

SOD-123 SURFACE MOUNT SILICON ZENER DIODES

Features

- Low Zener Impedance
- Power Dissipation of 500mW
- 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.

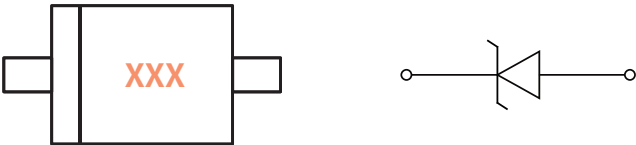
Mechanical Data

- Case: SOD-123
- 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
500 Milliwatts

SOD-123



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

PARAMETER	SYMBOL	UNIT	VALUE
Power Dissipation	P _D	mW	500
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	357

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

BZT52B2V4 THRU BZT52B51

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)		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)
BZT52B2V4	2WX	2.35	2.4	2.45	5	100	600	1.0	50	1.0	-3.5	0	5
BZT52B2V7	2W1	2.65	2.7	2.75	5	100	600	1.0	20	1.0	-3.5	0	5
BZT52B3V0	2W2	2.94	3.0	3.06	5	95	600	1.0	10	1.0	-3.5	0	5
BZT52B3V3	2W3	3.23	3.3	3.37	5	95	600	1.0	5	1.0	-3.5	0	5
BZT52B3V6	2W4	3.53	3.6	3.67	5	90	600	1.0	5	1.0	-3.5	0	5
BZT52B3V9	2W5	3.82	3.9	3.98	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V3	2W6	4.21	4.3	4.39	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V7	2W7	4.61	4.7	4.79	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZT52B5V1	2W8	5.00	5.1	5.20	5	60	480	1.0	2	2.0	-2.7	1.2	5
BZT52B5V6	2W9	5.49	5.6	5.71	5	40	400	1.0	1	2.0	-2.0	2.5	5
BZT52B6V2	2WA	6.08	6.2	6.32	5	10	150	1.0	3	4.0	0.4	3.7	5
BZT52B6V8	2WB	6.66	6.8	6.94	5	15	80	1.0	2	4.0	1.2	4.5	5
BZT52B7V5	2WC	7.35	7.5	7.65	5	15	80	1.0	1	5.0	2.5	5.3	5
BZT52B8V2	2WD	8.04	8.2	8.36	5	15	80	1.0	0.7	5.0	3.2	6.2	5
BZT52B9V1	2WE	8.92	9.1	9.28	5	15	100	1.0	0.5	6.0	3.8	7.0	5
BZT52B10	2WF	9.80	10	10.20	5	20	150	1.0	0.2	7.0	4.5	8.0	5
BZT52B11	2WG	10.78	11	11.22	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BZT52B12	2WH	11.76	12	12.24	5	25	150	1.0	0.1	8.0	6.0	10.0	5
BZT52B13	2WI	12.74	13	13.26	5	30	170	1.0	0.1	8.0	7.0	11.0	5
BZT52B15	2WJ	14.70	15	15.30	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BZT52B16	2WK	15.68	16	16.32	5	40	200	1.0	0.1	11.2	10.4	14.0	5
BZT52B18	2WL	17.64	18	18.36	5	45	225	1.0	0.1	12.6	12.4	16.0	5
BZT52B20	2WM	19.60	20	20.40	5	55	225	1.0	0.1	14.0	14.4	18.0	5
BZT52B22	2WN	21.56	22	22.44	5	55	250	1.0	0.1	15.4	16.4	20.0	5
BZT52B24	2WO	23.52	24	24.48	5	70	250	1.0	0.1	16.8	18.4	22.0	5
BZT52B27	2WP	26.46	27	27.54	2	80	300	0.5	0.1	18.9	21.4	25.3	2
BZT52B30	2WQ	29.40	30	30.60	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZT52B33	2WR	32.34	33	33.66	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52B36	2WS	35.28	36	36.72	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52B39	2WT	38.22	39	39.78	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BZT52B43	2WU	41.16	43	43.84	2	130	350	0.5	0.1	29.4	36.4	45.2	2
BZT52B47	2WV	46.06	47	47.94	5	100	750	1.0	0.1	35	10.0	12	5
BZT52B51	2WW	49.98	51	52.02	5	100	750	1.0	0.1	38	10.0	12	5

