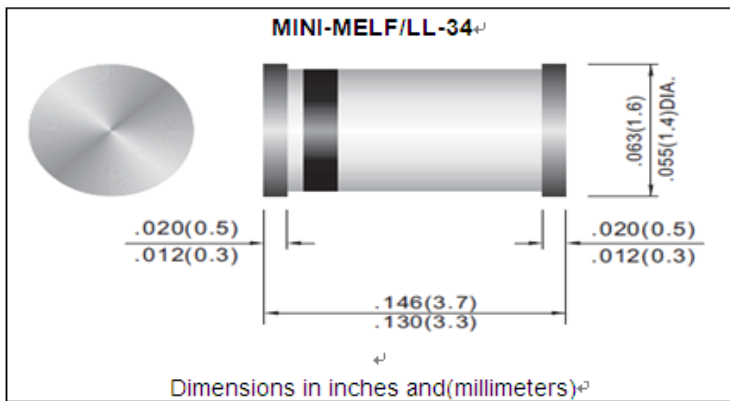


## Zener Diodes



### Features

- $P_{tot}$  500mW
- $V_Z$  2.4V-75V

### ■ Limiting Values (Absolute Maximum Rating)

Item	Symbol	Unit	Conditions	Max
Power dissipation	$P_{tot}$	mW	$R_{thJA} < 300^{\circ}\text{C}/\text{W}$	500
Zener current	$I_Z$	mA		$P_{tot} / V_Z$
Maximum junction temperature	$T_j$	$^{\circ}\text{C}$		175
Storage temperature range	$T_{stg}$	$^{\circ}\text{C}$		-65 to +175

### ■ Electrical Characteristics ( $T_a=25^{\circ}\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Max
Thermal resistance	$R_{\theta JA}$	$^{\circ}\text{C}/\text{W}$	junction to ambient air, on PC board 50mm×50mm×1.6mm	500
Forward voltage	$V_F$	V	$I_F=200\text{mA}$	1.1



# ZMM52 SERIES

## ■Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Part Number	Zener voltage range <sup>1)</sup>			Dynamic resistance		Test current		Reverse leakage current		Temperature Coefficient
	VZ			r <sub>ZT</sub> at I <sub>ZT</sub>	r <sub>ZK</sub> at I <sub>ZK</sub>	I <sub>ZT</sub>	I <sub>ZK</sub>	I <sub>R</sub> at V <sub>R</sub>		TK <sub>VZ</sub>
	V			Ω	Ω	mA	mA	μA	V	%K
	Typ.	Min	Max	Typ.	Typ.					
ZMM5221B	2.4	2.28	2.52	< 30	< 1200	20	0.25	< 100	1	< - 0.085
ZMM5222B	2.5	2.37	2.63	< 30	< 1250	20	0.25	< 100	1	< - 0.085
ZMM5223B	2.7	2.56	2.84	< 30	< 1300	20	0.25	< 75	1	< - 0.080
ZMM5224B	2.8	2.66	2.94	< 30	< 1400	20	0.25	< 75	1	< - 0.080
ZMM5225B	3	2.85	3.15	< 29	< 1600	20	0.25	< 50	1	< - 0.075
ZMM5226B	3.3	3.13	3.47	< 28	< 1600	20	0.25	< 25	1	< - 0.070
ZMM5227B	3.6	3.42	3.78	< 24	< 1700	20	0.25	< 15	1	< - 0.065
ZMM5228B	3.9	3.70	4.10	< 23	< 1900	20	0.25	< 10	1	< - 0.060
ZMM5229B	4.3	4.08	4.52	< 22	< 2000	20	0.25	< 5	1	< ± 0.055
ZMM5230B	4.7	4.46	4.94	< 19	< 1900	20	0.25	< 5	2	< ± 0.030
ZMM5231B	5.1	4.84	5.36	< 17	< 1600	20	0.25	< 5	2	< ± 0.030
ZMM5232B	5.6	5.32	5.88	< 11	< 1600	20	0.25	< 5	3	< + 0.038
ZMM5233B	6	5.70	6.30	< 7	< 1600	20	0.25	< 5	3.5	< + 0.038
ZMM5234B	6.2	5.89	6.51	< 7	< 1000	20	0.25	< 5	4	< + 0.045
ZMM5235B	6.8	6.46	7.14	< 5	< 750	20	0.25	< 3	5	< + 0.050
ZMM5236B	7.5	7.12	7.88	< 6	< 500	20	0.25	< 3	6	< + 0.058
ZMM5237B	8.2	7.79	8.61	< 8	< 500	20	0.25	< 3	6.5	< + 0.062
ZMM5238B	8.7	8.26	9.14	< 8	< 600	20	0.25	< 3	6.5	< + 0.065
ZMM5239B	9.1	8.64	9.56	< 10	< 600	20	0.25	< 3	7	< + 0.068



