

# DATA SHEET

## ZMM5221B SERIES

### SURFACE MOUNT ZENER DIODES

**VOLTAGE** 2.4 to 47 Volts

**POWER** 500 mWatts

**MINI-MELF/LL-34**

Unit : inch (mm)

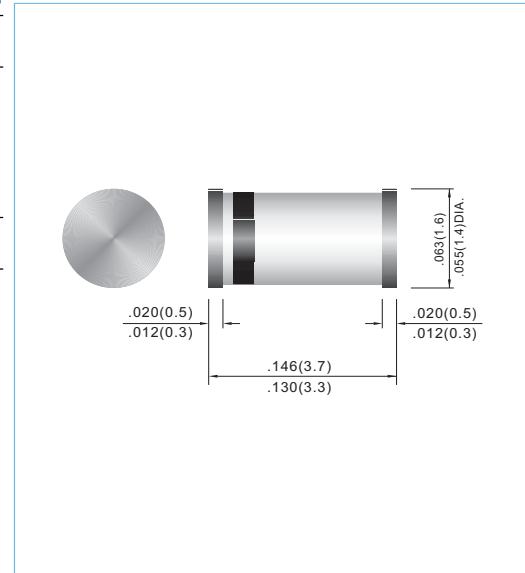
#### FEATURES

- Planar Die construction
- 500mW Power Dissipation
- Ideally Suited for Automated Assembly Processes

#### MECHANICAL DATA

- Case: Molded Glass MINI-MELF
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram Below
- Approx. Weight: 0.008 grams
- Mounting Position: Any
- Packing information

T/R - 2.5K per 7" plastic Reel



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Value	Units
Power Dissipation at Tamb = 25 °C	P <sub>TOT</sub>	500	mW
Junction Temperature	T <sub>J</sub>	175	°C
Storage Temperature Range	T <sub>s</sub>	-65 to +175	°C

Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.

Parameter	Symbol	Min.	Typ.	Max.	Units
Thermal Resistance Junction to Ambient Air	R <sub>thA</sub>	--	--	0.3	K/mW
Forward Voltage at I <sub>F</sub> = 200mA	V <sub>F</sub>	--	--	1.1	V

Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.

Part Number	Nominal Zener Voltage			Max. Zener Impedance				Max Reverse Leakage Current	
	V <sub>Z</sub> @ I <sub>ZT</sub>			Z <sub>ZT</sub> @ I <sub>ZT</sub>		Z <sub>ZK</sub> @ I <sub>ZK</sub>		I <sub>R</sub> @ V <sub>R</sub>	
	Nom. V	Min. V	Max. V	Ω	mA	Ω	mA	uA	V
ZMM5221B	2.4	2.28	2.52	30	20	1200	0.25	100	1.0
ZMM5222B	2.5	2.38	2.63	30	20	1250	0.25	100	1.0
ZMM5223B	2.7	2.57	2.84	30	20	1300	0.25	75	1.0
ZMM5224B	2.8	2.66	2.94	30	20	1400	0.25	75	1.0
ZMM5225B	3.0	2.85	3.15	29	20	1600	0.25	50	1.0
ZMM5226B	3.3	3.14	3.47	28	20	1600	0.25	25	1.0
ZMM5227B	3.6	3.42	3.78	24	20	1700	0.25	15	1.0
ZMM5228B	3.9	3.71	4.1	23	20	1900	0.25	10	1.0
ZMM5229B	4.3	4.09	4.52	22	20	2000	0.25	5	1.0
ZMM5230B	4.7	4.47	4.94	19	20	1900	0.25	5	2.0
ZMM5231B	5.1	4.85	5.36	17	20	1600	0.25	5	2.0
ZMM5232B	5.6	5.32	5.88	11	20	1600	0.25	5	3.0
ZMM5233B	6.0	5.70	6.30	7	20	1600	0.25	5	3.5
ZMM5234B	6.2	5.89	6.51	7	20	1000	0.25	5	4.0
ZMM5235B	6.8	6.46	7.14	5	20	750	0.25	3	5.0
ZMM5236B	7.5	7.13	7.88	6	20	500	0.25	3	6.0
ZMM5237B	8.2	7.79	8.61	8	20	500	0.25	3	6.5
ZMM5238B	8.7	8.26	9.13	8	20	600	0.25	3	6.5
ZMM5239B	9.1	8.65	9.56	10	20	600	0.25	3	7.0
ZMM5240B	10	9.5	10.5	17	20	600	0.25	3	8.0
ZMM5241B	11	10.45	11.55	22	20	600	0.25	2	8.4
ZMM5242B	12	11.4	12.6	30	20	600	0.25	1	9.1
ZMM5243B	13	12.35	13.65	13	9.5	600	0.25	0.5	9.9
ZMM5244B	14	13.30	14.70	15	9.0	600	0.25	0.1	10
ZMM5245B	15	14.25	15.75	16	8.5	600	0.25	0.1	11
ZMM5246B	16	15.2	16.8	17	7.8	600	0.25	0.1	12
ZMM5247B	17	16.15	17.85	19	7.4	600	0.25	0.1	13
ZMM5248B	18	17.1	18.9	21	7.0	600	0.25	0.1	14
ZMM5249B	19	18.05	19.95	23	6.6	600	0.25	0.1	14
ZMM5250B	20	19	21	25	6.2	600	0.25	0.1	15
ZMM5251B	22	20.9	23.1	29	5.6	600	0.25	0.1	17
ZMM5252B	24	22.8	25.2	33	5.2	600	0.25	0.1	18
ZMM5253B	25	23.75	26.25	35	5.0	600	0.25	0.1	19
ZMM5254B	27	25.65	28.35	41	4.6	600	0.25	0.1	21
ZMM5255B	28	26.6	29.4	44	4.5	600	0.25	0.1	21
ZMM5256B	30	28.5	31.5	49	4.2	600	0.25	0.1	23
ZMM5257B	33	31.35	34.65	58	3.8	700	0.25	0.1	25
ZMM5258B	36	34.2	37.8	70	3.4	700	0.25	0.1	27
ZMM5259B	39	37.05	40.95	80	3.2	800	0.25	0.1	30
ZMM5260B	43	40.85	45.15	93	3.0	900	0.25	0.1	33
ZMM5261B	47	44.65	49.35	150	2.7	100	0.25	0.1	36

