

SOD-523 SURFACE MOUNT SILICON ZENER DIODES

Features

- Low Zener Impedance
- Power Dissipation of 150mW
- High Stability and High Reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Applications

Zener diode is generally used as reference voltage sources in regulated power supplies or as protective diode in overvoltage protection circuits.

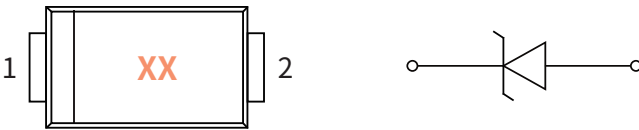
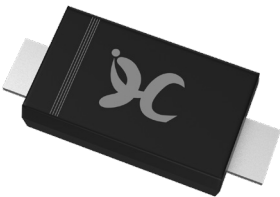
Mechanical Data

- Case: SOD-523
- Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Cathode line denotes the cathode end

Function Diagram

Zener Diode
2.4 to 43 Volts
Power Dissipation
150 Milliwatts

SOD-523



Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Power Dissipation	P _D	mW	150
Forward Voltage @ I _F =10mA	V _F	V	0.9
Storage Temperature	T _{stg}	°C	-55 ~+150
Junction Temperature	T _J	°C	-55 ~+150
Typical Thermal Resistance	R _{θJA}	°C /W	833

Electrical Parameter

SYMBOL	PARAMETER
V _Z	Reverse zener voltage @ I _{ZT}
I _{ZT}	Reverse current
Z _{ZT}	Maximum Zener Impedance @ I _{ZT}
I _{ZK}	Reverse Current
Z _{ZK}	Maximum Zener Impedance @ I _{ZK}
I _R	Reverse leakage current @ V _R
V _R	Reverse voltage
I _F	Forward current
V _F	Forward voltage @ I _F

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● Electrical Characteristics (Ta=25°C Unless otherwise noted)

Type Number	Marking	Nominal Zener Voltage				Zener Impedance			Leakage Current		Typical Temperature coefficient @ I _{ZTC} (mV/°C)		Admissible Zener Current
		V _Z (V)			I _{ZT}	Z _{ZT} @I _{ZT}	Z _{ZK} @I _{ZK}	I _{ZK}	I _R @V _R				
		Min.	Nom.	Max.	(mA)	(Ω)		(mA)	I _R (μA)	V _R (V)	Min.	Max.	I _{ZM} (mA)
BZX584C2V4	Z11	2.2	2.4	2.6	100	5	600	1.0	50	1.0	-3.5	0	5
BZX584C2V7	Z12	2.5	2.7	2.9	100	5	600	1.0	20	1.0	-3.5	0	5
BZX584C3V0	Z13	2.8	3.0	3.2	95	5	600	1.0	10	1.0	-3.5	0	5
BZX584C3V3	Z14	3.1	3.3	3.5	95	5	600	1.0	5	1.0	-3.5	0	5
BZX584C3V6	Z15	3.4	3.6	3.8	90	5	600	1.0	5	1.0	-3.5	0	5
BZX584C3V9	Z16	3.7	3.9	4.1	90	5	600	1.0	3	1.0	-3.5	0	5
BZX584C4V3	Z17	4.0	4.3	4.6	90	5	600	1.0	3	1.0	-3.5	0	5
BZX584C4V7	Z1	4.4	4.7	5.0	80	5	500	1.0	3	2.0	-2.7	0.2	5
BZX584C5V1	Z2	4.8	5.1	5.4	60	5	480	1.0	2	2.0	-2	1.2	5
BZX584C5V6	Z3	5.2	5.6	6.0	40	5	400	1.0	1	2.0	0.4	2.5	5
BZX584C6V2	Z4	5.8	6.2	6.6	10	5	150	1.0	3	4.0	1.2	3.7	5
BZX584C6V8	Z5	6.4	6.8	7.2	15	5	80	1.0	2	4.0	2.5	4.5	5
BZX584C7V5	Z6	7.0	7.5	7.9	15	5	80	1.0	1	5.0	3.2	5.3	5
BZX584C8V2	Z7	7.7	8.2	8.7	15	5	80	1.0	0.7	5.0	3.8	6.2	5
BZX584C9V1	Z8	8.5	9.1	9.6	15	5	100	1.0	0.5	6.0	4.5	7.0	5
BZX584C10	Z9	9.4	10	10.6	20	5	150	1.0	0.2	7.0	5.4	8.0	5
BZX584C11	Y1	10.4	11	11.6	20	5	150	1.0	0.1	8.0	6.0	9.0	5
BZX584C12	Y2	11.4	12	12.7	25	5	150	1.0	0.1	8.0	7.0	10.0	5
BZX584C13	Y3	12.4	13	14.1	30	5	170	1.0	0.1	8.0	9.2	11.0	5
BZX584C15	Y4	13.8	15	15.6	30	5	200	1.0	0.1	10.5	10.4	13.0	5
BZX584C16	Y5	15.3	16	17.1	40	5	200	1.0	0.1	11.2	12.4	14.0	5
BZX584C18	Y6	16.8	18	19.1	45	5	225	1.0	0.1	12.6	14.4	16.0	5
BZX584C20	Y7	18.8	20	21.2	55	5	225	1.0	0.1	14.0	16.4	18.0	5
BZX584C22	Y8	20.8	22	23.3	55	5	250	1.0	0.1	15.4	18.4	20.0	5
BZX584C24	Y9	22.8	24	25.6	70	5	250	1.0	0.1	16.8	21.4	22.0	5
BZX584C27	Y10	25.1	27	28.9	80	2	300	0.5	0.1	18.9	24.4	25.3	2
BZX584C30	Y11	28	30	32	80	2	300	0.5	0.1	21.0	27.4	29.4	2
BZX584C33	Y12	31	33	35	80	2	325	0.5	0.1	23.1	30.4	33.4	2
BZX584C36	Y13	34	36	38	90	2	350	0.5	0.1	25.2	33.4	37.4	2
BZX584C39	Y14	37	39	41	130	2	350	0.5	0.1	27.3	10.0	41.2	2
BZX584C43	Y15	40	43	46	100	2	700	1.0	0.1	32.0	10.0	12.0	5

