

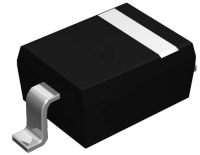
# BZT52Cxxx Series

Surface Mount Zener Diodes

V<sub>z</sub> Range: 2.0V to 51V Power Dissipation: 500mW

## Features

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



**SOD-123**

## Mechanical Data

- SOD-123 small outline plastic package
- Color band denotes cathode end
- Mounting position: any
- Epoxy UL: 94V-0

## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Power Dissipation <sup>1</sup>	P <sub>D</sub>	500	mW
Maximum Forward Voltage @ I <sub>F</sub> =10mA <sup>2</sup>	V <sub>F</sub>	0.9	V
Thermal Resistance, Junction to Ambient Air	R <sub>thA</sub>	400	K/W
Storage Temperature Range	T <sub>STG</sub>	-65 To +150	°C

Note:

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

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Surface Mount Zener Diodes

Vz Range: 2.0V to 51V Power Dissipation: 500mW

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

Part Number	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature Coefficient @Iztc		Test Current
		Vz@Izt			Izt	Zzt@Izt	Zzk@Izk	Izk	IR	VR	mV/°C		
		Nom(V)	Min(V)	Max(V)	mA	Ω	Ω	mA	uA	V	Min	Max	mA
BZT52C2V0	WY	2.0	1.8	2.15	5	150	600	1.0	100	1.0	-3.5	0	5
BZT52C2V4	WX	2.4	2.2	2.6	5	100	600	1.0	50	1.0	-3.5	0	5
BZT52C2V7	W1	2.7	2.5	2.9	5	100	600	1.0	20	1.0	-3.5	0	5
BZT52C3V0	W2	3.0	2.8	3.2	5	95	600	1.0	10	1.0	-3.5	0	5
BZT52C3V3	W3	3.3	3.1	3.5	5	95	600	1.0	5	1.0	-3.5	0	5
BZT52C3V6	W4	3.6	3.4	3.8	5	90	600	1.0	5	1.0	-3.5	0	5
BZT52C3V9	W5	3.9	3.7	4.1	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52C4V3	W6	4.3	4.0	4.6	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52C4V7	W7	4.7	4.4	5.0	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZT52C5V1	W8	5.1	4.8	5.4	5	60	480	1.0	2	2.0	-2.7	1.2	5
BZT52C5V6	W9	5.6	5.2	6.0	5	40	400	1.0	1	2.0	-2.0	2.5	5
BZT52C6V2	WA	6.2	5.8	6.6	5	10	150	1.0	3	4.0	0.4	3.7	5
BZT52C6V8	WB	6.8	6.4	7.2	5	15	80	1.0	2	4.0	1.2	4.5	5
BZT52C7V5	WC	7.5	7.0	7.9	5	15	80	1.0	1	5.0	2.5	5.3	5
BZT52C8V2	WD	8.2	7.7	8.7	5	15	80	1.0	0.7	5.0	3.2	6.2	5
BZT52C9V1	WE	9.1	8.5	9.6	5	15	100	1.0	0.5	6.0	3.8	7.0	5
BZT52C10	WF	10	9.4	10.6	5	20	150	1.0	0.2	7.0	4.5	8.0	5
BZT52C11	WG	11	10.4	11.6	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BZT52C12	WH	12	11.4	12.7	5	25	150	1.0	0.1	8.0	6.0	10.0	5
BZT52C13	WI	13	12.4	14.1	5	30	170	1.0	0.1	8.0	7.0	11.0	5
BZT52C15	WJ	15	13.8	15.6	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BZT52C16	WK	16	15.3	17.1	5	40	200	1.0	0.1	11.2	10.4	14.0	5
BZT52C18	WL	18	16.8	19.1	5	45	225	1.0	0.1	12.6	12.4	16.0	5
BZT52C20	WM	20	18.8	21.2	5	55	225	1.0	0.1	14.0	14.4	18.0	5
BZT52C22	WN	22	20.8	23.3	5	55	250	1.0	0.1	15.4	16.4	20.0	5
BZT52C24	WO	24	22.8	25.6	5	70	250	1.0	0.1	16.8	18.4	22.0	5
BZT52C27	WP	27	25.1	28.9	2	80	300	0.5	0.1	18.9	21.4	25.3	2
BZT52C30	WQ	30	28.0	32.0	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZT52C33	WR	33	31.0	35.0	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52C36	WS	36	34.0	38.0	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52C39	WT	39	37.0	41.0	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BZT52C43	WU	43	40.0	46.0	2	100	700	1.0	0.1	32.0	10.0	12.0	5
BZT52C47	WV	47	44.0	50.0	2	100	750	1.0	0.1	35.0	10.0	12.0	5
BZT52C51	WW	51	48.0	54.0	2	125	750	1.0	0.1	38.0	10.0	12.0	5

