Zener Diode

Features

- Low Zener Impedance
- Power Dissipation of 500mW
- High Stability and High Reliability

Mechanical Data

- SOD-123 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Mounting Position: Any
- Zener Voltage: 2.4V to 51V
- Power Dissipation: 500mW

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Max. Forward Voltage @ I_F = 10mA (Note 2)	V_F	0.9	V
Junction Temperature (Note 1)	P_D	500	mW
Storage Temperature Range	T_{STG}	-65 to +150	°C

Notes:

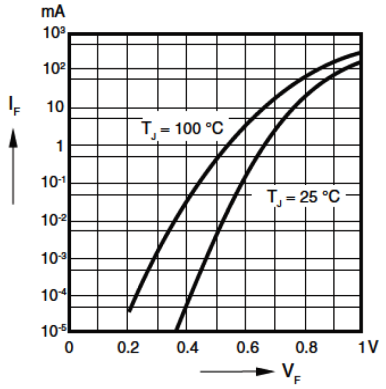
1. Device mounted on ceramic PCB: 7.6mm × 9.4mm × 0.87mm with pad areas 25mm²
2. Short duration test pulse used to minimize self-heating effect

Specification Table

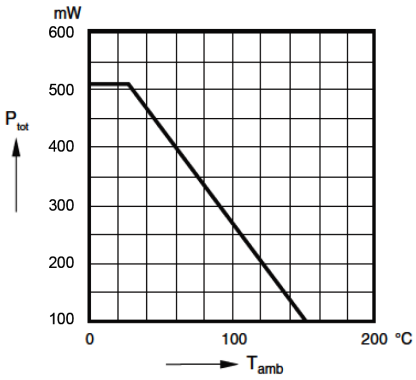
Part Number	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current	
		Vz @ Izt			Izt	Zzt@Izt	Zzk@Izk	Izk	IR	VR
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	µA	V
BZT52C10+	WF	10	9.4	10.6	5	20	150	1	0.2	7
BZT52C18+	WL	18	16.8	19.1	5	45	225	1	0.1	12.6
BZT52C33+	WR	33	31	35	2	80	325	0.5	0.1	23.1
BZT52C3V9+	W5	3.9	3.7	4.1	5	90	600	1	3	1
BZT52C4V7+	W7	4.7	4.4	5	5	80	500	1	3	2
BZT52C5V1+	W8	5.1	4.8	5.4	5	60	480	1	2	2

Part Number	Typical Temperature Coefficient @ IZTC = mV/°C		Test Current IZTC
	Min.	Max.	mA
BZT52C10+	4.5	8	5
BZT52C18+	12.4	16	5
BZT52C33+	27.4	33.4	2
BZT52C3V9+	-3.5	0	5
BZT52C4V7+	-3.5	0.2	5
BZT52C5V1+	-2.7	1.2	5

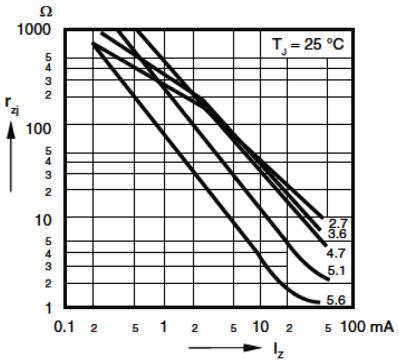
Rating and Characteristic Curves



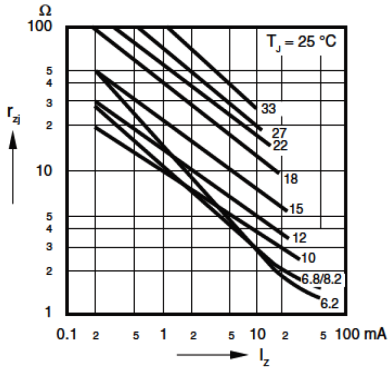
Forward Characteristics



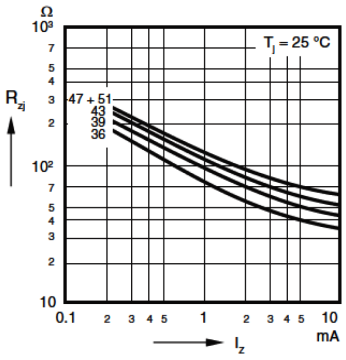
Admissible Power Dissipation
Vs. Ambient Temperature



