

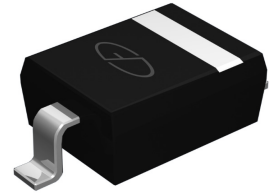


# THE DATASHEET OF BZT52B13



## Features

- Low zener impedance
- Power dissipation: 500 mW
- High stability and reliability



Package: SOD-123

## Mechanical Data

- SOD-123 small outline plastic package
- Color band denotes cathode end
- Mounting position: any



**RoHS**  
COMPLIANT

## Absolute Maximum Ratings

(T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	500 <sup>1)</sup>	mW
Forward Voltage @I <sub>F</sub> =10mA	V <sub>F</sub>	0.9 <sup>2)</sup>	V
Junction Temperature	T <sub>J</sub>	-65 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150	°C

- 1) Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad area 25mm<sup>2</sup>
- 2) Short duration test pulse used to minimize self-heating effect
- 3) f=1KHz

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Part Number	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature Coefficient @I <sub>ZTC</sub>		Test Current I <sub>ZTC</sub>
		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>	I <sub>R</sub>	V <sub>R</sub>	mV/°C		
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	uA	V	Min	Max	
BZT52B2V4	2WX	2.4	2.35	2.45	5	100	600	1.0	50	1.0	-3.5	0	5
BZT52B2V7	2W1	2.7	2.65	2.75	5	100	600	1.0	20	1.0	-3.5	0	5
BZT52B3V0	2W2	3.0	2.94	3.06	5	95	600	1.0	10	1.0	-3.5	0	5
BZT52B3V3	2W3	3.3	3.23	3.37	5	95	600	1.0	5	1.0	-3.5	0	5
BZT52B3V6	2W4	3.6	3.53	3.67	5	90	600	1.0	5	1.0	-3.5	0	5
BZT52B3V9	2W5	3.9	3.82	3.98	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V3	2W6	4.3	4.21	4.39	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V7	2W7	4.7	4.61	4.79	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZT52B5V1	2W8	5.1	5.00	5.20	5	60	480	1.0	2	2.0	-2.7	1.2	5
BZT52B5V6	2W9	5.6	5.49	5.71	5	40	400	1.0	1	2.0	-2.0	2.5	5
BZT52B6V2	2WA	6.2	6.08	6.32	5	10	150	1.0	3	4.0	0.4	3.7	5
BZT52B6V8	2WB	6.8	6.66	6.94	5	15	80	1.0	2	4.0	1.2	4.5	5
BZT52B7V5	2WC	7.5	7.35	7.65	5	15	80	1.0	1	5.0	2.5	5.3	5
BZT52B8V2	2WD	8.2	8.04	8.36	5	15	80	1.0	0.7	5.0	3.2	6.2	5
BZT52B9V1	2WE	9.1	8.92	9.28	5	15	100	1.0	0.5	6.0	3.8	7.0	5
BZT52B10	2WF	10	9.80	10.20	5	20	150	1.0	0.2	7.0	4.5	8.0	5
BZT52B11	2WG	11	10.78	11.22	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BZT52B12	2WH	12	11.76	12.24	5	25	150	1.0	0.1	8.0	6.0	10.0	5
BZT52B13	2WI	13	12.74	13.26	5	30	170	1.0	0.1	8.0	7.0	11.0	5
BZT52B15	2WJ	15	14.70	15.30	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BZT52B16	2WK	16	15.68	16.32	5	40	200	1.0	0.1	11.2	10.4	14.0	5
BZT52B18	2WL	18	17.64	18.36	5	45	225	1.0	0.1	12.6	12.4	16.0	5
BZT52B20	2WM	20	19.60	20.40	5	55	225	1.0	0.1	14.0	14.4	18.0	5
BZT52B22	2WN	22	21.56	22.44	5	55	250	1.0	0.1	15.4	16.4	20.0	5
BZT52B24	2WO	24	23.52	24.48	5	70	250	1.0	0.1	16.8	18.4	22.0	5
BZT52B27	2WP	27	26.46	27.54	2	80	300	0.5	0.1	18.9	21.4	25.3	2
BZT52B30	2WQ	30	29.40	30.60	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZT52B33	2WR	33	32.34	33.66	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52B36	2WS	36	35.28	36.72	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52B39	2WT	39	38.22	39.78	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BZT52B43	2WU	43	41.16	43.84	2	100	700	1.0	0.1	32.0	10.0	12.0	5
BZT52B47	2WV	47	46.06	47.94	2	100	750	1.0	0.1	35.0	10.0	12.0	5
BZT52B51	2WW	51	49.98	52.02	2	100	750	1.0	0.1	38.0	10.0	12.0	5

