

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

Zener Diode
2.0 to 75 Volts
Power Dissipation
0.5 Watts

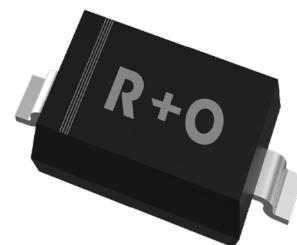
Applications

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

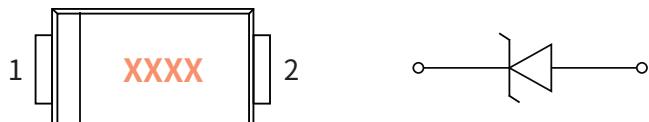
Mechanical Data

- 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

SOD-123



Function Diagram

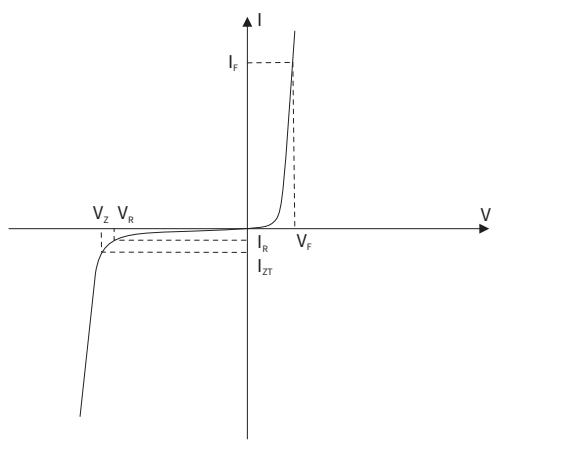


Maximum Ratings (Ta=25°C Unless otherwise specified)

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 _{θJ-A}	°C / W	340

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



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

Type Number	Type Code	Nominal Zener Voltage			Zener Impedance	Leakage Current		
		V _Z		I _{ZT}		I _R @V _R		
		Min.(V)	Nom.(V)	Max.(V)	(mA)	Z _{ZT} (Ω)	I _R (μA)	V _R (V)
MM1Z2V0	4A	1.8	2.0	2.15	5	100	120	0.5
MM1Z2V2	4B	2.08	2.2	2.33	5	100	120	0.7
MM1Z2V4	4C	2.28	2.4	2.56	5	100	120	1
MM1Z2V7	4D	2.5	2.7	2.9	5	110	120	1
MM1Z3V0	4E	2.8	3.0	3.2	5	120	50	1
MM1Z3V3	4F	3.1	3.3	3.5	5	130	20	1
MM1Z3V6	4H	3.4	3.6	3.8	5	130	10	1
MM1Z3V9	4J	3.7	3.9	4.1	5	130	5	1
MM1Z4V3	4K	4	4.3	4.6	5	130	5	1
MM1Z4V7	4M	4.4	4.7	5	5	130	2	1
MM1Z5V1	4N	4.8	5.1	5.4	5	130	2	1.5
MM1Z5V6	4P	5.2	5.6	6	5	80	1	2.5
MM1Z6V2	4R	5.8	6.2	6.6	5	50	1	3
MM1Z6V8	4X	6.4	6.8	7.2	5	30	0.5	3.5
MM1Z7V5	4Y	7	7.5	7.9	5	30	0.5	4
MM1Z8V2	4Z	7.7	8.2	8.7	5	30	0.5	5
MM1Z9V1	5A	8.5	9.1	9.6	5	30	0.5	6
MM1Z10	5B	9.4	10	10.6	5	30	0.1	7
MM1Z11	5C	10.4	11	11.6	5	30	0.1	8
MM1Z12	5D	11.4	12	12.7	5	35	0.1	9
MM1Z13	5E	12.4	13	14.1	5	35	0.1	10
MM1Z15	5F	13.8	15	15.6	5	40	0.1	11
MM1Z16	5H	15.3	16	17.1	5	40	0.1	12
MM1Z18	5J	16.8	18	19.1	5	45	0.1	13
MM1Z20	5K	18.8	20	21.2	5	50	0.1	15
MM1Z22	5M	20.8	22	23.3	5	55	0.1	17
MM1Z24	5N	22.8	24	25.6	5	60	0.1	19
MM1Z27	5P	25.1	27	28.9	5	70	0.1	21
MM1Z30	5R	28	30	32	5	80	0.1	23
MM1Z33	5X	31	33	35	5	80	0.1	25
MM1Z36	5Y	34	36	38	5	90	0.1	27
MM1Z39	5Z	37	39	41	2.5	100	2	30
MM1Z43	6A	40	43	46	3.7	150	1	52

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

Type Number	Type Code	Nominal Zener Voltage			I _{ZT}	Z _{ZT} @I _{ZT}	Leakage Current	
		V _Z		I _{ZT}			I _R @V _R	
		Min.(V)	Nom.(V)	Max.(V)			(mA)	Z _{ZT} (Ω)
MM1Z43	6A	40	43	46	2.5	130	2	33
MM1Z47	6B	44	47	50	2.5	150	2	36
MM1Z51	6C	48	51	54	2.5	180	1	39
MM1Z56	6D	52	56	60	2.5	180	1	43
MM1Z62	6E	58	62	66	2.5	200	0.2	47
MM1Z68	6F	64	68	72	2.5	250	0.2	52
MM1Z75	6H	70	75	79	2.5	300	0.2	57

