



Features

- 500 mW Rating on FR-4 or FR-5 Board
- Wide Zener Reverse Voltage Range – 2.4 V to 110 V
- Package Designed for Optimal Automated Board Assembly
- Small Package Size for High Density Applications
- General Purpose, Medium Current
- ESD Rating of Class 3 (>16 kV) per Human Body Model
- We declare that the material of product compliance with RoHS requirements.

Mechanical Characteristics:

CASE: Void-free, transfer-molded, thermosetting plastic case

FINISH: Corrosion resistant finish, easily solderable

MAXIMUM CASE TEMPERATURE FOR SOLDERING PURPOSES:

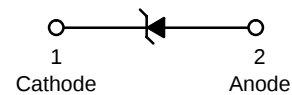
260°C for 10 Seconds

POLARITY: Cathode indicated by polarity band

FLAMMABILITY RATING: UL 94 V-0



SOD-123



MAXIMUM RATINGS

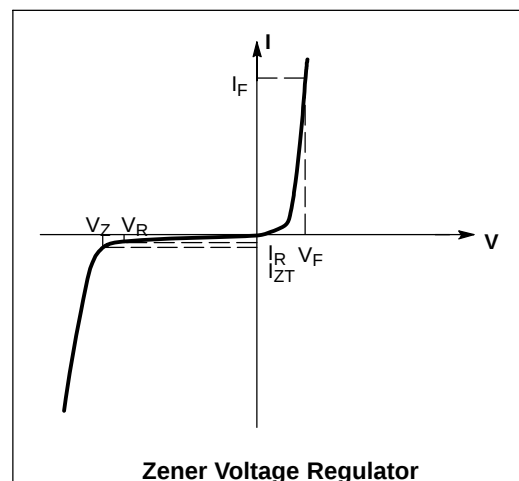
Rating	Symbol	Max	Unit
Total Power Dissipation on FR-5 Board, (Note 1) @ $T_L = 75^\circ\text{C}$ Derated above 75°C	P_D	500 6.7	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	340	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Lead (Note 2)	$R_{\theta JL}$	150	$^\circ\text{C/W}$
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +125	$^\circ\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. FR-5 = 3.5 X 1.5 inches, using the minimum recommended footprint.
2. Thermal Resistance measurement obtained via infrared Scan Method.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.95\text{ V Max. @ } I_F = 10\text{ mA}$)

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 ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.9\text{ V Max.}$ @ $I_F = 10\text{ mA}$)

