

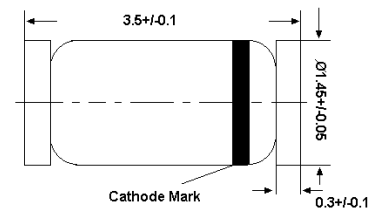
# ZMM1PF...ZMM75PF

## Silicon Epitaxial Planar Zener Diodes

MiniMELF case especially for automatic insertion. The Zener voltages are graded according to the international E24 standard. Smaller voltage tolerances and higher Zener voltages are upon request.

These diodes are also available in DO-35 case with the type designation BZX55C...

LL-34



Glass case MiniMELF  
Dimensions in mm

### Features

- Lead Free

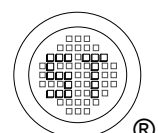
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Power Dissipation <sup>1)</sup>	$P_{\text{tot}}$	500	mW
Junction Temperature	$T_j$	175	$^\circ\text{C}$
Storage Temperature Range	$T_{\text{stg}}$	- 55 to + 175	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient <sup>1)</sup>	$R_{\theta\text{JA}}$	300	$^\circ\text{C}/\text{W}$

<sup>1)</sup> Valid provided that electrodes are kept at ambient temperature.



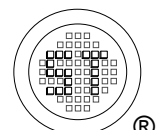
# ZMM1PF...ZMM75PF

## Characteristics at $T_a = 25^\circ\text{C}$ ( $V_F$ max : 1 V at $I_F = 100$ mA)

Type	Zener Voltage Range <sup>1)</sup>			Dynamic Resistance			Reverse Leakage Current			Temp. Coefficient of Zener Voltage TKvz (%/K)
	$V_{Znom}$	$V_{ZT}$	at $I_{ZT}$	$Z_{ZT}$	$Z_{ZK}$	at $I_{ZK}$	$T_a = 25^\circ\text{C}$	$T_a = 125^\circ\text{C}$	at $V_R$	
	(V)	(V)	(mA)	Max. ( $\Omega$ )	Max. ( $\Omega$ )	(mA)	Max. ( $\mu\text{A}$ )	Max. ( $\mu\text{A}$ )	(V)	
ZMM1PF <sup>2)</sup>	0.75	0.7...0.8	5	8	50	1	-	-	-	-0.26...-0.23
ZMM2V0PF	2	1.8...2.15	5	85	600	1	100	200	1	-0.09...-0.06
ZMM2V2PF	2.2	2.08...2.33	5	85	600	1	75	160	1	-0.09...-0.06
ZMM2V4PF	2.4	2.28...2.56	5	85	600	1	50	100	1	-0.09...-0.06
ZMM2V7PF	2.7	2.5...2.9	5	85	600	1	10	50	1	-0.09...-0.06
ZMM3V0PF	3	2.8...3.2	5	85	600	1	4	40	1	-0.08...-0.05
ZMM3V3PF	3.3	3.1...3.5	5	85	600	1	2	40	1	-0.08...-0.05
