

SuperDiode – 500mW SOD-123 Plastic-Encapsulate Zener Diode


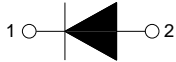
**1. Features**

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

**2. Mechanical Data**

- SOD-123 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Epoxy UL: 94V-0

**3. Marking and Circuit**

Marking	Circuit
	

**4. Specification**

**Absolute Maximum Rating & Thermal Characteristics**

Ratings at 25 °C ambient temperature unless otherwise specified.

Parameters	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
Storage temperature range	T <sub>S</sub>	-65~150	°C
Thermal resistance junction to ambient	R <sub>thA</sub>	400	K/W <sup>1)</sup>

1) Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>

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

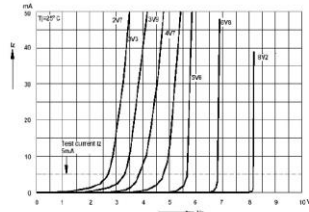
3) f=1KHz

**Electrical Characteristics (At TA = 25°C unless otherwise specified)**

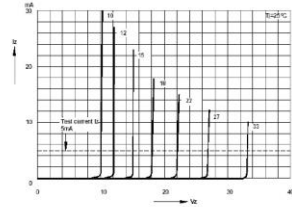
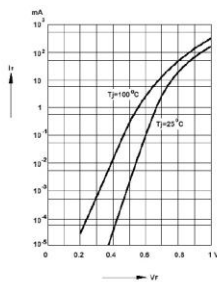
Device	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature coefficient @IZTC=mV/°C		Test Current IZTC
		Vz@Izt			Izt	Zzt @Izt	Zzk @Izk	Izk	IR	VR	Min	Max	
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	uA	V			
BZT52C2V0	WY	2	1.8	2.15	5	150	600	1	100	1	-3.5	0	5
BZT52C2V4	WX	2.4	2.2	2.6	5	100	600	1	50	1	-3.5	0	5
BZT52C2V7	W1	2.7	2.5	2.9	5	100	600	1	20	1	-3.5	0	5
BZT52C3V0	W2	3	2.8	3.2	5	95	600	1	10	1	-3.5	0	5
BZT52C3V3	W3	3.3	3.1	3.5	5	95	600	1	5	1	-3.5	0	5
BZT52C3V6	W4	3.6	3.4	3.8	5	90	600	1	5	1	-3.5	0	5
BZT52C3V9	W5	3.9	3.7	4.1	5	90	600	1	3	1	-3.5	0	5
BZT52C4V3	W6	4.3	4	4.6	5	90	600	1	3	1	-3.5	0	5
BZT52C4V7	W7	4.7	4.4	5	5	80	500	1	3	2	-3.5	0.2	5
BZT52C5V1	W8	5.1	4.8	5.4	5	60	480	1	2	2	-2.7	1.2	5
BZT52C5V6	W9	5.6	5.2	6	5	40	400	1	1	2	-2	2.5	5
BZT52C6V2	WA	6.2	5.8	6.6	5	10	150	1	3	4	0.4	3.7	5
BZT52C6V8	WB	6.8	6.4	7.2	5	15	80	1	2	4	1.2	4.5	5
BZT52C7V5	WC	7.5	7	7.9	5	15	80	1	1	5	2.5	5.3	5
BZT52C8V2	WD	8.2	7.7	8.7	5	15	80	1	0.7	5	3.2	6.2	5
BZT52C9V1	WE	9.1	8.5	9.6	5	15	100	1	0.5	6	3.8	7	5
BZT52C10	WF	10	9.4	10.6	5	20	150	1	0.2	7	4.5	8	5
BZT52C11	WG	11	10.4	11.6	5	20	150	1	0.1	8	5.4	9	5
BZT52C12	WH	12	11.4	12.7	5	25	150	1	0.1	8	6	10	5
BZT52C13	WI	13	12.4	14.1	5	30	170	1	0.1	8	7	11	5
BZT52C15	WJ	15	13.8	15.6	5	30	200	1	0.1	10.5	9.2	13	5
BZT52C16	WK	16	15.3	17.1	5	40	200	1	0.1	11.2	10.4	14	5
BZT52C18	WL	18	16.8	19.1	5	45	225	1	0.1	12.6	12.4	16	5
BZT52C20	WM	20	18.8	21.2	5	55	225	1	0.1	14	14.4	18	5
BZT52C22	WN	22	20.8	23.3	5	55	250	1	0.1	15.4	16.4	20	5
BZT52C24	WO	24	22.8	25.6	5	70	250	1	0.1	16.8	18.4	22	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	32	2	80	300	0.5	0.1	21	24.4	29.4	2
BZT52C33	WR	33	31	35	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52C36	WS	36	34	38	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52C39	WT	39	37	41	2	130	350	0.5	0.1	27.3	33.4	41.2	2