Device	Device Marking	Zener Voltage (Notes 3 and 4)			Zener Impedance (Note 5)			Leakage Current	
		V_Z (Volts)			$@ I_{ZT}$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	$I_R @ V_R$	
		Min	Nom	Max	mA	Ω	Ω mA	μA	Volts
MMSZ5221B	C1	2.28	2.4	2.52	20	30	1200	0.25	100
MMSZ5222B	C2	2.38	2.5	2.63	20	30	1250	0.25	100
MMSZ5223B	C3	2.57	2.7	2.84	20	30	1300	0.25	75
MMSZ5224B	C4	2.66	2.8	2.94	20	30	1400	0.25	75
MMSZ5225B	C5	2.85	3.0	3.15	20	29	1600	0.25	50
MMSZ5226B	D1	3.14	3.3	3.47	20	28	1600	0.25	25
MMSZ5227B	D2	3.42	3.6	3.78	20	24	1700	0.25	15
MMSZ5228B	D3	3.71	3.9	4.10	20	23	1900	0.25	10
MMSZ5229B	D4	4.09	4.3	4.52	20	22	2000	0.25	5
MMSZ5230B	D5	4.47	4.7	4.94	20	19	1900	0.25	5
MMSZ5231B	E1	4.85	5.1	5.36	20	17	1600	0.25	5
MMSZ5232B	E2	5.32	5.6	5.88	20	11	1600	0.25	5
MMSZ5233B	E3	5.70	6.0	6.30	20	7	1600	0.25	5
MMSZ5234B	E4	5.89	6.2	6.51	20	7	1000	0.25	5
MMSZ5235B	E5	6.46	6.8	7.14	20	5	750	0.25	3
MMSZ5236B	F1	7.13	7.5	7.88	20	6	500	0.25	3
MMSZ5237B	F2	7.79	8.2	8.61	20	8	500	0.25	3
MMSZ5238B	F3	8.27	8.7	9.14	20	8	600	0.25	3
MMSZ5239B	F4	8.65	9.1	9.56	20	10	600	0.25	3
MMSZ5240B	F5	9.50	10	10.50	20	17	600	0.25	3
MMSZ5241B	H1	10.45	11	11.55	20	22	600	0.25	2
MMSZ5242B	H2	11.40	12	12.60	20	30	600	0.25	1
MMSZ5243B	H3	12.35	13	13.65	9.5	13	600	0.25	0.5
MMSZ5244B	H4	13.30	14	14.70	9.0	15	600	0.25	0.1
MMSZ5245B	H5	14.25	15	15.75	8.5	16	600	0.25	0.1
MMSZ5246B	J1	15.20	16	16.80	7.8	17	600	0.25	0.1
MMSZ5247B	J2	16.15	17	17.85	7.4	19	600	0.25	0.1
MMSZ5248B	J3	17.10	18	18.90	7.0	21	600	0.25	0.1
MMSZ5250B	J5	19.00	20	21.00	6.2	25	600	0.25	0.1
MMSZ5251B	K1	20.90	22	23.10	5.6	29	600	0.25	0.1
MMSZ5252B	K2	22.80	24	25.20	5.2	33	600	0.25	0.1
MMSZ5253B	K3	23.75	25	26.25	5.0	35	600	0.25	0.1
MMSZ5254B	K4	25.65	27	28.35	4.6	41	600	0.25	0.1
MMSZ5255B	K5	26.60	28	29.40	4.5	44	600	0.25	0.1
MMSZ5256B	M1	28.50	30	31.50	4.2	49	600	0.25	0.1
MMSZ5257B	M2	31.35	33	34.65	3.8	58	700	0.25	0.1
MMSZ5258B	M3	34.20	36	37.80	3.4	70	700	0.25	0.1
MMSZ5259B	M4	37.05	39	40.95	3.2	80	800	0.25	0.1
MMSZ5260B	M5	40.85	43	45.15	3.0	93	900	0.25	0.1
MMSZ5261B	N1	44.65	47	49.35	2.7	105	1000	0.25	0.1
MMSZ5262B	N2	48.45	51	53.55	2.5	125	1100	0.25	0.1
MMSZ5263B	N3	53.20	56	58.80	2.2	150	1300	0.25	0.1
MMSZ5264B	N4	57.00	60	63.00	2.1	170	1400	0.25	0.1
MMSZ5265B	N5	58.90	62	65.10	2.0	185	1400	0.25	0.1
MMSZ5266B	P1	64.60	68	71.40	1.8	230	1600	0.25	0.1
MMSZ5267B	P2	71.25	75	78.75	1.7	270	1700	0.25	0.1
MMSZ5268B	P3	77.90	82	86.10	1.5	330	2000	0.25	0.1
MMSZ5269B	P4	82.65	87	91.35	1.4	370	2200	0.25	0.1
MMSZ5270B	P5	86.45	91	95.55	1.4	400	2300	0.25	0.1
MMSZ5272B	R2	104.5	110	115.5	1.1	750	3000	0.25	0.1

 3. The type numbers shown have a standard tolerance of $\pm 5\%$ on the nominal Zener voltage.

 4. Nominal Zener voltage is measured with the device junction in thermal equilibrium at $T_L = 30^\circ\text{C} \pm 1^\circ\text{C}$.

 5. Z_{ZT} and Z_{ZK} are measured by dividing the AC voltage drop across the device by the ac current applied.
 The specified limits are for $I_{Z(AC)} = 0.1 I_{Z(DC)}$ with the AC frequency = 1 KHz.



