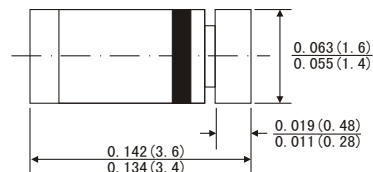


### FEATURES

- Standard Zener voltage tolerance is  $\pm 20\%$ . Add suffix "A" for  $\pm 10\%$  tolerance, suffix "B" for  $\pm 5\%$  tolerance and suffix "C" for  $\pm 2\%$  tolerance. Other tolerance, non standard and higher zener voltages are upon request
- High temperature soldering guaranteed:  $260^{\circ}\text{C}/10$  seconds at terminals
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

### MiniMELF



### MECHANICAL DATA

- Case: MiniMELF(SOD-80) glass case
- Weight: Approx. 0.05 gram

Dimensions in inches and (millimeters)

### ABSOLUTE MAXIMUM RATINGS(LIMITING VALUES) ( $T_A=25^{\circ}\text{C}$ )

	Symbols	Value	Units
Zener current see table "Characteristics"			
Power dissipation at $T_A=25^{\circ}\text{C}$	$P_{tot}$	500 <sup>1)</sup>	mW
Junction temperature	$T_J$	175	$^{\circ}\text{C}$
Storage temperature range	$T_{STG}$	-65 to +175	$^{\circ}\text{C}$

1) Valid provided that electrodes is kept at ambient temperature

### ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ )

	Symbols	Min	Typ	Max	Units
Thermal resistance junction to ambient	$R_{\theta JA}$			300 <sup>1)</sup>	K/W
Forward voltage at $I_F=200\text{mA}$	$V_F$			1.1	V

1) Valid provided that electrodes is kept at ambient temperature

# ZMM5221 ... ZMM5262 SILICON PLANAR ZENER DIODES

Type	Nominal Zener Voltage <sup>1)</sup>	Test Current	Maximum Zener Impedance <sup>2)</sup>		Typical temperature coefficient	Maximum reverse leakage current			Maximum regulator Current <sup>3)</sup>
	Vz(V) at I <sub>ZT</sub>	I <sub>ZT</sub> (mA)	Z <sub>ZT</sub> (Ω) at I <sub>ZT</sub>	Z <sub>Zk</sub> (Ω) at I <sub>ZT</sub> =0.25mA	α <sub>Vz</sub> %/K	I <sub>r</sub> (uA)	Test voltage V <sub>R</sub> (V) Suffix A	Test voltage V <sub>R</sub> (V) Suffix B	I <sub>ZM</sub> (mA)
ZMM5221	2.4	20	30	1200	-0.085	100	0.95	1.0	185
ZMM5222	2.5	20	30	1250	-0.085	100	0.95	1.0	180
ZMM5223	2.7	20	30	1300	-0.080	75	0.95	1.0	165
ZMM5224	2.8	20	30	1400	-0.080	75	0.95	1.0	160
ZMM5225	3.0	20	29	1600	-0.075	50	0.95	1.0	152
ZMM5226	3.3	20	28	1600	-0.070	25	0.95	1.0	138
ZMM5227	3.6	20	24	1700	-0.065	15	0.95	1.0	126
ZMM5228	3.9	20	23	1900	-0.060	10	0.95	1.0	115
ZMM5229	4.3	20	22	2000	-0.055	5	0.95	1.0	106
ZMM5230	4.7	20	19	1900	±0.030	5	1.9	2.0	97
ZMM5231	5.1	20	17	1600	±0.030	5	1.9	2.0	89
ZMM5232	5.6	20	11	1600	+0.038	5	2.9	3.0	81
ZMM5233	6.0	20	7	1600	+0.038	5	3.3	3.5	76
ZMM5234	6.2	20	7	1000	+0.045	5	3.8	4.0	73
ZMM5235	6.8	20	5	750	+0.050	3	4.8	5.0	67
ZMM5236	7.5	20	6	500	+0.058	3	5.7	6.0	61
ZMM5237	8.2	20	8	500	+0.062	3	6.2	6.5	55
ZMM5238	8.7	20	8	600	+0.065	3	6.2	6.5	52
ZMM5239	9.1	20	10	600	+0.068	3	6.7	7.0	50
ZMM5240	10	20	17	600	+0.075	3	7.6	8.0	45
ZMM5241	11	20	22	600	+0.076	2	8.0	8.4	41
ZMM5242	12	20	30	600	+0.077	1	8.7	9.1	38
ZMM5243	13	9.5	13	600	+0.079	0.5	9.4	9.9	35
ZMM5244	14	9.0	15	600	+0.082	0.1	9.5	10	32
ZMM5245	15	8.5	16	600	+0.082	0.1	10.5	11	30
ZMM5246	16	7.8	17	600	+0.083	0.1	11.4	12	28
ZMM5247	17	7.4	19	600	+0.084	0.1	12.4	13	27
ZMM5248	18	7.0	21	600	+0.085	0.1	13.3	14	25
ZMM5249	19	6.6	23	600	+0.086	0.1	13.3	14	24
ZMM5250	20	6.2	25	600	+0.086	0.1	14.3	15	23
ZMM5251	22	5.6	29	600	+0.087	0.1	16.2	17	21
ZMM5252	24	5.2	33	600	+0.087	0.1	17.1	18	19.1
ZMM5253	25	5.0	35	600	+0.089	0.1	18.1	19	18.2
ZMM5254	27	4.6	41	600	+0.090	0.1	20	21	16.8
ZMM5255	28	4.5	44	600	+0.091	0.1	20	21	16.2
ZMM5256	30	4.2	49	600	+0.091	0.1	22	23	15.1
ZMM5257	33	3.8	58	700	+0.092	0.1	24	25	13.8
ZMM5258	36	3.4	70	700	+0.093	0.1	26	27	12.6
ZMM5259	39	3.2	80	800	+0.094	0.1	29	30	11.6
ZMM5260	43	3.0	93	900	+0.095	0.1	31	33	10.6
ZMM5261	47	2.7	105	1000	+0.095	0.1	34	36	9.7
ZMM5262	51	2.5	125	1100	+0.096	0.1	37	39	8.9