## Typical Characteristic Curves

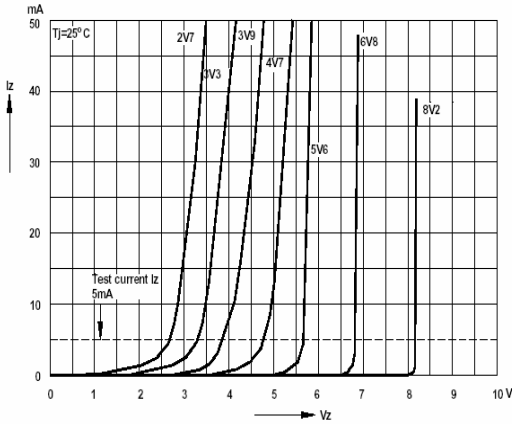


Fig 1. Breakdown Characteristics @  $T_j = \text{Constant}$  (pulsed)

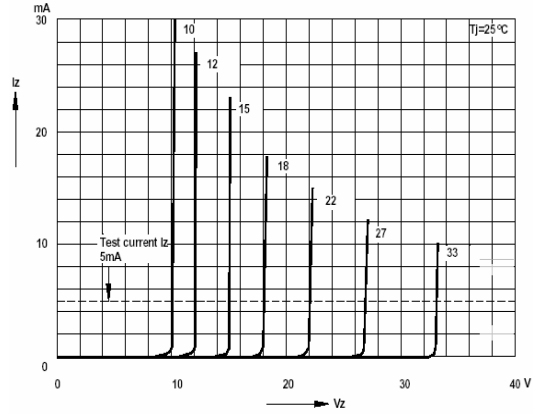


Fig 2. Breakdown Characteristics @  $T_j = \text{Constant}$  (pulsed)

