

SOD-523 SURFACE MOUNT SILICON ZENER DIODES

Features

- Low Zener Impedance
- Power Dissipation of 150mW
- High Stability and High Reliability
- Meets MSL level 3, 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.

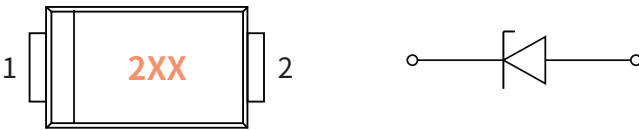
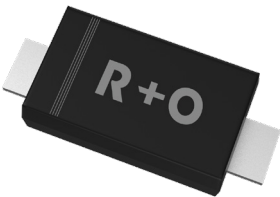
Mechanical Data

- Package: 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 47 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 @ $I_F=10\text{mA}$	V_F	V	0.9
Storage Temperature	T_{stg}	°C	-55 ~ +150
Junction Temperature	T_J	°C	-55 ~ +150
Typical Thermal Resistance	$R_{\theta J-A}$	°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

BZX584B2V4 THRU BZX584B47

SURFACE MOUNT ZENER DIODES

● 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)	
		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.
BZX584B2V4	2V1	2.35	2.4	2.45	5	100	600	1.0	50	1.0	-3.5	0
BZX584B2V7	2V2	2.65	2.7	2.75	5	100	600	1.0	20	1.0	-3.5	0
BZX584B3V0	2V3	2.94	3.0	3.06	5	95	600	1.0	10	1.0	-3.5	0
BZX584B3V3	2V4	3.23	3.3	3.37	5	95	600	1.0	5	1.0	-3.5	0
BZX584B3V6	2V5	3.53	3.6	3.67	5	90	600	1.0	5	1.0	-3.5	0
BZX584B3V9	2V6	3.82	3.9	3.98	5	90	600	1.0	3	1.0	-3.5	0
BZX584B4V3	2V7	4.21	4.3	4.39	5	90	600	1.0	3	1.0	-3.5	0
BZX584B4V7	2Z1	4.61	4.7	4.79	5	80	500	1.0	3	2.0	-3.5	0.2
BZX584B5V1	2Z2	5.00	5.1	5.20	5	60	480	1.0	2	2.0	-2.7	1.2
BZX584B5V6	2Z3	5.49	5.6	5.71	5	40	400	1.0	1	2.0	-2.0	2.5
BZX584B6V2	2Z4	6.08	6.2	6.32	5	10	150	1.0	3	4.0	0.4	3.7
BZX584B6V8	2Z5	6.66	6.8	6.94	5	15	80	1.0	2	4.0	1.2	4.5
BZX584B7V5	2Z6	7.35	7.5	7.65	5	15	80	1.0	1	5.0	2.5	5.3
BZX584B8V2	2Z7	8.04	8.2	8.36	5	15	80	1.0	0.7	5.0	3.2	6.2
BZX584B9V1	2Z8	8.92	9.1	9.28	5	15	100	1.0	0.5	6.0	3.8	7.0
BZX584B10	2Z9	9.80	10	10.20	5	20	150	1.0	0.2	7.0	4.5	8.0
BZX584B11	2Y1	10.78	11	11.22	5	20	150	1.0	0.1	8.0	5.4	9.0
BZX584B12	2Y2	11.76	12	12.24	5	25	150	1.0	0.1	8.0	6.0	10.0
BZX584B13	2Y3	12.74	13	13.26	5	30	170	1.0	0.1	8.0	7.0	11.0
BZX584B15	2Y4	14.70	15	15.30	5	30	200	1.0	0.1	10.5	9.2	13.0
BZX584B16	2Y5	15.68	16	16.32	5	40	200	1.0	0.1	11.2	10.4	14.0
BZX584B18	2Y6	17.64	18	18.36	5	45	225	1.0	0.1	12.6	12.4	16.0
BZX584B20	2Y7	19.60	20	20.40	5	55	225	1.0	0.1	14.0	14.4	18.0
BZX584B22	2Y8	21.56	22	22.44	5	55	250	1.0	0.1	15.4	16.4	20.0
BZX584B24	2Y9	23.52	24	24.48	5	70	250	1.0	0.1	16.8	18.4	22.0
BZX584B27	2X1	26.46	27	27.54	2	80	300	0.5	0.1	18.9	21.4	25.3
BZX584B30	2X2	29.40	30	30.60	2	80	300	0.5	0.1	21.0	24.4	29.4
BZX584B33	2X3	32.34	33	33.66	2	80	325	0.5	0.1	23.1	27.4	33.4
BZX584B36	2X4	35.28	36	36.72	2	90	350	0.5	0.1	25.2	30.4	37.4
BZX584B39	2X5	38.22	39	39.78	2	130	350	0.5	0.1	27.3	33.4	41.2
BZX584B43	2X6	42.14	43	43.86	2	100	700	1.0	1.0	32.0	10.0	12.0
BZX584B47	2X7	46.06	47	47.94	2	100	750	1.0	1.0	35.0	10.0	12.0

Notes:
1. Valid provided that device terminals are kept at ambient temperature.
2. Tested with pulses, period=5ms,pulse width =300μs.
3. f=1kHz.

