

SOD-123 Plastic-Encapsulate Zener Diode

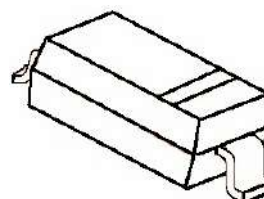
Features

- Low Zener Impedance
- Power Dissipation of 500mW
- High Reliability grade (AEC Q101 qualified)
- Accreditation through IATF16949 System

Mechanical Data

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

SOD-123



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

Parameters	Symbol	Value	Unit
Power Dissipation	Pd	500 ¹⁾	mW
Forward Voltage @IF=10mA	Vf	0.9 ²⁾	V
Storage temperature range	Ts	-65-+150	°C

1) Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm²

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

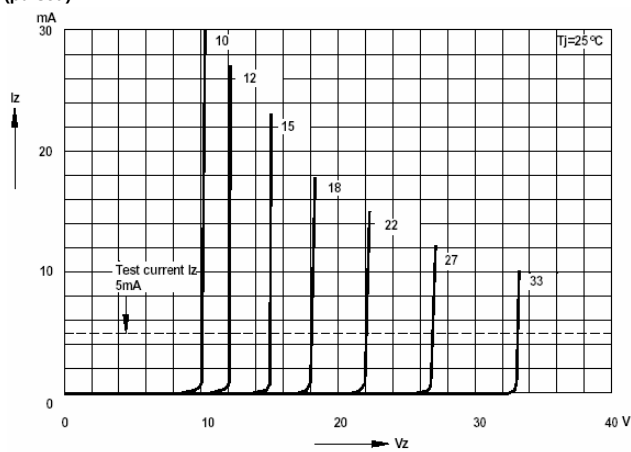
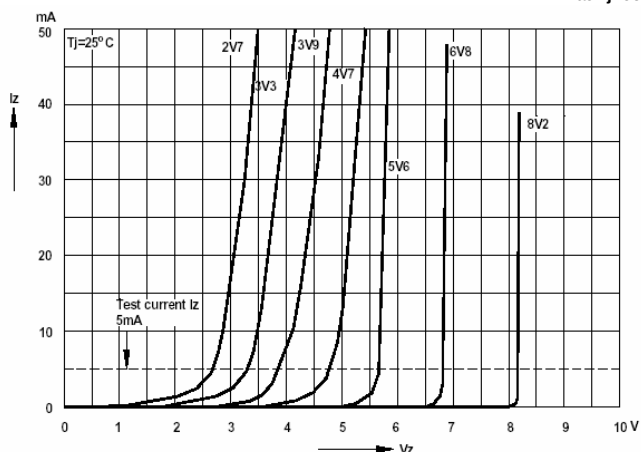
3) f=1KHz

