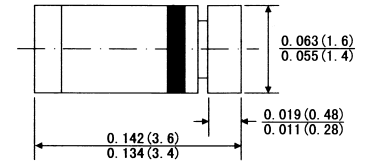


## FEATURES

- . 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			

## ELECTRCAL CHARACTERISTICS(TA=25°C)

	Symbols	Min	Typ	Max	Units
Thermal resistance junction to ambient	R <sub>θJA</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 1)			Dynamic resistance 1)			Maximum reverse Leakage Current			of zener voltage
	V <sub>znom</sub> 3)	I <sub>zT</sub>		r <sub>zjt</sub> and r <sub>zjk</sub> at I <sub>zk</sub>			I <sub>R</sub> and I <sub>R</sub> at V <sub>R</sub> 2)			TK <sub>vz</sub>
	v	mA	V	Ω	Ω	mA	μ A	μ A	V	%/K
ZMM1 3)	0.75	5	0.7.0.8	<8	<50	1	--	--	--	-0.26..0.23
ZMM2.0	2.0		1.9.2.1	<85	<600		<100	<200	1	-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				<4	<40		-0.08..0.05
ZMM3.3	3.3		3.1.3.5				<2			-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		<0.1	<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					0.03.0.06
ZMM6.8	6.8		6.4..7.2	<8	<150					0.03.0.07
ZMM7.5	7.5		7.0..7.9	<7	<50					0.03.0.08
ZMM8.2	8.2		7.7.8.7	<7						0.03.0.09
ZMM9.1	9.1		8.5.9.6	<10						0.03.0.1
ZMM10	10		9.4..10.6	<15	<70					0.03.0.11
ZMM11	11		10.4..11.6	<20	<70					0.03.0.11
ZMM12	12		11.4..12.7	<20	<90					0.03.0.11
ZMM13	13		12.4..14.1	<26	<110					0.03.0.11
ZMM15	15		13.8..15.6	<30	<110					0.03.0.11
ZMM16	16		15.3..17.1	<40	<170					0.03.0.11
ZMM18	18		16.8..19.1	<50	<170					0.03.0.11
ZMM20	20		18.8..21.2	<55	<220					0.03.0.11
ZMM22	22		20.8..23.3	<55					0.03.0.11	
ZMM24	24		22.8..25.6	<80					0.04.0.12	
ZMM27	27		25.1..28.9						0.04.0.12	
ZMM30	30		28..32						0.04.0.12	
ZMM33	33		31..35		0.04.0.12					
ZMM36	36		34..38		0.04.0.12					
ZMM39	39	37..41	<90	<500	0.25		<5	30	0.04.0.12	
ZMM43	43	40..46	<110	<600				33		
ZMM47	47	44..50	<125	<700				36		
ZMM51	51	48...54	<135	<1000				39		
ZMM56	56	52..60	<200	<1500				43		
ZMM62	62	58..66	<250	<2000				47		
ZMM68	68	64..72	<300	<2500				51		
ZMM75	75	70..79.	<450	<3000				56		
ZMM82	82	77..87	<600	<4000		62		<10	0.05.0.12	
ZMM91	91	85..96	<800	<5500		68				
ZMM100	100	94..106	<950	<6000	75					
ZMM110	110	104..116	<1250	<6500	82					
ZMM120	120	114..127.	<1400	<7000	91					
ZMM130	130	124..141	<1700	<8500	100					
ZMM150	150	138..156	<2000	<10000	110					
ZMM160	160	153..171			120					
ZMM180	180	168..191			130					
ZMM200	200	188..212			150					