## Typical Characteristics Curves

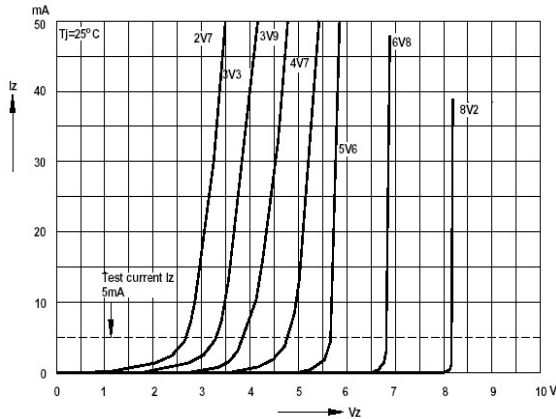


Figure 1. Breakdown Characteristics  
@  $T_j$ =Constant (pulsed)

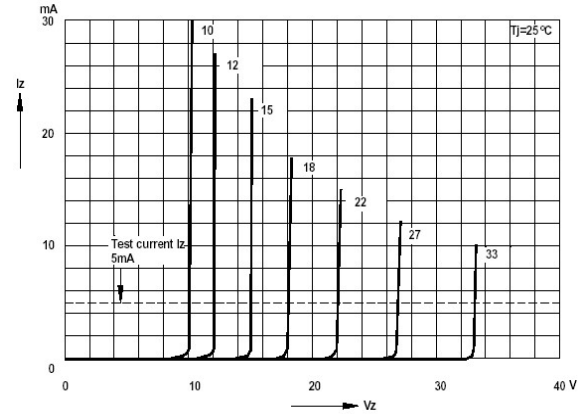


Figure 2. Breakdown Characteristics  
@  $T_j$ =Constant (pulsed)

