0	0.1	11.2
BZT52C18	WL	17.10	18.0	18.90	5	45	225	1.0	0.1	12.6
BZT52C20	WM	19.00	20.0	21.00	5	55	225	1.0	0.1	14.0
BZT52C22	WN	20.90	22.0	23.10	5	55	250	1.0	0.1	15.4
BZT52C24	WO	22.80	24.0	25.20	5	70	250	1.0	0.1	16.8
BZT52C27	WP	25.65	27.0	28.35	2	80	300	0.5	0.1	18.9
BZT52C30	WQ	28.50	30.0	31.50	2	80	300	0.5	0.1	21.0
BZT52C33	WR	31.35	33.0	34.65	2	80	325	0.5	0.1	23.1
BZT52C36	WS	34.20	36.0	37.80	2	90	350	0.5	0.1	25.2
BZT52C39	WT	37.05	39.0	40.95	2	130	350	0.5	0.1	27.3
BZT52C43	WU	40.85	43.0	45.15	2	130	350	0.5	0.1	29.4
BZT52C47	WV	44.65	47.0	49.35	2	170	1000	0.25	0.1	36.0
BZT52C51	X1	48.45	51.0	53.55	2	180	1300	0.25	0.1	39.0
BZT52C56	X2	53.20	56.0	58.80	2	200	1400	0.25	0.1	43.0
BZT52C62	X3	58.90	62.0	65.10	2	225	1400	0.25	0.1	47.0
BZT52C68	X4	64.60	68.0	71.40	2	240	1600	0.25	0.1	52.0
BZT52C75	X5	71.25	75.0	78.75	2	265	1700	0.25	0.1	56.0

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**RATING AND CHARACTERISTIC CURVES**

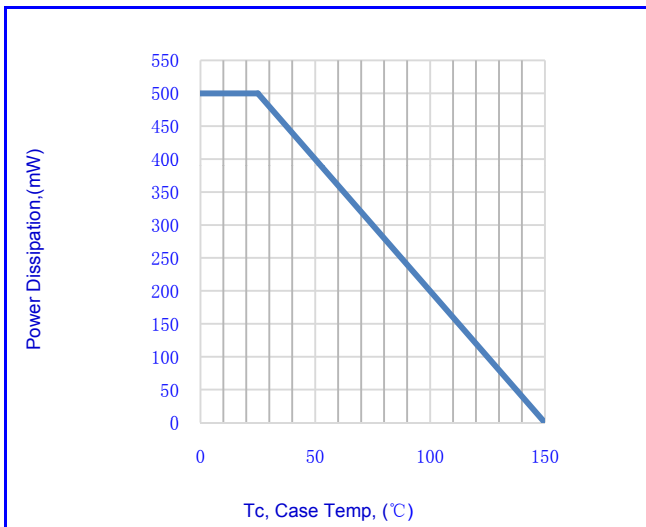


Fig.1-POWER DISSIPATION VS. AMBIENT TEMP.

