SOD-123 SURFACE MOUNT SILICON ZENER DIODES

Features

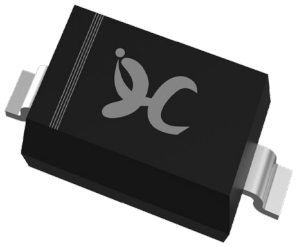
- Low Zener Impedance
- Power Dissipation of 500mW
- High Stability and High Reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Zener Diode
2.0 to 75 Volts
Power Dissipation
1 Watts

Applications

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

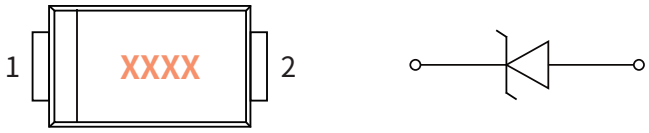
SOD-123



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

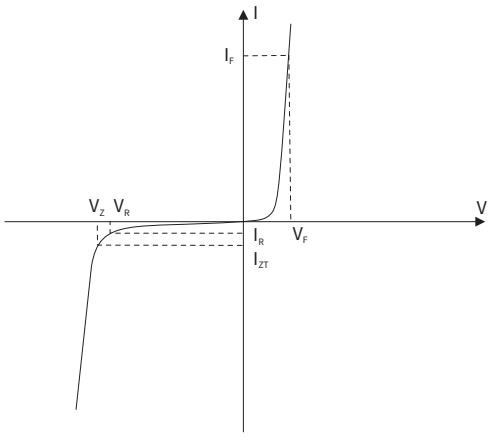


Maximum Ratings (Ta=25°C Unless otherwise specified)

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	$R_{\theta J-A}$	°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}	$Z_{ZT}@I_{ZT}$	$I_R@V_R$	
		Min.(V)	Nom.(V)	Max.(V)	(mA)	$Z_{ZT}(\Omega)$	$I_R(\mu A)$	$V_R(V)$
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				Zener Impedance	Leakage Current	
		V_Z			I_{ZT}	$Z_{ZT}@I_{ZT}$	$I_R@V_R$	
		Min.(V)	Nom.(V)	Max.(V)	(mA)	$Z_{ZT}(\Omega)$	$I_R(\mu A)$	$V_R(V)$
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)

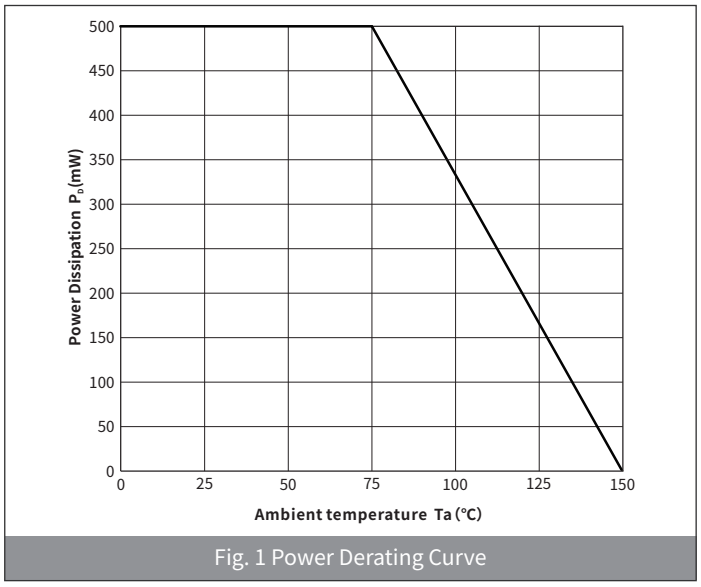


Fig. 1 Power Derating Curve

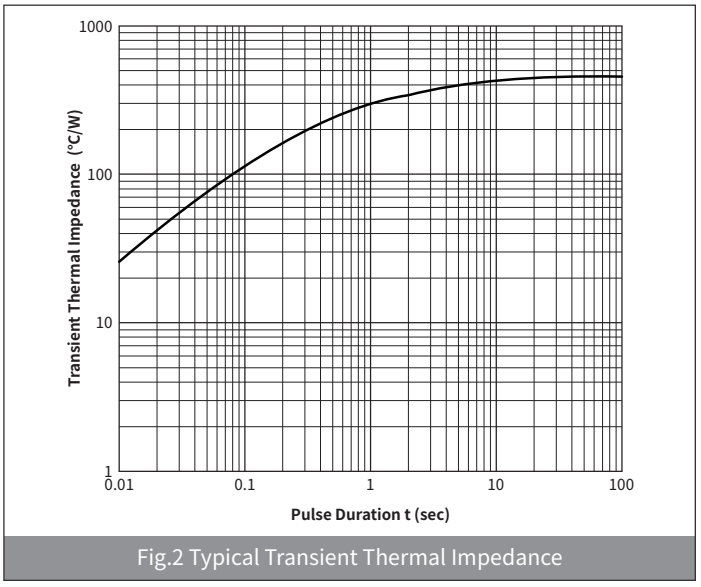
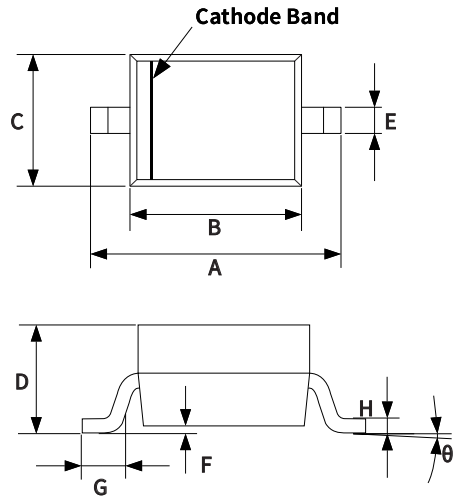


Fig.2 Typical Transient Thermal Impedance

Ordering Information

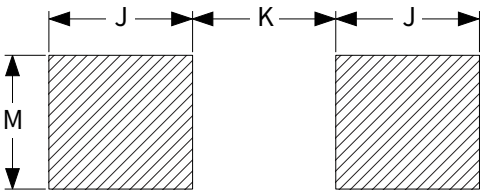
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOD-123	R1	0.012	3000	45000	180000	7''

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	-