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SURFACE MOUNT ZENER DIODES

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

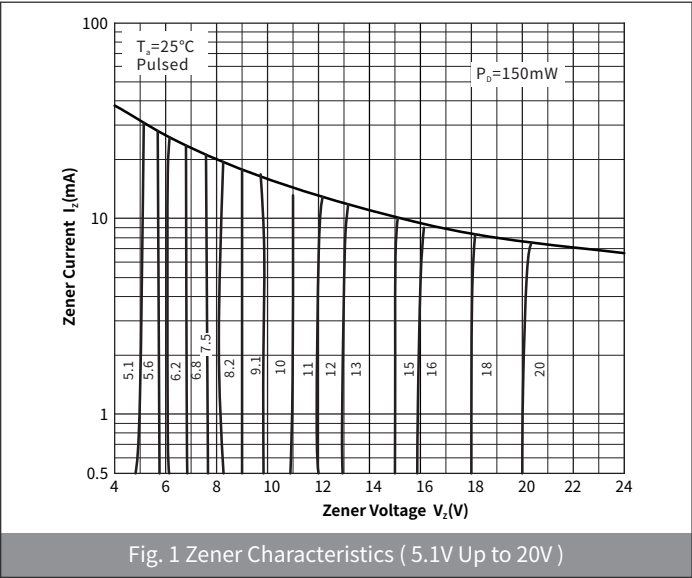


Fig. 1 Zener Characteristics (5.1V Up to 20V)

