



# ZMM5221B SERIES

SURFACE MOUNT ZENER DIODES

**Voltage Range 2.4-47 Volts**

**Power 500mWatts**

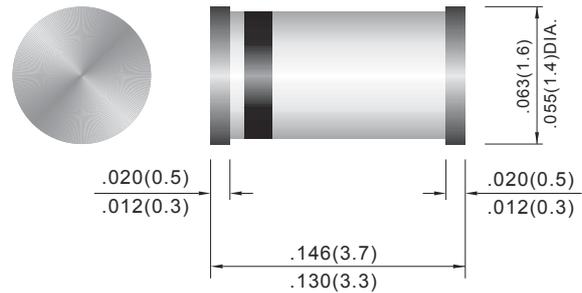
## Features

- \* Planar Die construction
- \* 500mW Power Dissipation
- \* Ideally Suited for Automated Assembly Processes
- \* Both normal and Pb free product are available :  
 Normal : 80~95% Sn, 5~20% Pb  
 Pb free: 98.5% Sn above

## Mechanical Data

Case: Molded Glass MINI-MELF  
 Terminals: Solderable per MIL-STD-202E, Method 208  
 Polarity: See Diagram Below  
 Approx. Weight: 0.03 grams  
 Mounting Position: Any  
 Packing information  
 T/R - 2.5K per 7" plastic Reel

## MINI-MELF/LL-34



Dimensions in millimeters

## 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.

### NOTES:

STANDARD VOLTAGE TOLERANCE IS + 5% AND :  
 SUFFIX A FOR + 3%  
 SUFFIX B FOR + 5%  
 SUFFIX C FOR + 10%  
 SUFFIX D FOR + 20%

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Part Number	Nominal Zener Voltage			Max. Zener Impedance				Max Reverse Leakage Current		Marking code
	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		mA		mA	uA	V	
ZMM5221B	2.40	2.28	2.52	30	20.0	1200	0.25	100	1.0	5221
ZMM5222B	2.50	2.38	2.63	30	20.0	1250	0.25	100	1.0	5222
ZMM5223B	2.70	2.57	2.84	30	20.0	1300	0.25	75	1.0	5223
ZMM5224B	2.80	2.66	2.94	30	20.0	1400	0.25	75	1.0	5224
ZMM5225B	3.00	2.85	3.15	29	20.0	1600	0.25	50	1.0	5225
ZMM5226B	3.30	3.14	3.47	28	20.0	1600	0.25	25	1.0	5226
ZMM5227B	3.60	3.42	3.78	24	20.0	1700	0.25	15	1.0	5227
ZMM5228B	3.90	3.71	4.10	23	20.0	1900	0.25	10	1.0	5228
ZMM5229B	4.30	4.09	4.52	22	20.0	2000	0.25	5.0	1.0	5229
ZMM5230B	4.70	4.47	4.94	19	20.0	1900	0.25	5.0	2.0	5230
ZMM5231B	5.10	4.85	5.36	17	20.0	1600	0.25	5.0	2.0	5231
ZMM5232B	5.60	5.32	5.88	11	20.0	1600	0.25	5.0	3.0	5232
ZMM5233B	6.00	5.70	6.30	7	20.0	1600	0.25	5.0	3.5	5233
ZMM5234B	6.20	5.89	6.51	7	20.0	1000	0.25	5.0	4.0	5234
ZMM5235B	6.80	6.46	7.14	5	20.0	750	0.25	3.0	5.0	5235
ZMM5236B	7.50	7.13	7.88	6	20.0	500	0.25	3.0	6.0	5236
ZMM5237B	8.20	7.79	8.61	8	20.0	500	0.25	3.0	6.5	5237
ZMM5238B	8.70	8.27	9.14	8	20.0	600	0.25	3.0	6.5	5238
ZMM5239B	9.10	8.65	9.56	10	20.0	600	0.25	3.0	7.0	5239
ZMM5240B	10.00	9.50	10.50	17	20.0	600	0.25	3.0	8.0	5240
ZMM5241B	11.00	10.45	11.55	22	20.0	600	0.25	2.0	8.4	5241
ZMM5242B	12.00	11.40	12.60	30	20.0	600	0.25	1.0	9.1	5242
ZMM5243B	13.00	12.35	13.65	13	9.5	600	0.25	0.5	9.9	5243
ZMM5244B	14.00	13.30	14.70	15	9.0	600	0.25	0.1	10.0	5244
ZMM5245B	15.00	14.25	15.75	16	8.5	600	0.25	0.1	11.0	5245
ZMM5246B	16.00	15.20	16.80	17	7.8	600	0.25	0.1	12.0	5246
ZMM5247B	17.00	16.15	17.85	19	7.4	600	0.25	0.1	13.0	5247
ZMM5248B	18.00	17.10	18.90	21	7.0	600	0.25	0.1	14.0	5248
ZMM5249B	19.00	18.05	19.95	23	6.6	600	0.25	0.1	14.0	5249
ZMM5250B	20.00	19.00	21.00	25	6.2	600	0.25	0.1	15.0	5250
ZMM5251B	22.00	20.90	23.10	29	5.6	600	0.25	0.1	17.0	5251
ZMM5252B	24.00	22.80	25.20	33	5.2	600	0.25	0.1	18.0	5252
ZMM5253B	25.00	23.75	26.25	35	5.0	600	0.25	0.1	19.0	5253
ZMM5254B	27.00	25.65	28.35	41	4.6	600	0.25	0.1	21.0	5254
ZMM5255B	28.00	26.60	29.40	44	4.5	600	0.25	0.1	21.0	5255
ZMM5256B	30.00	28.50	31.50	49	4.2	600	0.25	0.1	23.0	5256
ZMM5257B	33.00	31.35	34.65	58	3.8	700	0.25	0.1	25.0	5257
ZMM5258B	36.00	34.20	37.80	70	3.4	700	0.25	0.1	27.0	5258
ZMM5259B	39.00	37.05	40.95	80	3.2	800	0.25	0.1	30.0	5259
ZMM5260B	43.00	40.85	45.15	93	3.0	900	0.25	0.1	33.0	5260
ZMM5261B	47.00	44.65	49.35	150	2.7	1000	0.25	0.1	36.0	5261