Notes.

STANDARD VOLTAGE TOLERANCE IS + 5% AND :

SUFFIX " A " FOR + 3%

SUFFIX " B " FOR + 5%

SUFFIX " C " FOR + 10%

SUFFIX " D " FOR + 20%

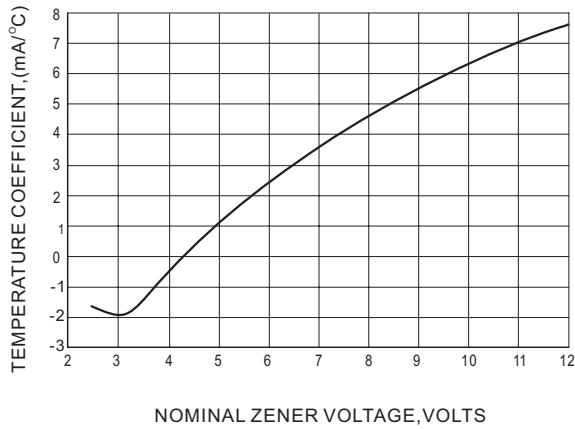


Fig.1 TEMPERATURE COEFFICIENTS

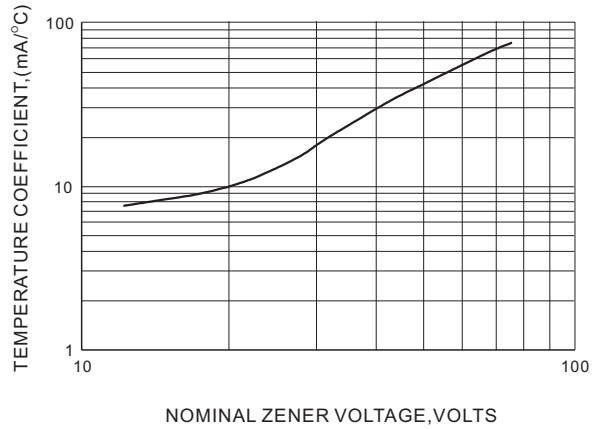


Fig.2 TEMPERATURE COEFFICIENTS

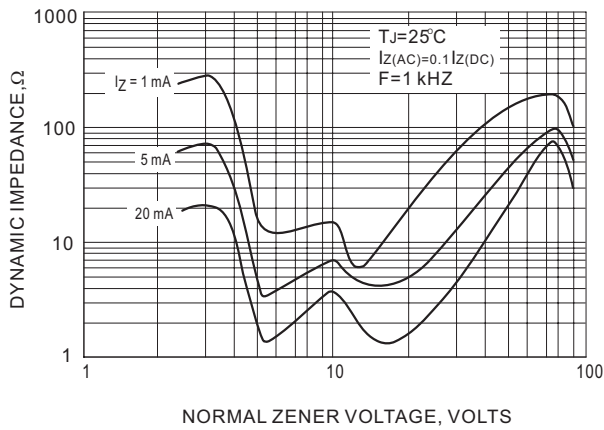


Fig.3 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

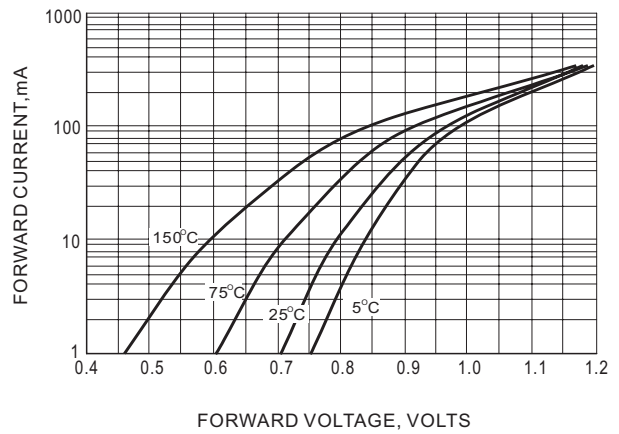