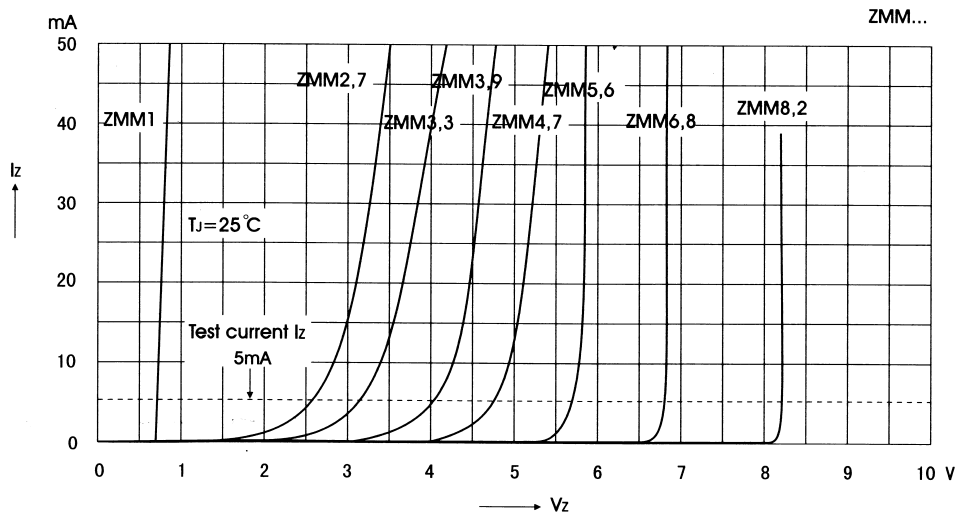
1) Tested with pluse tp=20ms

2) Valid provided that electrodes are kept at ambient temperature

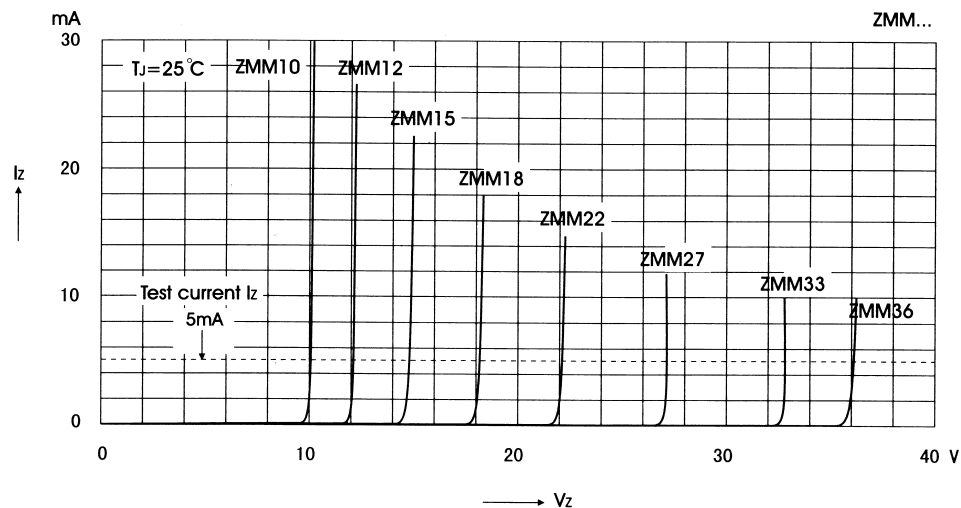
3) The ZMM1 is a silicon diode with operation in forward direction. Hence, the index of all parameters should be "F" instead of "Z", Connect the cathode to the negative pole.

