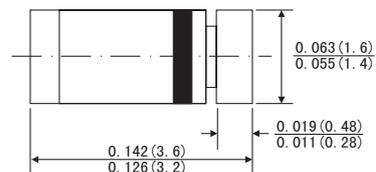


FEATURES

- In MiniMELF case especially for automated insertion
Standard Zener voltage tolerance is 5%. Add suffix "B" for 2% tolerance
Other tolerance, non standard and higher zener voltages are upon request
- High temperature soldering guaranteed: 260°C/10 seconds at terminals
- Component in accordance to RoHS 2011/65/EU

MiniMELF



MECHANICAL DATA

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

Dimensions in inches and (millimeters)

ABSOLUTE MAXIMUM RATINGS(LIMITING VALUES) (TA=25°C)

	<i>Symbols</i>	<i>Value</i>	<i>Units</i>
Zener current see table "Characteristics"			
Power dissipation at TA=25°C	P _{tot}	500 ¹⁾	mW
Junction temperature	T _J	175	°C
Storage temperature range	T _{STG}	-55 to+175	°C

ELECTRICAL CHARACTERISTICS (TA=25°C)

	<i>Symbols</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Units</i>
Thermal resistance junction to ambient	R _{θJA}			300 ¹⁾	K/W
Forward Voltage at I _F = 100mA	V _F			1	V

1) Valid provided that electrodes case is kept at ambient temperature

ZMM1 THRU ZMM200 SILICON PLANAR ZENER DIODES

Type	Zener Voltage range ¹⁾		Maximum zener impedance ¹⁾			Maximum Reverse Leakage Current			Temp Coefficient of zener voltage		
	V _{ZNOM}	I _{ZT} ²⁾	r _{ZT} and r _{ZJK} at I _{ZK}			I _R at V _R (25°C)	I _R at V _R (125°C)	V _R	TK _{VZ}		
	V		Ω	Ω	mA	μA	μA	V	%/K		
ZMM1 ₃₎	0.75	5	0.7...0.8	<8	<50	1	--	--	1.0	-0.26...-0.23	
ZMM2.0	2		1.9...2.1	<85	<600		<100	<200		-0.09...-0.06	
ZMM2.4	2.4		2.28...2.56	<85	<600		<50	<100		-0.09...-0.06	
ZMM2.7	2.7		2.5...2.9	<85	<600		<10	<50		-0.09...-0.06	
ZMM3.0	3		2.8...3.2	<85	<600		<4	<40		-0.08...-0.05	
ZMM3.3	3.3		3.1...3.5	<85	<600		<2	<40		-0.08...-0.05	
ZMM3.6	3.6		3.4...3.8	<85	<600		<2	<40		-0.08...-0.05	
ZMM3.9	3.9		3.7...4.1	<85	<600		<2	<40		-0.08...-0.05	
ZMM4.3	4.3		4.0...4.6	<75	<600		<1	<20		-0.06...-0.03	
ZMM4.7	4.7		4.4...5.0	<60	<600		<0.5	<10		-0.05...+0.02	
