

## 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

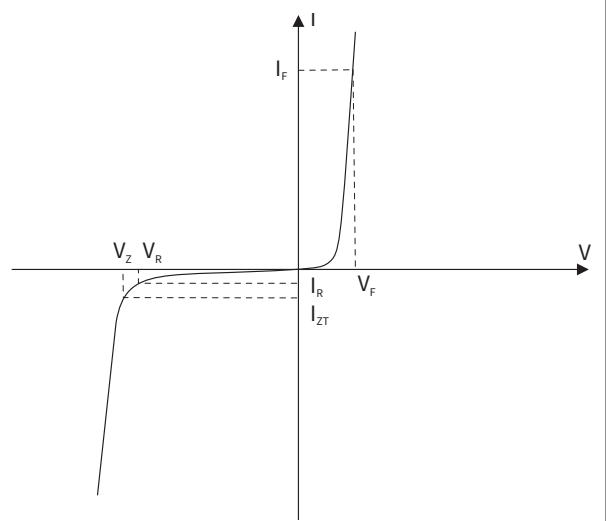
- Case: SOD-123  
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Cathode line denotes the cathode end

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

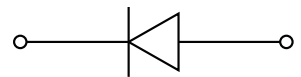
PARAMETER	SYMBOL	UNIT	VALUE
Power Dissipation	$P_D$	mW	500
Forward Voltage @ $I_F=10\text{mA}$	$V_F$	V	0.9
Storage Temperature	$T_{stg}$	°C	-65 ~ +150
Junction Temperature	$T_j$	°C	150
Typical Thermal Resistance	$R_{\theta J-A}$	°C /W	340

## 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 @ $I_F$



## SOD-123



**► Electrical Characteristics** (Ta=25°C Unless otherwise specified)

Type Number	Type Code	Zener Voltage Range			Maximum Zener Impedance				Maximum Reverse Current	
		V <sub>Z</sub> @I <sub>ZT</sub> (V)			Z <sub>ZT</sub> @I <sub>ZT</sub>		Z <sub>ZK</sub> @I <sub>ZK</sub>		I <sub>R</sub> @V <sub>R</sub>	
		Min.	Nom.	Max.	Z <sub>ZT</sub> (Ω)	I <sub>ZT</sub> (mA)	Z <sub>ZK</sub> (Ω)	I <sub>ZK</sub> (mA)	I <sub>R</sub> (μA)	V <sub>R</sub> (V)
MMSZ5221B	C1	2.28	2.4	2.52	30	20	1200	0.25	100	1.0
MMSZ5222B	C2	2.38	2.5	2.63	30	20	1250	0.25	100	1.0
MMSZ5223B	C3	2.57	2.7	2.84	30	20	1300	0.25	75	1.0
MMSZ5224B	C4	2.66	2.8	2.94	30	20	1400	0.25	75	1.0
MMSZ5225B	C5	2.85	3.0	3.15	30	20	1600	0.25	50	1.0
MMSZ5226B	G1	3.14	3.3	3.47	28	20	1600	0.25	25	1.0
MMSZ5227B	G2	3.42	3.6	3.78	24	20	1700	0.25	15	1.0
MMSZ5228B	G3	3.71	3.9	4.10	23	20	1900	0.25	10	1.0
MMSZ5229B	G4	4.09	4.3	4.52	22	20	2000	0.25	5.0	1.0
MMSZ5230B	G5	4.47	4.7	4.94	19	20	1900	0.25	5.0	2.0
MMSZ5231B	E1	4.85	5.1	5.36	17	20	1600	0.25	5.0	2.0
MMSZ5232B	E2	5.32	5.6	5.88	11	20	1600	0.25	5.0	3.0
MMSZ5233B	E3	5.70	6.0	6.30	7	20	1600	0.25	5.0	3.5
MMSZ5234B	E4	5.89	6.2	6.51	7	20	1000	0.25	5.0	4.0
MMSZ5235B	E5	6.46	6.8	7.14	5	20	750	0.25	3	5.0
MMSZ5236B	F1	7.13	7.5	7.88	6	20	500	0.25	3	6.0
MMSZ5237B	F2	7.79	8.2	8.61	8	20	500	0.25	3	6.5
MMSZ5238B	F3	8.27	8.7	9.14	8	20	600	0.25	3	6.5
MMSZ5239B	F4	8.65	9.1	9.56	10	20	600	0.25	3	7.0
MMSZ5240B	F5	9.50	10.0	10.50	17	20	600	0.25	3	8.0
MMSZ5241B	H1	10.45	11.0	11.55	22	20	600	0.25	2.0	8.4
MMSZ5242B	H2	11.40	12.0	12.60	30	20	600	0.25	1.0	9.1
MMSZ5243B	H3	12.35	13.0	13.65	13	9.5	600	0.25	0.5	9.9
MMSZ5244B	H4	13.30	14.0	14.70	15	9.0	600	0.25	0.1	10
MMSZ5245B	H5	14.25	15.0	15.75	16	8.5	600	0.25	0.1	11
MMSZ5246B	J1	15.20	16.0	16.80	17	7.8	600	0.25	0.1	12
MMSZ5247B	J2	16.15	17.0	17.85	19	7.5	600	0.25	0.1	13
MMSZ5248B	J3	17.10	18.0	18.90	21	7.0	600	0.25	0.1	14
MMSZ5249B	J4	18.05	19.0	19.95	23	6.6	600	0.25	0.1	14
MMSZ5250B	J5	19.00	20.0	21.00	25	6.2	600	0.25	0.1	15
MMSZ5251B	K1	20.90	22.0	23.10	29	5.6	600	0.25	0.1	17
MMSZ5252B	K2	22.80	24.0	25.20	33	5.2	600	0.25	0.1	18
MMSZ5253B	K3	23.75	25.0	26.25	35	5.0	600	0.25	0.1	19