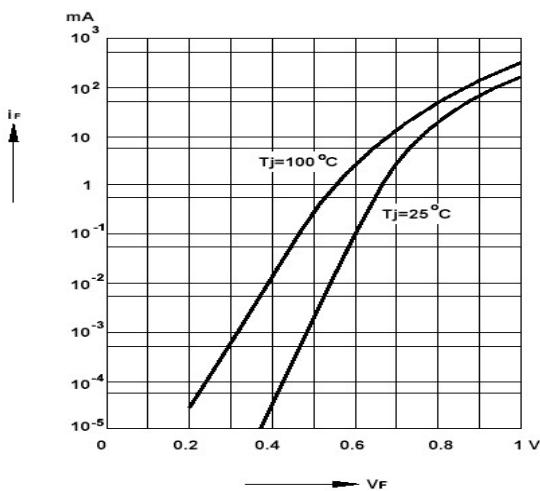


Figure 3. Forward Characteristics

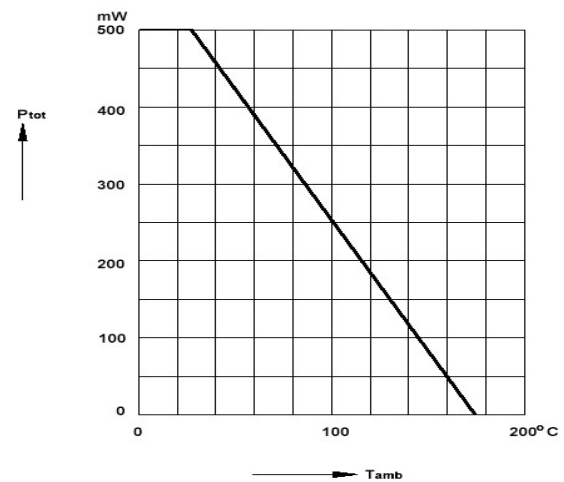


Figure 4. Admissible Power Dissipation vs.  $T_A$

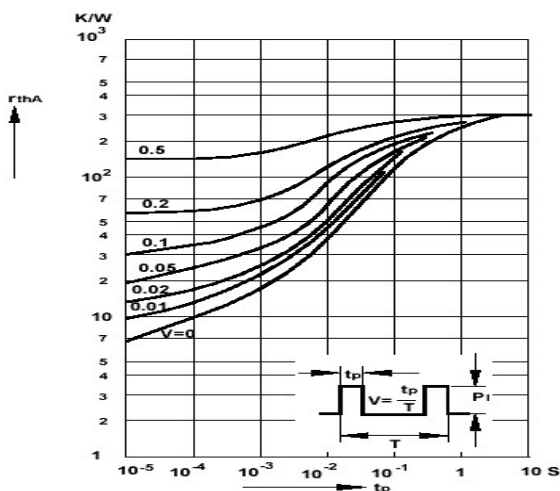


Figure 5. Pulse Thermal Resistance vs. Pulse Duration

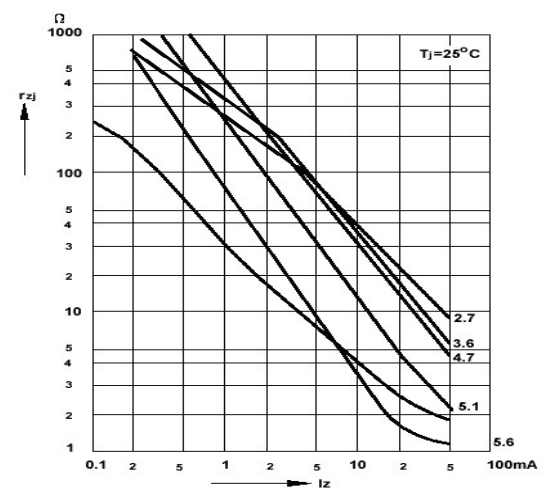


Figure 6. Dynamic Resistance vs. Zener Current

## Typical Characteristics Curves

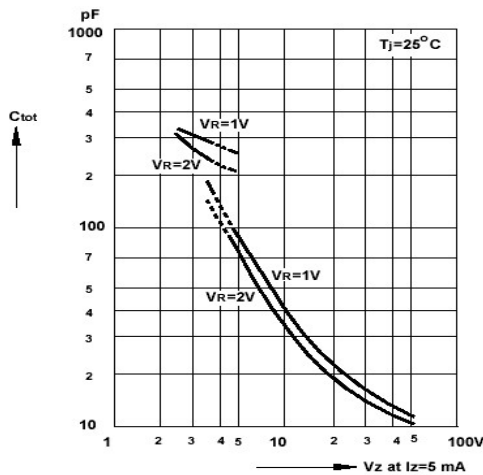


Figure 7. Capacitance vs. Zener Voltage

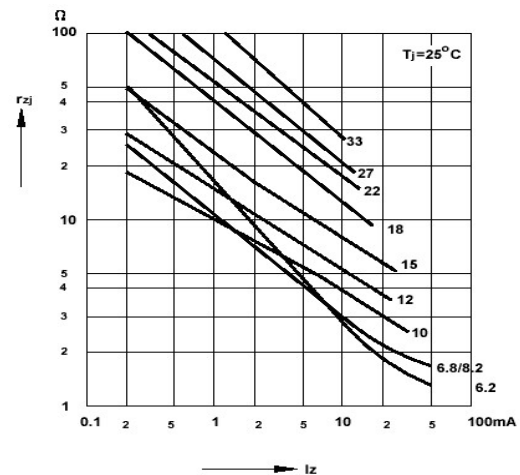


Figure 8. Dynamic Resistance vs. Zener Current

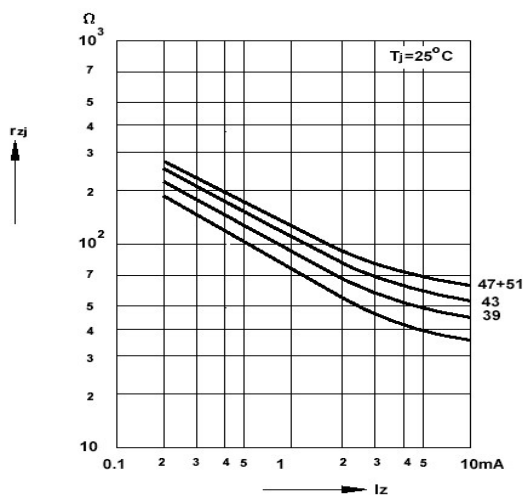