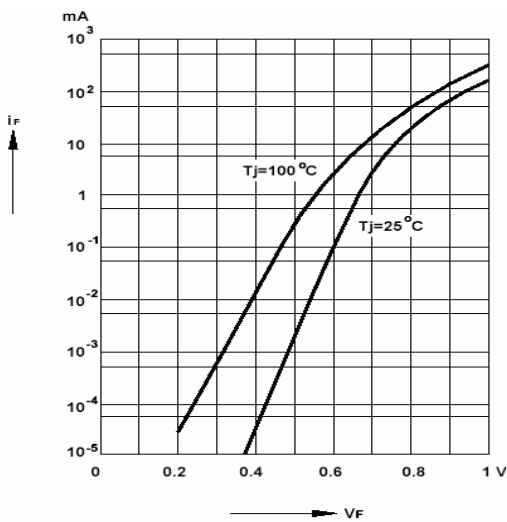


Fig 3. Forward Characteristics

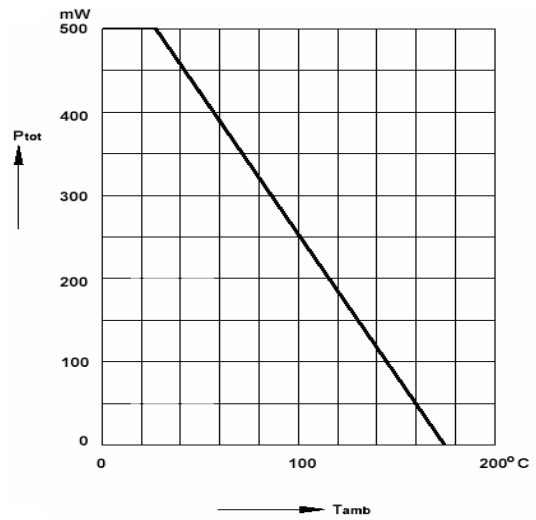


Fig 4. Admissible Power Dissipation vs  $T_A$

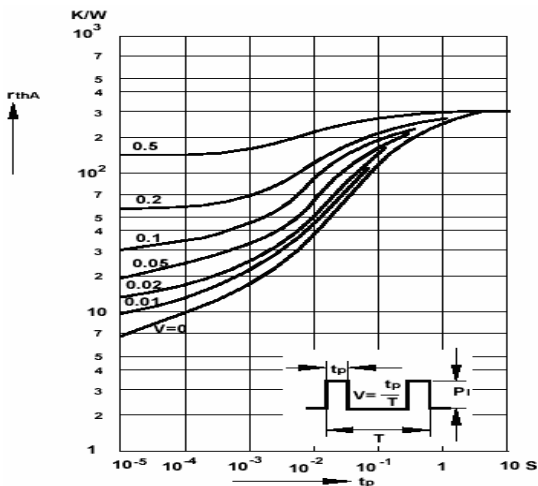


Fig 5. Pulse Thermal Resistance vs Pulse Duration

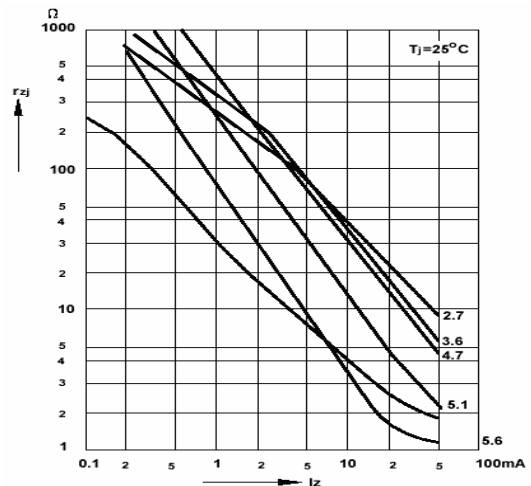


Fig 6. Dynamic Resistance vs Zener Current

## Typical Characteristic Curves

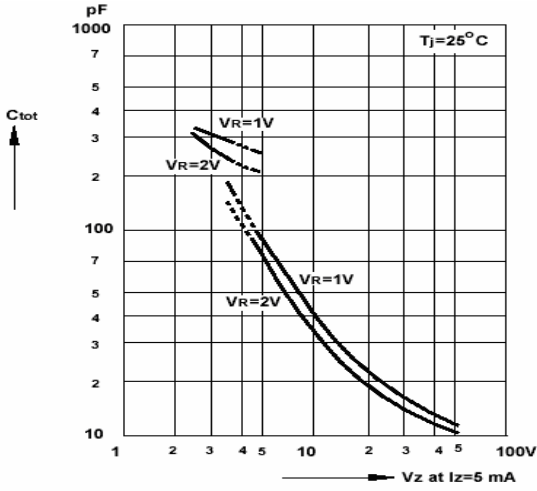


Fig 7. Capacitance vs Zener Voltage

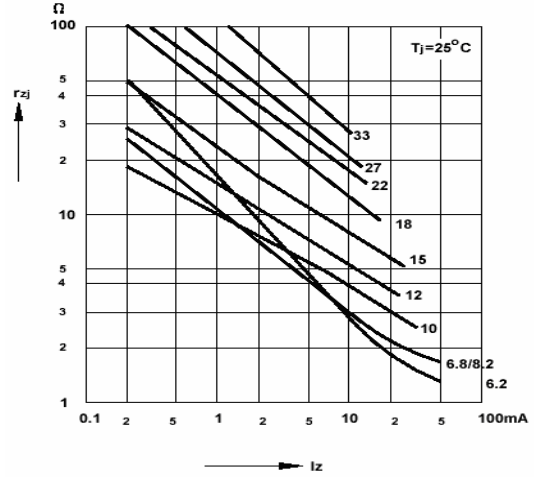


Fig 8. Dynamic Resistance vs Zener Current

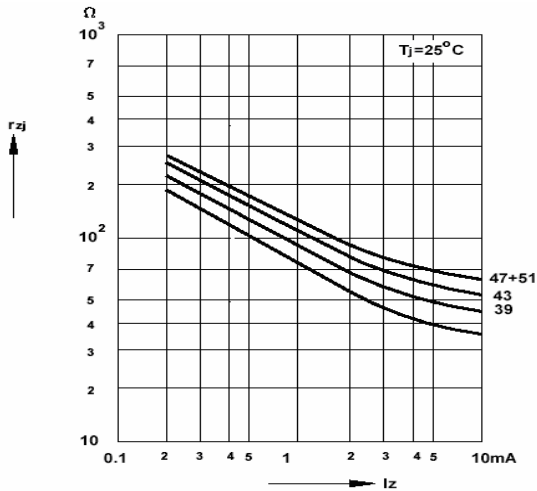