TYPICAL CHARACTERISTICS

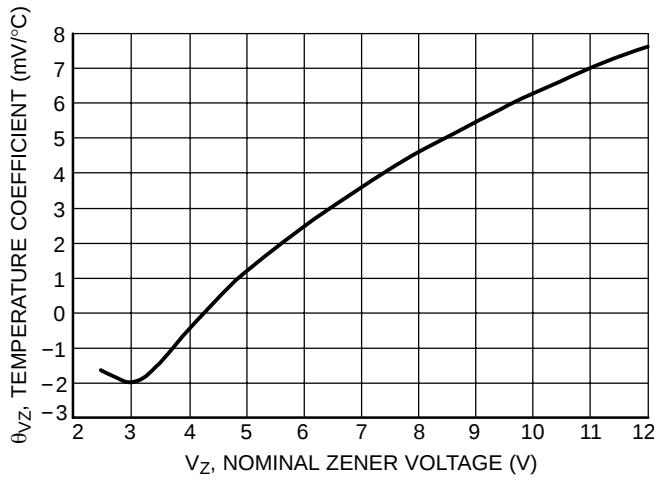


Figure 1. Temperature Coefficients
(Temperature Range -55°C to +150°C)

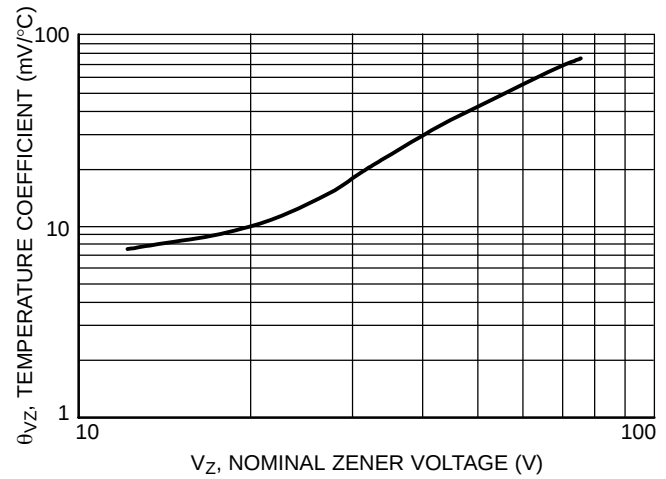


Figure 2. Temperature Coefficients
(Temperature Range -55°C to +150°C)

