Micro Commercial Components
20736 Marilla Street Chatsworth
CA 91311
Phone: (818) 701-4933
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MMSZ5221B THRU MMSZ5261B(C)

500 mW

Zener Diodes

2.4 to 47 Volts

Features

- Lead Free Finish/RoHS Compliant("P" Suffix designates RoHS Compliant. See ordering information)
- Planar Die construction
- Zener Voltages from 2.4V - 47V and 500mW Power Dissipation
- Ideally Suited for Automated Assembly Processes
- ESD Rating of 16kV per Human Body Model

Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Approx. Weight: 0.009 grams
- Mounting Position: Any
- Halogen free available upon request by adding suffix "-HF"
- Storage & Operating Temperature: -55°C to +150°C

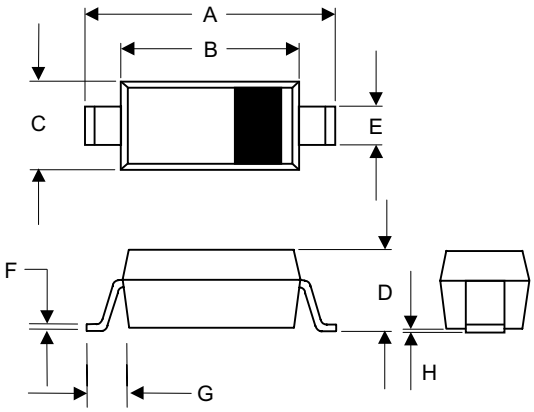
Maximum Ratings @ 25°C Unless Otherwise Specified

Maximum Forward Voltage @ I_F=10mA	V_F	0.9	V
Power Dissipation (Notes A)	$P_{(AV)}$	500	mWatt

NOTES:

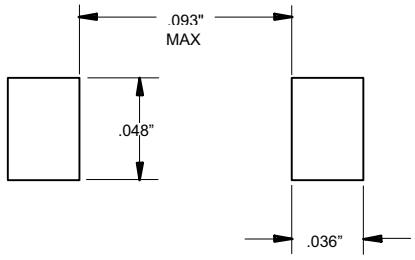
A. Mounted on 5.0mm2(.013mm thick) land areas.

SOD123



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.141	.154	3.60	3.90	
B	.098	.110	2.50	2.80	
C	.055	.071	1.40	1.80	
D	.037	.053	0.95	1.35	
E	.019	.028	0.50	0.70	
F	---	.008	---	0.20	
G	.016	---	0.40	---	
H	---	.005	---	0.12	

SUGGESTED SOLDER PAD LAYOUT



MMSZ5221B thru MMSZ5261B(C)

Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC PART NUMBER	Marking	NORMAL ZENER VOLTAGE Vz@ Izt	TEST CURRENT Izt	MAXIMUM ZENER IMPEDANCE Zzt @ Izt	Zzk @ Izk=0.25mA	MAXIMUM REVERSE LEAKAGE CURRENT Ir @ Vr		MAXIMUM ZENER VOLTAGE TEMP
		VOLTS	mA	OHMS	OHMS	uA	VOLTS	%/°C
MMSZ5221B	C1	2.4	20	30	1200	100	1.0	-0.085
MMSZ5222B	C2	2.5	20	30	1250	100	1.0	-0.085
MMSZ5223B	C3	2.7	20	30	1300	75	1.0	-0.080
MMSZ5225B	C5	3.0	20	29	1600	50	1.0	-0.075
MMSZ5226B	G1/ D1	3.3	20	28	1600	25	1.0	-0.070
MMSZ5227B	G2/ D2	3.6	20	24	1700	15	1.0	-0.065
MMSZ5228B	G3/ D3	3.9	20	23	1900	10	1.0	-0.060
MMSZ5229B	G4/ D4	4.3	20	22	2000	5.0	1.0	±0.055
MMSZ5230B	G5/ D5	4.7	20	19	1900	5.0	2.0	±0.030
MMSZ5231B	E1	5.1	20	17	1600	5.0	2.0	±0.030
MMSZ5232B	E2	5.6	20	11	1600	5.0	3.0	+0.038
MMSZ5233B	E3	6.0	20	7.0	1600	5.0	3.5	+0.040
MMSZ5234B	E4	6.2	20	7.0	1000	5.0	4.0	+0.045
MMSZ5235B	E5	6.8	20	5.0	750	3.0	5.0	+0.050
MMSZ5236B	F1	7.5	20	6.0	500	3.0	6.0	+0.058
MMSZ5237B	F2	8.2	20	8.0	500	3.0	6.5	+0.062
MMSZ5238B	F3	8.7	20	8.0	600	3.0	6.5	+0.065
MMSZ5239B	F4	9.1	20	10	600	3.0	7.0	+0.068
MMSZ5240B	F5	10	20	17	600	3.0	8.0	+0.075
MMSZ5241B	H1	11	20	22	600	2.0	8.4	+0.076
MMSZ5242B	H2	12	20	30	600	1.0	9.1	+0.077
MMSZ5243B	H3	13	9.5	13	600	0.5	9.9	+0.079
MMSZ5244B	H4	14	9.0	15	600	0.1	10.5	+0.081
MMSZ5245B	H5	15	8.5	16	600	0.1	11	+0.082
MMSZ5246B	J1	16	7.8	17	600	0.1	12	+0.083
MMSZ5248B	J3	18	7.0	21	600	0.1	14	+0.085
MMSZ5250B	J5	20	6.2	25	600	0.1	15	+0.086
MMSZ5251B	K1	22	5.6	29	600	0.1	17	+0.087
MMSZ5252B	K2	24	5.2	33	600	0.1	18	+0.088
MMSZ5254B	K4	27	4.6	41	600	0.1	21	+0.090
MMSZ5255B	K5	28	4.5	44	600	0.1	21	+0.091
MMSZ5256B	M1	30	4.2	49	600	0.1	23	+0.091
MMSZ5257B	M2	33	3.8	58	700	0.1	25	+0.092
MMSZ5258B	M3	36	3.4	70	700	0.1	27	+0.093
MMSZ5259B	M4	39	3.2	80	800	0.1	30	+0.094
MMSZ5260B	M5	43	3.0	93	900	0.1	33	+0.095
MMSZ5261B	N1	47	2.7	105	1000	0.1	36	+0.095