Device	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature coefficient @IZTC=mV/°C		Test Current IZTC
		Vz@Izt			Izt	Zzt @Izt	Zzk @Izk	Izk	IR	VR	Min	Max	
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	uA	V			
BZT52C43	WU	43	40	46	2	100	700	1	0.1	32	10	12	5
BZT52C47	WV	47	44	50	2	100	750	1	0.1	35	10	12	5
BZT52C51	WW	51	48	54	2	125	750	1	0.1	38	10	12	5
BZT52C56	XW	56	52	60	2	135	700	1	0.1	39	10	12	5
BZT52C62	6E	62	58	66	2	200	1000	1	0.2	47	10	12	5
BZT52C68	6F	68	64	72	2	250	1000	1	0.2	52	10	12	5
BZT52C75	6H	75	70	79	2	300	1000	1	0.2	57	10	12	5

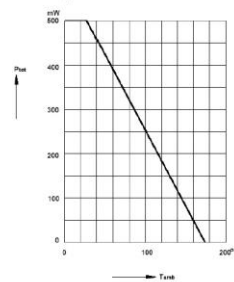
5. Typical Characteristic



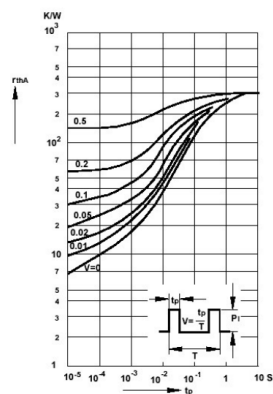
Forward characteristics



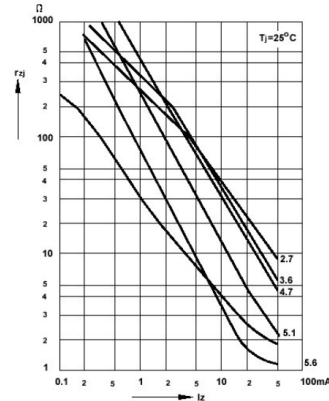
Admissible power dissipation versus ambient temperature



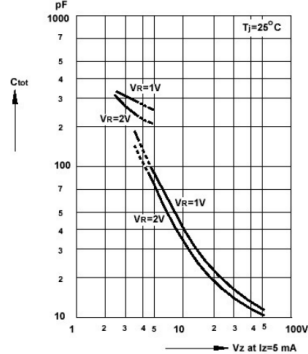
Pulse thermal resistance versus pulse duration



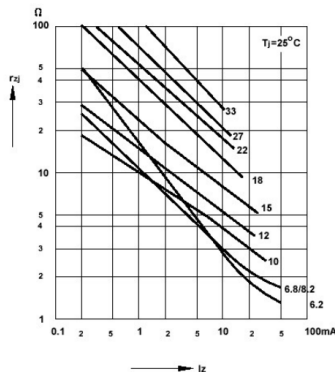
Dynamic resistance versus Zener current



Capacitance versus Zener voltage



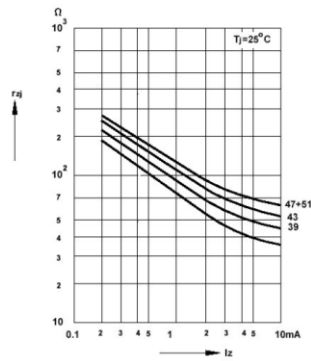
Dynamic resistance versus Zener current



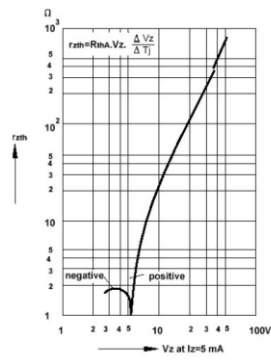
**BZT52Cxx SERIES**

Rev-1.1

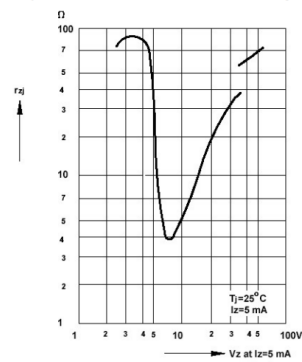
Dynamic resistance versus Zener current



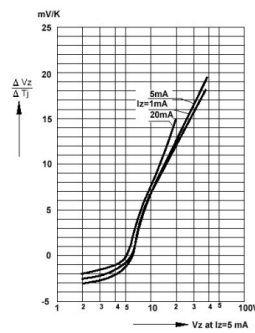
Thermal differential resistance versus Zener voltage