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## Rating And Characteristic Curves

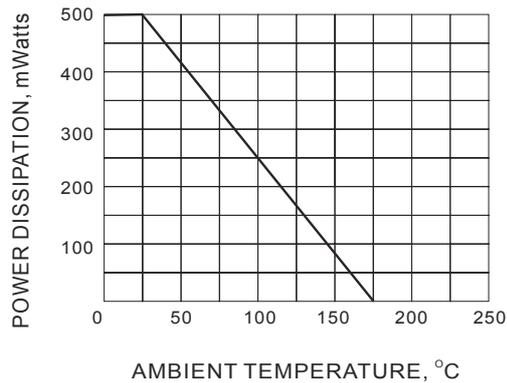


Fig.1 Power Derating Curve

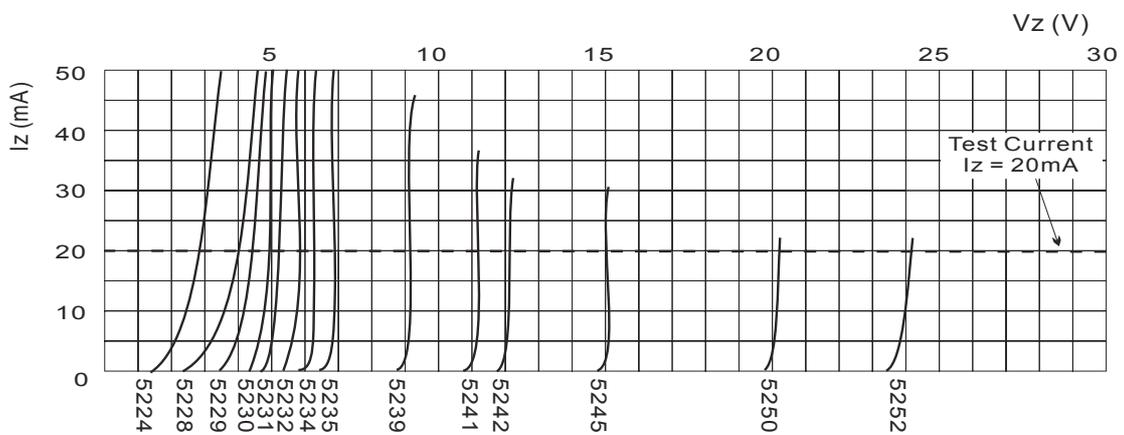


Fig.2 Breakdown Characteristics