ZMM5.1	5.1		4.8...5.4	<35	<550		0.1	<2	2	-0.02...+0.02	
ZMM5.6	5.6		5.2...6.0	<25	<450					-0.05...+0.05	
ZMM6.2	6.2		5.8...6.6	<10	<200					3	0.03...0.07
ZMM6.8	6.8		6.4...7.2	<8	<150					5	0.03...0.08
ZMM7.5	7.5		7.0...7.9	<7	<50					6.2	0.03...0.09
ZMM8.2	8.2		7.7...8.7	<7	<50					6.8	0.03...0.1
ZMM9.1	9.1		8.5...9.6	<10	<50					7.5	0.03...0.11
ZMM10	10		9.4...10.6	<15	<70					8.2	0.03...0.11
ZMM11	11		10.4...11.6	<20	<70					9.1	0.03...0.11
ZMM12	12		11.4...12.7	<20	<90					10	0.03...0.11
ZMM13	13	12.4...14.1	<26	<110	11	0.03...0.11					
ZMM15	15	13.8...15.6	<30	<110	12	0.03...0.11					
ZMM16	16	15.3...17.1	<40	<170	13	0.03...0.11					
ZMM18	18	16.8...19.1	<50	<170	15	0.03...0.11					
ZMM20	20	18.8...21.2	<55	<220	16	0.04...0.12					
ZMM22	22	20.8...23.3	<55	<220	18	0.04...0.12					
ZMM24	24	22.8...25.6	<80	<220	20	0.04...0.12					
ZMM27	27	25.1...28.9	<80	<220	22	0.04...0.12					
ZMM30	30	28...32	<80	<220	24	0.04...0.12					
ZMM33	33	31...35	<80	<220	27	0.04...0.12					
ZMM36	36	34...38	<80	<220	30	0.04...0.12					
ZMM39	39	37...41	<90	<500	0.25	<5	33	0.04...0.12			
ZMM43	43	40...46	<90	<500			36	0.04...0.12			
ZMM47	47	44...50	<110	<600			39	0.04...0.12			
ZMM51	51	48...54	<125	<700			43	0.04...0.12			
ZMM56	56	52...60	<135	<700			47	0.04...0.12			
ZMM62	62	58...66	<150	<1000			51	0.04...0.12			
ZMM68	68	64...72	<200	<1000			56	0.04...0.12			
ZMM75	75	70...79	<250	<1000			62	0.05...0.12			
ZMM82	82	77...87	<300	<1500			68	0.05...0.12			
ZMM91	91	85...96	<450	<2000			75	0.05...0.12			
ZMM100	100	94...106	<450	<5000	0.1	<10	82	0.05...0.12			
ZMM110	110	104...116	<600	<5000			91	0.05...0.12			
ZMM120	120	114...127	<800	<5500			100	0.05...0.12			
ZMM130	130	124...141	<950	<6000			110	0.05...0.12			
ZMM150	150	138...156	<1250	<6500			120	0.05...0.12			
ZMM160	160	153...171	<1400	<7000			130	0.05...0.12			
ZMM180	180	168...191	<1700	<8500			150	0.05...0.12			
ZMM200	200	188...212	<2000	<10000							