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● Ratings And Characteristics Curves ($T_a=25^\circ\text{C}$ Unless otherwise specified)

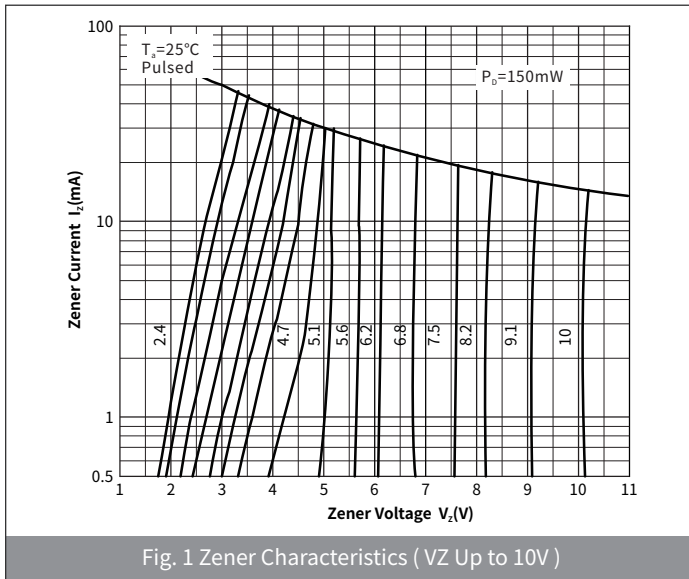


Fig. 1 Zener Characteristics (VZ Up to 10V)

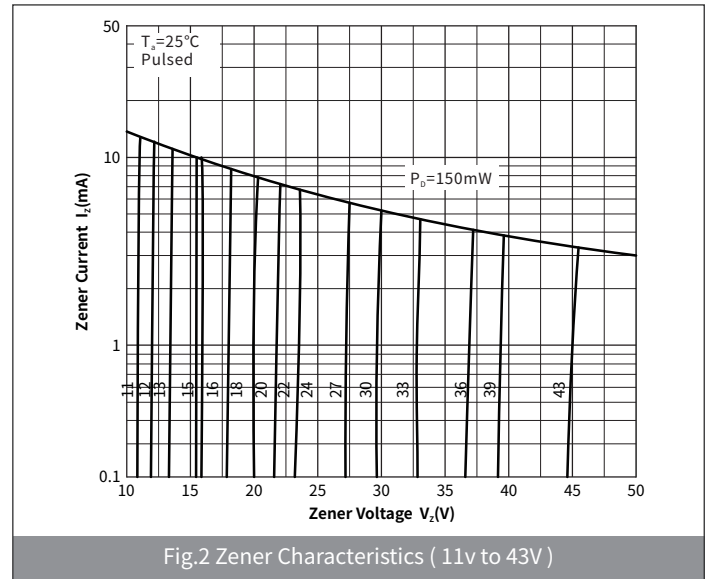


Fig.2 Zener Characteristics (11v to 43V)