**ZMM1.ZMM200 SILICON PLANER ZENER DIODES**

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

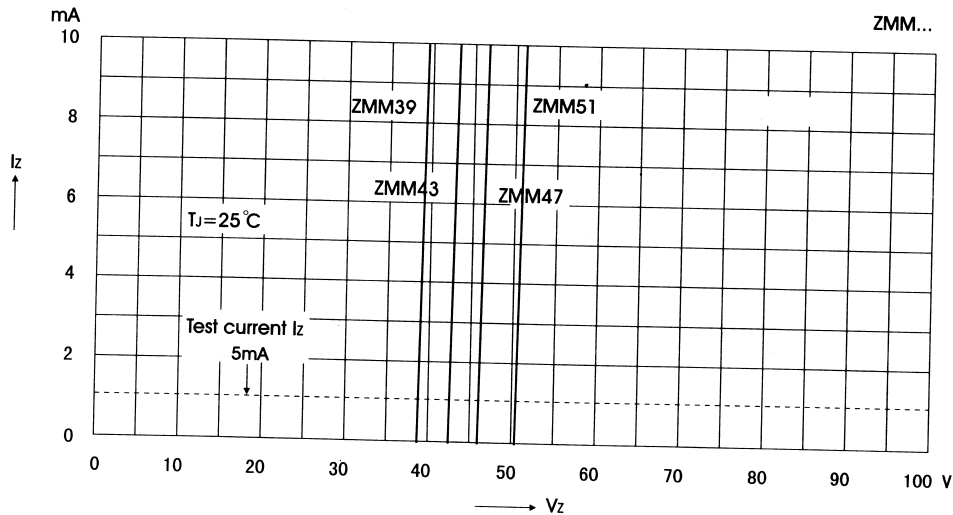


**BREAKDOWN CHARACTERISTICS AT  $T_J=CONSTANT$  (PULSED)**

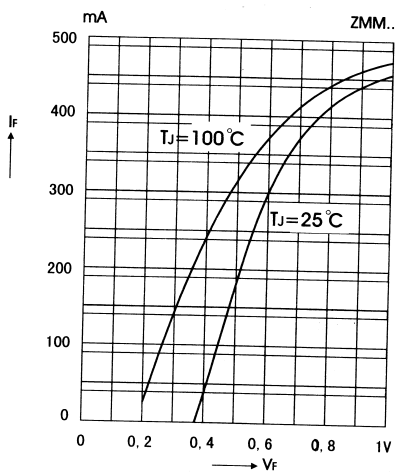


**ZMM1.ZMM200 SILICON PLANER ZENER DIODES**

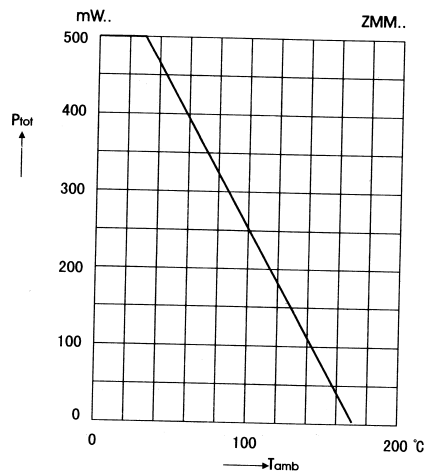
**BREAKDOWN CHARACTERISTICS AT  $T_J = \text{CONSTANT}$  (PULSED)**