Fig 9. Dynamic Resistance vs Zener Current

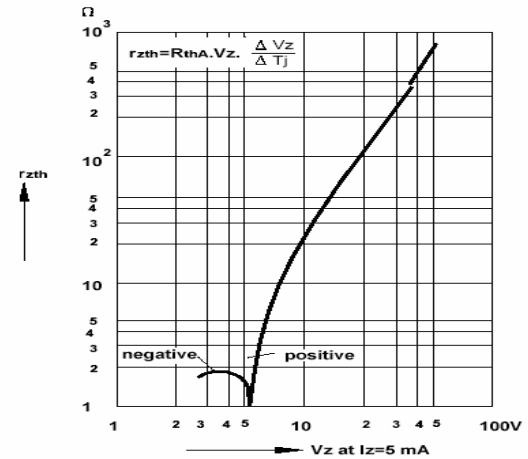


Fig 10. Thermal Differential Resistance vs Zener Voltage

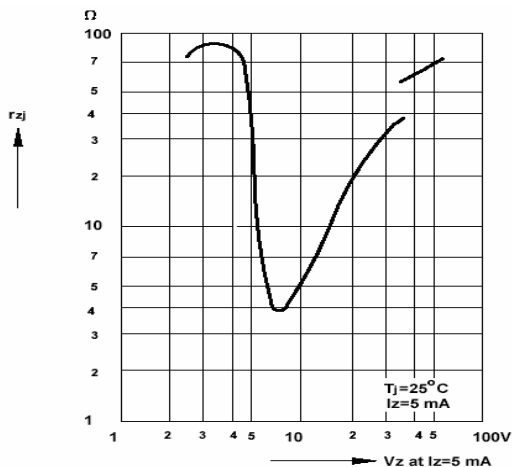


Fig 11. Dynamic Resistance vs Zener Voltage

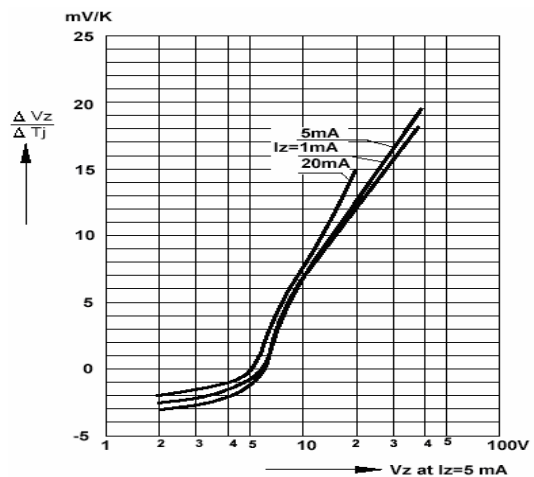


Fig 12. Temperature Dependence of Zener Voltage vs Zener Voltage

## Typical Characteristic Curves

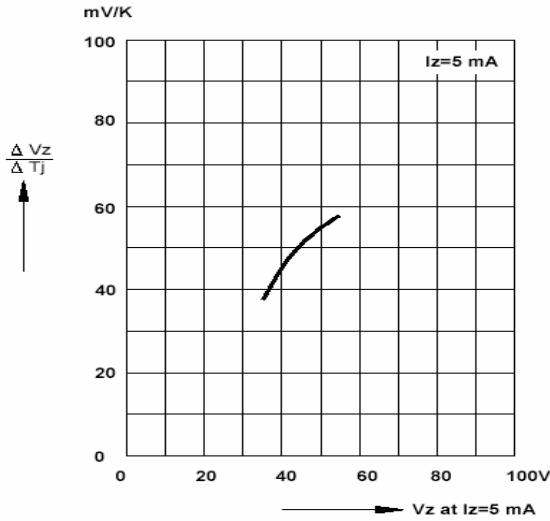


Fig 13. Temperature Dependence of Zener Voltage vs Zener Voltage

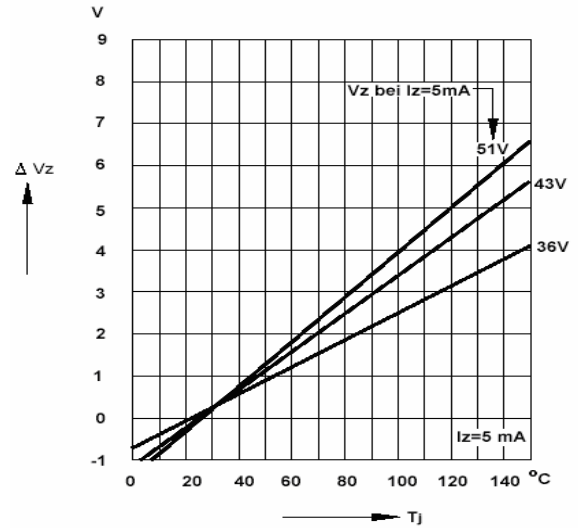


Fig 14. Change of Zener Voltage vs Tj