Figure 9. Dynamic Resistance vs. Zener Current

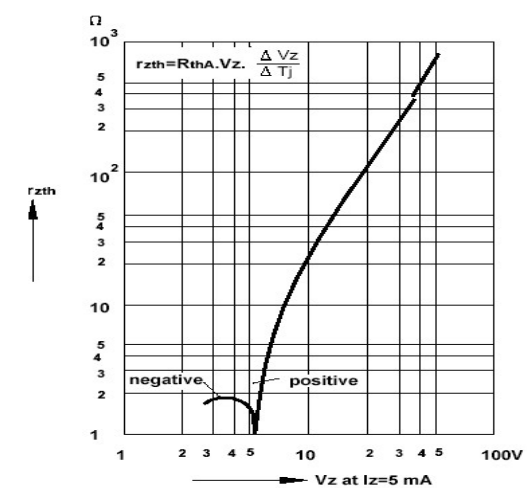


Figure 10. Thermal Differential Resistance vs. Zener Voltage

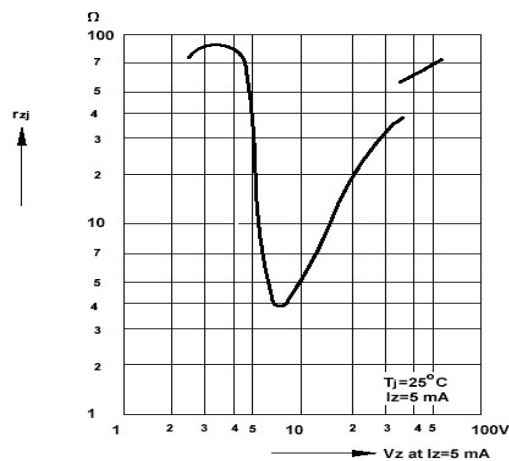


Figure 11. Dynamic Resistance vs. Zener Voltage

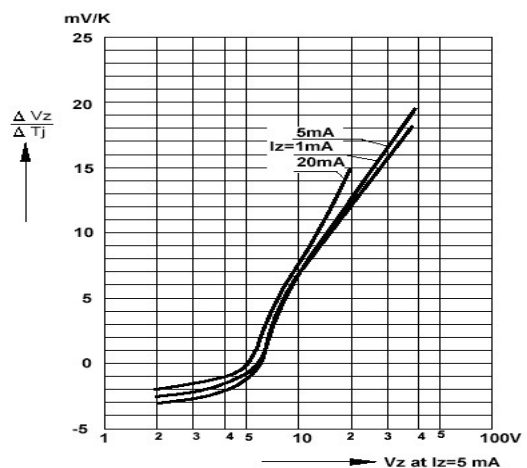


Figure 12. Temperature Dependence of Zener Voltage vs. Zener Voltage

## Typical Characteristics Curves

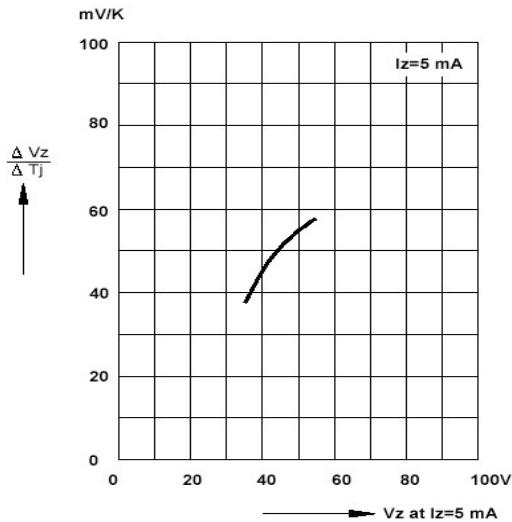


Figure 13. Temperature Dependence of Zener Voltage vs. Zener Voltage

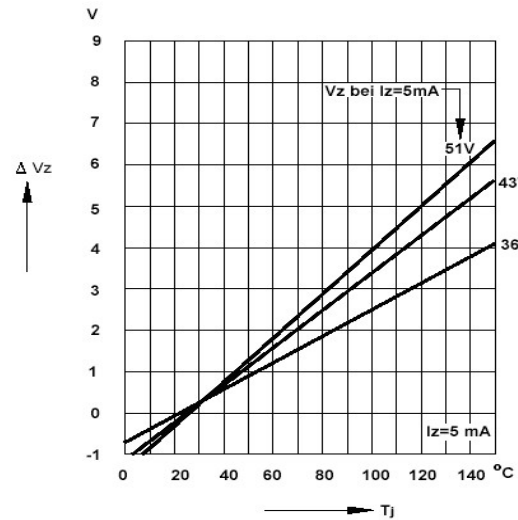


Figure 14. Change of Zener Voltage vs. T<sub>j</sub>