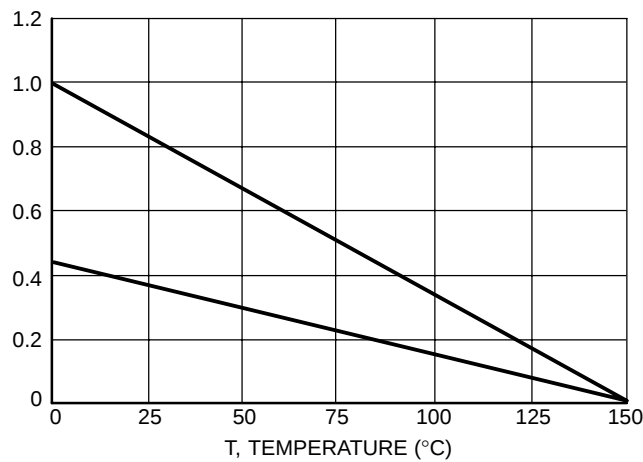


Figure 3. Steady State Power Derating

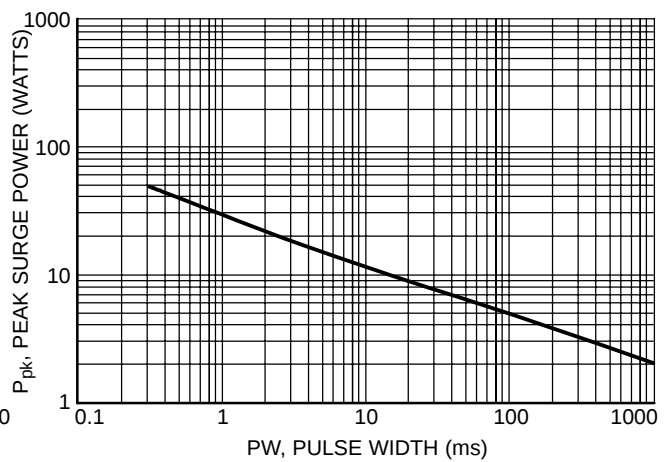


Figure 4. Maximum Nonrepetitive Surge Power

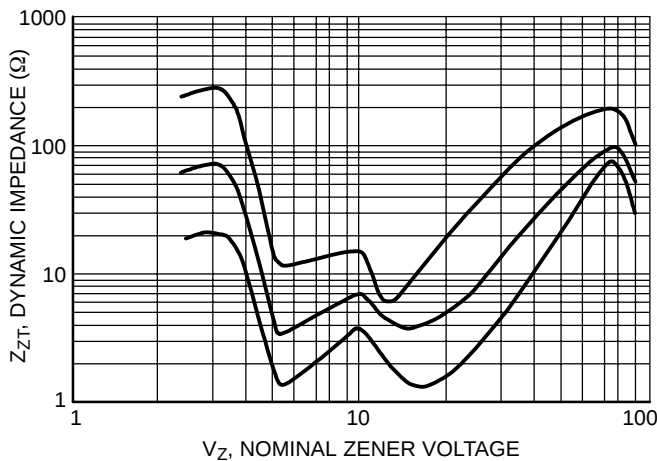


Figure 5. Effect of Zener Voltage on
Zener Impedance

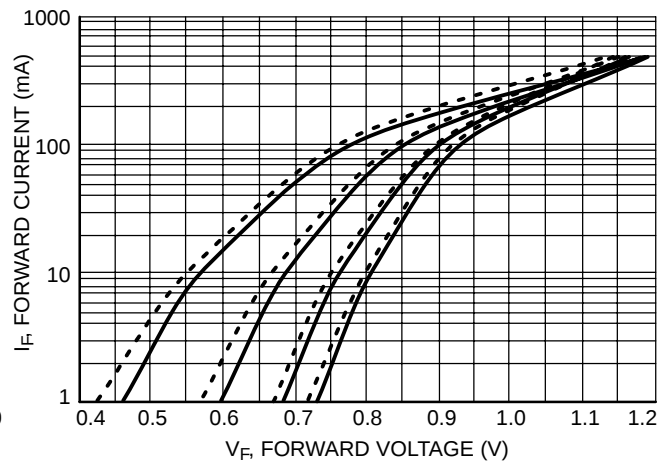


Figure 6. Typical Forward Voltage



TYPICAL CHARACTERISTICS

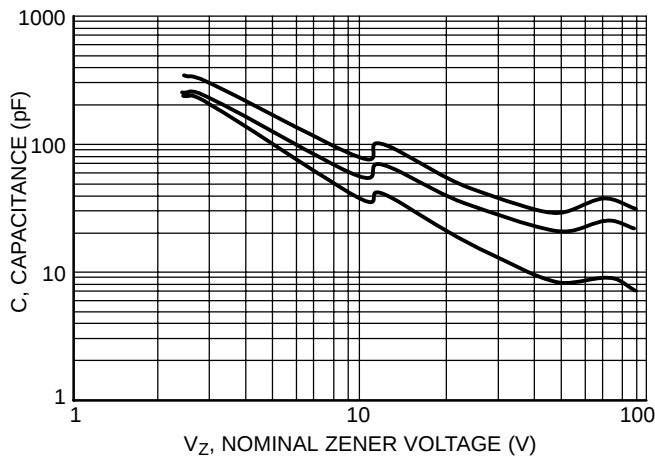


Figure 7. Typical Capacitance

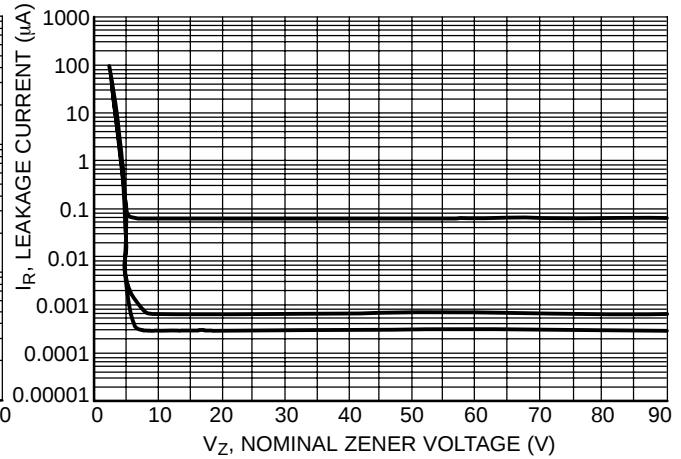
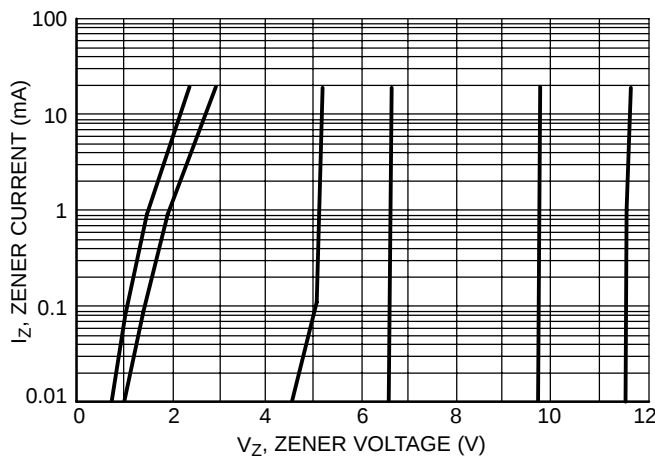
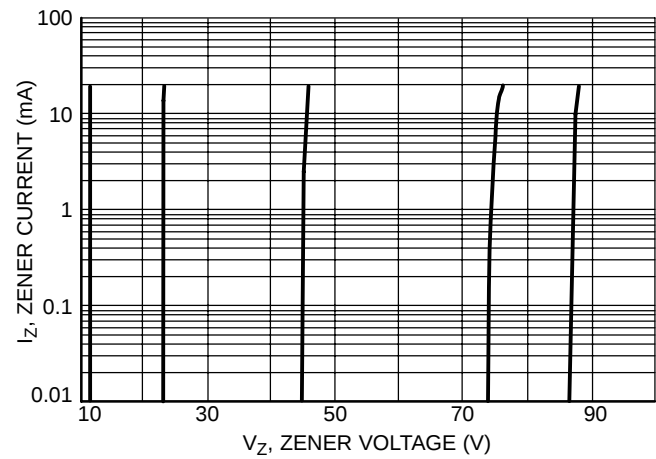


Figure 8. Typical Leakage Current



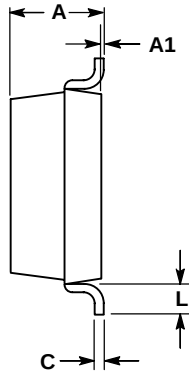
