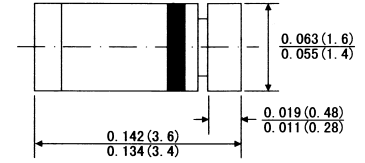


#### FEATURES

- . In MiniMELF case especially for automated insertion
- The zener voltage are graded according to the international E24 standard. Smaller voltage tolerances and higher zener voltage on request

#### Mini-MELF



Dimensions in inches and (millimeters)

#### MECHANICAL DATA

- . **Case:** Mini-MELF(SOD-80) glass case
- . **weight:** Approx. 0.05 gram

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

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

1) Valid provided that a distance of 8mm from case are kept at ambient temperature

#### ELECTRICAL CHARACTERISTICS(TA=25°C)

	Symbols	Min	Typ	Max	Units
Thermal resistance junction to ambient	R <sub>θj\</sub>			300 <sup>1)</sup>	K/W

1) Valid provided that a distance at 8mm from case are kept at ambient temperature

## ZMM1 THRU ZMM200 SILICON PLANAR ZENER DIODES

Type	Zener Voltage range <sup>1)</sup>			Dynamic resistance <sup>1)</sup>			Maximum reverse Leakage Current			of zener voltage
	V <sub>znom</sub> <sup>3)</sup>	I <sub>ZT</sub>		r <sub>ZT</sub> and r <sub>ZK</sub> at I <sub>ZK</sub>			I <sub>R</sub> and I <sub>R</sub> at V <sub>R</sub> <sup>2)</sup>			TK <sub>Vz</sub>
	v	mA	V	Ω	Ω	mA	μ A	μ A	V	%/K
ZMM1 <sup>3)</sup>	0.75		0.7.0.8	<8	<50		--	--	--	-0.26..-0.23
ZMM2.0	2.0		1.9.2.1				<100	<200		-0.09..-0.06
ZMM2.4	2.4		2.28.2.56				<50	<100		-0.09..-0.06
ZMM2.7	2.7		2.5.2.9				<10	<50		-0.09..-0.06
ZMM3.0	3.0		2.8.3.2	<85			<4		1	-0.08..-0.05
ZMM3.3	3.3		3.1.3.5		<600		<2	<40		-0.08..-0.05
ZMM3.6	3.6		3.4.3.8				<2			-0.08..-0.05
ZMM3.9	3.9		3.7.4.1				<2			-0.08..-0.05
ZMM4.3	4.3		4.0.4.6	<75			<1	<20		-0.06..-0.03
ZMM4.7	4.7		4.4.5.0	<60			<0.5	<10		-0.05..+0.05
ZMM5.1	5.1		4.8.5.4	<35	<550					-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				2	0.03.0.06
ZMM6.8	6.8		6.4.7.2	<8	<150				3	0.03.0.07
ZMM7.5	7.5		7.0.7.9	<7					5	0.03.0.08
ZMM8.2	8.2	5	7.7.8.7	<7	<50	1			6.2	0.03.0.09
ZMM9.1	9.1		8.5.9.6	<10					6.8	0.03.0.1
ZMM10	10		9.4.10.6	<15	<70				7.5	0.03.0.11
ZMM11	11		10.4.11.6	<20	<70				8.2	0.03.0.11
ZMM12	12		11.4.12.7	<20	<90				9.1	0.03.0.11
ZMM13	13		12.4.14.1	<26	<110				10	0.03.0.11
ZMM15	15		13.8.15.6	<30	<110				11	0.03.0.11
ZMM16	16		15.3.17.1	<40	<170				12	0.03.0.11
ZMM18	18		16.8.19.1	<50	<170				13	0.03.0.11
ZMM20	20		18.8.21.2	<55					15	0.03.0.11
ZMM22	22		20.8.23.3	<55					16	
ZMM24	24		22.8.25.6						18	
ZMM27	27		25.1.28.9		<220				20	
ZMM30	30		28.32	<80					22	
ZMM33	33		31.35						24	
ZMM36	36		34.38				<0.1		27	
ZMM39	39		37.41						30	
ZMM43	43		40.46	<90	<500				33	0.04.0.12
ZMM47	47		44.50	<110	<600				36	
ZMM51	51		48..54	<125	<700				39	
ZMM56	56	2.5	52.60	<135					43	
ZMM62	62		58.66	<150					47	
ZMM68	68		64.72	<200	<1000				51	
ZMM75	75		70..79.	<250					56	
ZMM82	82		77.87	<300	<1500	0.25			62	
ZMM91	91		85.96	<450	<2000				68	
ZMM100	100		94.106	<450	<5000				75	
ZMM110	110		104.116	<600					82	
ZMM120	120		114.127.	<800	<5500				91	
ZMM130	130	1	124.141	<950	<6000	0.1			100	0.05.0.12
ZMM150	150		138.156	<1250	<6500				110	
ZMM160	160		153.171	<1400	<7000				120	
ZMM180	180		168.191	<1700	<8500				130	
ZMM200	200		188.212	<2000	<10000				150	