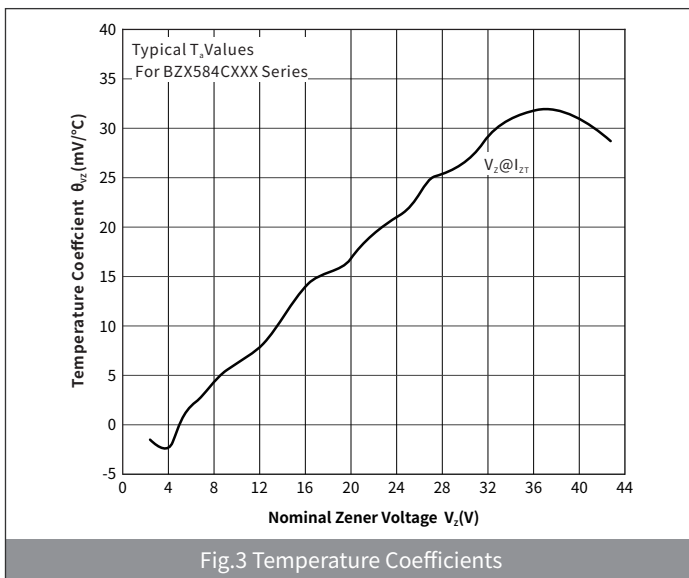


Fig.3 Temperature Coefficients

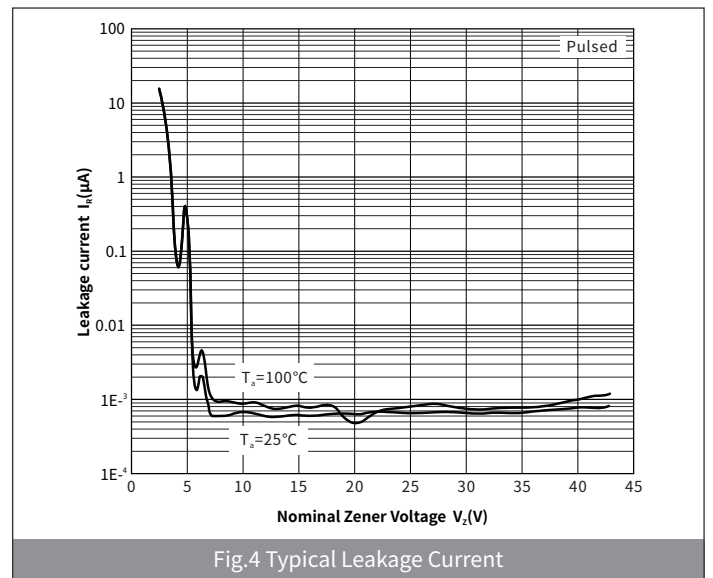


Fig.4 Typical Leakage Current

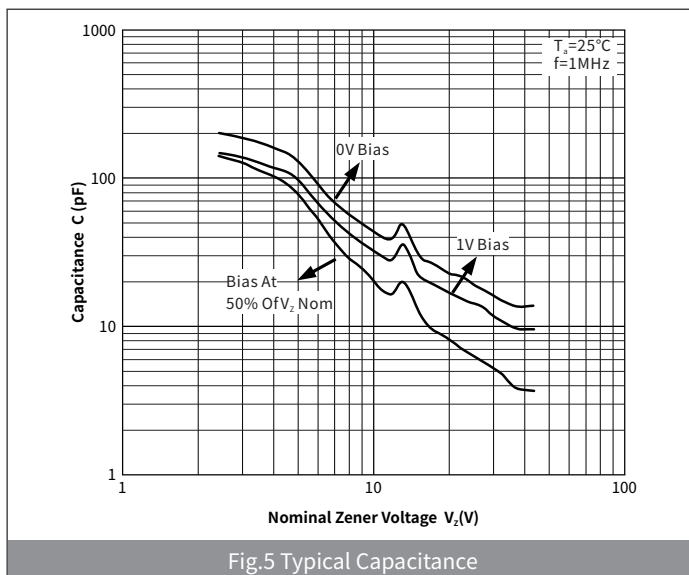


Fig.5 Typical Capacitance

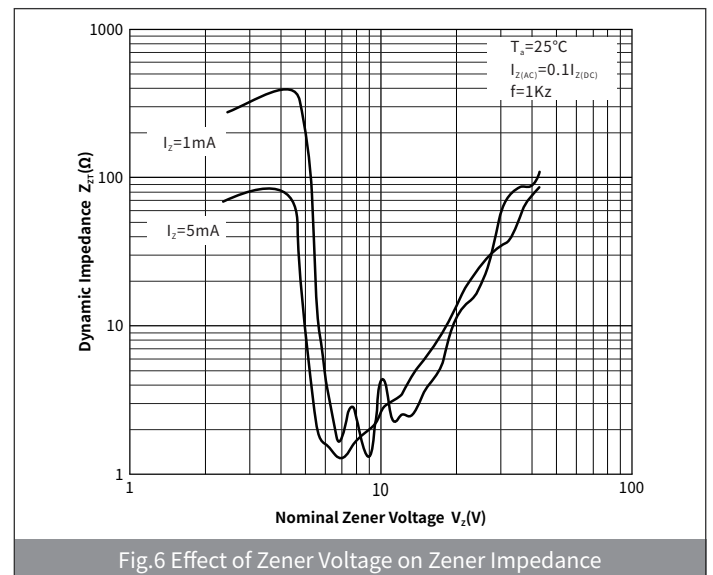


Fig.6 Effect of Zener Voltage on Zener Impedance

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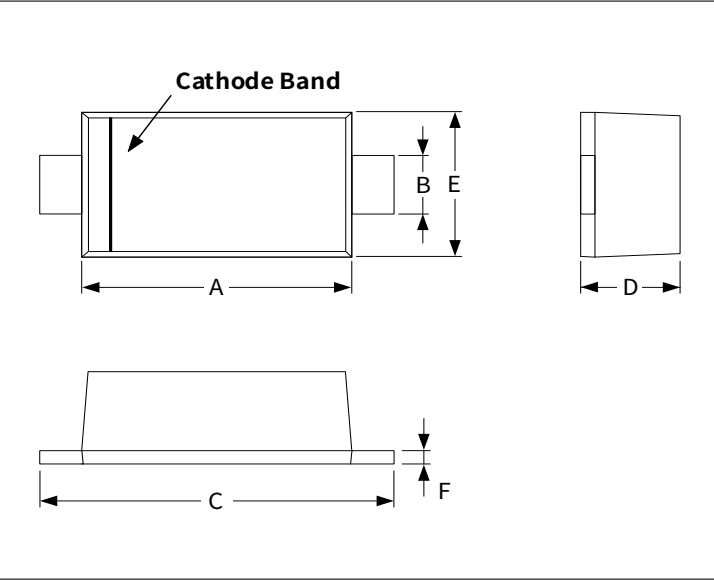
SURFACE MOUNT ZENER DIODES

Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOD-523	R1	0.002	3000	45000	180000	7"

Package Outline Dimensions (SOD-523)

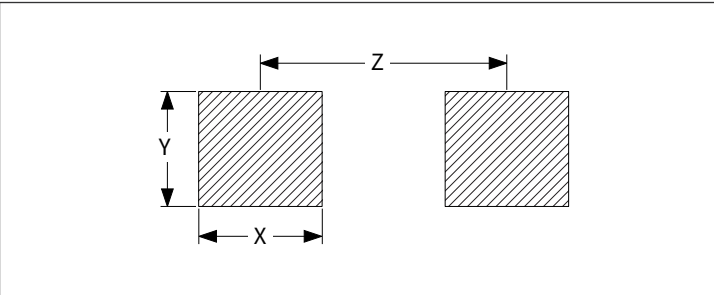
Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	1.10	1.30	0.043	0.051
B	0.25	0.35	0.010	0.014
C	1.50	1.70	0.059	0.067
D	0.50	0.70	0.020	0.027
E	0.70	0.90	0.027	0.035
F	0.05	0.20	0.002	0.008



The diagram illustrates the physical dimensions of the SOD-523 package. It includes a top view showing the cathode band, a side view, and a cross-sectional view. Dimensions are labeled as follows: A (body length), B (cathode band width), C (total length), D (body width), E (maximum height), and F (maximum standoff height).

Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
X	0.55	0.65	0.022	0.026
Y	0.65	0.75	0.026	0.029
Z	1.37	1.47	0.054	0.058



The diagram shows the suggested pad layout for the SOD-523 package. It includes a top view of the pads and a side view. Dimensions are labeled as follows: X (pad width), Y (pad height), and Z (pitch between pads).