NOTE:

1. Standard Zener voltage tolerance is ±5% with a "B" suffix (e.g.: MMSZ5225B),suffix "C" is ± 2 % tolerance
2. Specials Available Include:
   A. Nominal zener voltages between the voltages shown and tighter voltage tolerances.
   B. Matched sets.
3. Zener Voltage (V_Z) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature (T_L) at 30°C, from the diode body.
4. Zener Impedance (Z_Z) Derivation. The zener impedance is derived from the 60 cycle ac voltage, which results when an AC current having an rms value equal to 10% of the dc zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK}.
5. Surge Current (I_R) Non-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current, I_{ZT}, per JEDEC registration; however, actual device capability is as described in Figure 5.

MMSZ5221B thru MMSZ5261B(C)

Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC PART NUMBER	Marking	NORMAL ZENER VOLTAGE Vz@ Izt	TEST CURRENT Izt	MAXIMUM ZENER IMPEDANCE Zzt @ Izt	Zzk @ Izk=0.25mA	MAXIMUM REVERSE LEAKAGE CURRENT Ir @ Vr		MAXIMUM ZENER VOLTAGE TEMP
		VOLTS	mA	OHMS	OHMS	uA	VOLTS	%/°C
MMSZ5229C	2G4/D4	4.3	20	22	2000	5.0	1.0	±0.055
MMSZ5230C	2G5/D5	4.7	20	19	1900	5.0	2.0	±0.030
MMSZ5231C	2E1/E1	5.1	20	17	1600	5.0	2.0	±0.030
MMSZ5232C	2E2/E2	5.6	20	11	1600	5.0	3.0	+0.038
MMSZ5233C	2E3/E3	6.0	20	7.0	1600	5.0	3.5	+0.040
MMSZ5234C	2E4/E4	6.2	20	7.0	1000	5.0	4.0	+0.045
MMSZ5235C	2E5/E5	6.8	20	5.0	750	3.0	5.0	+0.050
MMSZ5236C	2F1/F1	7.5	20	6.0	500	3.0	6.0	+0.058
MMSZ5237C	2F2/F2	8.2	20	8.0	500	3.0	6.0	+0.062
MMSZ5238C	2F3/F3	8.7	20	8.0	600	3.0	6.5	+0.065
MMSZ5239C	2F4/F4	9.1	20	10	600	3.0	6.5	+0.068
MMSZ5240C	2F5/F5	10	20	17	600	3.0	8.0	+0.075
MMSZ5241C	2H1/H1	11	20	22	600	3.0	8.4	+0.076
MMSZ5242C	2H2/H2	12	20	30	600	2.0	9.1	+0.077
MMSZ5243C	2H3/H3	13	9.5	13	600	1.0	9.9	+0.079
MMSZ5244C	2H4/H4	14	9.0	15	600	0.5	10.5	+0.081
MMSZ5245C	2H5/H5	15	8.5	16	600	0.5	11	+0.082
MMSZ5246C	2J1/J1	16	7.8	17	600	0.1	12	+0.083
MMSZ5248C	2J3/J3	18	7.0	21	600	0.1	14	+0.085
MMSZ5250C	2J5/J5	20	6.2	25	600	0.1	15	+0.086
MMSZ5251C	2K1/K1	22	5.6	29	600	0.1	17	+0.087
MMSZ5252C	2K2/K2	24	5.2	33	600	0.1	18	+0.088
MMSZ5254C	2K4/K4	27	4.6	41	600	0.1	21	+0.090
MMSZ5255C	2K5/K5	28	4.5	44	600	0.1	21	+0.091
MMSZ5256C	2M1/M1	30	4.2	49	600	0.1	23	+0.091
MMSZ5257C	2M2/M2	33	3.8	58	700	0.1	25	+0.092
MMSZ5258C	2M3/M3	36	3.4	70	700	0.1	27	+0.093
MMSZ5259C	2M4/M4	39	3.2	80	800	0.1	30	+0.094
MMSZ5260C	M5	43	3.0	93	900	0.1	33	+0.095
MMSZ5261C	N1	47	2.7	105	1000	0.1	36	+0.095