Fig.4 TYPICAL FORWARD VOLTAGE

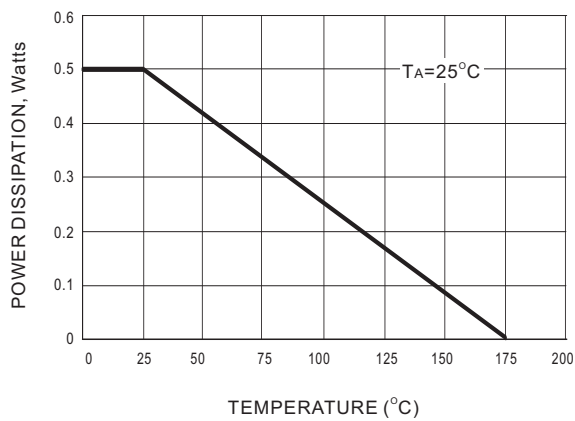


Fig.5 STEADY STATE POWER DERATING

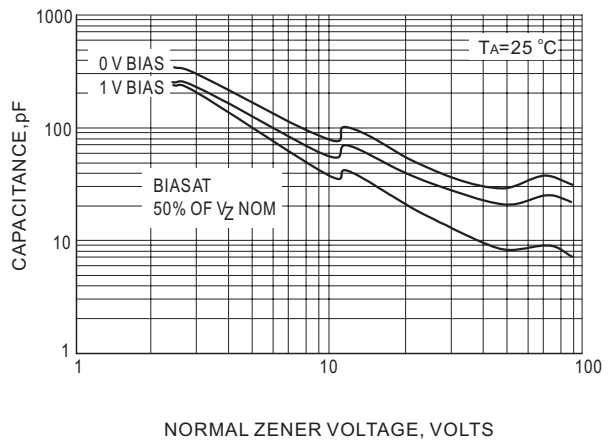


Fig.6 TYPICAL CAPACITANCE

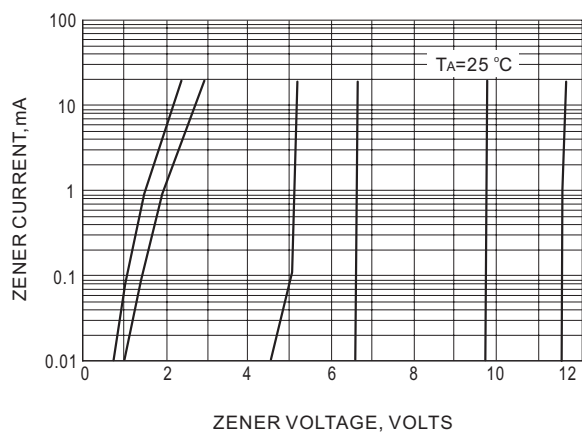


Fig.7 ZENER VOLTAGE VERSUS ZENER CURRENT

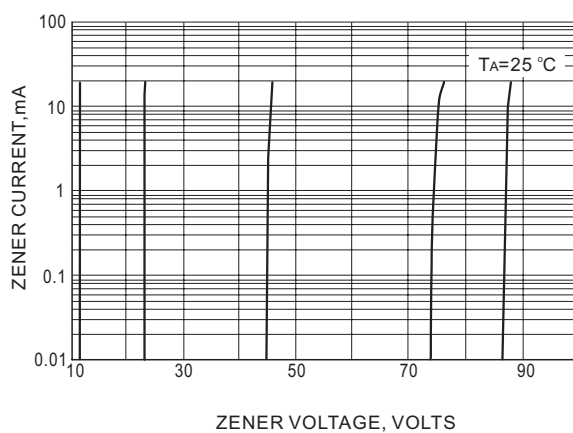


Fig.8 ZENER VOLTAGE VERSUS ZENER CURRENT

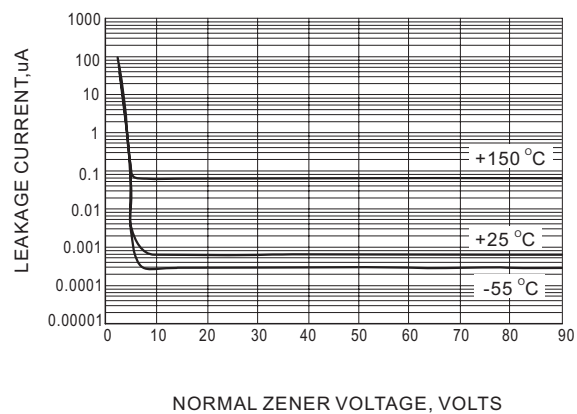


Fig.9 TYPICAL LEAKAGE CURRENT