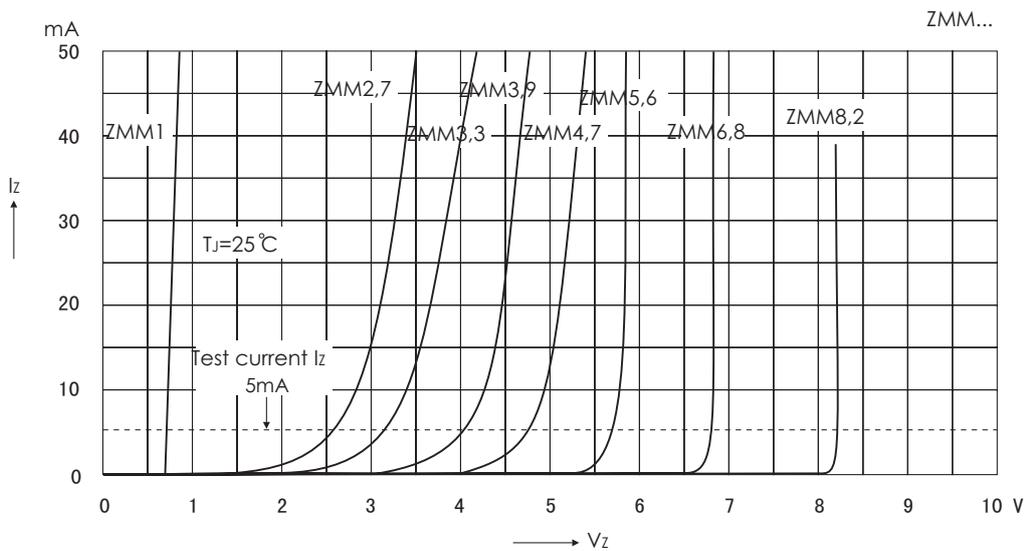
1) Tested with pulse tp=20ms

2) Valid provided that electrodes are kept at ambient temperature

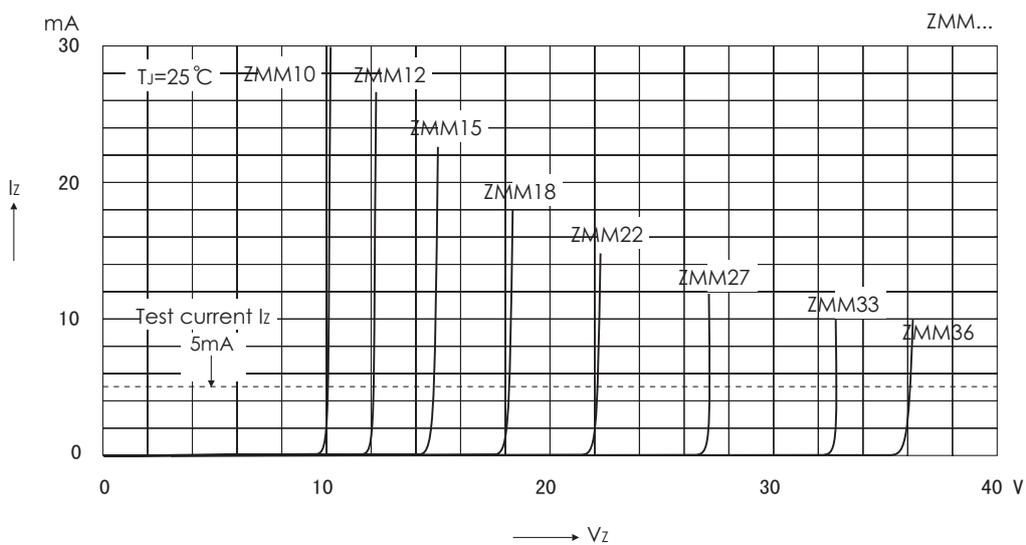
3) The ZMM1 is a silicon diode with operation in forward direction. Hence, the index of all parameters should be "F" instead of "Z", Connect the cathode to the negative pole.

ZMM1...ZMM200 SILICON PLANAR ZENER DIODES

BREAKDOWN CHARACTERISTICS AT $T_J = \text{CONSTANT}$ (PULSED)

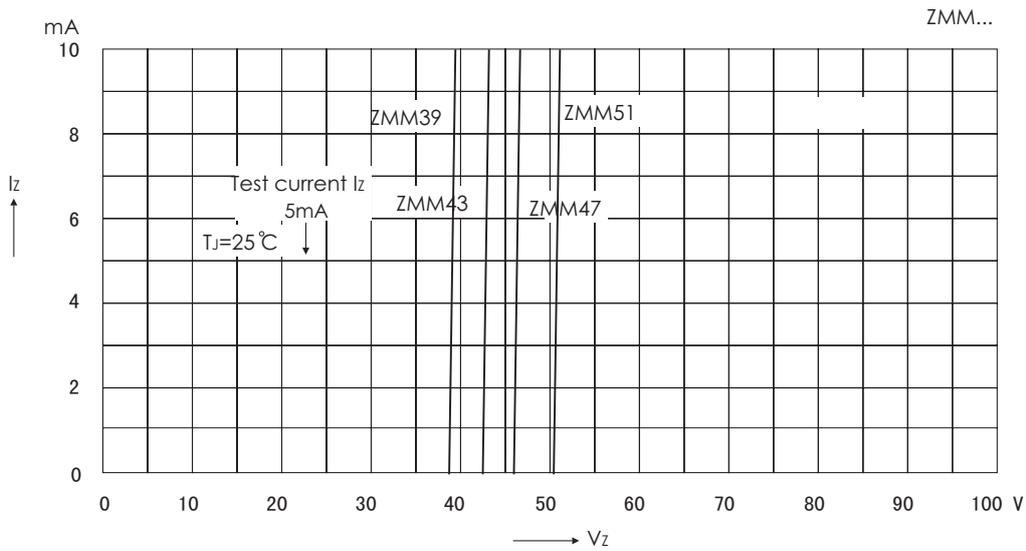


BREAKDOWN CHARACTERISTICS AT $T_J = \text{CONSTANT}$ (PULSED)