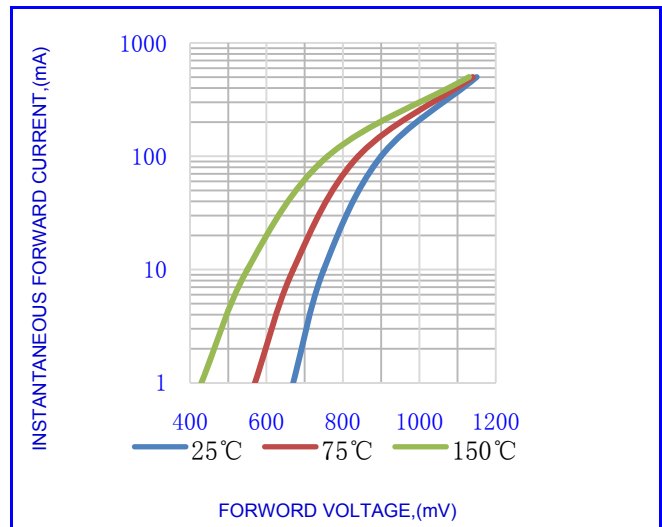


Fig.2- Forward characteristics

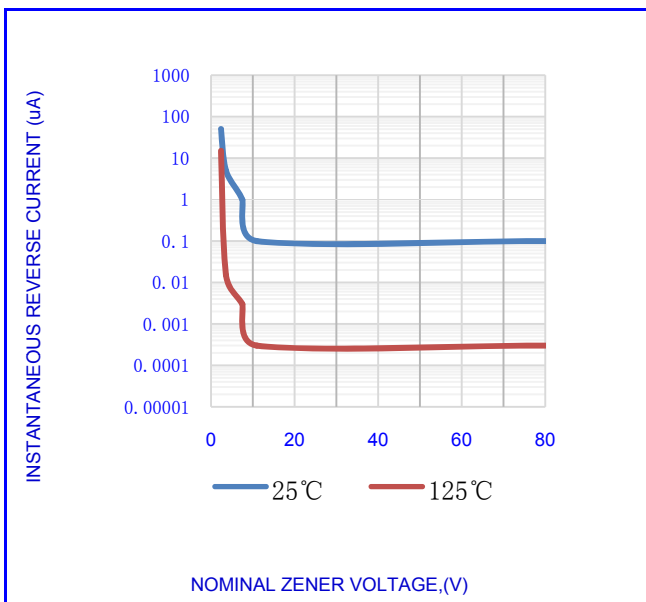


Fig.3- TYPICAL REVERSE CHARACTERISTICS

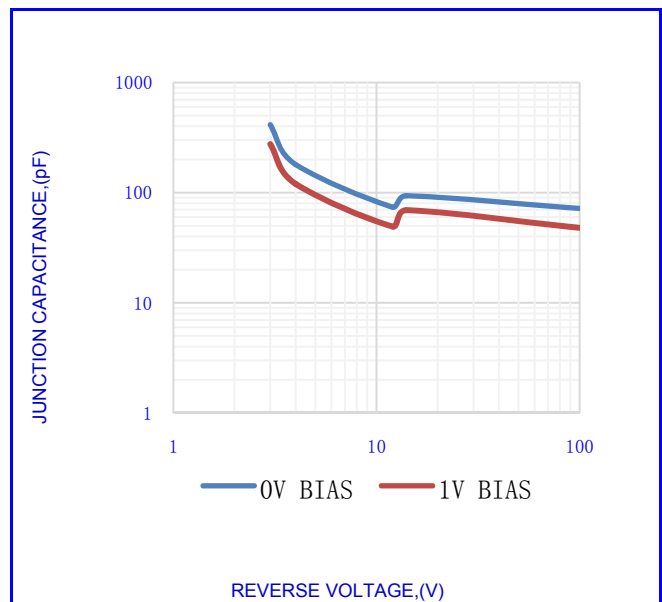


Fig.4- TYPICAL JUNCTION CAPACITANCE

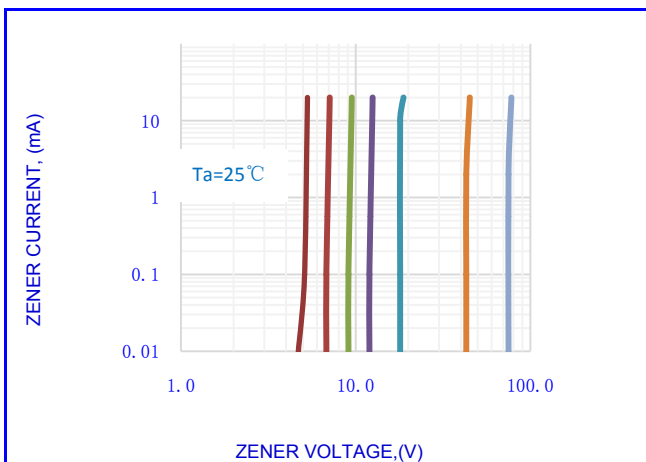


Fig.5-ZENER BREAKDOWN CHARACTERISTICS

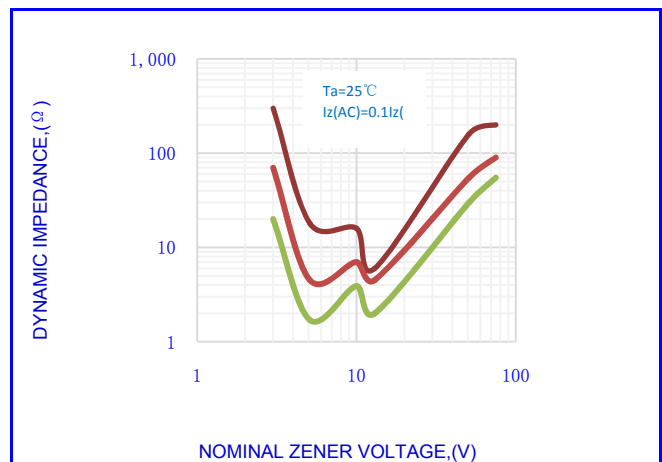
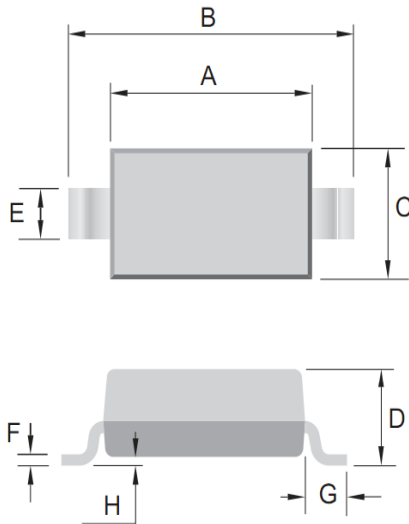


Fig.6-EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

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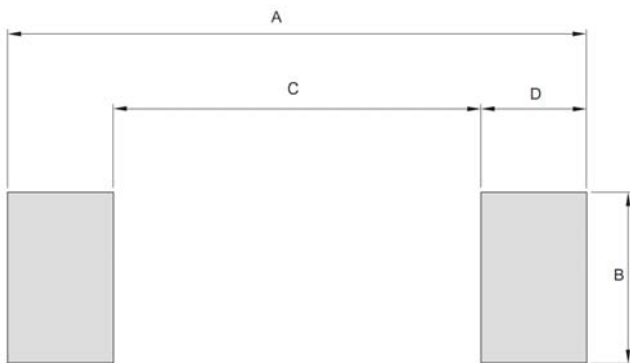
**OUTLINE DRAWINGS**



**SOD-123**

OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.500	-	2.800	0.098	-	0.110
B	3.600	-	3.900	0.142	-	0.154
C	1.400	-	1.800	0.055	-	0.071
D	0.950	-	1.350	0.037	-	0.053
E	0.500	-	0.700	0.020	-	0.028
