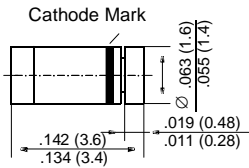




# ZMM1 THRU ZMM75

## ZENER DIODES

### Mini-MELF



Dimensions are in inches and (millimeters)

### FEATURES

- ◆ Silicon Planar Zener Diodes
- ◆ In Mini-MELF case especially for automatic insertion.
- ◆ The Zener voltages are graded according to the international E 24 standard. Smaller voltage tolerances and other Zener voltages are available upon request.
- ◆ These diodes are also available in DO-35 case with the type designation ZPD1 ... ZPD51.

### MECHANICAL DATA

**Case:** Mini-MELF Glass Case (SOD-80)

**Weight:** approx. 0.05 g

### MAXIMUM RATINGS

Ratings at 25°C ambient temperature unless otherwise specified.

	SYMBOL	VALUE	UNIT
Zener Current (see Table "Characteristics")			
Power Dissipation at $T_{amb} = 25^{\circ}\text{C}$	$P_{tot}$	500 <sup>(1)</sup>	mW
Junction Temperature	$T_j$	175	°C
Storage Temperature Range	$T_s$	- 55 to +175	°C

	SYMBOL	MIN.	TYP.	MAX.	UNIT
Thermal Resistance Junction to Ambient Air	$R_{thJA}$	-	-	0.3 <sup>(1)</sup>	°C/W

#### NOTES:

(1) Valid provided that electrodes are kept at ambient temperature.



# ZMM1 THRU ZMM75

## ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Type	Zener Voltage <sup>(1)</sup> at I <sub>Z</sub> = 5 mA V <sub>Z</sub> V	Dynamic Resistance		Temp. Coeff. of Zener Voltage at I <sub>Z</sub> = 5 mA α <sub>VZ</sub> 10 <sup>-4</sup> /K	Reverse Voltage at I <sub>R</sub> = 100 nA V <sub>R</sub> V	Admissible Zener current <sup>(2)</sup>	
		at I <sub>Z</sub> = 5 mA f = 1 kHz r <sub>Zj</sub> Ω	at I <sub>Z</sub> = 1 mA f = 1 kHz r <sub>Zj</sub> Ω			at T <sub>amb</sub> = 45°C I <sub>Z</sub> = mA	at T <sub>amb</sub> = 25°C I <sub>Z</sub> = mA
ZMM1 <sup>(3)</sup>	0.7 ... 0.8	6.5 (< 8)	< 50	- 26 ... - 23	-	280	340
ZMM2.7	2.5 ... 2.9	75 (< 83)	< 500	- 9 ... - 4	-	135	160
ZMM3	2.8 ... 3.2	80 (< 95)	< 500	- 9 ... - 3	-	117	140
ZMM3.3	3.1 ... 3.5	80 (< 95)	< 500	- 8 ... - 3	-	109	130
ZMM3.6	3.4 ... 3.8	80 (< 95)	< 500	- 8 ... - 3	-	101	120
ZMM3.9	3.7 ... 4.1	80 (< 95)	< 500	- 7 ... - 3	-	92	110
ZMM4.3	4.0 ... 4.6	80 (< 95)	< 500	- 6 ... - 1	-	85	100
ZMM4.7	4.4 ... 5.0	70 (< 78)	< 500	- 5 ... +2	-	76	90
ZMM5.1	4.8 ... 5.4	30 (< 60)	< 480	- 3 ... +4	> 0.8	67	80
ZMM5.6	5.2 ... 6.0	10 (< 40)	< 400	- 2 ... +6	> 1	59	70
ZMM6.2	5.8 ... 6.6	4.8 (< 10)	< 200	- 1 ... +7	> 2	54	64
ZMM6.8	6.4 ... 7.2	4.5 (< 8)	< 150	+2 ... +7	> 3	49	58
ZMM7.5	7.0 ... 7.9	4 (< 7)	< 50	+3 ... +7	> 5	44	53
ZMM8.2	7.7 ... 8.7	4.5 (< 7)	< 50	+4 ... +7	> 6	40	47
ZMM9.1	8.5 ... 9.6	4.8 (< 10)	< 50	+5 ... +8	> 7	36	43
ZMM10	9.4 ... 10.6	5.2 (< 15)	< 70	+5 ... +8	> 7.5	33	40
ZMM11	10.4 ... 11.6	6 (< 20)	< 70	+5 ... +9	> 8.5	30	36
ZMM12	11.4 ... 12.7	7 (< 20)	< 90	+6 ... +9	> 9	28	32
ZMM13	12.4 ... 14.1	9 (< 25)	< 110	+7 ... +9	> 10	25	29
ZMM15	13.8 ... 15.6	11 (< 30)	< 110	+7 ... +9	> 11	23	27
ZMM16	15.3 ... 17.1	13 (< 40)	< 170	+8 ... +9.5	> 12	20	24
ZMM18	16.8 ... 19.1	18 (< 50)	< 170	+8 ... +9.5	> 14	18	21
ZMM20	18.8 ... 21.2	20 (< 50)	< 220	+8 ... +10	> 15	17	20
ZMM22	20.8 ... 23.3	25 (< 55)	< 220	+8 ... +10	> 17	16	18
ZMM24	22.8 ... 25.6	28 (< 80)	< 220	+8 ... +10	> 18	13	16
ZMM27	25.1 ... 28.9	30 (< 80)	< 250	+8 ... +10	> 20	12	14
ZMM30	28 ... 32	35 (< 80)	< 250	+8 ... +10	> 22.5	10	13
ZMM33	31 ... 35	40 (< 80)	< 250	+8 ... +10	> 25	9	12
ZMM36	34 ... 38	40 (< 90)	< 250	+8 ... +10	> 27	9	11
ZMM39	37 ... 41	50 (< 90)	< 300	+10 ... +12	> 29	8	10
ZMM43	40 ... 46	60 (< 100)	< 700	+10 ... +12	> 32	7	9.2
ZMM47	44 ... 50	70 (< 100)	< 750	+10 ... +12	> 35	6	8.5
ZMM51	48 ... 54	70 (< 100)	< 750	+10 ... +12	> 38	6	7.8
ZMM56	52.0 ... 60.0 <sup>(4)</sup>	<135 <sup>(4)</sup>	<1000 <sup>(5)</sup>	typ. +10 <sup>(4)</sup>	-	-	-
ZMM62	58.0 ... 66.0 <sup>(4)</sup>	<150 <sup>(4)</sup>	<1000 <sup>(5)</sup>	typ. +10 <sup>(4)</sup>	-	-	-
ZMM68	64.0 ... 72.0 <sup>(4)</sup>	<200 <sup>(4)</sup>	<1000 <sup>(5)</sup>	typ. +10 <sup>(4)</sup>	-	-	-
ZMM75	70.0 ... 79.0 <sup>(4)</sup>	<250 <sup>(4)</sup>	<1500 <sup>(5)</sup>	typ. +10 <sup>(4)</sup>	-	-	-

### NOTES:

(1) Tested with pulses t<sub>p</sub> = 5 ms

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

(3) The ZMM1 is a silicon diode operated in forward direction. Hence, the index of all parameters should be "F" instead of "Z"

Connect the cathode electrode to the negative pole

(4) at I<sub>Z</sub> = 2.5 mA

(5) at I<sub>Z</sub> = 0.5 mA