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

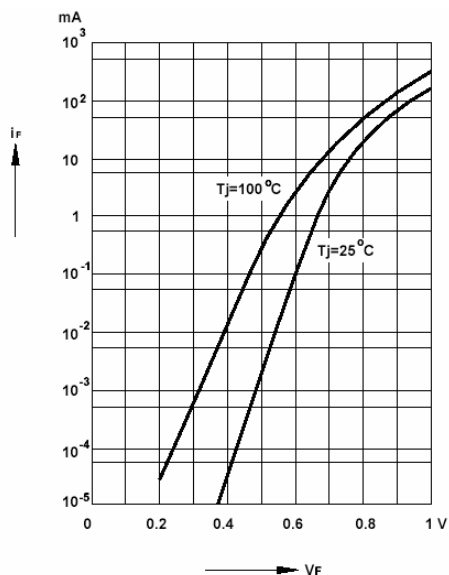
Device	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature coefficient @ IZTC=mV/°C		Test Current IZTC
		Vz@Izt			Izt	Zzt @Izt	Zzk @Izk	Izk	IR	VR			
		Nom(V)	Min(V)	Max(V)	mA	Ω			mA	μA	V	Min	
TBZT52C2V4-V	WX	2.4	2.28	2.52	5	100	600	1.0	50	1.0	-3.5	0	5
TBZT52C2V7-V	W1	2.7	2.57	2.84	5	100	600	1.0	20	1.0	-3.5	0	5
TBZT52C3V0-V	W2	3.0	2.85	3.15	5	95	600	1.0	10	1.0	-3.5	0	5
TBZT52C3V3-V	W3	3.3	3.14	3.47	5	95	600	1.0	5	1.0	-3.5	0	5
TBZT52C3V6-V	W4	3.6	3.42	3.78	5	90	600	1.0	5	1.0	-3.5	0	5
TBZT52C3V9-V	W5	3.9	3.71	4.10	5	90	600	1.0	3	1.0	-3.5	0	5
TBZT52C4V3-V	W6	4.3	4.09	4.52	5	90	600	1.0	3	1.0	-3.5	0	5
TBZT52C4V7-V	W7	4.7	4.47	4.94	5	80	500	1.0	3	2.0	-3.5	0.2	5
TBZT52C5V1-V	W8	5.1	4.85	5.36	5	60	480	1.0	2	2.0	-2.7	1.2	5
TBZT52C5V6-V	W9	5.6	5.32	5.88	5	40	400	1.0	1	2.0	-2.0	2.5	5
TBZT52C6V2-V	WA	6.2	5.89	6.51	5	10	150	1.0	3	4.0	0.4	3.7	5
TBZT52C6V8-V	WB	6.8	6.46	7.14	5	15	80	1.0	2	4.0	1.2	4.5	5
TBZT52C7V5-V	WC	7.5	7.13	7.88	5	15	80	1.0	1	5.0	2.5	5.3	5
TBZT52C8V2-V	WD	8.2	7.79	8.61	5	15	80	1.0	0.7	5.0	3.2	6.2	5
TBZT52C9V1-V	WE	9.1	8.65	9.56	5	15	100	1.0	0.5	6.0	3.8	7.0	5
TBZT52C10-V	WF	10	9.50	10.50	5	20	150	1.0	0.2	7.0	4.5	8.0	5
TBZT52C11-V	WG	11	10.45	11.55	5	20	150	1.0	0.1	8.0	5.4	9.0	5
TBZT52C12-V	WH	12	11.40	12.60	5	25	150	1.0	0.1	8.0	6.0	10.0	5
TBZT52C13-V	WI	13	12.35	13.65	5	30	170	1.0	0.1	8.0	7.0	11.0	5

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			
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	uA	V	Min	Max	
TBZT52C15-V	WJ	15	14.25	15.75	5	30	200	1.0	0.1	10.5	9.2	13.0	5
TBZT52C16-V	WK	16	15.20	16.80	5	40	200	1.0	0.1	11.2	10.4	14.0	5
TBZT52C18-V	WL	18	17.10	18.90	5	45	225	1.0	0.1	12.6	12.4	16.0	5
TBZT52C20-V	WM	20	19.00	21.00	5	55	225	1.0	0.1	14.0	14.4	18.0	5
TBZT52C22-V	WN	22	20.90	23.10	5	55	250	1.0	0.1	15.4	16.4	20.0	5
TBZT52C24-V	WO	24	22.80	25.20	5	70	250	1.0	0.1	16.8	18.4	22.0	5
TBZT52C27-V	WP	27	25.65	28.35	2	80	300	0.5	0.1	18.9	21.4	25.3	2
TBZT52C30-V	WQ	30	28.50	31.50	2	80	300	0.5	0.1	21.0	24.4	29.4	2
TBZT52C33-V	WR	33	31.35	34.65	2	80	325	0.5	0.1	23.1	27.4	33.4	2
TBZT52C36-V	WS	36	34.20	37.80	2	90	350	0.5	0.1	25.2	30.4	37.4	2
TBZT52C39-V	WT	39	37.05	40.95	2	130	350	0.5	0.1	27.3	33.4	41.2	2
TBZT52C43-V	WU	43	40.85	45.15	2	100	700	1.0	0.1	32.0	10.0	12.0	5
TBZT52C47-V	WV	47	44.65	49.35	2	100	750	1.0	0.1	35.0	10.0	12.0	5
TBZT52C51-V	WW	51	48.45	53.55	2	100	750	1.0	0.1	38.0	10.0	12.0	5

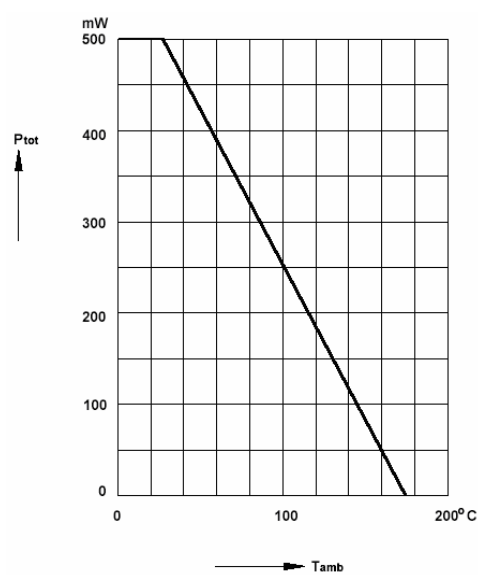
Breakdown characteristics
 at Tj=constant (pulsed)