**Forward Characteristics**

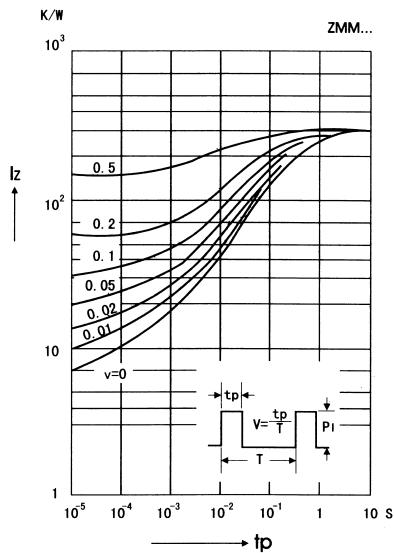


**Admissible power dissipation versus ambient temperature**

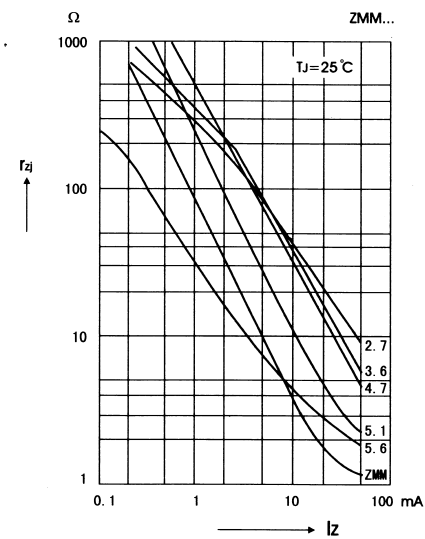


**ZMM1.ZMM200 SILICON PLANER ZENER DIODES**

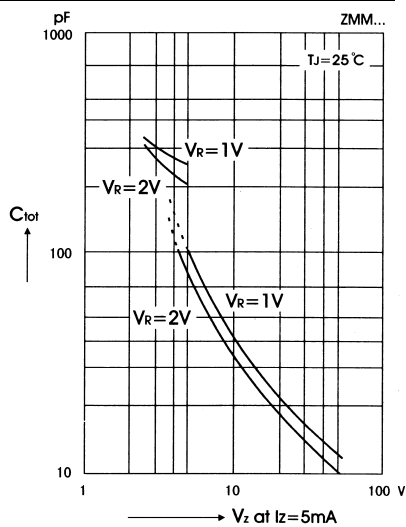
**Pulse thermal resistance versus pulse duration**



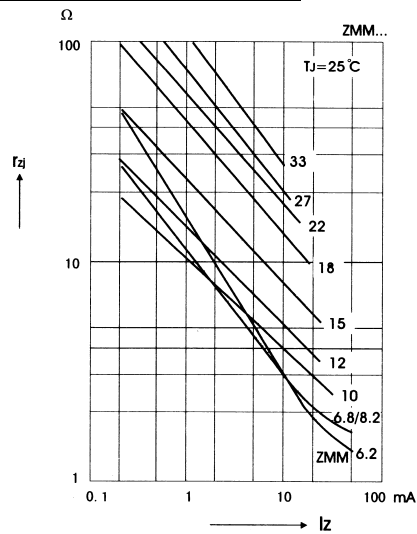
**Dynamic resistance versus Zener current**



**Capacitance versus Zener voltage**

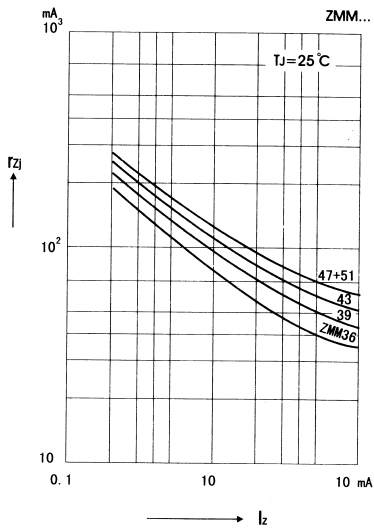


**Dynamic resistance versus Zener current**

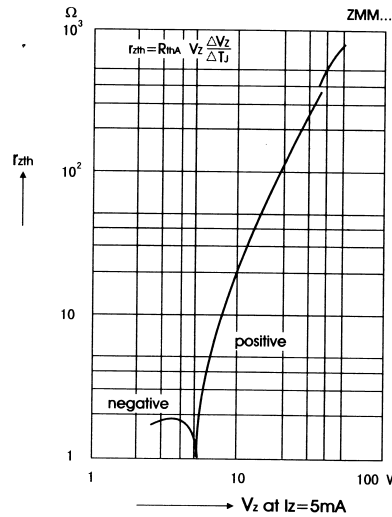


**ZMM1.ZMM200 SILICON PLANER ZENER DIODES**

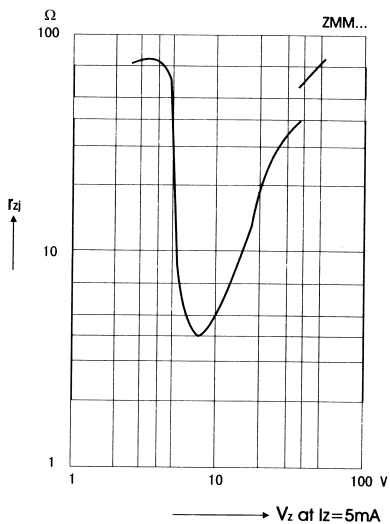
**Dynamic resistance versus  
Zener current**