1) Tested with pulses  $t_p = 20$  ms, Measured under thermal equilibrium and DC test conditions.

2) The zener impedance is derived from the 50Hz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current (I<sub>ZT</sub> or I<sub>Zk</sub>) is superimposed on I<sub>ZT</sub> or I<sub>Zk</sub>. Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

3) Valid provided that electrodes are kept at ambient temperature.

# ZMM5221 THRU ZMM5262 SILICON PLANAR ZENER DIODES

FIG.1-Power Dissipation vs Ambient Temperature

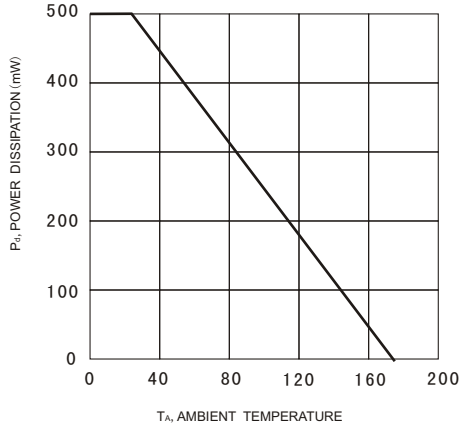


FIG.2-Junction Capacitance vs Zener Voltage

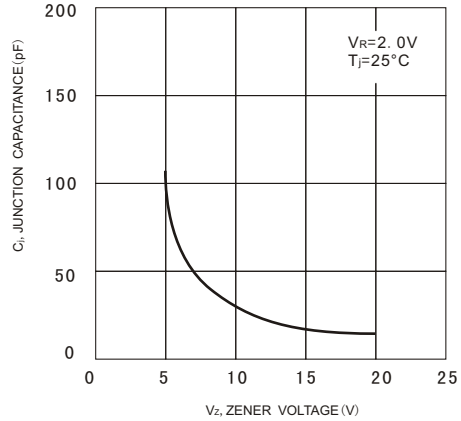


FIG.3-Differential Zener Impedance

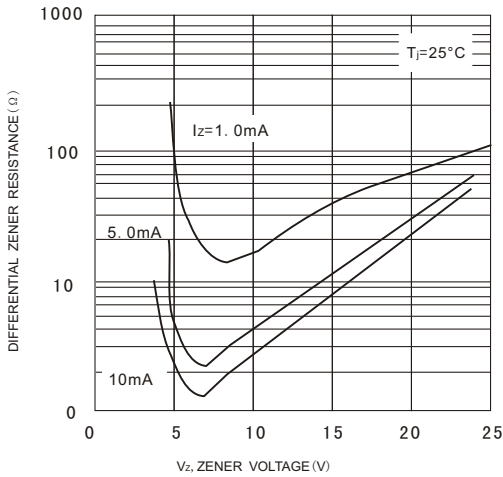


FIG.4-typical Normalized Transient Thermal Impedance Curves