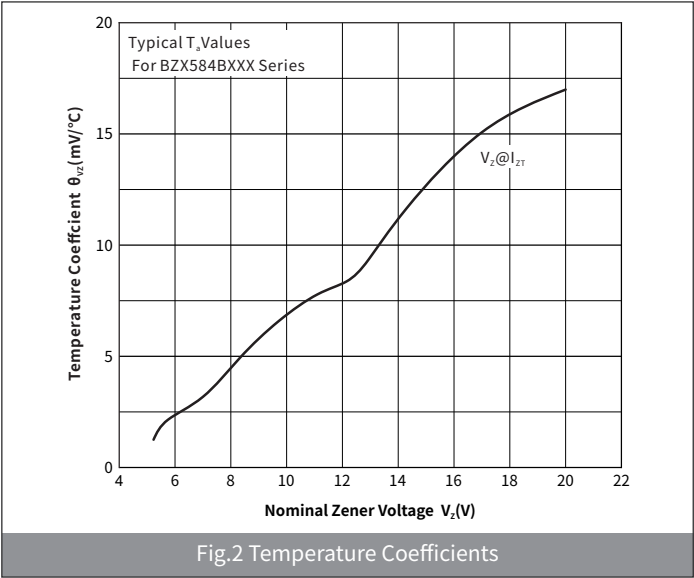


Fig. 2 Temperature Coefficients

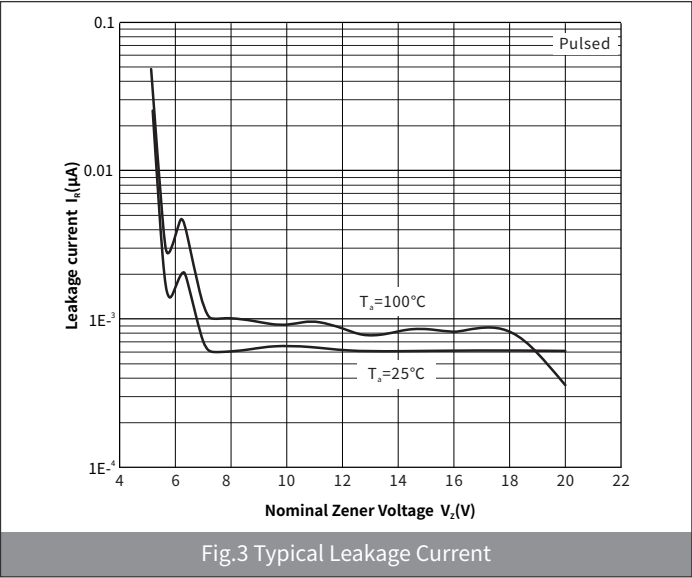


Fig. 3 Typical Leakage Current

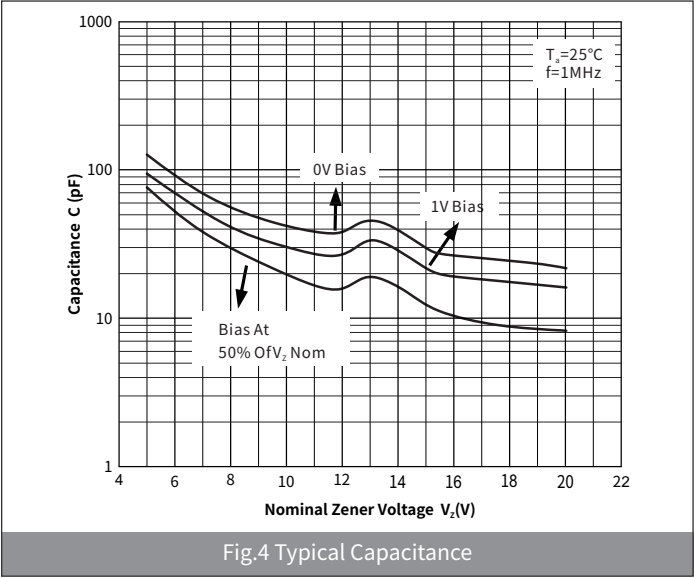


Fig. 4 Typical Capacitance

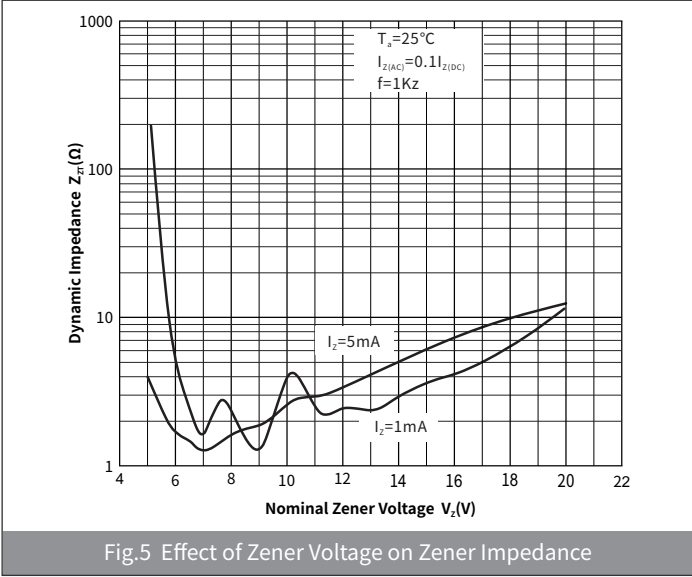


Fig. 5 Effect of Zener Voltage on Zener Impedance

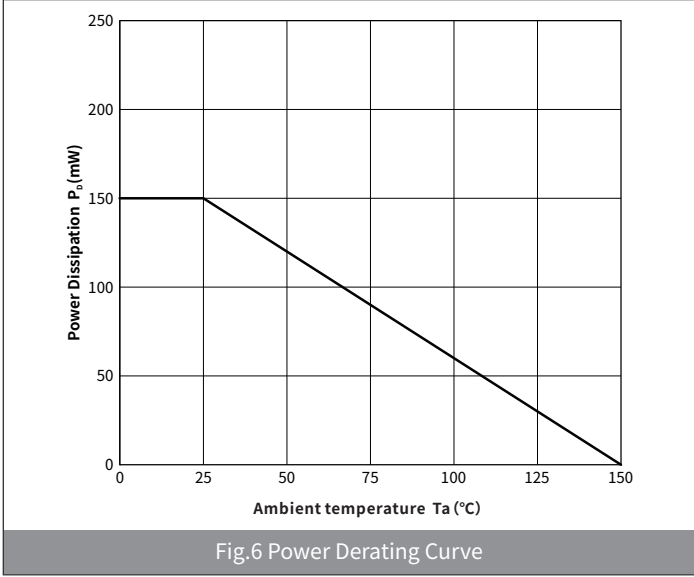


Fig. 6 Power Derating Curve

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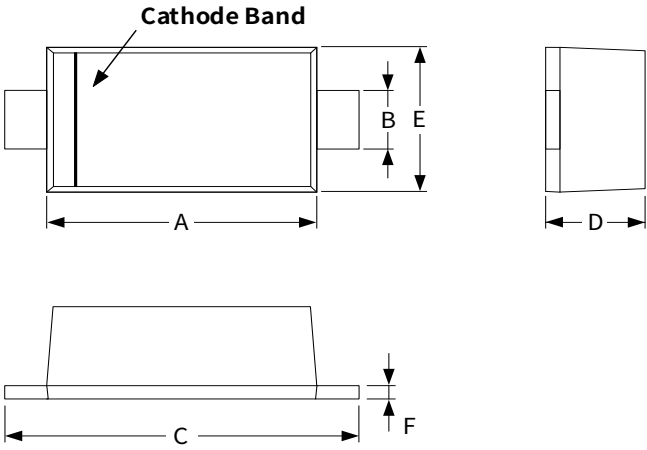
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● Ordering Information

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



● 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

