



ZBMCC

ZIBO MICRO COMMERCIAL
COMPONENTS CORP.



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MMBZ5221B THRU MMBZ5259B

350 mW Zener Diode 2.4 to 39 Volts

Features

- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Wide Voltage Range Available
- Small Outline Package For Space Savings
- High Temp Soldering: 260°C for 10 Seconds At Terminals
- Surface Mount Package

Maximum Ratings

- Operating Junction Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Maximum Thermal Resistance; 357°C/W Junction To Ambient

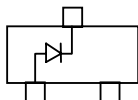
Maximum Ratings @ 25°C Unless Otherwise Specified

Zener Current	I_F	100	mA
Maximum Forward Voltage	V_F	1.2	V
Power Dissipation (Notes A)	P_d	350	mWatt
Peak Forward Surge Current (Notes B)	I_{FSM}	4.0	Amps

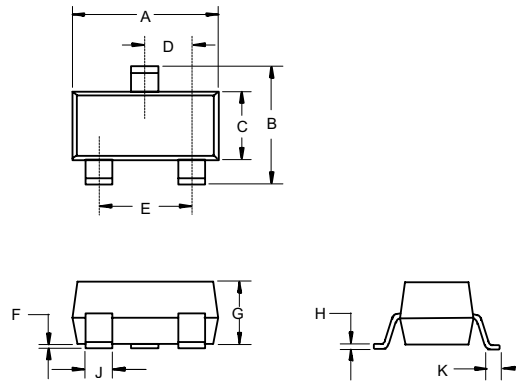
NOTES:

- A. Mounted on FR4 PC board with our suggested solder pad layout .
B. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

*Pin Configuration - Top View

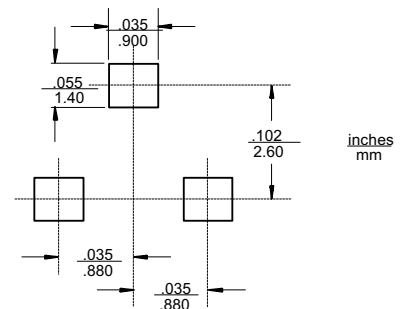


SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.119	2.80	3.00	
B	.086	.103	2.20	2.60	
C	.047	.056	1.20	1.40	
D	.033	.041	.85	1.05	
E	.066	.083	1.70	2.10	
F	---	.006	---	.15	
G	.035	.044	.90	1.10	
H	.002	.006	.05	.15	
J	.013	.020	.35	.50	
K	.007	---	.20	---	

Suggested Solder Pad Layout



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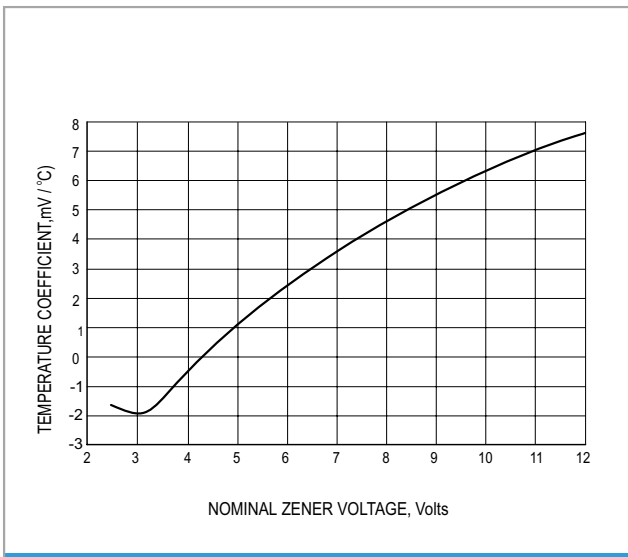
ELECTRICAL CHARACTERISTICS @25°C