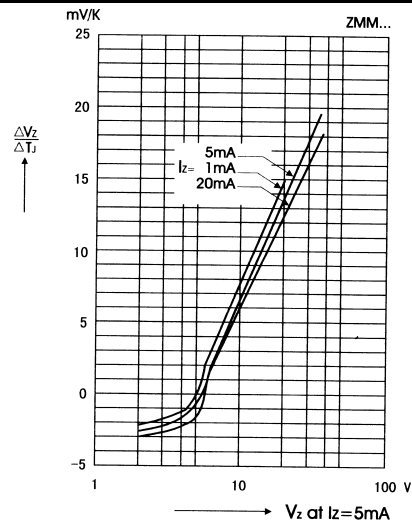
**Thermal differential resistance  
versus Zener voltage**



**Dynamic resistance versus  
Zener voltage**

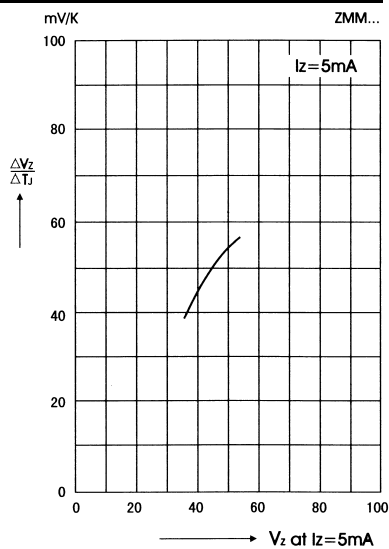


**Temperature dependence of  
Zener voltage versus voltage**

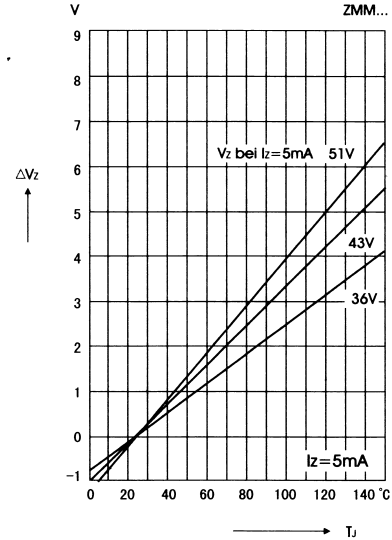


**ZMM1.ZMM200 SILICON PLANER ZENER DIODES**

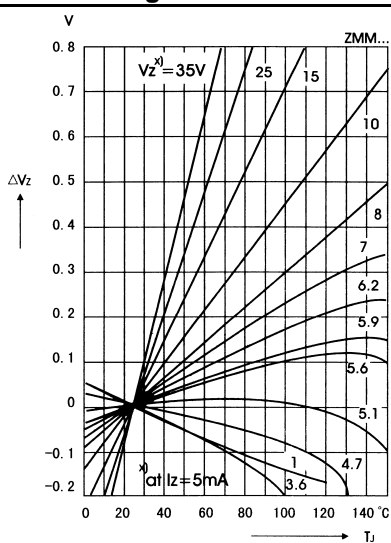
**Temperature dependence of  
Zener voltage versus voltage**



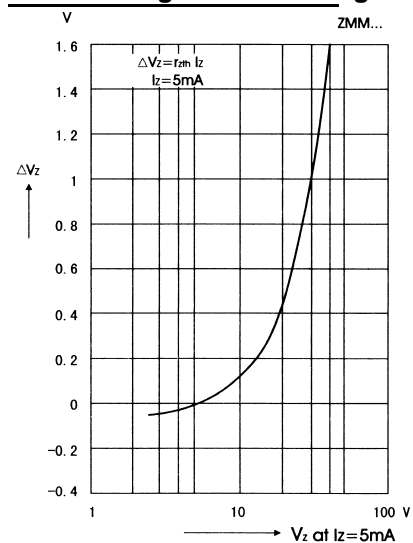
**Thermal differential resistance  
versus Zener voltage**



**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