ZMM3V6PF	3.6	3.4...3.8	5	85	600	1	2	40	1	-0.08...-0.05
ZMM3V9PF	3.9	3.7...4.1	5	85	600	1	2	40	1	-0.08...-0.05
ZMM4V3PF	4.3	4...4.6	5	75	600	1	1	20	1	-0.06...-0.03
ZMM4V7PF	4.7	4.4...5	5	60	600	1	0.5	10	1	-0.05...+0.02
ZMM5V1PF	5.1	4.8...5.4	5	35	550	1	0.1	2	1	-0.02...+0.02
ZMM5V6PF	5.6	5.2...6	5	25	450	1	0.1	2	1	-0.05...+0.05
ZMM6V2PF	6.2	5.8...6.6	5	10	200	1	0.1	2	2	0.03...0.06
ZMM6V8PF	6.8	6.4...7.2	5	8	150	1	0.1	2	3	0.03...0.07
ZMM7V5PF	7.5	7...7.9	5	7	50	1	0.1	2	5	0.03...0.07
ZMM8V2PF	8.2	7.7...8.7	5	7	50	1	0.1	2	6.2	0.03...0.08
ZMM9V1PF	9.1	8.5...9.6	5	10	50	1	0.1	2	6.8	0.03...0.09
ZMM10PF	10	9.4...10.6	5	15	70	1	0.1	2	7.5	0.03...0.1
ZMM11PF	11	10.4...11.6	5	20	70	1	0.1	2	8.2	0.03...0.11
ZMM12PF	12	11.4...12.7	5	20	90	1	0.1	2	9.1	0.03...0.11
ZMM13PF	13	12.4...14.1	5	26	110	1	0.1	2	10	0.03...0.11
ZMM15PF	15	13.8...15.6	5	30	110	1	0.1	2	11	0.03...0.11
ZMM16PF	16	15.3...17.1	5	40	170	1	0.1	2	12	0.03...0.11
ZMM18PF	18	16.8...19.1	5	50	170	1	0.1	2	13	0.03...0.11
ZMM20PF	20	18.8...21.2	5	55	220	1	0.1	2	15	0.03...0.11
ZMM22PF	22	20.8...23.3	5	55	220	1	0.1	2	16	0.04...0.12
ZMM24PF	24	22.8...25.6	5	80	220	1	0.1	2	18	0.04...0.12
ZMM27PF	27	25.1...28.9	5	80	220	1	0.1	2	20	0.04...0.12
ZMM30PF	30	28...32	5	80	220	1	0.1	2	22	0.04...0.12
ZMM33PF	33	31...35	5	80	220	1	0.1	2	24	0.04...0.12
ZMM36PF	36	34...38	5	80	220	1	0.1	2	27	0.04...0.12
ZMM39PF	39	37...41	2.5	90	500	0.5	0.1	5	30	0.04...0.12
ZMM43PF	43	40...46	2.5	90	500	0.5	0.1	5	33	0.04...0.12
ZMM47PF	47	44...50	2.5	110	600	0.5	0.1	5	36	0.04...0.12
ZMM51PF	51	48...54	2.5	125	700	0.5	0.1	10	39	0.04...0.12
ZMM56PF	56	52...60	2.5	135	700	0.5	0.1	10	43	0.04...0.12
ZMM62PF	62	58...66	2.5	150	1000	0.5	0.1	10	47	0.04...0.12
ZMM68PF	68	64...72	2.5	200	1000	0.5	0.1	10	51	0.04...0.12
ZMM75PF	75	70...79	2.5	250	1000	0.5	0.1	10	56	0.04...0.12