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

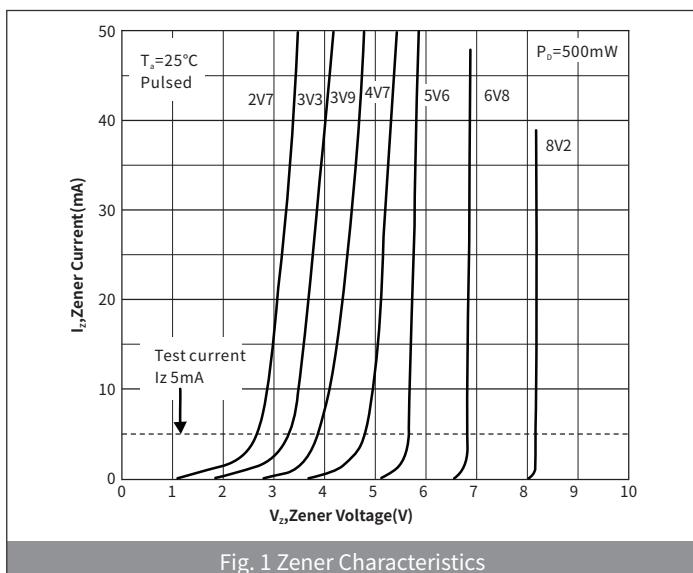


Fig. 1 Zener Characteristics

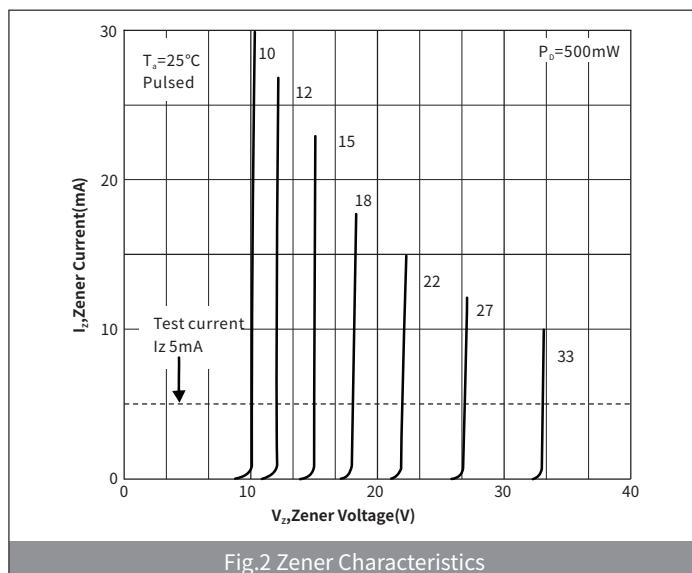


Fig.2 Zener Characteristics

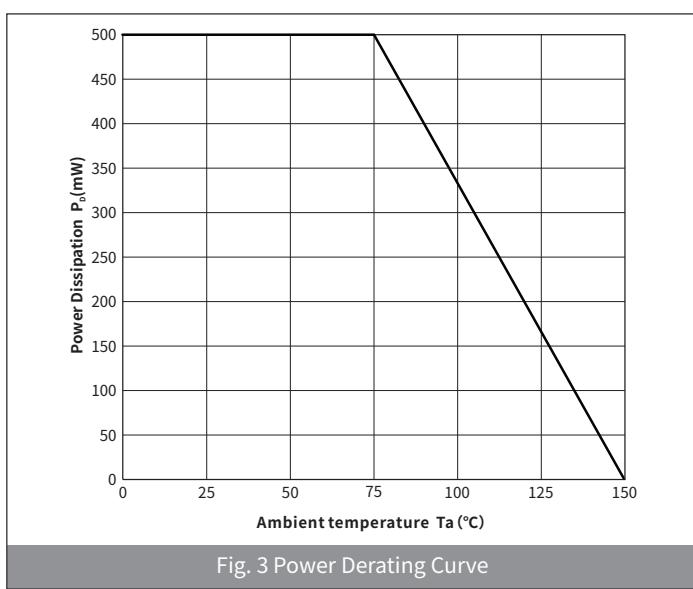


Fig. 3 Power Derating Curve

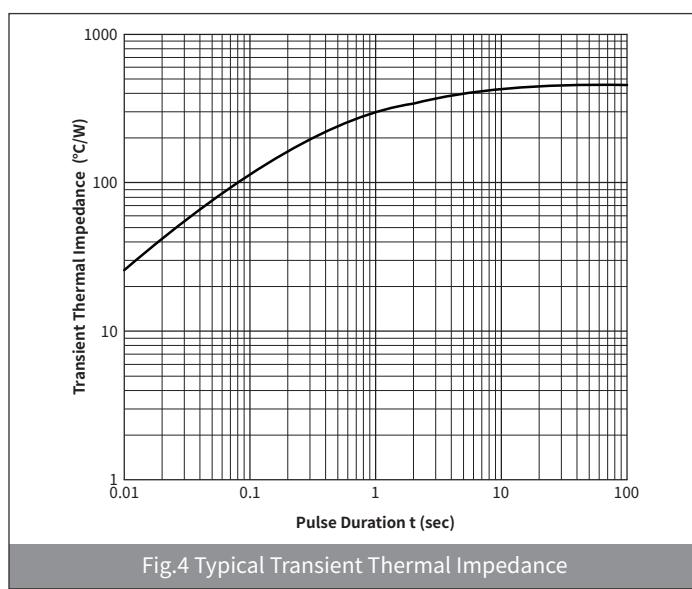


Fig.4 Typical Transient Thermal Impedance

● 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 (SOT-23)

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	-