

## SOD-123 Plastic-Encapsulate Diodes

**BZT52B2V0-BZT52B75 ZENER DIODE**

**SOD-123**



### FEATURES

- Total power dissipation: Max. 500mW
- Wide zener reverse voltage range 2.0V to 75V.
- Small plastic package suitable for surface mounted design.
- Tolerance approximately  $\pm 2\%$

### Mechanical Data

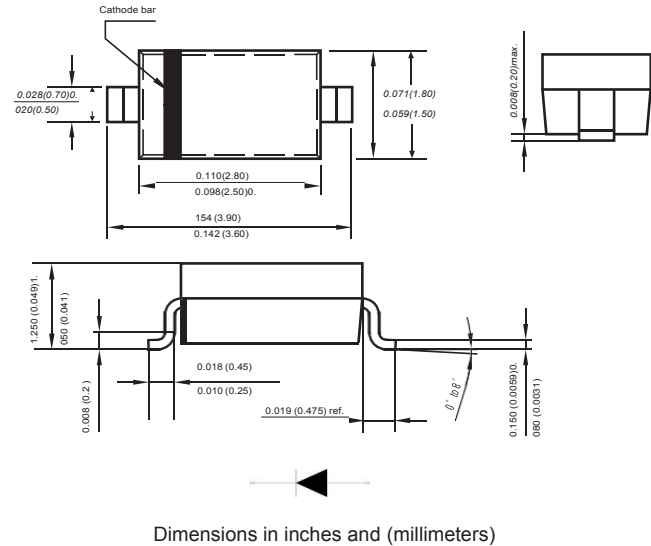
**Case** : SOD-123

**Terminals** : Solderable per MIL-STD-750, Method 2026

**Polarity** : Polarity symbol marking on body

**Mounting Position** : Any

**Weight** : 0.00056 ounce, 0.016 grams



### 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)	$P_d$	500	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	340	$^\circ\text{C/W}$
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

Notes: 1. Thermal resistance from junction to ambient at P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper areas pads.

2.. Short duration test pulse used to minimize self-heating effect 3

..f = 1kHz

Type	Marking	Zener Voltage Range <sup>(1)</sup>			I <sub>ZT</sub> (mA)	Dynamic Impedance Z <sub>ZT</sub> ( at I <sub>ZT</sub> ) Max (Ω)	Reverse Current	
		V <sub>ZT</sub> ( at I <sub>ZT</sub> )					I <sub>R</sub> Max ( μA )	at V <sub>R</sub> ( V ) 0
		Min ( V )	Nom ( V )	Max ( V )				
BZT52B2V0	2WY	1.962.	2	2.042.	5	100	120	.5
BZT52B2V2	2WZ	162.	2.22	242.	5	100	120	0.7
BZT52B2V4	2WX	352.	.42.	452.	5	100	120	11
BZT52B2V7	2W1	652.	7	753.	5	110	120	11