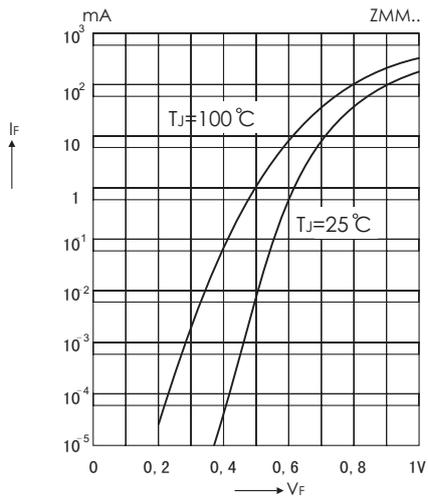


ZMM1...ZMM200 SILICON PLANAR ZENER DIODES

BREAKDOWN CHARACTERISTICS AT $T_J = \text{CONSTANT}$ (PULSED)

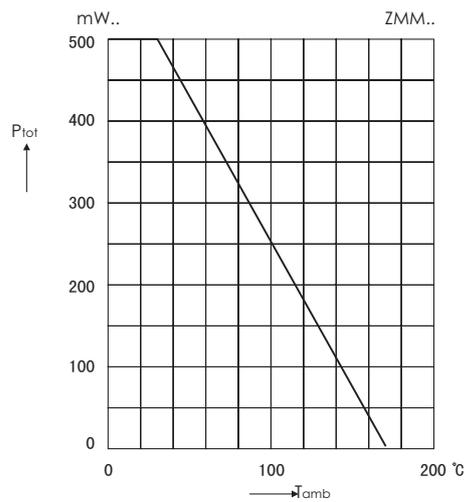


Forward Characteristics



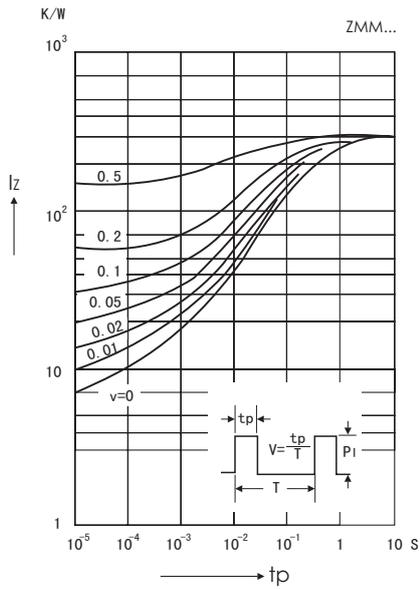
Admissible power dissipation versus ambient temperature

valid provided that electrodes are kept at ambient temperature

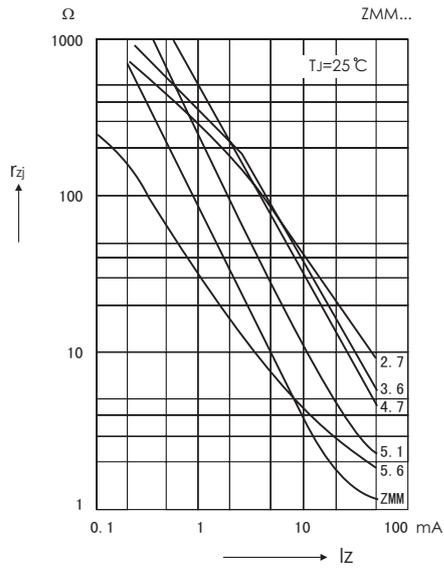


ZMM1...ZMM200 SILICON PLANAR ZENER DIODES

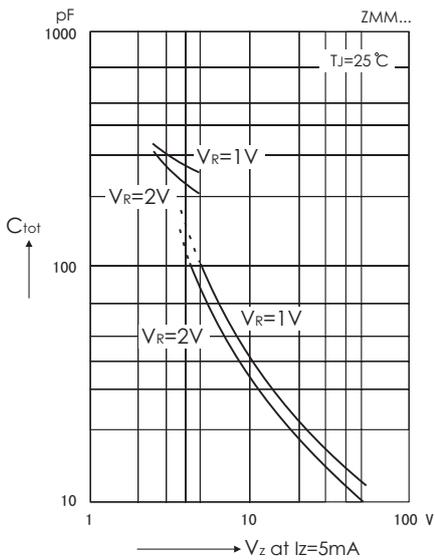
Pulse thermal resistance versus pulse duration



