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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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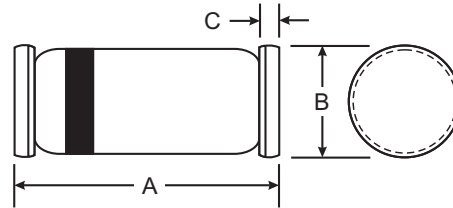
### Features

- 500mW Power Dissipation
- Outline Similar to JEDEC DO-213AA
- Hemetic Glass Package
- **Lead Free Finish, RoHS Compliant (Note 3)**

**NOT RECOMMENDED FOR NEW DESIGN**  
**SUGGESTED REPLACEMENT MMSZ52xx**

### Mechanical Data

- Case: MiniMELF
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish - Sn97.5Ag2.5. Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Ordering Information: See Last Page
- Marking: Cathode Band Only
- Weight: 0.034 grams (approximate)



MiniMELF		
Dim	Min	Max
A	3.30	3.70
B	1.30	1.60
C	0.28	0.50
All Dimensions in mm		

### Maximum Ratings and Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	$P_d$	500	mW
Thermal Resistance, Junction to Ambient Air (Note 1)	$R_{\theta JA}$	300	$^\circ\text{C}/\text{W}$
Forward Voltage @ $I_F = 200\text{mA}$	$V_F$	1.5	V
Operating and Storage Temperature Range	$T_j, T_{STG}$	-65 to +175	$^\circ\text{C}$

- Notes:
1. Valid provided that electrodes are kept at ambient temperature.
  2. Tested with pulses,  $T_p \leq 100\text{ms}$ .
  3. EC Directive 2002/95/EC (RoHS) revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied where applicable, see EU Directive Annex Notes 5 and 7.

**Electrical Characteristics** @ T<sub>A</sub> = 25°C unless otherwise specified

Type Number	Zener Voltage Range (Note 2)				Maximum Zener Impedance		Maximum Reverse Current		Typical Temperature Coefficient @ I <sub>ZT</sub>
	V <sub>Z</sub> @ I <sub>ZT</sub>			I <sub>ZT</sub>	Z <sub>ZT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @ I <sub>ZK</sub> = 0.25mA	I <sub>R</sub>	@ V <sub>R</sub>	
	Nom (V)	Min (V)	Max (V)	mA	Ω	Ω	μA	V	
ZMM5221B	2.4	2.28	2.52	20	30	1200	100	1.0	-0.085
ZMM5222B	2.5	2.38	2.63	20	30	1250	100	1.0	-0.085
ZMM5223B	2.7	2.57	2.84	20	30	1300	75	1.0	-0.080
ZMM5224B	2.8	2.66	2.94	20	30	1400	75	1.0	-0.080
ZMM5225B	3.0	2.85	3.15	20	29	1600	50	1.0	-0.075
ZMM5226B	3.3	3.14	3.47	20	28	1600	25	1.0	-0.070
ZMM5227B	3.6	3.42	3.78	20	24	1700	15	1.0	-0.065
ZMM5228B	3.9	3.71	4.10	20	23	1900	10	1.0	-0.060
ZMM5229B	4.3	4.09	4.52	20	22	2000	5.0	1.0	-0.055
ZMM5230B	4.7	4.47	4.94	20	19	1900	5.0	2.0	±0.030
ZMM5231B	5.1	4.85	5.36	20	17	1600	5.0	2.0	±0.030
ZMM5232B	5.6	5.32	5.88	20	11	1600	5.0	3.0	+0.038
ZMM5233B	6.0	5.70	6.30	20	7.0	1600	5.0	3.5	+0.038
ZMM5234B	6.2	5.89	6.51	20	7.0	1000	5.0	4.0	+0.045
ZMM5235B	6.8	6.46	7.14	20	5.0	750	3.0	5.0	+0.050
ZMM5236B	7.5	7.13	7.88	20	6.0	500	3.0	6.0	+0.058
ZMM5237B	8.2	7.79	8.61	20	8.0	500	3.0	6.5	+0.062
ZMM5238B	8.7	8.27	9.14	20	8.0	600	3.0	6.5	+0.065
ZMM5239B	9.1	8.65	9.56	20	10	600	3.0	7.0	+0.068
ZMM5240B	10	9.50	10.50	20	17	600	3.0	8.0	+0.075
ZMM5241B	11	10.45	11.55	20	22	600	2.0	8.4	+0.076
ZMM5242B	12	11.40	12.60	20	30	600	1.0	9.1	+0.077
ZMM5243B	13	12.35	13.65	9.5	13	600	0.5	9.9	+0.079
ZMM5244B	14	13.30	14.70	9.0	15	600	0.1	10	+0.082
ZMM5245B	15	14.25	15.75	8.5	16	600	0.1	11	+0.082
ZMM5246B	16	15.20	16.80	7.8	17	600	0.1	12	+0.083
ZMM5247B	17	16.15	17.85	7.4	19	600	0.1	13	+0.084
ZMM5248B	18	17.10	18.90	7.0	21	600	0.1	14	+0.085
ZMM5249B	19	18.05	19.95	6.6	23	600	0.1	14	+0.086
ZMM5250B	20	19.00	21.00	6.2	25	600	0.1	15	+0.086
ZMM5251B	22	20.90	23.10	5.6	29	600	0.1	17	+0.087
ZMM5252B	24	22.80	25.20	5.2	33	600	0.1	18	+0.087
ZMM5253B	25	23.75	26.25	5.0	35	600	0.1	19	+0.089
ZMM5254B	27	25.65	28.35	4.6	41	600	0.1	21	+0.090
ZMM5255B	28	26.60	29.40	4.5	44	600	0.1	21	+0.091
ZMM5256B	30	28.50	31.50	4.2	49	600	0.1	23	+0.091
ZMM5257B	33	31.35	34.65	3.8	58	700	0.1	25	+0.092
ZMM5258B	36	34.20	37.80	3.4	70	700	0.1	27	+0.093
ZMM5259B	39	37.05	40.95	3.2	80	800	0.1	30	+0.094
ZMM5260B	43	40.85	45.15	3.0	93	900	0.1	33	+0.095
ZMM5261B	47	44.65	49.35	2.7	105	1000	0.1	36	+0.095
ZMM5262B	51	48.45	53.55	2.5	125	1100	0.1	39	+0.096
ZMM5263B	56	53.20	58.80	2.2	150	1300	0.1	43	+0.096
ZMM5264B	60	57.00	63.00	2.1	170	1400	0.1	46	+0.097
ZMM5265B	62	58.90	65.10	2.0	185	1400	0.1	47	+0.097
ZMM5266B	68	64.60	71.40	1.8	230	1600	0.1	52	+0.097
ZMM5267B	75	71.25	78.75	1.7	270	1700	0.1	56	+0.098