BZT52B3V0	2W2	943.	3	063.	5	120	50	11
BZT52B3V3	2W3	233.	3.33.	373.	5	130	20	11
BZT52B3V6	2W4	533.	6.3.9	673.	5	130	10	1.5
BZT52B3V9	2W5	824.	4.34.	984.	5	130	55	2.5
BZT52B4V3	2W6	214.	7.5.1	394.	5	130	22	
BZT52B4V7	2W7	61	5.66.	795.	5	130	11	
BZT52B5V1	2W8	5	2.6.8	205.	5	130		
BZT52B5V6	2W9	5.496	7.58.	716.	5	80		
BZT52B6V2	2WA	.086.	2.9.1	326.	5	50		33.
BZT52B6V8	2WB	667.		947.	5	30	0.50	5
BZT52B7V5	2WC	358.		658.	5	30	.50.	45
BZT52B8V2	2WD	048.		369.	5	30	50.5	67
BZT52B9V1	2WE	92		2810.	5	30	0.10	89
BZT52B10	2WF	9.8	10	2	5	30	.10.	
BZT52B11	2WG	10.78	11	11.22	5	30	10.1	
BZT52B12	2WH	11.76	12	12.24	5	35	0.10	
BZT52B13	2WI	12.74	13	13.26	5	35	.10.	10
BZT52B15	2WJ	14.7	15	15.3	5	40	10.1	11
BZT52B16	2WK	15.68	16	16.32	5	40	0.10	12
BZT52B18	2WL	17.64	18	18.36	5	45	.10.	13
BZT52B20	2WM	19.6	20	20.4	5	50	10.1	15
BZT52B22	2WN	21.56	22	22.44	5	55	0.10	17
BZT52B24	2WO	23.52	24	24.48	5	60	.1	19
BZT52B27	2WP	26.46	27	27.54	5	70		21
BZT52B30	2WQ	29.4	30	30.6	5	80		23
BZT52B33	2WR	32.34	33	33.66	5	80		25
BZT52B36	2WS	35.28	36	36.72	5	90		27
BZT52B39	2WT	38.22	39	39.78	2.5	100	22	30
BZT52B43	2WU	42.14	43	43.86	2.5	130	21	33
BZT52B47	2WV	46.06	47	47.94	2.5	150	1	36
BZT52B51	2WW	49.98	51	52.02	2.5	180		39
BZT52B56	2X1	54.88	56	57.12	2.5	180		43
BZT52B62	2X2	60.76	62	63.24	2.5	200	0.20	47
BZT52B68	2X3	66.64	68	69.36	2.5	250	.20.	52
BZT52B75	2X4	73.5	75	76.5	2.5	300	2	57