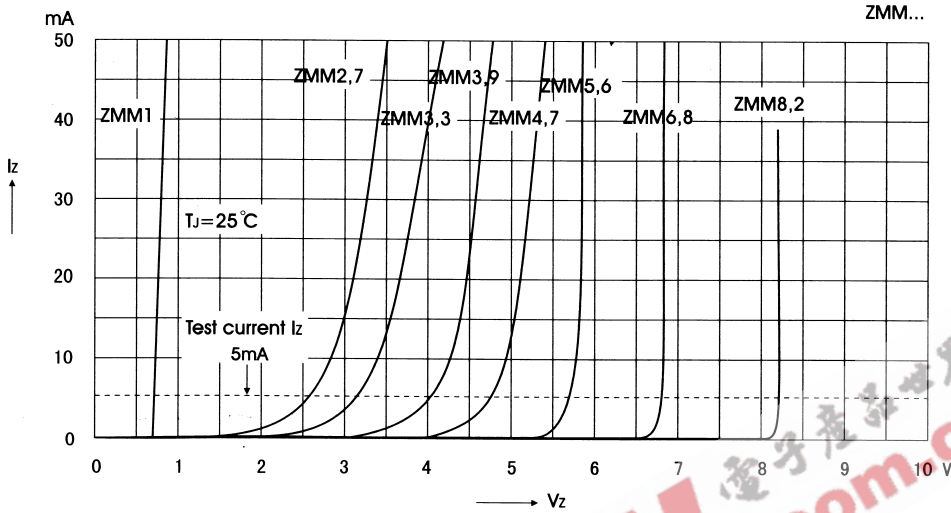
1) Tested with pulse tp=20ms

2) Valid provided that electrodes are kept at ambient temperature

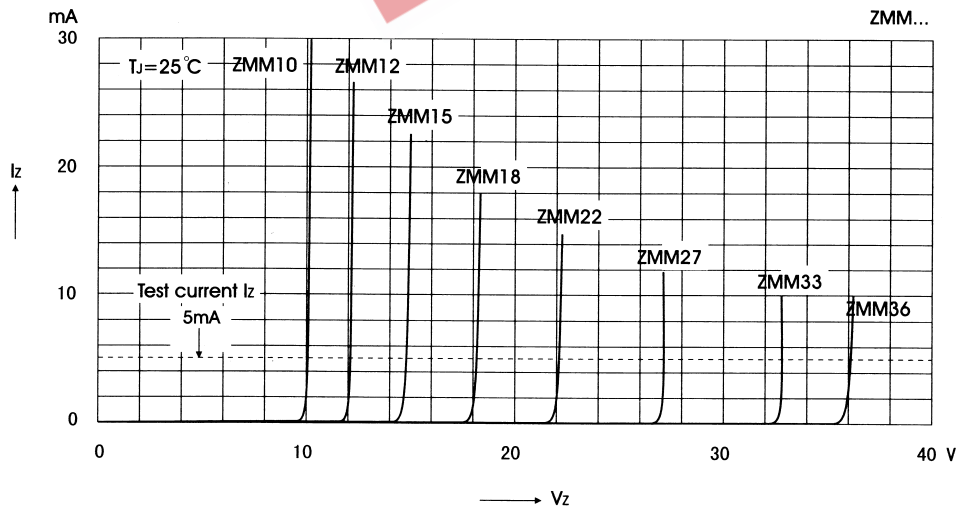
3) The ZMM1 is a silicon diode with operation in forward direction. Hence, the index of all parameters should be "F" instead of "Z", Connect the cathode to the negative pole.