Notes: 2. Tested with pulses, T<sub>p</sub> ≤ 100ms.

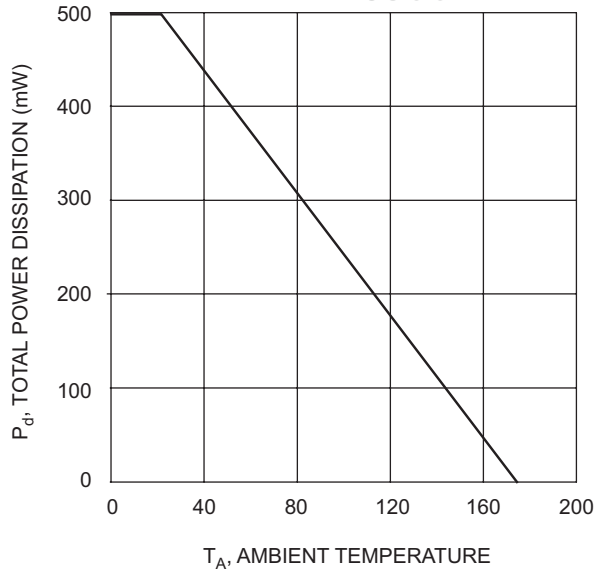


Fig. 1 Power Dissipation vs Ambient Temperature

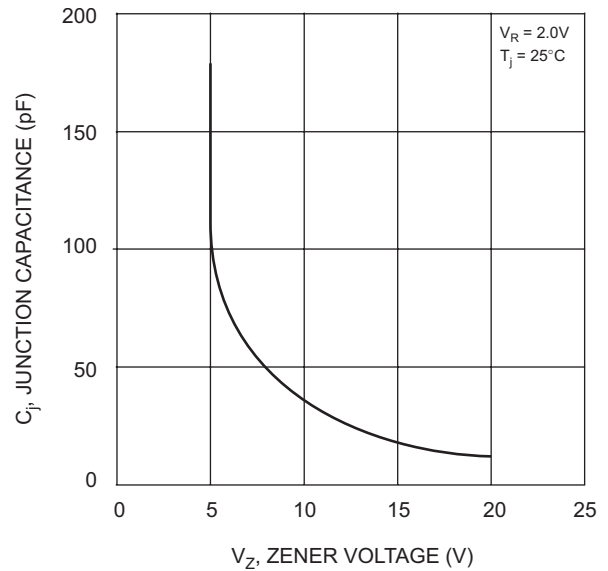


Fig. 2 Junction Capacitance vs Zener Voltage

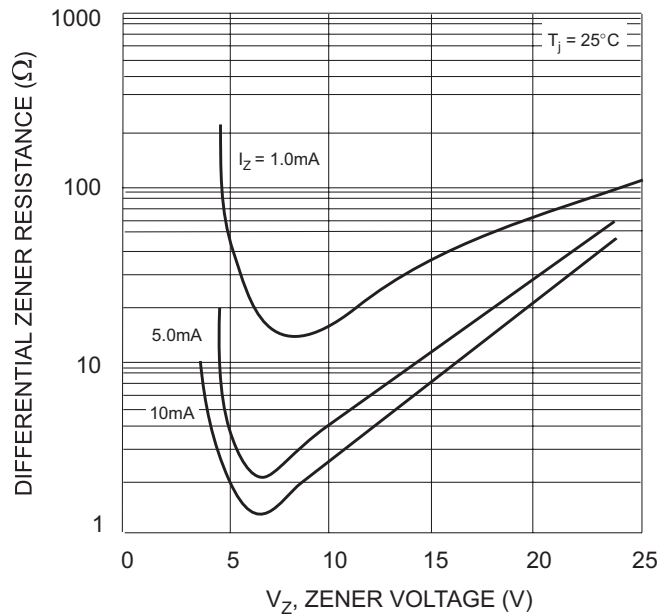


Fig. 3 Differential Zener Impedance

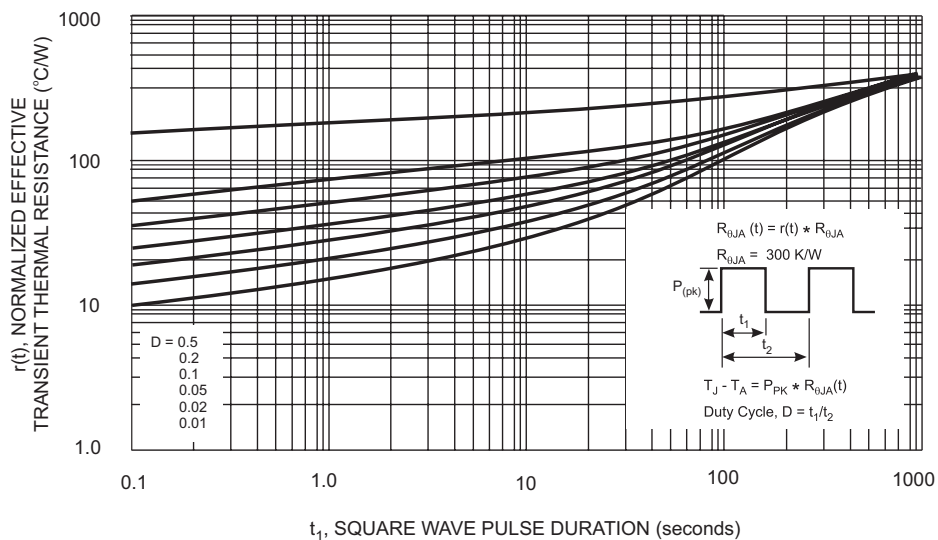


Fig. 4 Typical Normalized Transient Thermal Impedance Curves

**Ordering Information** (Note 4)

Device	Packaging	Shipping
ZMM5221B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5221B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5222B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5222B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5223B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5223B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5224B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5224B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5225B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5225B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5226B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5226B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5227B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5227B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5228B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5228B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5229B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5229B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5230B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5230B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5231B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5231B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5232B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5232B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5233B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5233B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5234B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5234B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5235B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5235B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5236B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5236B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5237B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5237B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5238B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5238B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5239B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5239B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5240B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5240B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5241B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5241B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5242B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5242B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5243B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5243B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5244B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5244B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5245B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5245B-13	MiniMELF	10K/Tape & Reel, 13-inch

**Ordering Information** (Note 4) (continued)

Device	Packaging	Shipping
ZMM5246B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5246B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5247B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5247B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5248B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5248B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5249B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5249B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5250B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5250B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5251B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5251B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5252B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5252B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5253B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5253B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5254B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5254B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5255B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5255B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5256B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5256B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5257B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5257B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5258B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5258B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5259B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5259B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5260B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5260B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5261B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5261B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5262B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5262B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5263B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5263B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5264B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5264B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5265B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5265B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5266B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5266B-13	MiniMELF	10K/Tape & Reel, 13-inch
ZMM5267B-7	MiniMELF	2.5K/Tape & Reel, 7-inch
ZMM5267B-13	MiniMELF	10K/Tape & Reel, 13-inch

Notes: 4. For packaging details, visit our website at <http://www.diodes.com/datasheets/ap02007.pdf>