► **Electrical Characteristics** (Ta=25°C Unless otherwise specified)

Type Number	Type Code	Zener Voltage Range			Maximum Zener Impedance				Maximum Reverse Current	
		V <sub>Z</sub> @I <sub>ZT</sub> (V)			Z <sub>ZT</sub> @I <sub>ZT</sub>		Z <sub>ZK</sub> @I <sub>ZK</sub>		I <sub>R</sub> @V <sub>R</sub>	
		Min.	Nom.	Max.	Z <sub>ZT</sub> (Ω)	I <sub>ZT</sub> (mA)	Z <sub>ZK</sub> (Ω)	I <sub>ZK</sub> (mA)	I <sub>R</sub> (μA)	V <sub>R</sub> (V)
MMSZ5254B	K4	25.65	27.0	28.35	41	5.0	600	0.25	0.1	21
MMSZ5255B	K5	26.60	28.0	29.40	44	4.5	600	0.25	0.1	21
MMSZ5256B	M1	28.50	30.0	31.50	49	4.2	600	0.25	0.1	23
MMSZ5257B	M2	31.35	33.0	34.65	58	3.8	700	0.25	0.1	25
MMSZ5258B	M3	34.20	36.0	37.80	70	3.4	700	0.25	0.1	27
MMSZ5259B	M4	37.05	39.0	40.95	80	3.2	800	0.25	0.1	30
MMSZ5260B	M5	40.85	43.0	45.15	93	3.0	900	0.25	0.1	33
MMSZ5261B	N1	44.65	47.0	49.35	105	2.7	1000	0.25	0.1	36
MMSZ5262B	N2	48.45	51.0	53.55	125	2.5	1100	0.25	0.1	39
MMSZ5263B	N3	53.20	56.0	58.80	150	2.2	1300	0.25	0.1	43
MMSZ5264B	N4	57.00	60.0	63.00	170	2.1	1400	0.25	0.1	46
MMSZ5265B	N5	58.90	62.0	65.10	185	2.0	1400	0.25	0.1	47
MMSZ5266B	P1	64.60	68.0	71.40	230	1.8	1600	0.25	0.1	52
MMSZ5267B	P2	71.25	75.0	78.75	270	1.7	1700	0.25	0.1	56