( 1 ) V<sub>ZT</sub> is tested with pulses (20 ms)

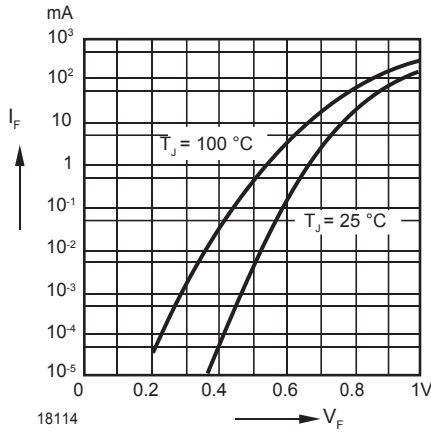


Fig. 1 - Forward characteristics

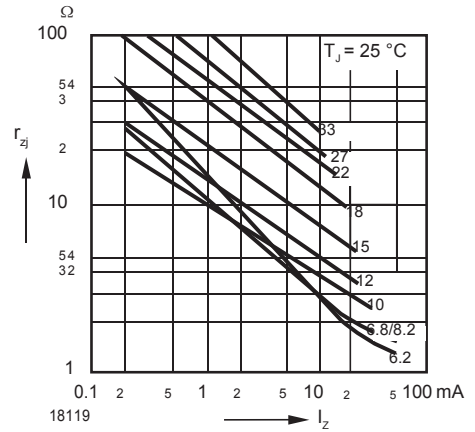


Fig. 4 - Dynamic Resistance vs. Zener Current

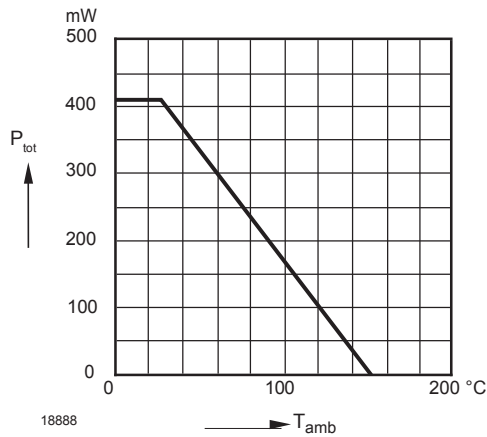


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

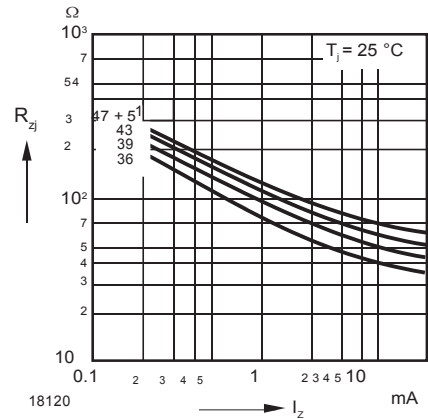


Fig. 5 - Dynamic Resistance vs. Zener Current

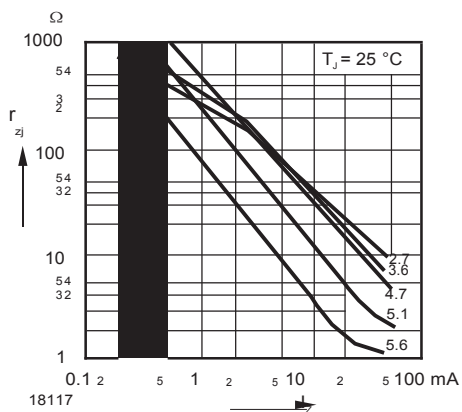


Fig. 3 - Dynamic Resistance vs. Zener Current

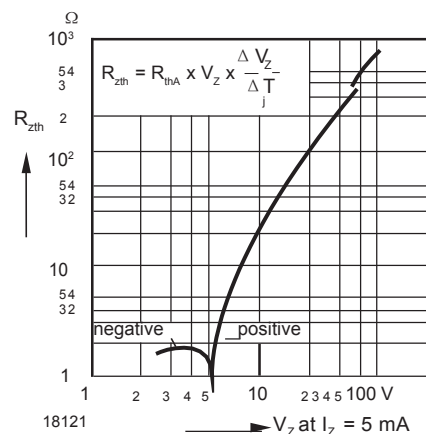


Fig. 6 - Thermal Differential Resistance vs. Zener Voltage

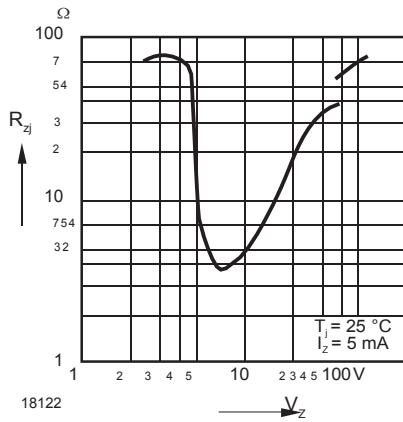


Fig. 7 - Dynamic Resistance vs. Zener Voltage