## ZMM52 SERIES

ZMM5240B	10	9.50	10.50	< 17	< 600	20	0.25	< 3	8	< + 0.075
ZMM5241B	11	10.45	11.55	< 22	< 600	20	0.25	< 2	8.4	< + 0.076
ZMM5242B	12	11.40	12.60	< 30	< 600	20	0.25	< 1	9.1	< + 0.077
ZMM5243B	13	12.35	13.65	< 13	< 600	9.5	0.25	< 0.5	9.9	< + 0.079
ZMM5244B	14	13.30	14.70	< 15	< 600	9	0.25	< 0.1	10	< + 0.082
ZMM5245B	15	14.25	15.75	< 16	< 600	8.5	0.25	< 0.1	11	< + 0.082
ZMM5246B	16	15.20	16.80	< 17	< 600	7.8	0.25	< 0.1	12	< + 0.083
ZMM5247B	17	16.15	17.85	< 19	< 600	7.4	0.25	< 0.1	13	< + 0.084
ZMM5248B	18	17.10	18.90	< 21	< 600	7	0.25	< 0.1	14	< + 0.085
ZMM5249B	19	18.05	19.95	< 23	< 600	6.6	0.25	< 0.1	14	< + 0.086
ZMM5250B	20	19.00	21.00	< 25	< 600	6.2	0.25	< 0.1	15	< + 0.086
ZMM5251B	22	20.90	23.10	< 29	< 600	5.6	0.25	< 0.1	17	< + 0.087
ZMM5252B	24	22.80	25.20	< 33	< 600	5.2	0.25	< 0.1	18	< + 0.088
ZMM5253B	25	23.75	26.25	< 35	< 600	5	0.25	< 0.1	19	< + 0.089
ZMM5254B	27	25.65	28.35	< 41	< 600	4.6	0.25	< 0.1	21	< + 0.090
ZMM5255B	28	26.60	29.40	< 44	< 600	4.5	0.25	< 0.1	21	< + 0.091
ZMM5256B	30	28.50	31.50	< 49	< 600	4.2	0.25	< 0.1	23	< + 0.091
ZMM5257B	33	31.35	34.65	< 58	< 700	3.8	0.25	< 0.1	25	< + 0.092
ZMM5258B	36	34.20	37.80	< 70	< 700	3.4	0.25	< 0.1	27	< + 0.093
ZMM5259B	39	37.05	40.95	< 80	< 800	3.2	0.25	< 0.1	30	< + 0.094
ZMM5260B	43	40.85	45.15	< 93	< 900	3	0.25	< 0.1	33	< + 0.095
ZMM5261B	47	44.65	49.35	105	< 1000	2.7	0.25	< 0.1	36	< + 0.095
ZMM5262B	51	48.45	53.55	125	< 1100	2.5	0.25	< 0.1	39	< + 0.096
ZMM5263B	56	53.20	58.80	150	< 1300	2.2	0.25	< 0.1	43	< + 0.096



## ZMM52 SERIES

ZMM5264B	60	57.00	63.00	170	< 1400	2.1	0.25	< 0.1	46	< + 0.097
ZMM5265B	62	58.90	65.10	185	< 1400	2	0.25	< 0.1	47	< + 0.097
ZMM5266B	68	64.60	71.40	230	< 1600	1.8	0.25	< 0.1	52	< + 0.097
ZMM5267B	75	71.25	78.75	270	< 1700	1.7	0.25	< 0.1	56	< + 0.098

### Notes:

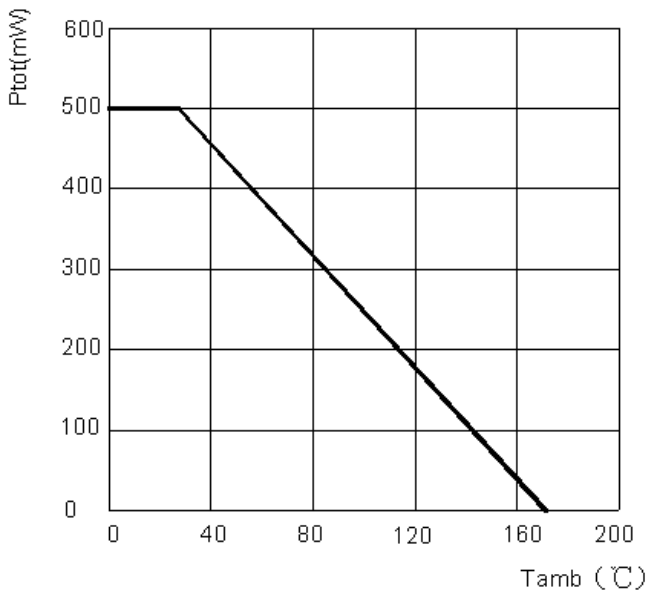
1. Based on dc-measurement at thermal equilibrium; case temperature maintained at  $30^{\circ}\text{C} \pm 2^{\circ}\text{C}$

### ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ZMM52 SERIES	F1	Approximate 0.47	10000	10000	50000	7" reel

### ■ Characteristics(Typical)

FIG 1: Total Power Dissipation vs. Ambient Temperature





## ZMM52 SERIES

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