NOTE:

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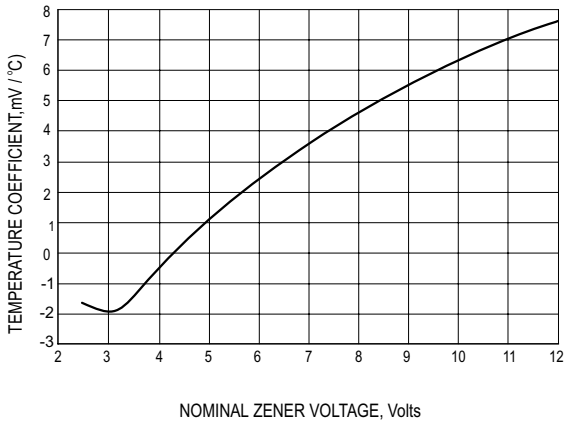
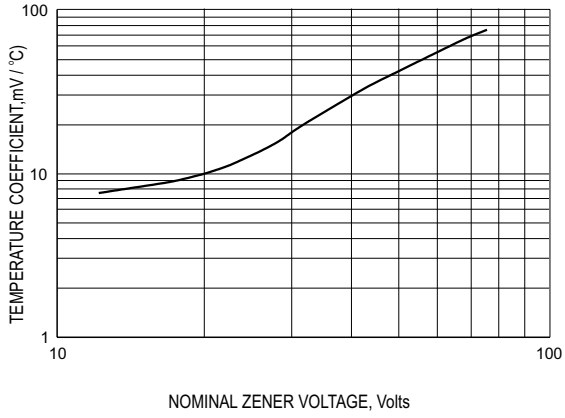


TEMPERATURE COEFFICIENTS



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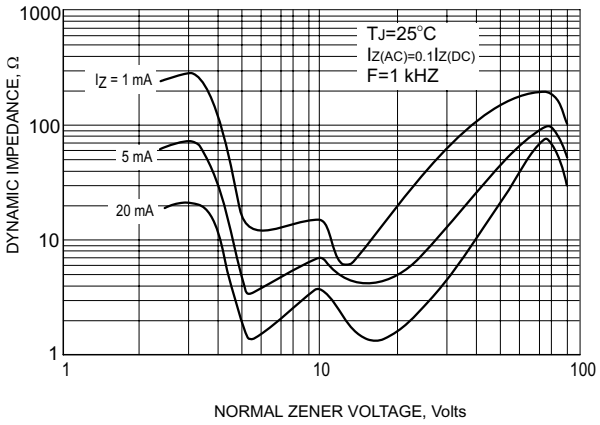
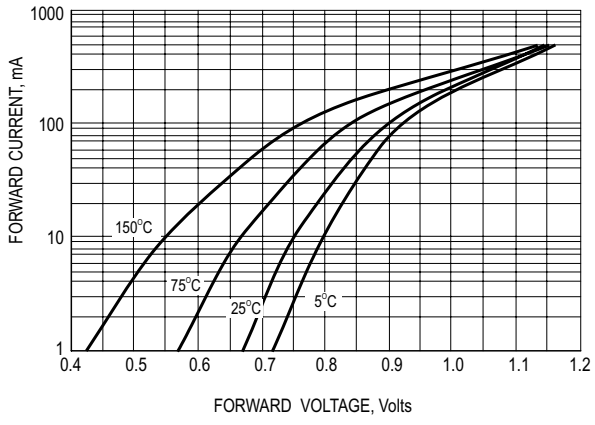
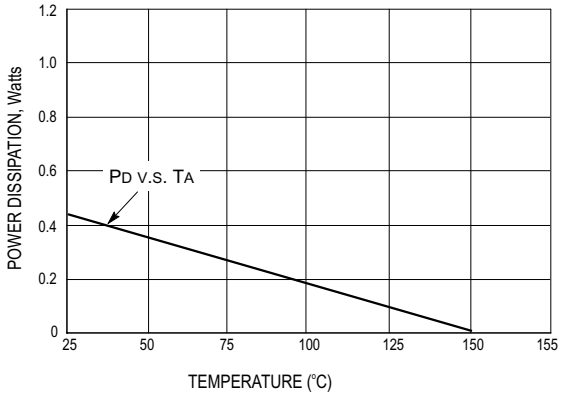