MCC PART NUMBER	MARKING	NOMINAL ZENER VOLTAGE $V_Z @ I_{ZT}$	TEST CURRENT I_{ZT}	MAXIMUM ZENER IMPEDANCE 'B' SUFFIX ONLY $Z_{ZT} @ I_{ZT}$ $Z_{ZK} @ I_{ZK} = 0.25mA$		MAXIMUM REVERSE LEAKAGE CURRENT $I_R @ V_R$	
		VOLTS	mA	OHMS	OHMS	μA	VOLTS
MMBZ5221B	KC1/C1	2.4	20	30	1200	100	1.0
MMBZ5222B	KC2/C2	2.5	20	30	1250	100	1.0
MMBZ5223B	KC3/C3	2.7	20	30	1300	75	1.0
MMBZ5225B	KC5/C5	3.0	20	29	1600	50	1.0
MMBZ5226B	KG1/D1	3.3	20	28	1600	25	1.0
MMBZ5227B	KG2/D2	3.6	20	24	1700	15	1.0
MMBZ5228B	KG3/D3	3.9	20	23	1900	10	1.0
MMBZ5229B	KG4/D4	4.3	20	22	2000	5.0	1.0
MMBZ5230B	KG5/D5	4.7	20	19	1900	5.0	2.0
MMBZ5231B	KE1/E1	5.1	20	17	1600	5.0	2.0
MMBZ5232B	KE2/E2	5.6	20	11	1600	5.0	3.0
MMBZ5233B	KE3/E3	6.0	20	7.0	1600	5.0	3.5
MMBZ5234B	KE4/E4	6.2	20	7.0	1000	5.0	4.0
MMBZ5235B	KE5/E5	6.8	20	5.0	750	3.0	5.0
MMBZ5236B	KF1/F1	7.5	20	6.0	500	3.0	6.0
MMBZ5237B	KF2/F2	8.2	20	8.0	500	3.0	6.5
MMBZ5238B	KF3/F3	8.7	20	8.0	600	3.0	6.5
MMBZ5239B	KF4/F4	9.1	20	10	600	3.0	7.0
MMBZ5240B	KF5/F5	10	20	17	600	3.0	8.0
MMBZ5241B	KH1/H1	11	20	22	600	2.0	8.4
MMBZ5242B	KH2/H2	12	20	30	600	1.0	9.1
MMBZ5243B	KH3/H3	13	9.5	13	600	0.5	9.9
MMBZ5244B	KH4/H4	14	9.0	15	600	0.1	10
MMBZ5245B	KH5/H5	15	8.5	16	600	0.1	11
MMBZ5246B	KJ1/J1	16	7.8	17	600	0.1	12
MMBZ5248B	KJ3/J3	18	7.0	21	600	0.1	14
MMBZ5250B	KJ5/J5	20	6.2	25	600	0.1	15
MMBZ5251B	KK1/K1	22	5.6	29	600	0.1	17
MMBZ5252B	KK2/K2	24	5.2	33	600	0.1	18
MMBZ5254B	KK4/K4	27	5.0	41	600	0.1	21
MMBZ5255B	KK5/K5	28	4.5	44	600	0.1	21
MMBZ5256B	KM1/M1	30	4.2	49	600	0.1	23
MMBZ5257B	KM2/M2	33	3.8	58	700	0.1	25
MMBZ5258B	KM3/M3	36	3.4	70	700	0.1	27
MMBZ5259B	KM4/M4	39	3.2	80	800	0.1	30

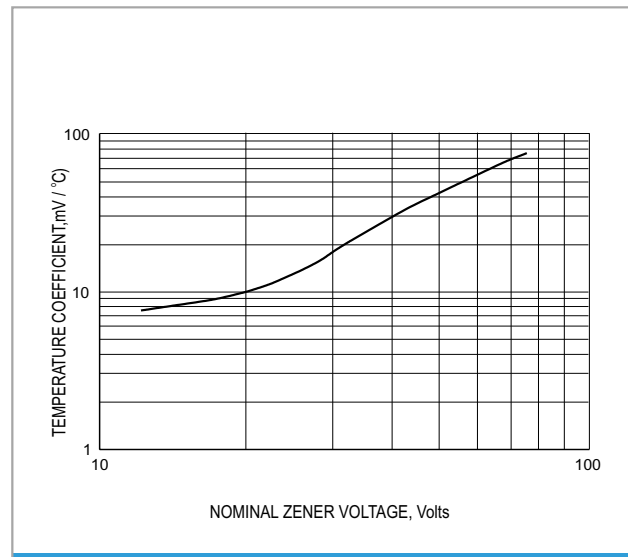
Note:

- Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of $\pm 5\%$.
- Specials Available Include:
 - Nominal zener voltages between the voltages shown and tighter voltage tolerances.
 - Matched sets.
- Zener Voltage (V_Z) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature (T_L) at $30^\circ C$, from the diode body.
- 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} .
- 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.