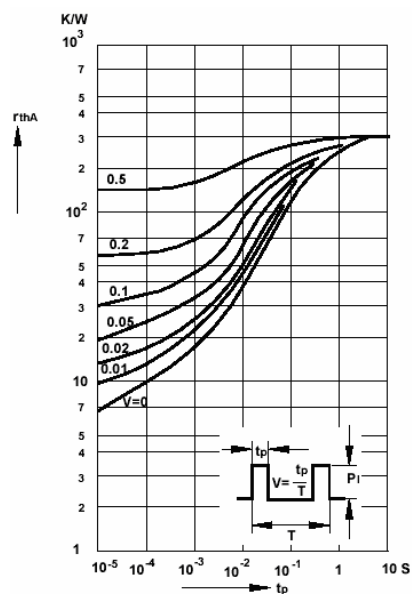
Forward characteristics



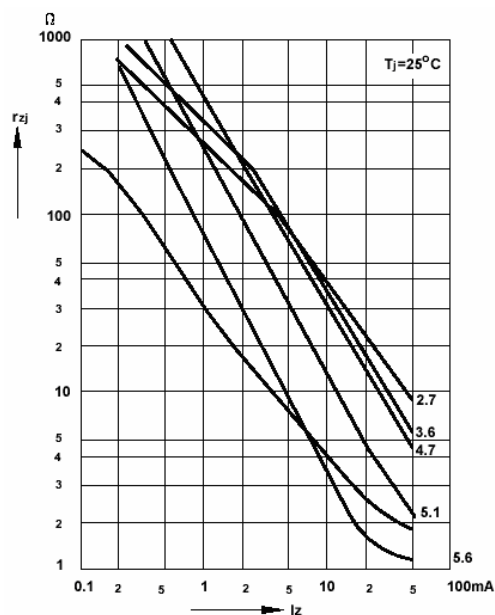
Admissible power dissipation versus ambient temperature



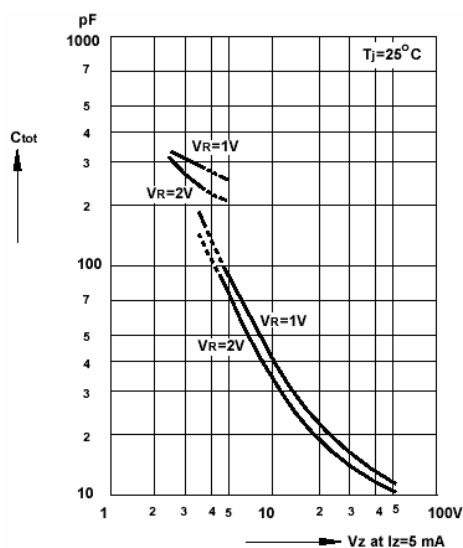
Pulse thermal resistance versus pulse duration