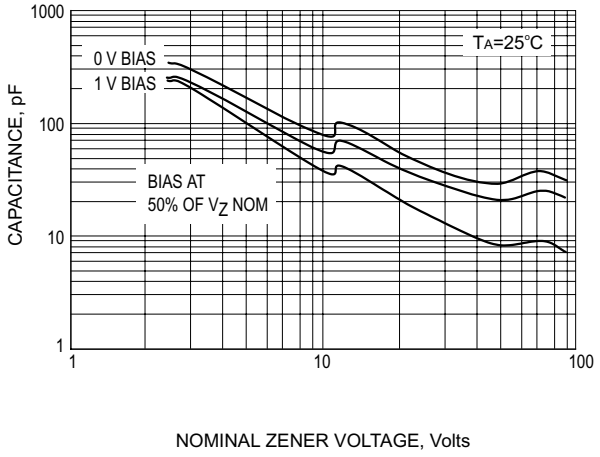
EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE



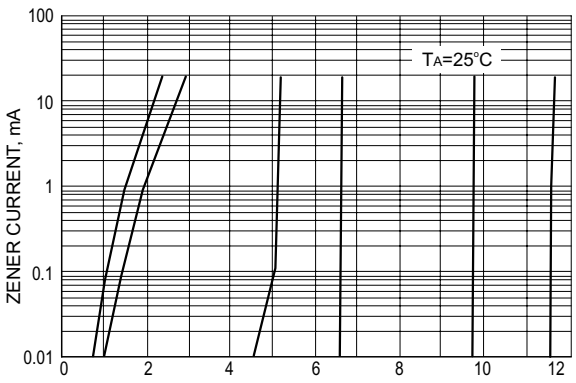
TYPICAL FORWARD VOLTAGE



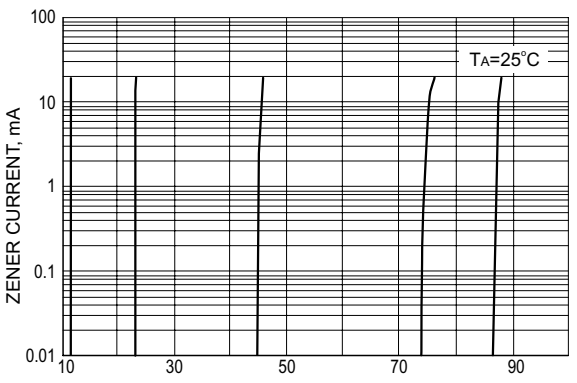
STEADY STATE POWER DERATING



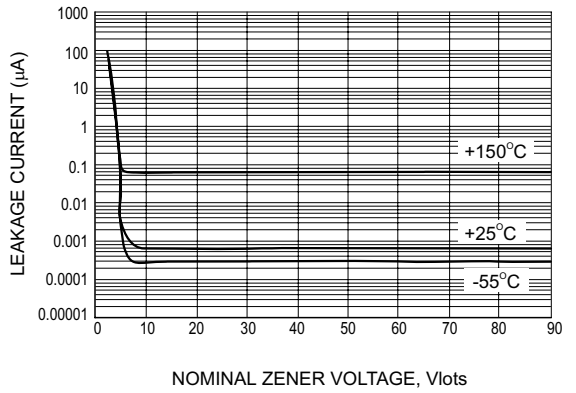
TYPICAL CAPACITANCE



ZENER VOLTAGE V.S. ZENER CURRENT



ZENER VOLTAGE V.S. ZENER CURRENT



TYPICAL LEAKGE CURRENT

Micro Commercial Components

Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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