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

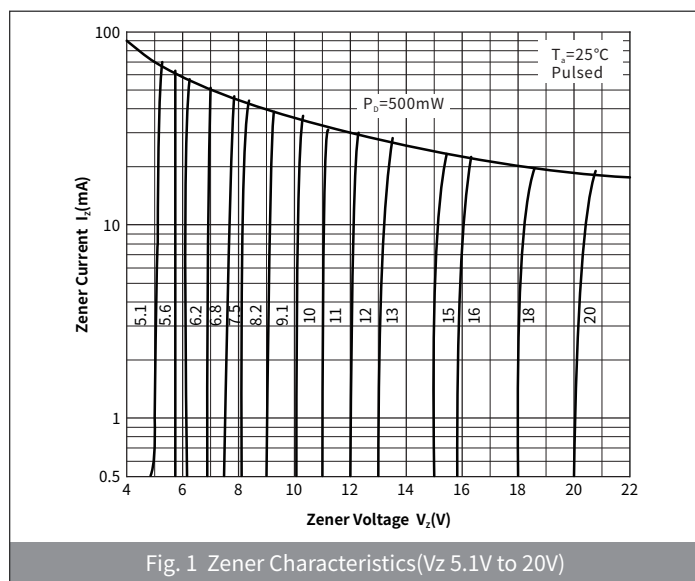


Fig. 1 Zener Characteristics(V_z 5.1V to 20V)