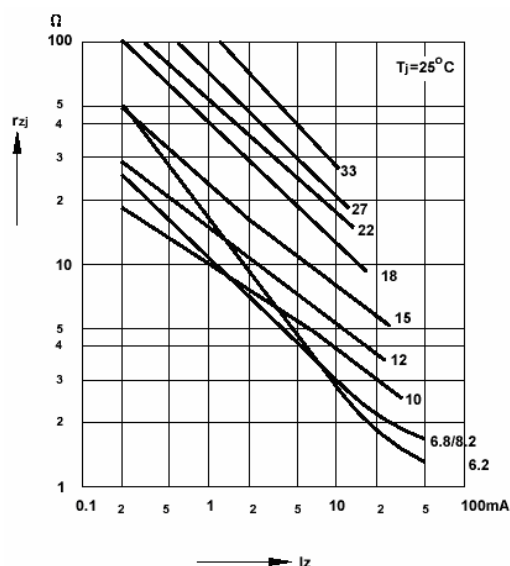
Dynamic resistance versus Zener current



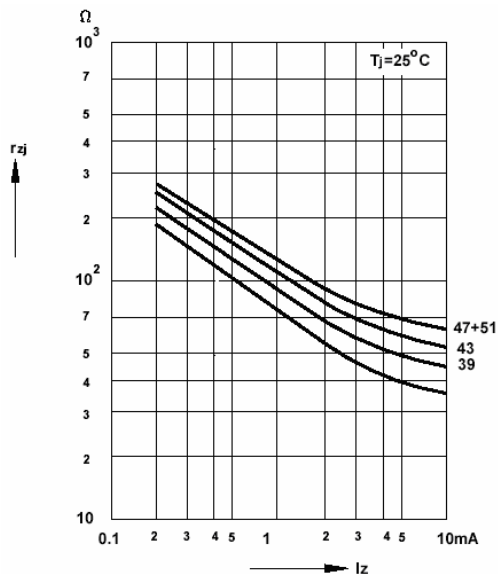
Capacitance versus Zener voltage



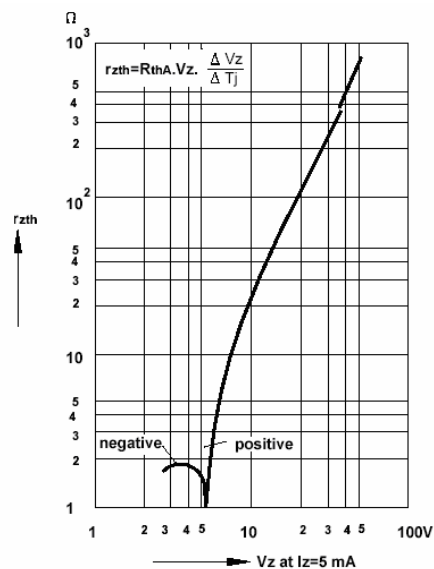
Dynamic resistance versus Zener current



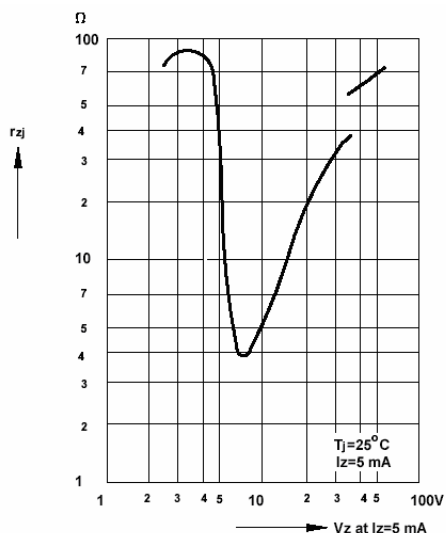
Dynamic resistance versus Zener current



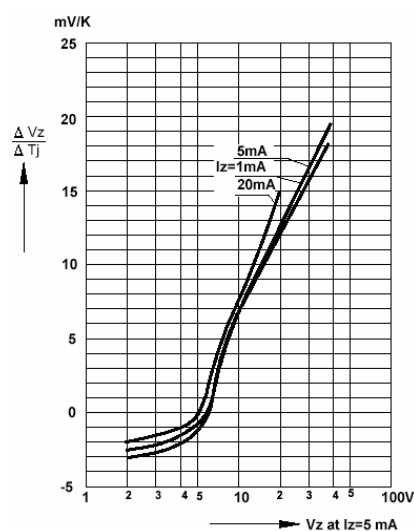
Thermal differential resistance versus Zener voltage



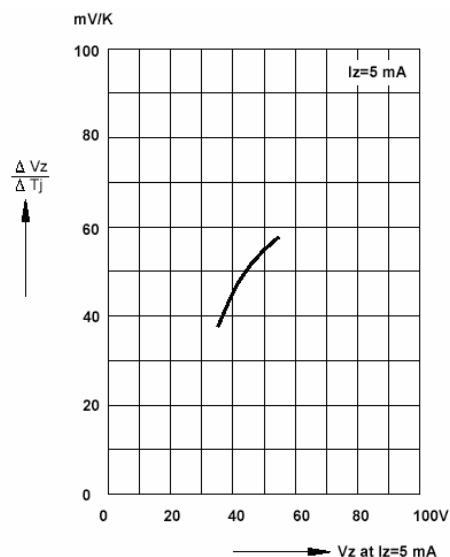
Dynamic resistance versus Zener voltage



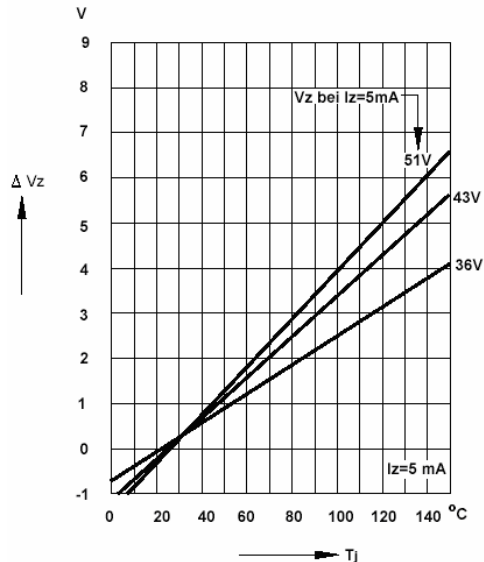
Temperature dependence of Zener voltage versus Zener voltage