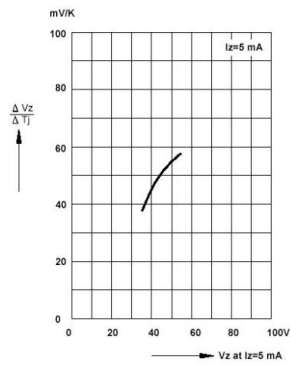
Dynamic resistance versus Zener voltage



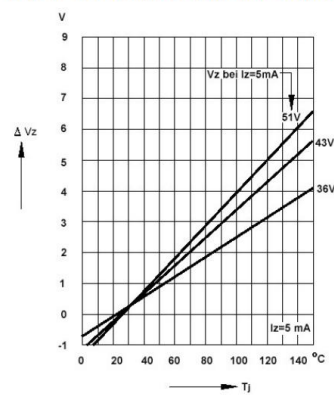
Temperature dependence of Zener voltage versus Zener voltage



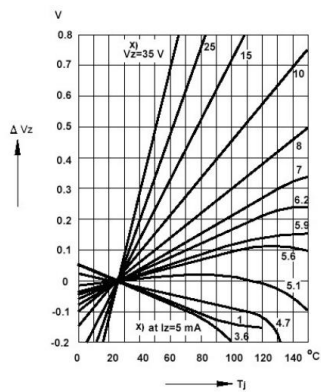
Temperature dependence of Zener voltage versus Zener voltage



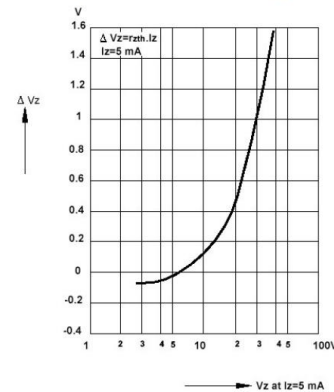
Change of Zener voltage versus junction temperature



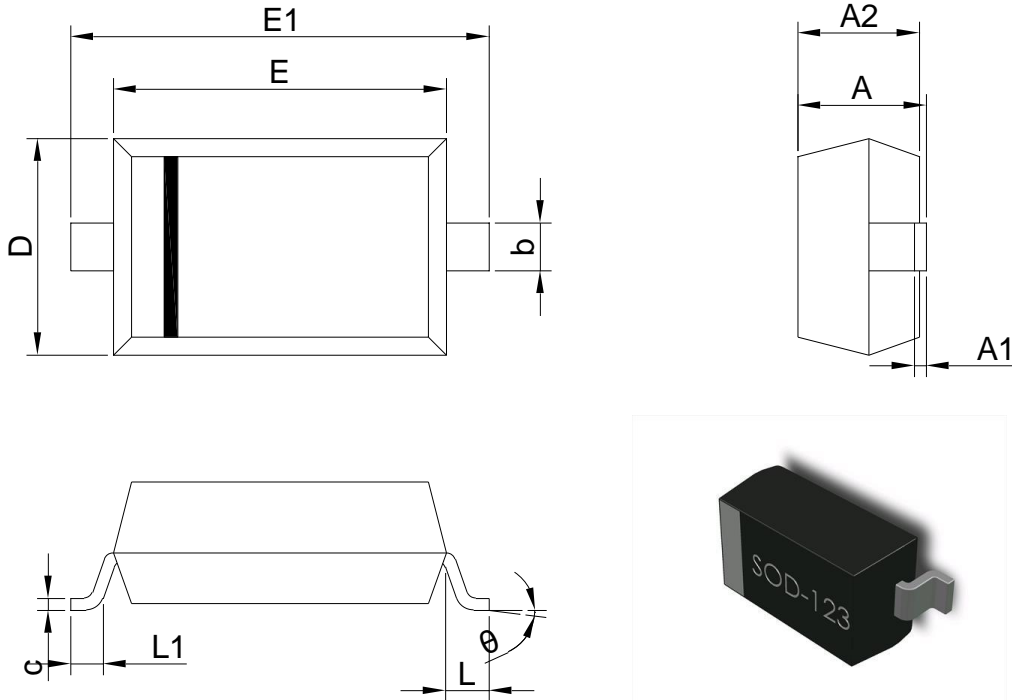
Change of Zener voltage versus junction temperature



Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage

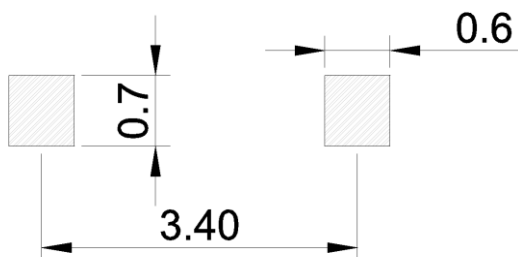


6. Dimension and Patterns (SOD-123)



Units: mm

Symbol	Min.	Max.	Symbol	Min.	Max.
A	1.05	1.25	E	2.60	2.80
A1	0.00	0.10	E1	3.55	3.85
A2	1.05	1.15	L	0.50REF	
b	0.45	0.65	L1	0.25	0.45
c	0.08	0.15	θ	0°	8°
D	1.50	1.70			



Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference only
4. Unit: mm

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