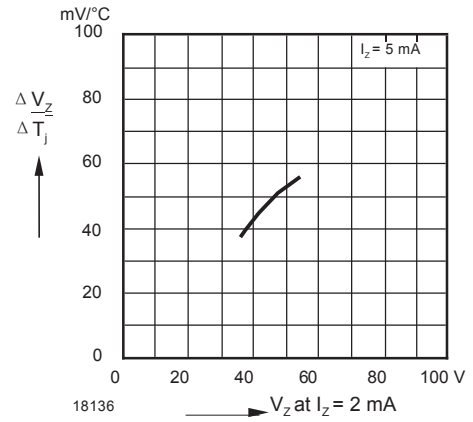


Fig. 10 - Temperature Dependence of Zener Voltage vs. Zener Voltage

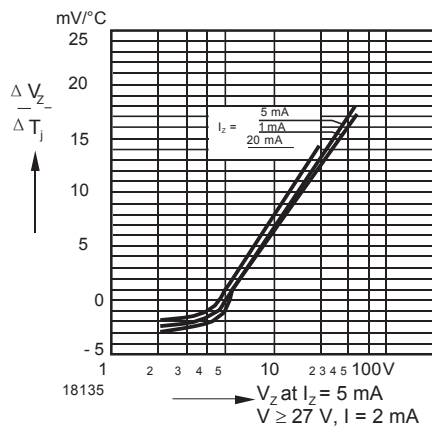


Fig. 8 - Temperature Dependence of Zener Voltage vs. Zener Voltage

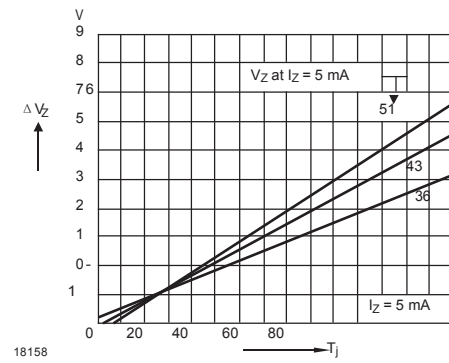


Fig. 11 - Change of Zener Voltage vs. Junction Temperature

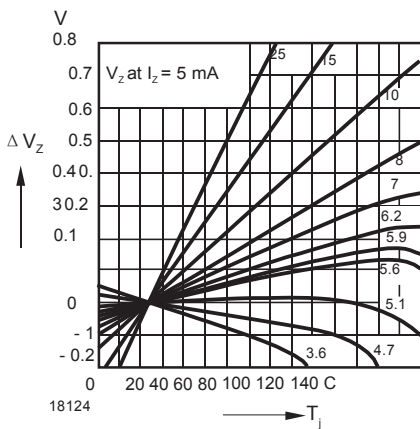


Fig. 9 - Change of Zener Voltage vs. Junction Temperature

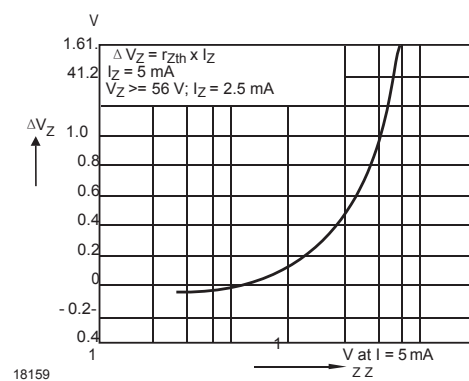


Fig. 12 - Change of Zener Voltage from Turn-on up to the Point of Thermal Equilibrium vs. Zener Voltage

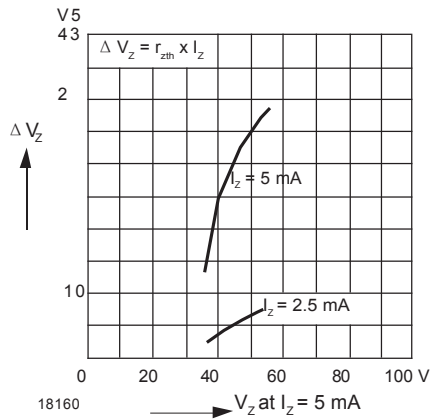


Fig. 13 - Change of Zener Voltage from Turn-on up to the Point of Thermal Equilibrium vs. Zener Voltage