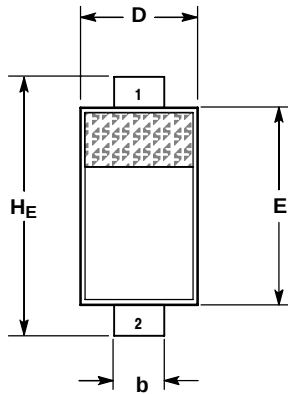
**Figure 9. Zener Voltage versus Zener Current
(V_Z Up to 12 V)**



**Figure 10. Zener Voltage versus Zener Current
(12 V to 91 V)**



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NOTES:

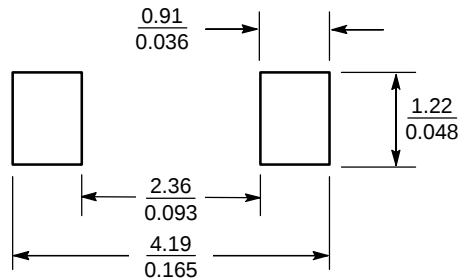
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.94	1.17	1.35	0.037	0.046	0.053
A1	0.00	0.05	0.10	0.000	0.002	0.004
b	0.51	0.61	0.71	0.020	0.024	0.028
c	---	---	0.15	---	---	0.006
D	1.40	1.60	1.80	0.055	0.063	0.071
E	2.54	2.69	2.84	0.100	0.106	0.112
HE	3.56	3.68	3.86	0.140	0.145	0.152
L	0.25	---	---	0.010	---	---

STYLE 1:

- PIN 1. CATHODE
2. ANODE

SOLDERING FOOTPRINT*



SCALE 10:1 (mm/inches)