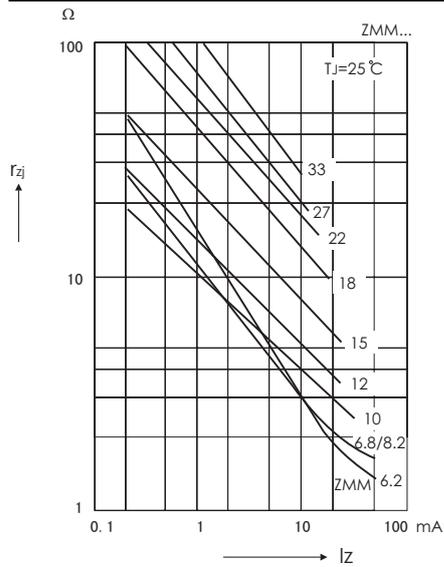
Dynamic resistance versus Zener current



Capacitance versus Zener voltage

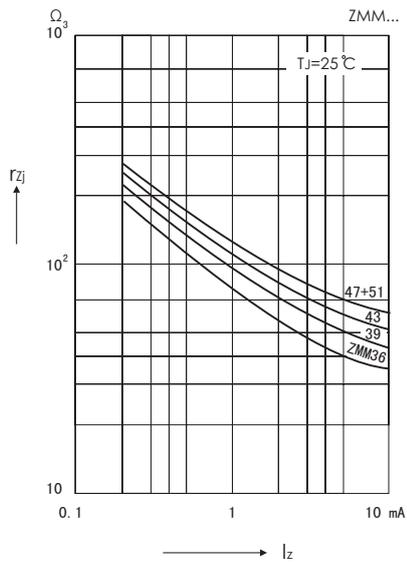


Dynamic resistance versus Zener current

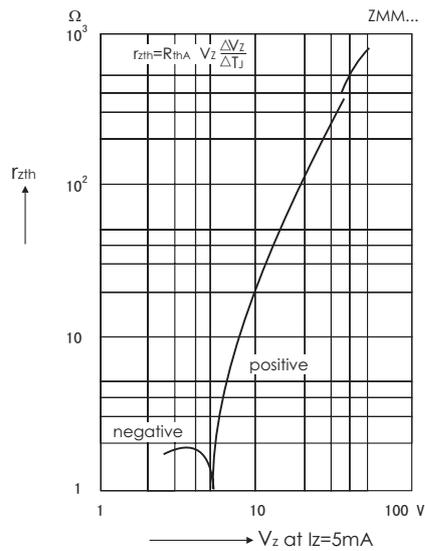


ZMM1...ZMM200 SILICON PLANAR ZENER DIODES

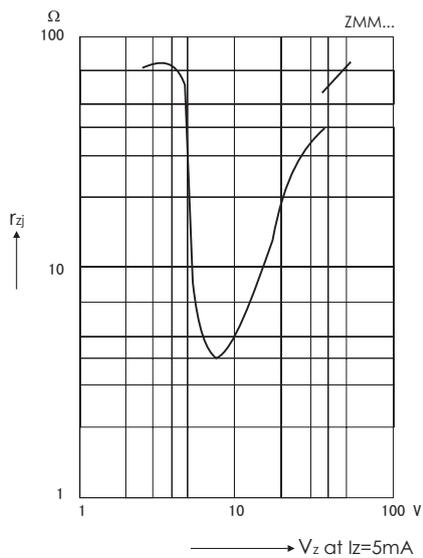
Dynamic resistance versus Zener current



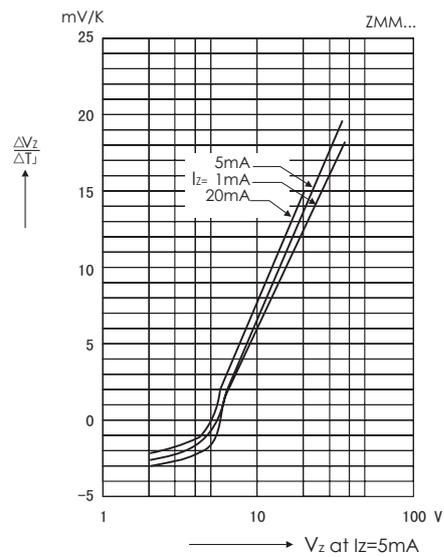
Thermal differential resistance versus Zener voltage