### ZMM1 .ZMM200 SILICON PLANER ZENER DIODES

#### BREAKDOWN CHARACTERISTICS AT $T_J=CONSTANT$ (PULSED)

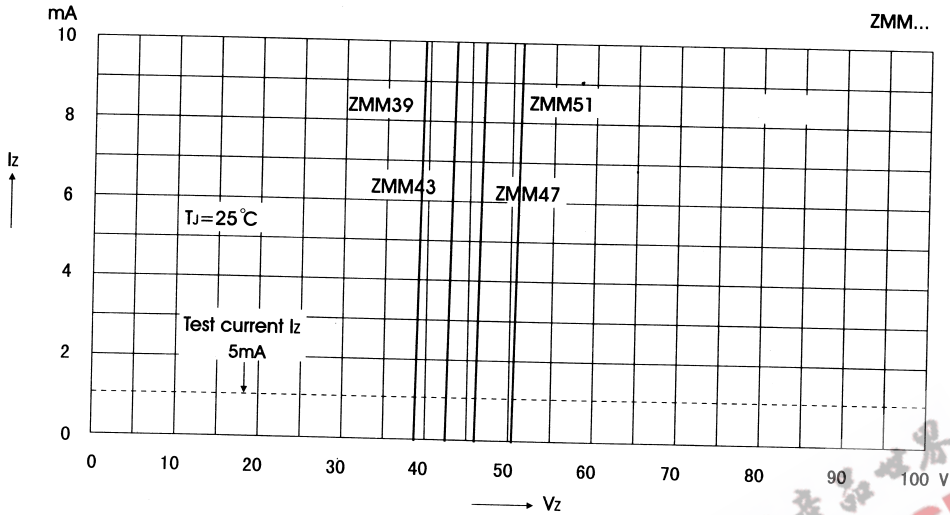


#### BREAKDOWN CHARACTERISTICS AT $T_J=CONSTANT$ (PULSED)

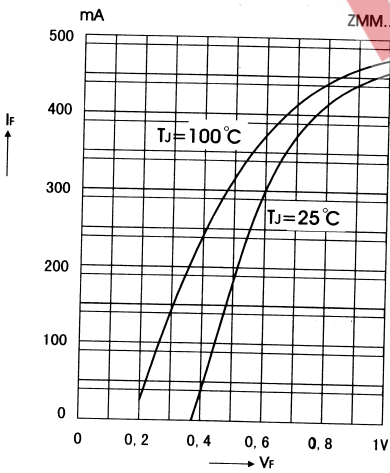


**ZMM1. ZMM200 SILICON PLANER ZENER DIODES**

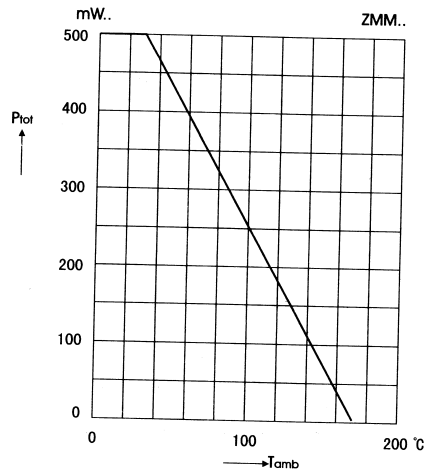
**BREAKDOWN CHARACTERISTICS AT  $T_J=CONSTANT$  (PULSED)**