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

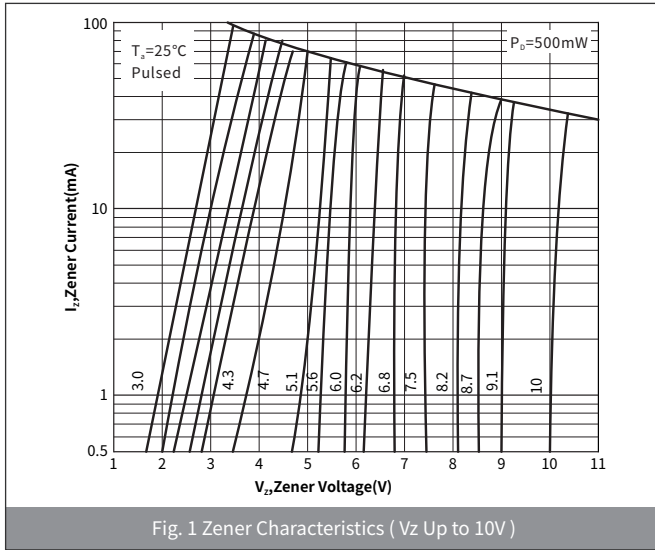


Fig. 1 Zener Characteristics ( $V_z$  Up to 10V)

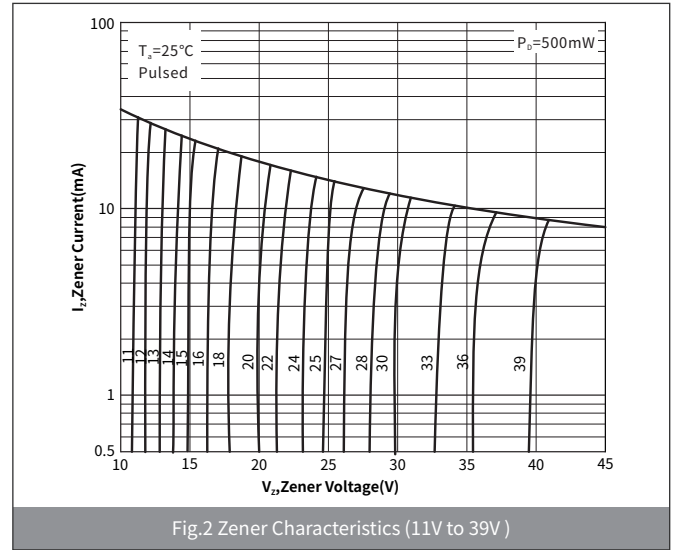


Fig. 2 Zener Characteristics (11V to 39V)