Dynamic resistance versus Zener voltage

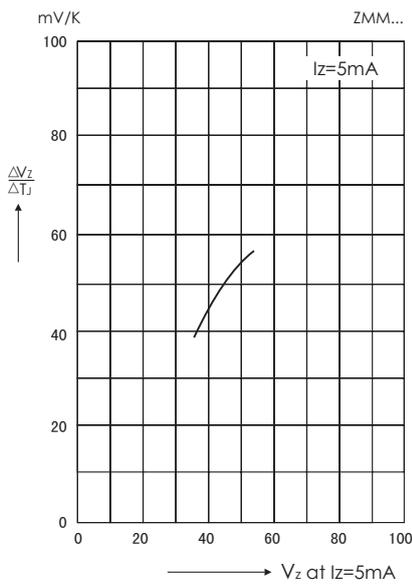


Temperature dependence of Zener voltage versus voltage

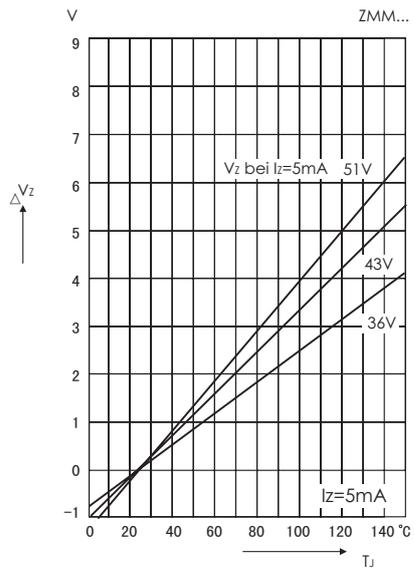


ZMM1...ZMM200 SILICON PLANAR ZENER DIODES

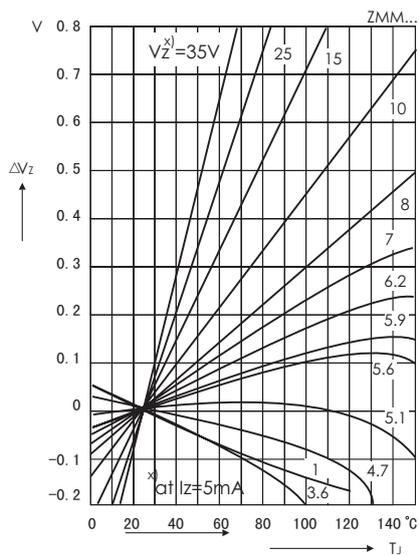
Temperature dependence of Zener voltage versus voltage



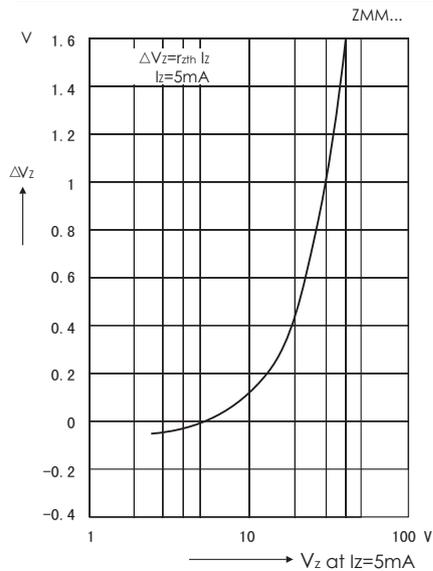
Change of Zener voltage versus junction temperature



Change of Zener voltage versus junction temperature



Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage



ZMM1...ZMM200 SILICON PLANAR ZENER DIODES

Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage

