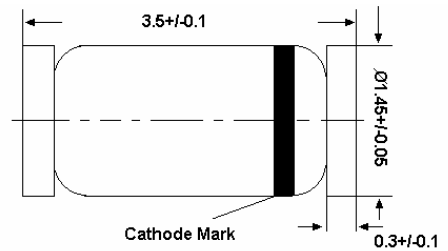


ZMM5221...ZMM5264

SILICON PLANAR ZENER DIODES

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.

LL-34



Glass case MiniMELF
Dimensions in mm

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Power Dissipation at $T_a = 75^\circ\text{C}$	P_{tot}	500 ¹⁾	mW
Junction Temperature	T_j	175	$^\circ\text{C}$
Storage Temperature Range	T_s	- 65 to + 175	$^\circ\text{C}$
¹⁾ Valid provided that electrodes are kept at ambient temperature.			

Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient Air	R_{thA}	0.3 ¹⁾	K/mW
Forward Voltage at $I_F = 200\text{ mA}$	V_F	1.1	V
¹⁾ Valid provided that electrodes are kept at ambient temperature.			

**ZMM5221...ZMM5264**

Type	Nominal Zener Voltage ³⁾		Maximum Zener Impedance ¹⁾		Typical Temperature Coefficient $\alpha_{VZ}\%/K$	Maximum Reverse Leakage Current			Maximum Regulator Current ²⁾ I_{ZM} (mA)
	V_Z at I_{ZT} (V)	I_{ZT} (mA)	Z_{ZT} (Ω) at I_{ZT}	Z_{ZK} (Ω) at $I_{ZK} = 0.25$ mA		I_R (μA)	Suffix A at V_R (V)	Suffix B at V_R (V)	
ZMM5221	2.4	20	30	1200	-0.085	100	0.95	1	185
ZMM5222	2.5	20	30	1250	-0.085	100	0.95	1	180
ZMM5223	2.7	20	30	1300	-0.080	75	0.95	1	165
ZMM5224	2.8	20	30	1400	-0.080	75	0.95	1	160
ZMM5225	3	20	29	1600	-0.075	50	0.95	1	152
ZMM5226	3.3	20	28	1600	-0.070	25	0.95	1	138
ZMM5227	3.6	20	24	1700	-0.065	15	0.95	1	126
ZMM5228	3.9	20	23	1900	-0.060	10	0.95	1	115
ZMM5229	4.3	20	22	2000	-0.055	5	0.95	1	106
ZMM5230	4.7	20	19	1900	60.030	5	0.95	2	97
ZMM5231	5.1	20	17	1600	60.030	5	1.9	2	89
ZMM5232	5.6	20	11	1600	+0.038	5	2.9	3	81
ZMM5233	6	20	7	1600	+0.038	5	3.3	3.5	76
ZMM5234	6.2	20	7	1000	+0.045	5	3.8	4	73
ZMM5235	6.8	20	5	750	+0.050	3	4.8	5	67
ZMM5236	7.5	20	6	500	+0.058	3	5.7	6	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	50
ZMM5240	10	20	17	600	+0.075	3	7.6	8	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	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	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	4.4	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	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
ZMM5263	56	2.2	150	1300	+0.096	0.1	43	45	8.1
ZMM5264	60	2.1	170	1400	+0.097	0.1	44	46	7.6

¹⁾ The Zener Impedance is derived from the 60 Hz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK} . Zener Impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

²⁾ Valid provided that electrodes are kept at ambient temperature.

³⁾ Measured under thermal equilibrium and DC test conditions.

⁴⁾ Tested with pulses $t_p = 20$ ms.

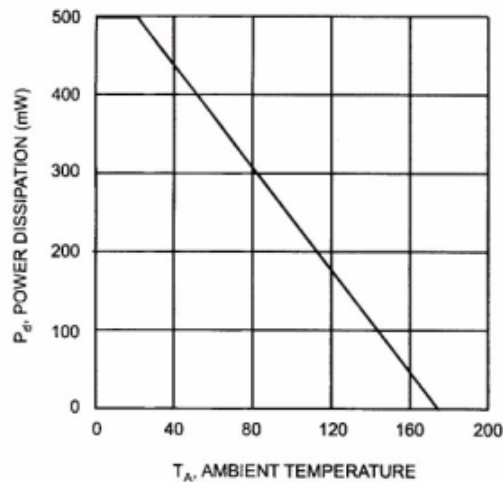


Fig. 1 Power Dissipation vs Ambient Temperature

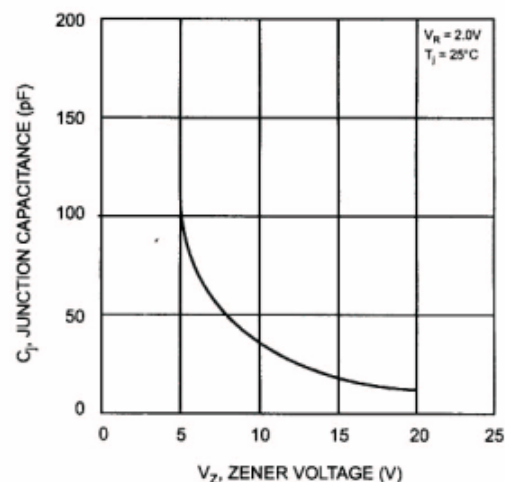


Fig. 2 Junction Capacitance vs Zener Voltage

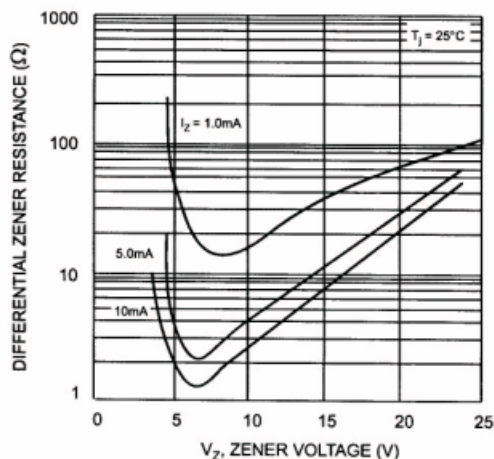


Fig. 3 Differential Zener Impedance

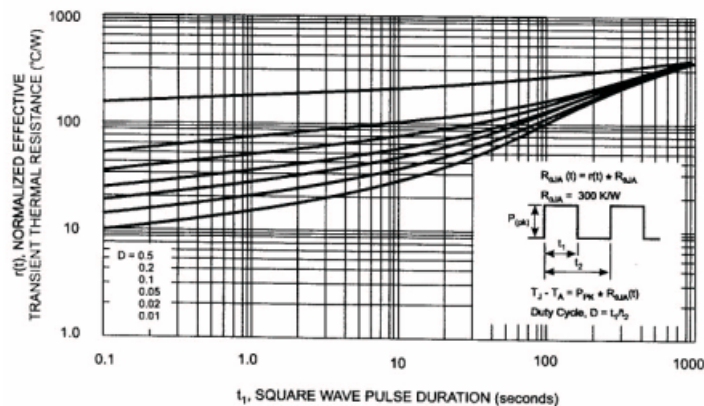


Fig. 4 Typical Normalized Transient Thermal Impedance Curves