**Forward Characteristics**

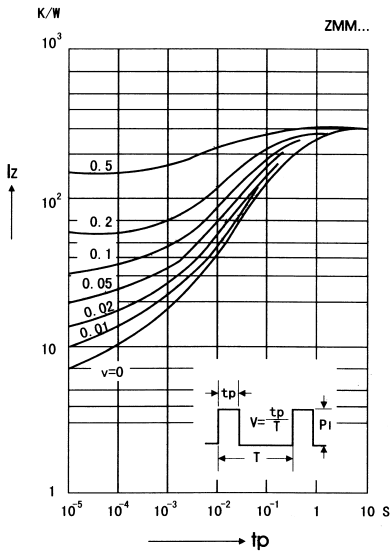


**Admissible power dissipation versus ambient temperature**

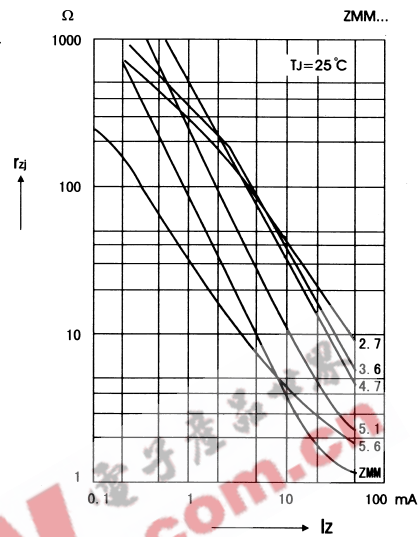


#### ZMM1. ZMM200 SILICON PLANER ZENER DIODES

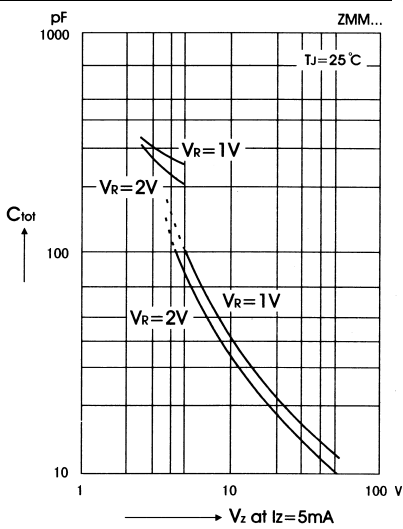
**Pulse thermal resistance versus pulse duration**



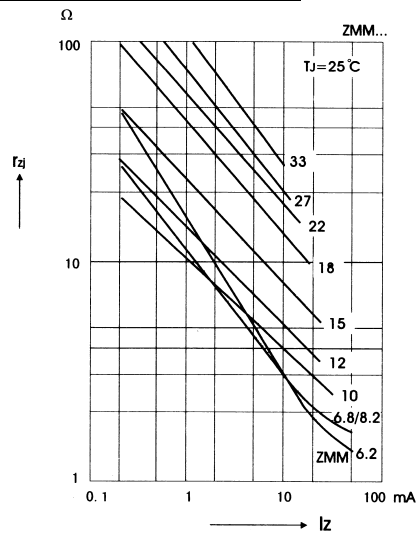
**Dynamic resistance versus Zener current**