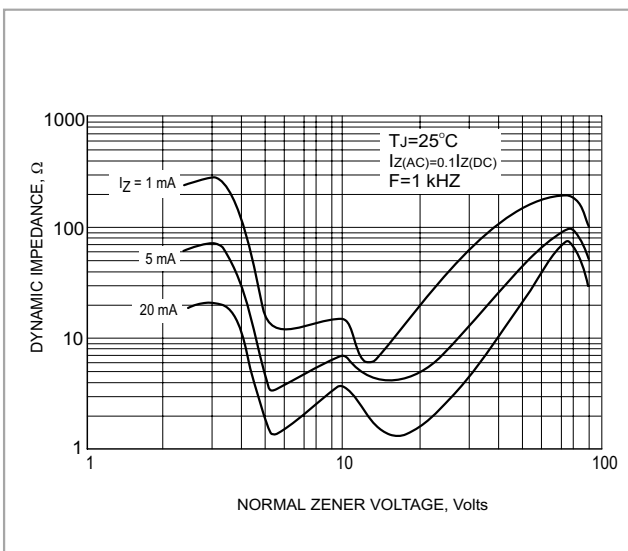
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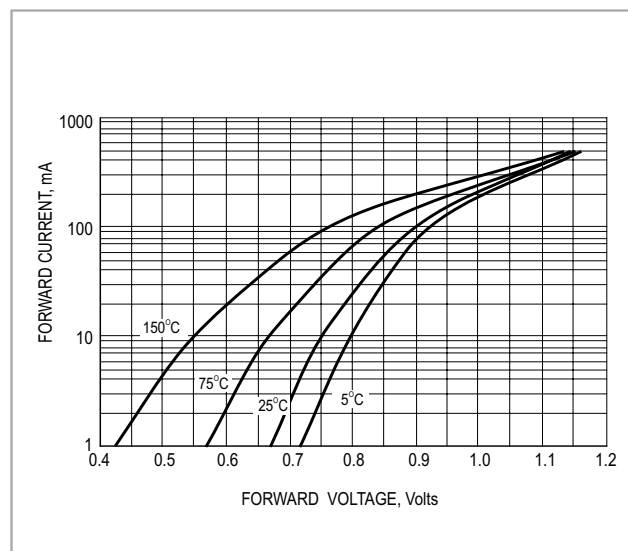
TYPICAL REVERSE CURRENT