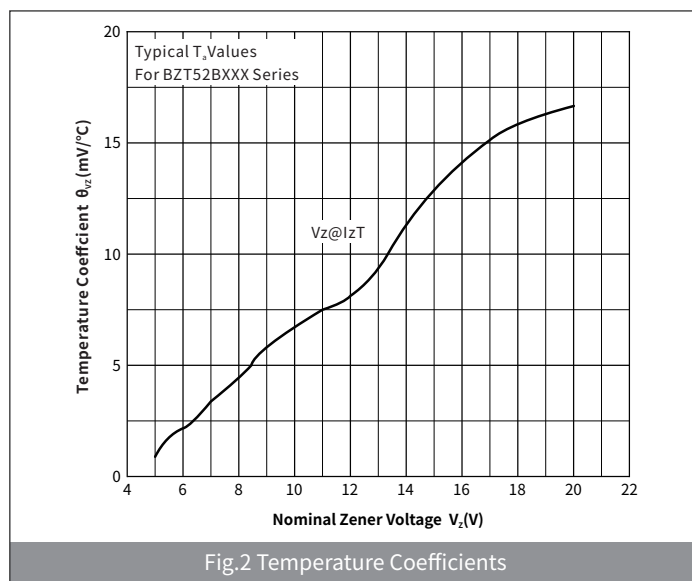


Fig.2 Temperature Coefficients

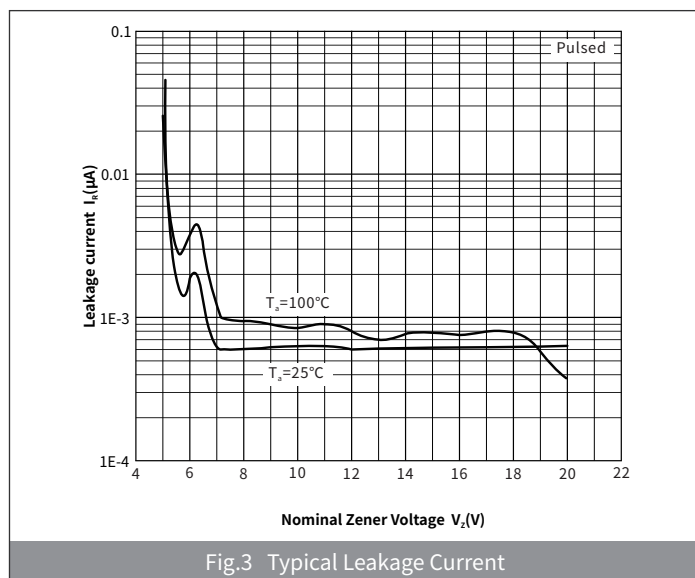


Fig.3 Typical Leakage Current

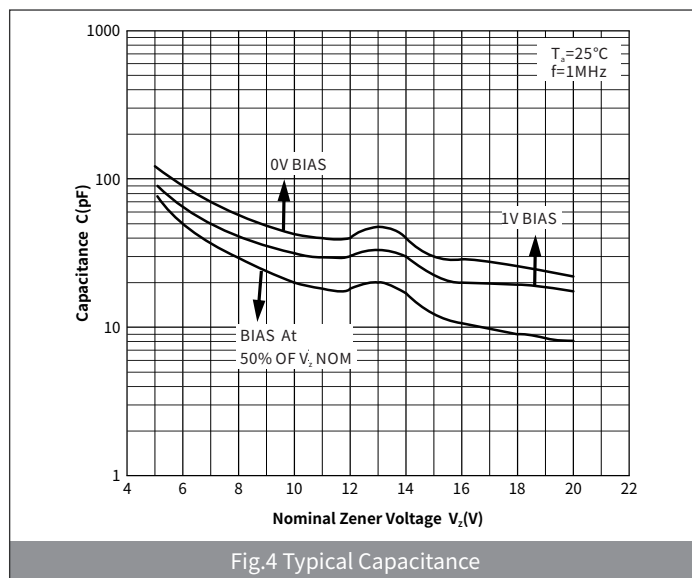


Fig.4 Typical Capacitance

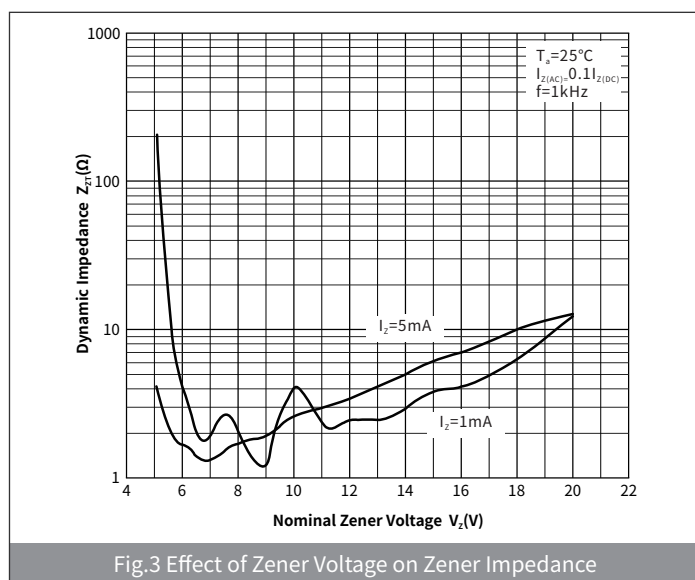


Fig.3 Effect of Zener Voltage on Zener Impedance

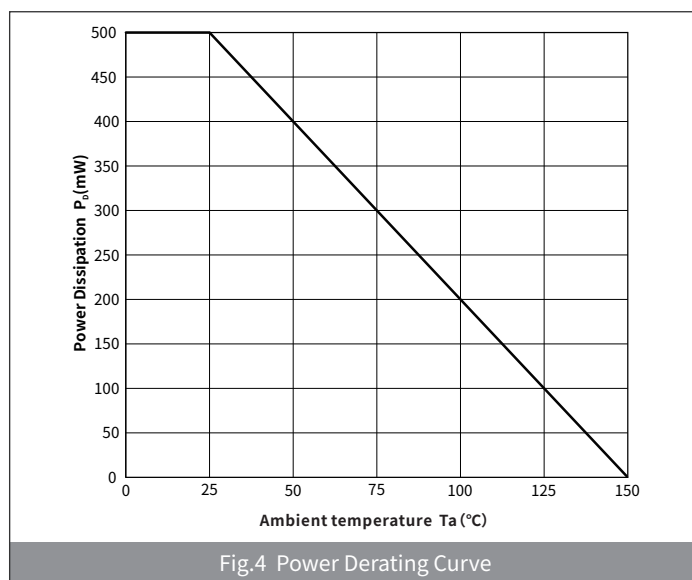


Fig.4 Power Derating Curve

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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-123	R1	0.012	3000	45000	180000	7"

Package Outline Dimensions (SOD-123)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.55	3.85	0.140	0.152
B	2.55	2.85	0.100	0.112
C	1.40	1.80	0.055	0.071
D	0.95	1.35	0.140	0.152
E	0.51	0.71	0.037	0.053
F	-	0.15	-	0.006
G	0.15	0.45	0.006	0.008
H	0.08	0.25	0.003	0.010
θ	-	8°	-	8°

Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.91	-	0.036	-
K	-	2.36	-	0.092
M	1.22	-	0.048	-