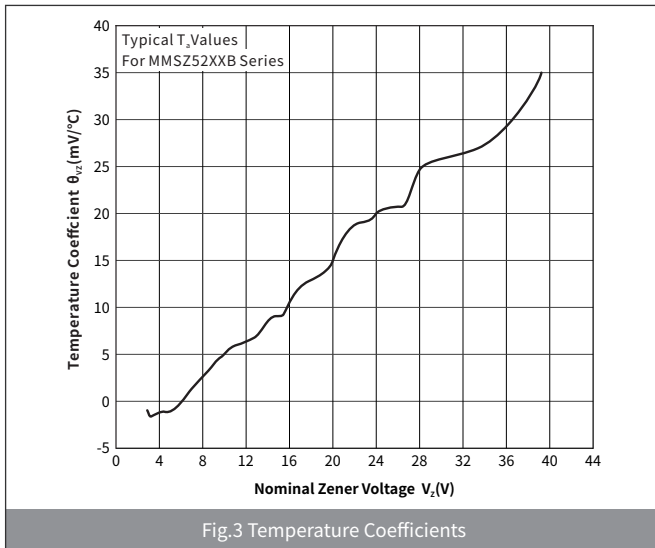


Fig. 3 Temperature Coefficients

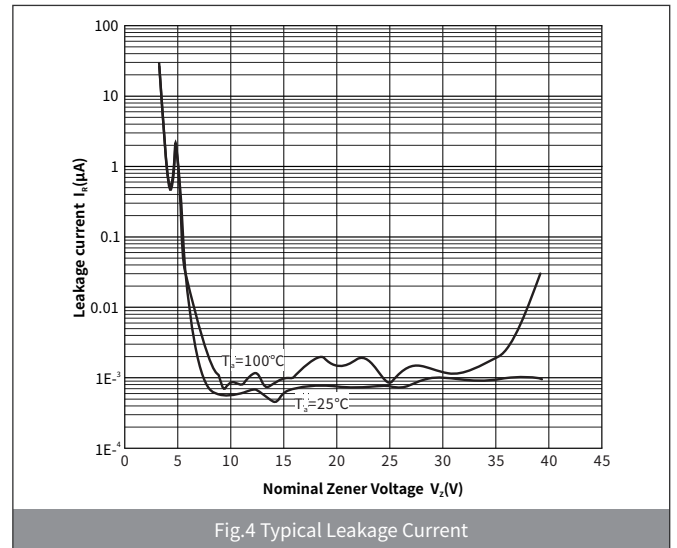


Fig. 4 Typical Leakage Current

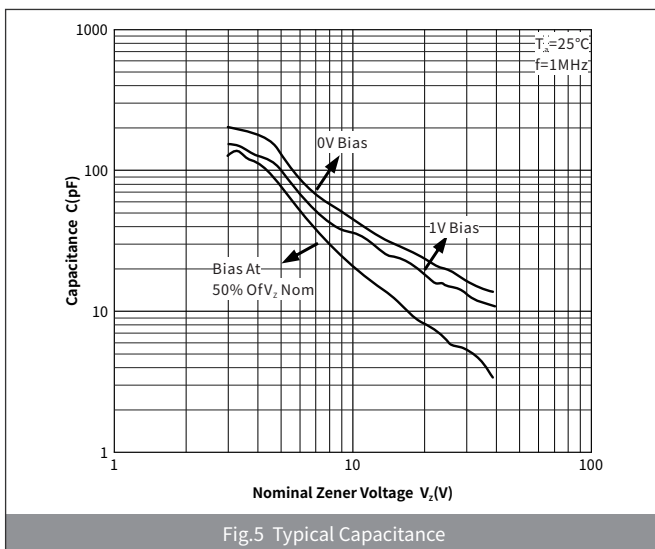


Fig. 5 Typical Capacitance

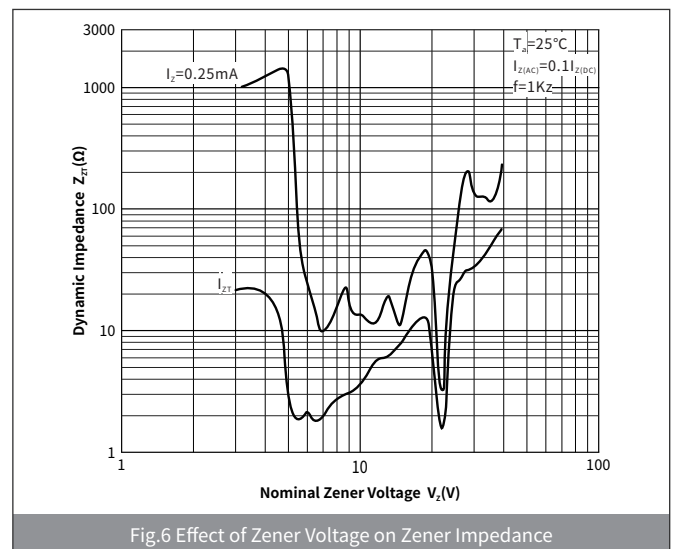


Fig. 6 Effect of Zener Voltage on Zener Impedance

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

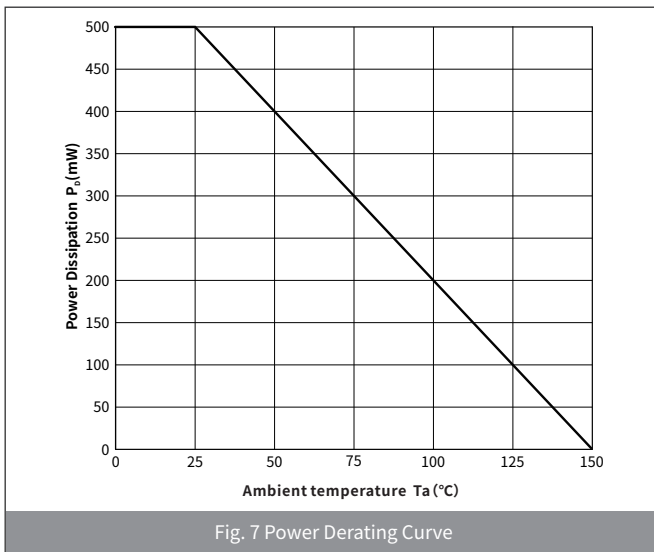


Fig. 7 Power Derating Curve

### Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOD-123	R1	0.012	3000	30000	120000	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
$\theta$	-	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	-

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