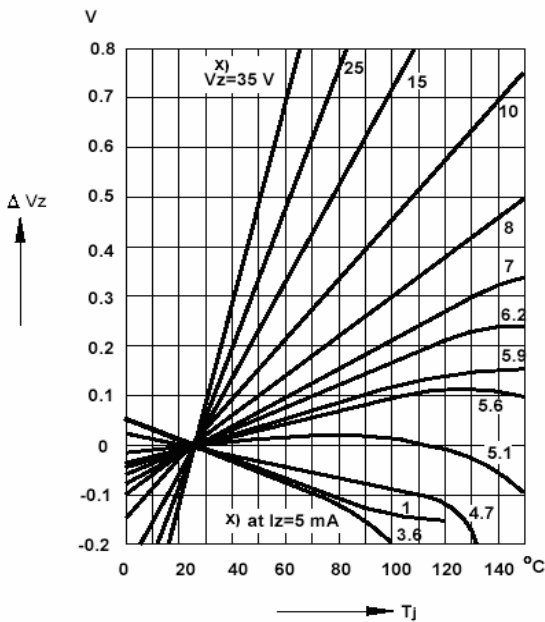


Fig 15. Change of Zener Voltage vs Tj

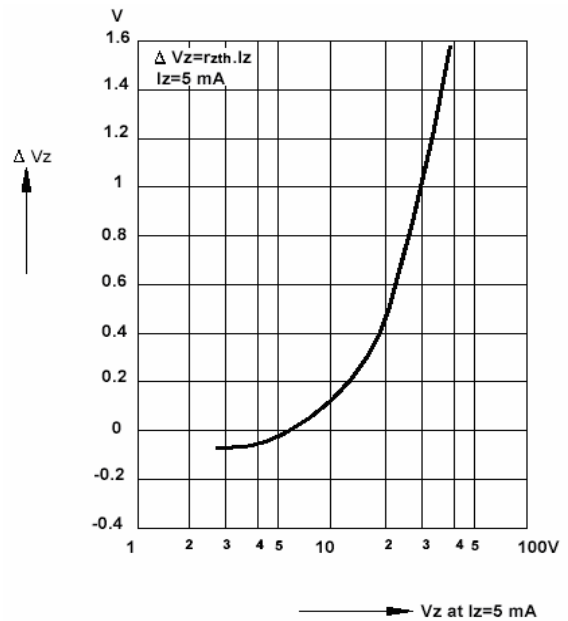
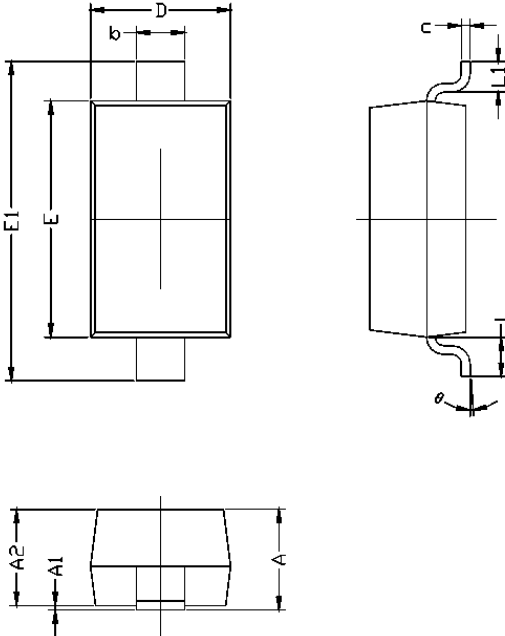


Fig 16. Change of Zener Voltage From Turn-on Up To The Point of Thermal Equilibrium vs Zener Voltage

## Package Outline Dimensions

SOD-123



Dimensions in millimeters



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.450	0.650
c	0.080	0.150
D	1.500	1.700
E	2.600	2.800
E1	3.550	3.850
L	0.500REF	
L1	0.250	0.450
$\theta$	0°	8°

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