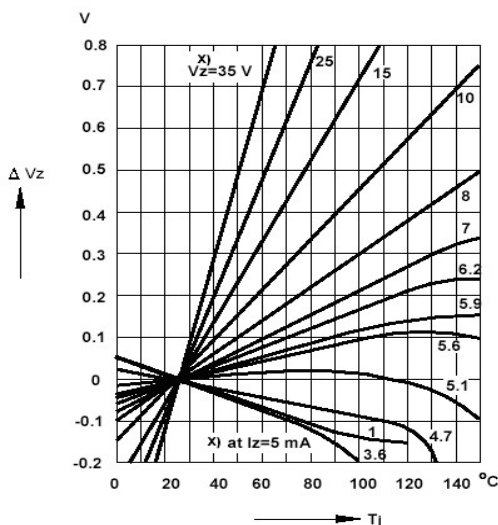


Figure 15. Change of Zener Voltage vs. T<sub>j</sub>

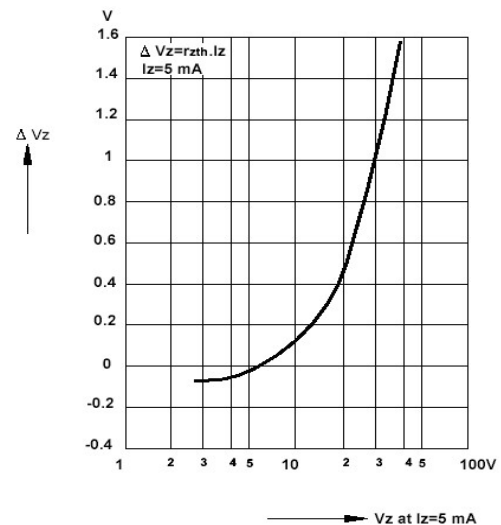
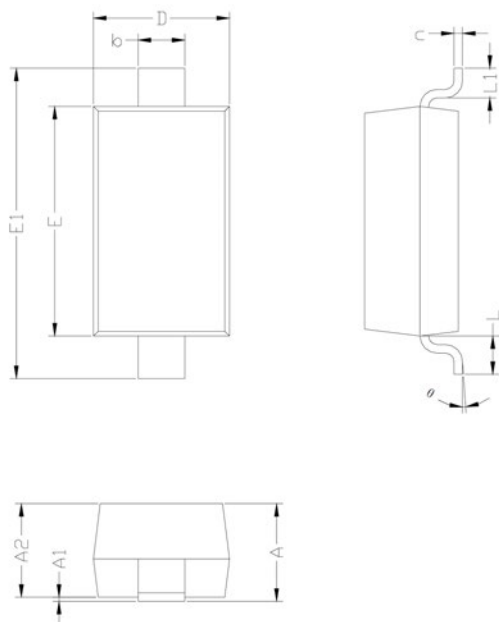


Figure 16. Change of Zener Voltage From Turn-on Up To The Point of Thermal Equilibrium vs. Zener Voltage

## Package Outline Dimensions (SOD-123)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.450	0.650	0.018	0.026
c	0.080	0.150	0.003	0.006
D	1.500	1.700	0.059	0.067
E	2.600	2.800	0.102	0.110
E1	3.550	3.850	0.140	0.152
L	0.500 REF		0.020 REF	
L1	0.250	0.450	0.010	0.018
θ	0°	8°	0°	8°