**Capacitance versus Zener voltage**

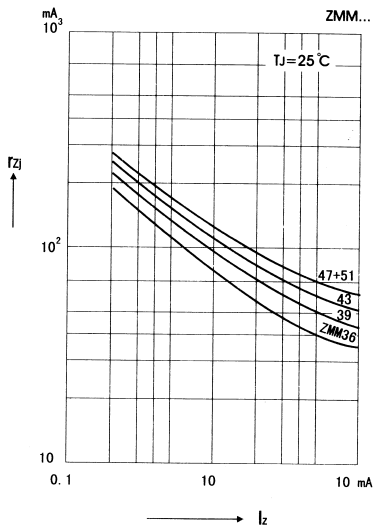


**Dynamic resistance versus Zener current**

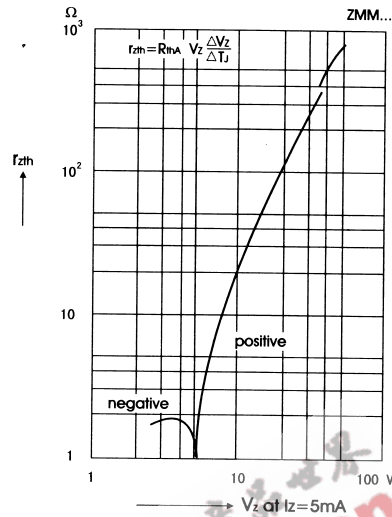


**ZMM1. ZMM200 SILICON PLANER ZENER DIODES**

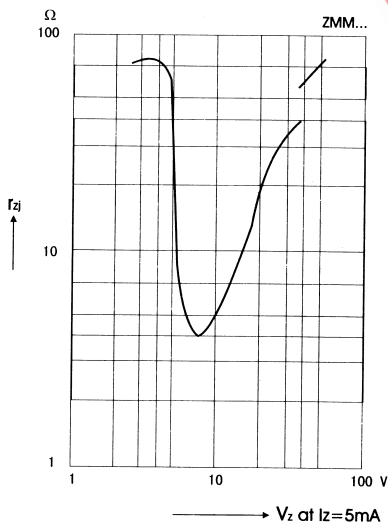
**Dynamic resistance versus Zener current**



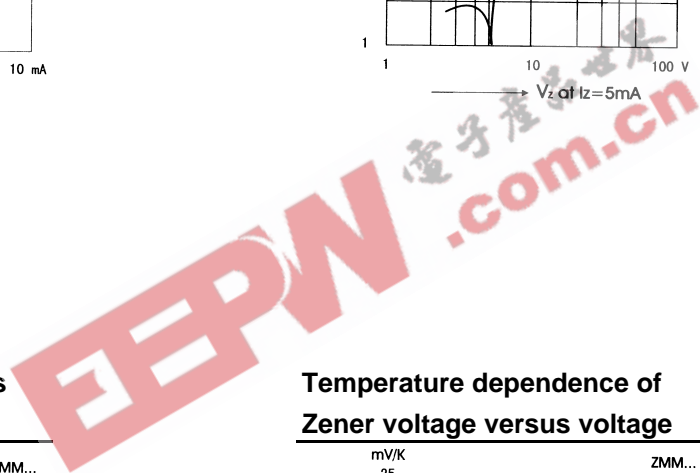
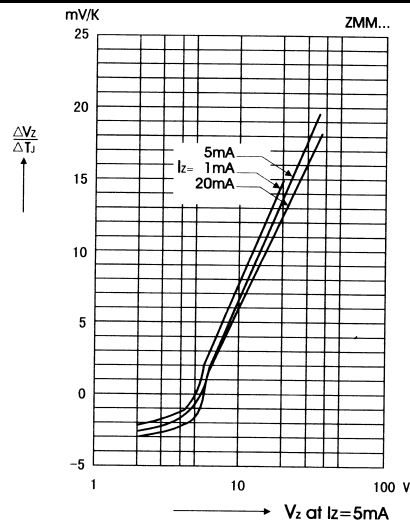
**Thermal differential resistance versus Zener voltage**