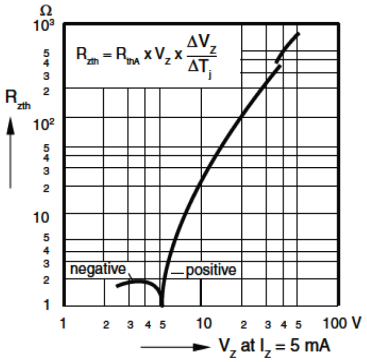
Dynamic Resistance
Vs. Zener Current



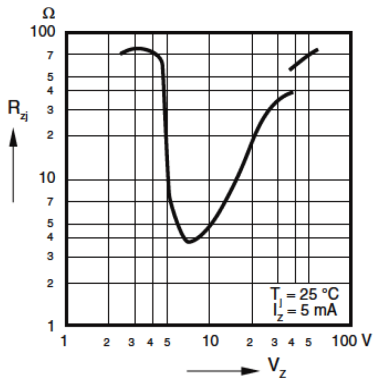
Dynamic Resistance
Vs. Zener Current



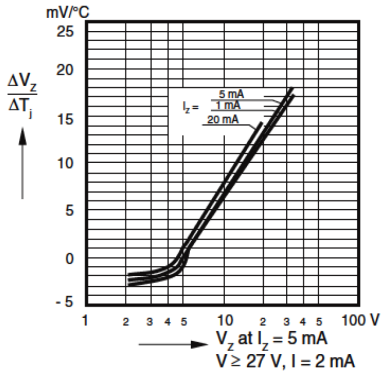
Dynamic Resistance
Vs. Zener Current



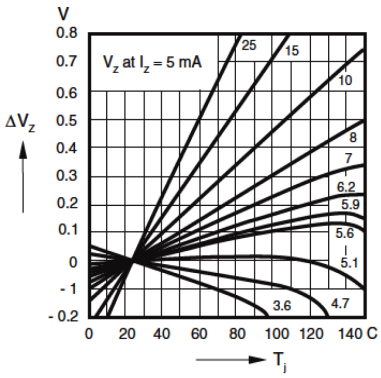
Thermal Differential Resistance
Vs. Zener Voltage



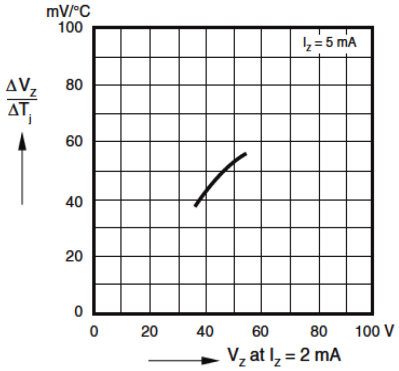
Dynamic Resistance
Vs. Zener Voltage



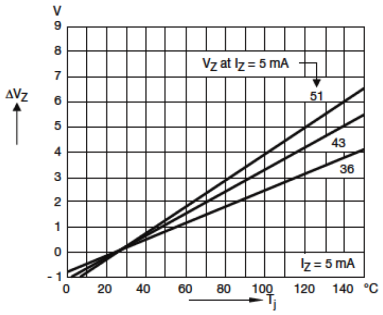
Temperature Dependence of
Zener Voltage Vs. Zener Voltage



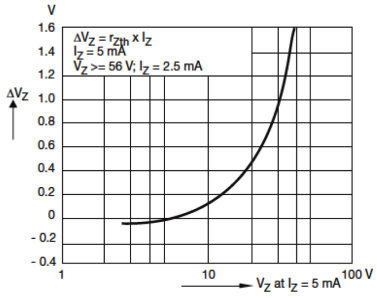
Change of Zener Voltage
Vs. Junction Temperature