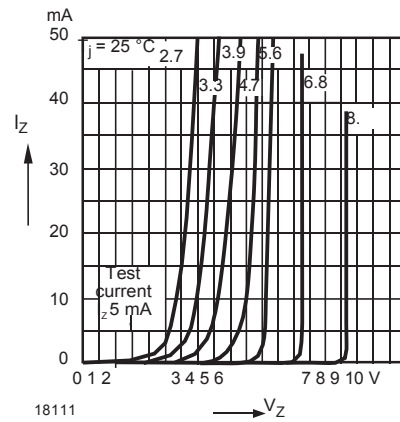


Fig. 14 - Breakdown Characteristics

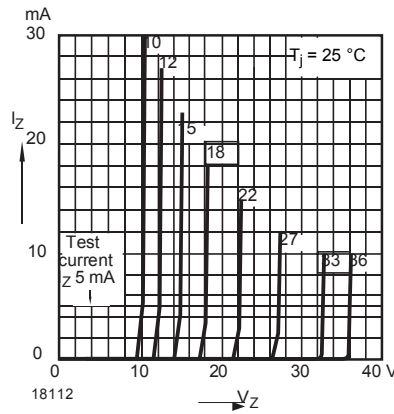


Fig. 15 - Breakdown Characteristics

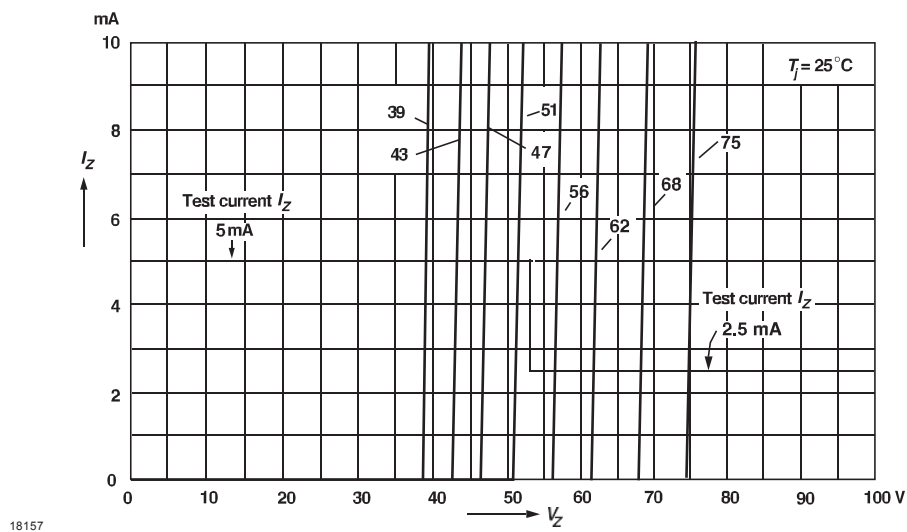
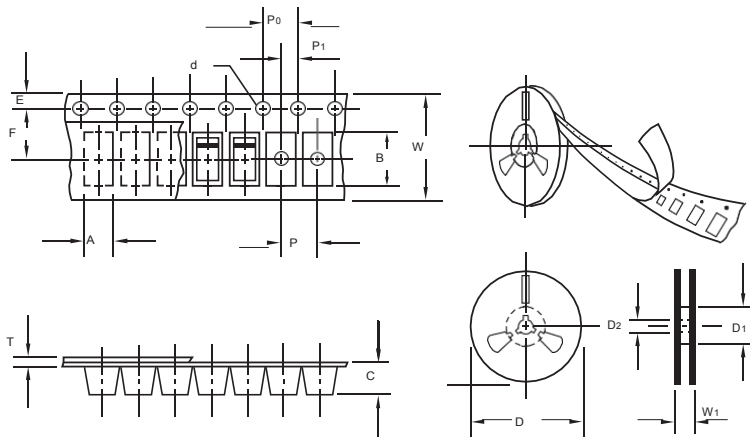


Fig. 16 - Breakdown Characteristics

The curve above is for reference only.



unit:mm

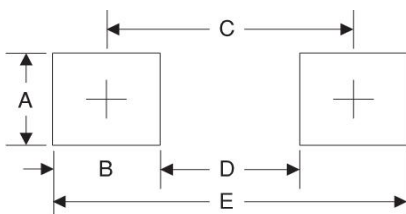
Item	Symbol	Tolerance	SOD-123
Carrier width	A	0.1	2.1
Carrier length	B	0.1	4.0
Carrier depth	C	0.1	1.60
Sprocket hole	d	0.05	1.55
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D <sub>1</sub>	min	50.0
Feed hole diameter	D <sub>2</sub>	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P <sub>0</sub>	0.1	4.00
Embossment center	P <sub>1</sub>	0.1	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	8.15
Reel width	W <sub>1</sub>	1.0	10.5

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

### Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOD-123	7"	3,000	4.0	45,000	210*208*203	178	430*430*235	180,000	9.0

### Suggested Pad Layout



Symbol	Unit (mm)	Unit (inch)
A	1.2	0.047
B	1.2	0.047
C	3.2	0.126
D	2.0	0.079
E	4.4	0.173