**Dynamic resistance versus Zener voltage**

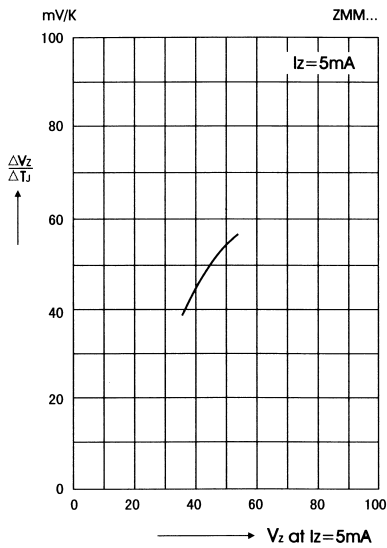


**Temperature dependence of Zener voltage versus voltage**

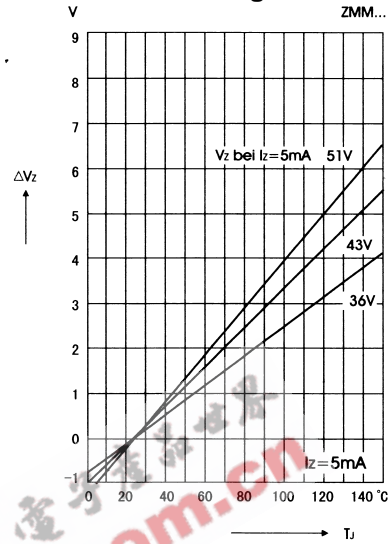


**ZMM1. ZMM200 SILICON PLANER ZENER DIODES**

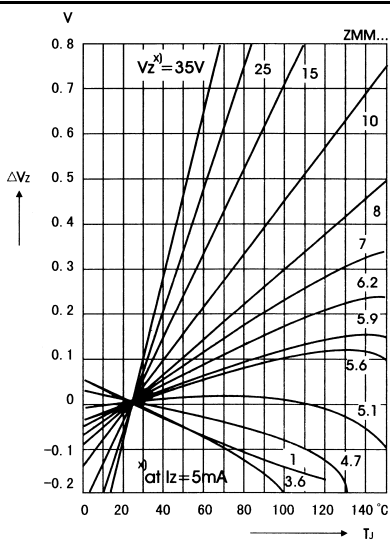
**Temperature dependence of Zener voltage versus voltage**



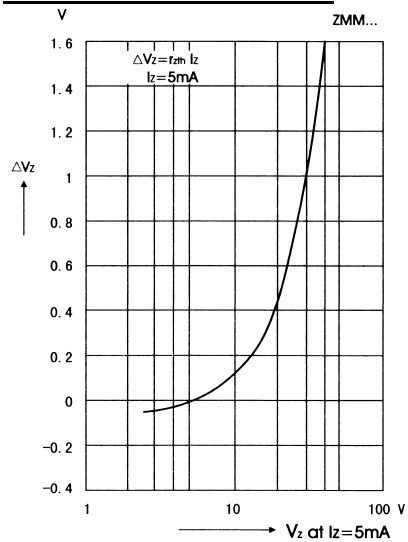
**Thermal differential resistance versus Zener voltage**



**Dynamic resistance versus Zener voltage**

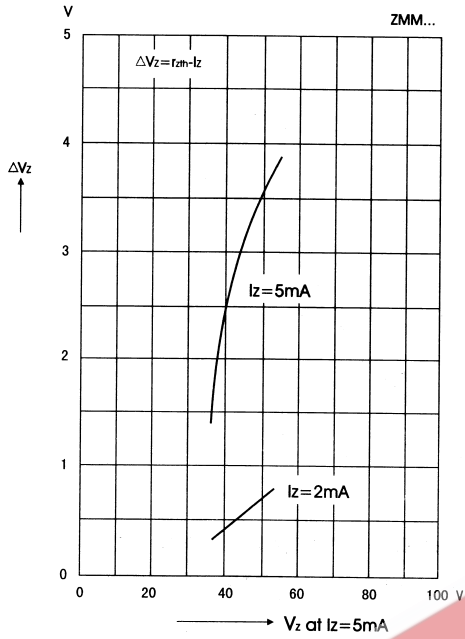


**Temperature dependence of Zener voltage versus voltage**



ZMM1 . ZMM200 SILICON PLANER ZENER DIODES

Temperature dependence of Zener voltage versus voltage



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