F	-	-	0.200	-	-	0.008
G	0.400	-	-	0.016	-	-
H	-	-	0.120	-	-	0.005

**MOUNTING PAD LAYOUT**



**SOD-123**

OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	--	4.250	--	--	0.167	--
B	--	1.220	--	--	0.048	--
C	--	2.700	--	--	0.106	--
D	--	0.780	--	--	0.031	--

**Packing Information**

Package	Pack	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size L×W×H(mm)	Carton Size L×W×H(mm)	Quantity (Inner Box/carton)
SOD-123	T/R	Φ180	3000	210×208×203	440×440×230	4

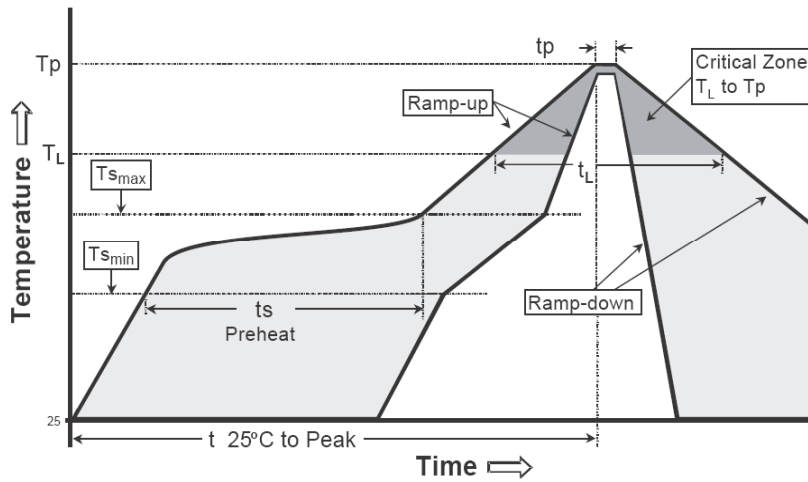
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**Recommended wave soldering condition**

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

**Recommended temperature profile for IR reflow**



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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