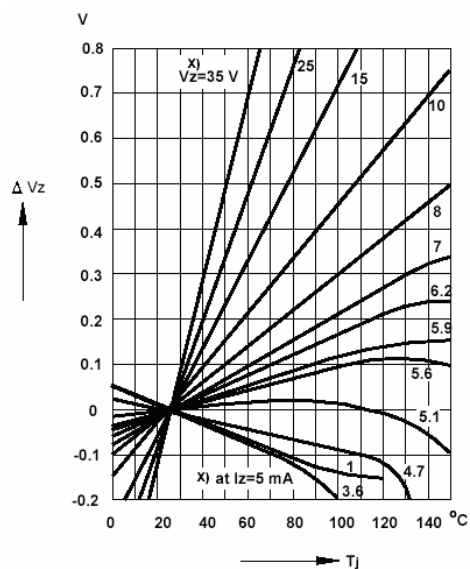
Temperature dependence of Zener voltage versus Zener voltage



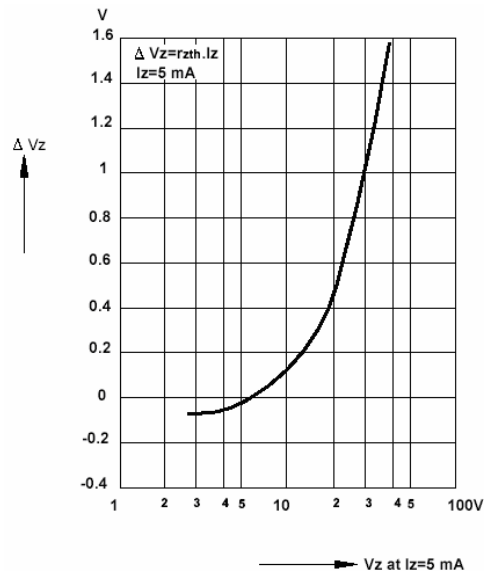
Change of Zener voltage versus junction temperature



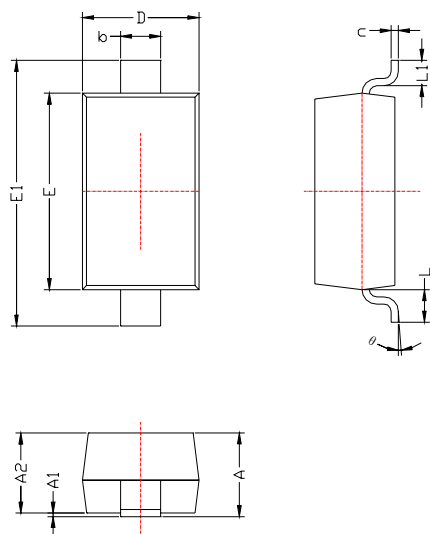
Change of Zener voltage versus junction temperature



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



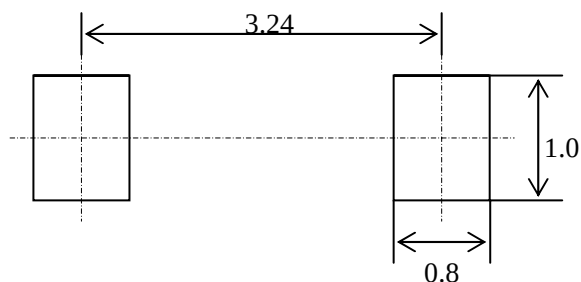
SOD-123 PACKAGE OUTLINE Plastic surface mounted package



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
θ	0°	8°

Precautions: PCB Design

Recommended land dimensions for SOD-123 diode. Electrode patterns for PCBs



Center: 3.24

Foot width: 0.55

Pad width: 1.00

Foot length: 0.50

Pad length: 0.80

1, Plastic package size: 2.70 X 1.60

2, Tolerance not specified: ±0.05

3, Units: mm