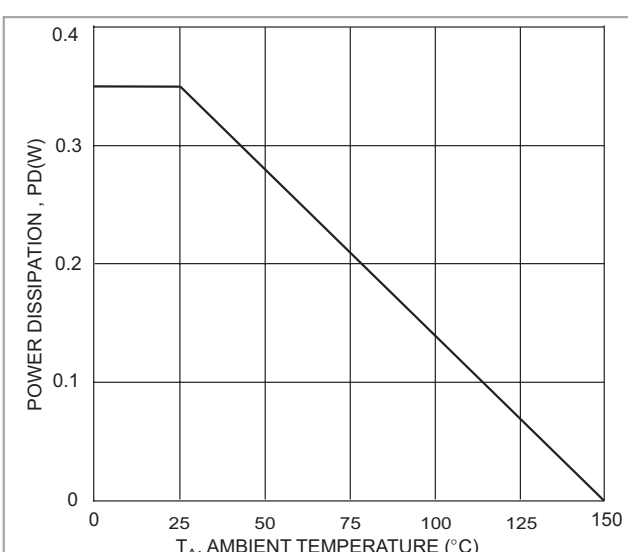
STEADY STATE POWER DERATING



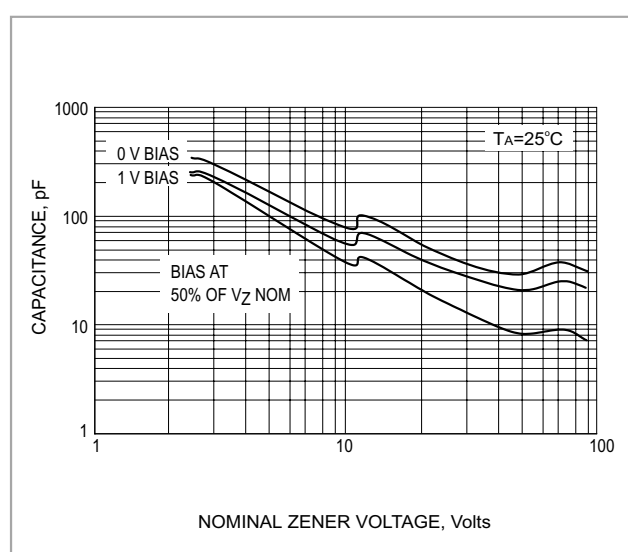
EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE



TYPICAL FORWARD VOLTAGE



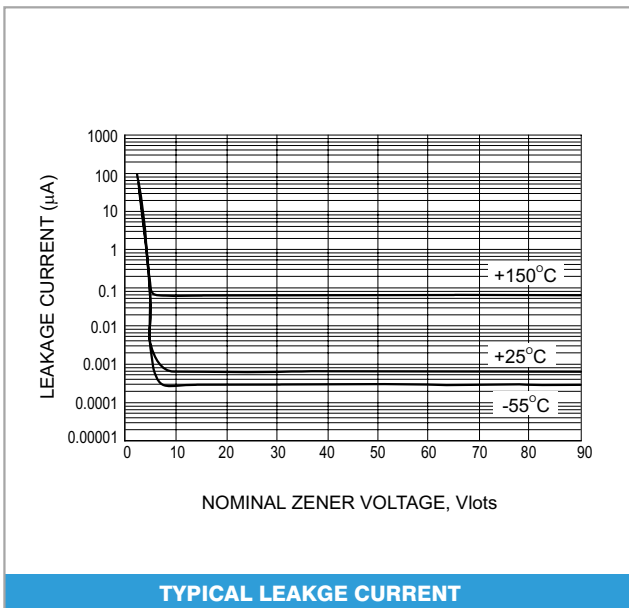
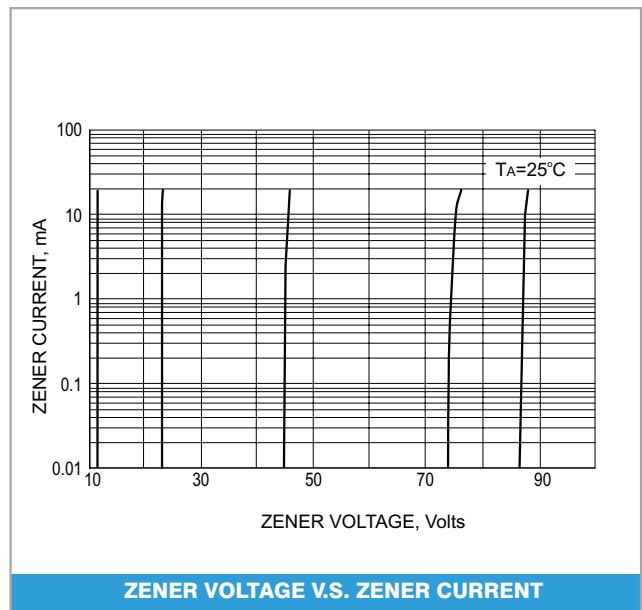
STEADY STATE POWER DERATING



TYPICAL CAPACITANCE

MMBZ5221B thru MMBZ5259B

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Ordering Information :

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

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

LIFE SUPPORT
ZBMCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of ZiBo Micro Commercial Components Corp.
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