<sup>1)</sup> Tested with pulses  $t_p = 20$  ms.

<sup>2)</sup> The ZMM1 is a silicon diode with operation in forward direction. Hence, the index of all parameters should be "F" instead of "Z". Connect the cathode electrode to the negative pole.



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## Electrical Characteristics Curves

Fig 1. Zener Characteristics Curve

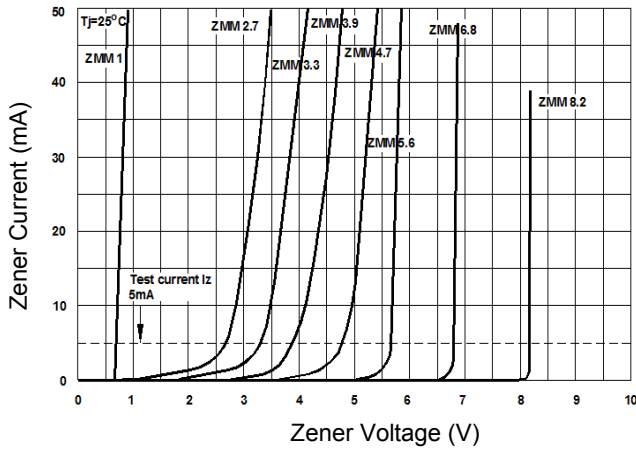


Fig 2. Zener Characteristics Curve

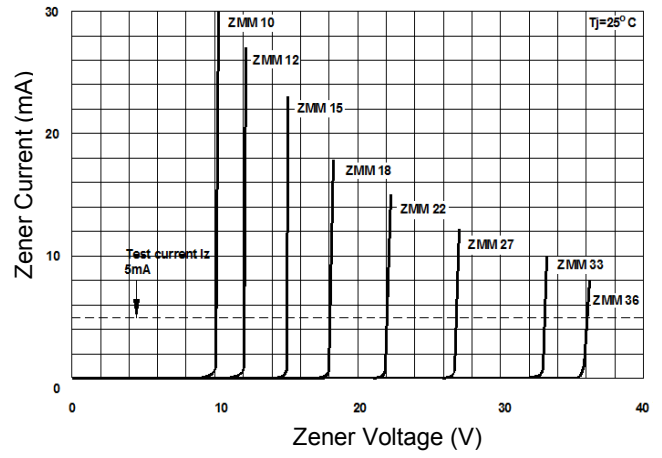


Fig 3. Zener Characteristics Curve

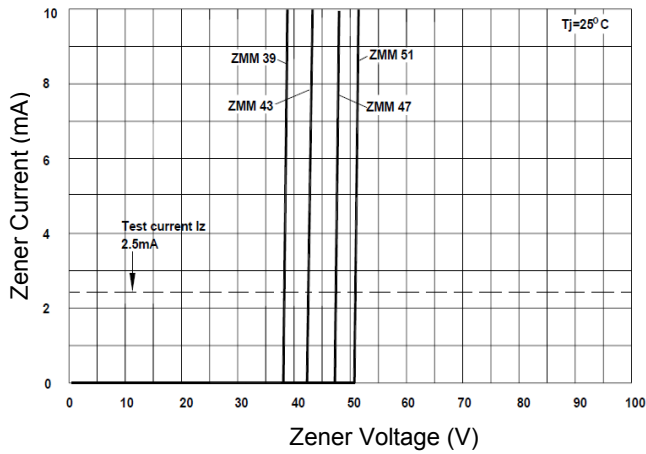


Fig 4. Forward Characteristics Curve

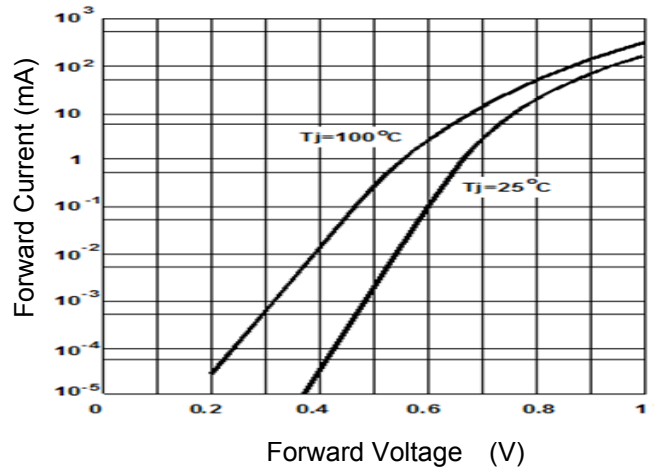
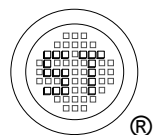
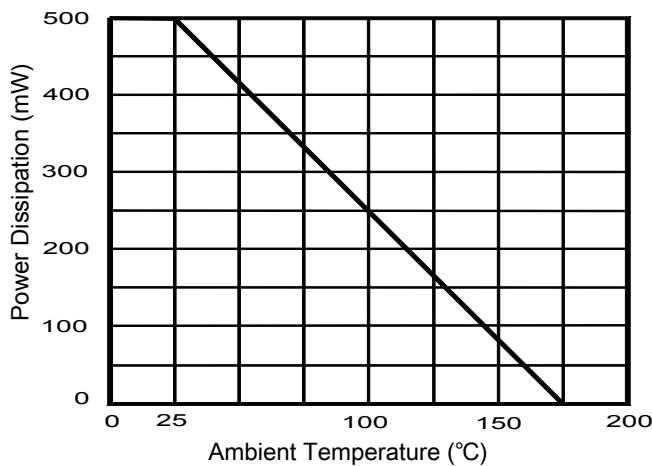


Fig 5. Power Derating Curve



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