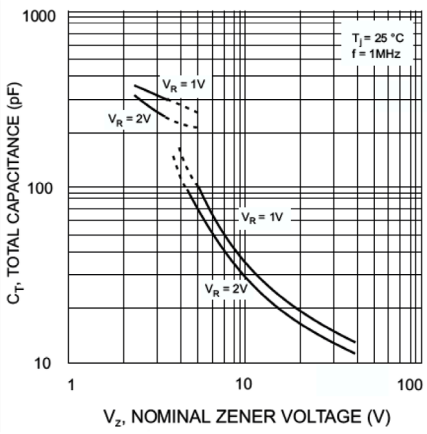
Temperature Dependence of Zener Voltage Vs. Zener Voltage



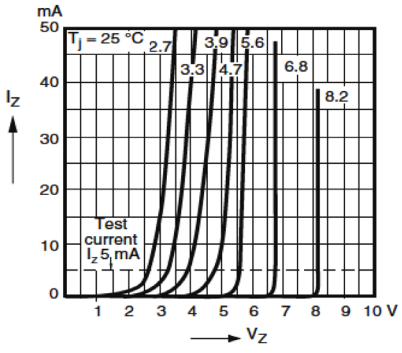
Change of Zener Voltage Vs. Junction Temperature



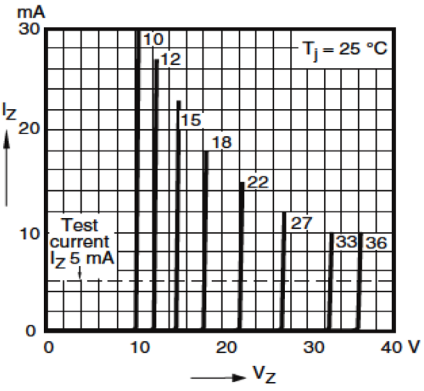
Change of Zener Voltage from Turn-on up to the point of Thermal Equilibrium Vs. Zener Voltage



Total capacitance Vs Nominal Zener Voltage



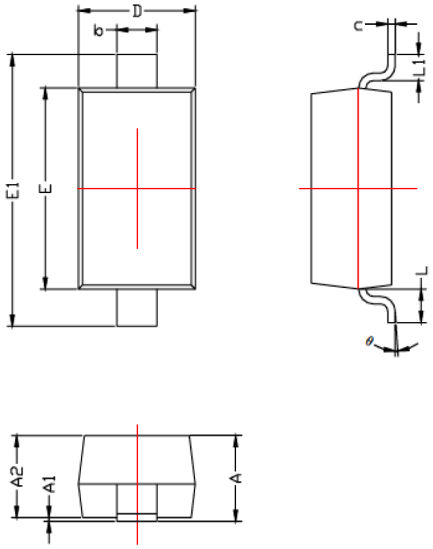
Breakdown Characteristics



Breakdown Characteristics

Dimensions:

SOD-123



Symbol	Dimensions	
	Min.	Max.
A	1.02	1.25
A1	0	0.1
A2	1.05	1.15
b	0.45	0.65
c	0.08	0.15
D	1.5	1.7

Symbol	Dimensions	
	Min.	Max.
E	2.6	2.8
E1	3.55	3.85
L	0.5 REF	
L1	0.25	0.45
θ	0°	8°

Dimensions : Millimetres

Part Number Table

Description	Part Number
Zener - Single 500mW 10V SOD-123	BZT52C10+
Zener - Single 500mW 18V SOD-123	BZT52C18+
Zener - Single 500mW 33V SOD-123	BZT52C33+
Zener - Single 500mW 3.9V SOD-123	BZT52C3V9+
Zener - Single 500mW 4.7V SOD-123	BZT52C4V7+
Zener - Single 500mW 5.1V SOD-123	BZT52C5V1+