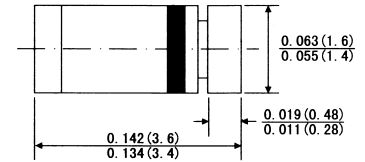


FEATURES

- . 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 _{tot}	500 ¹⁾	mW
Junction temperature	T _J	175	°C
Storage temperature range	T _{STG}	-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 _{θJA}			300 ¹⁾	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 _{znom} 3)	I _{zT}		r _{zjt} and r _{zjk} at I _{zk}			I _R and I _R at V _R 2)			TK _{vz}
	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					0.03.0.11	
ZMM27	27		25.1.28.9						0.03.0.11	
ZMM30	30		28.32						0.03.0.11	
ZMM33	33		31.35		0.03.0.11					
ZMM36	36		34.38		0.03.0.11					
ZMM39	39	37.41	<90	<500	<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	<150			43				
ZMM62	62	58.66	<200			47				
ZMM68	68	64..72	<250			51				
ZMM75	75	70..79.	<300	<1500		56				
ZMM82	82	77.87	<450	<2000		62		0.05.0.12		
ZMM91	91	85.96	<450	<5000		68				
ZMM100	100	94.106	<600	0.1	75					
ZMM110	110	104.116	<800		<5500	82				
ZMM120	120	114.127.	<950		<6000	91				
ZMM130	130	124.141	<1250		<6500	100				
ZMM150	150	138.156	<1400		<7000	110				
ZMM160	160	153.171	<1700		<8500	120				
ZMM180	180	168.191	<2000		<10000	130				
ZMM200	200	188.212				150				

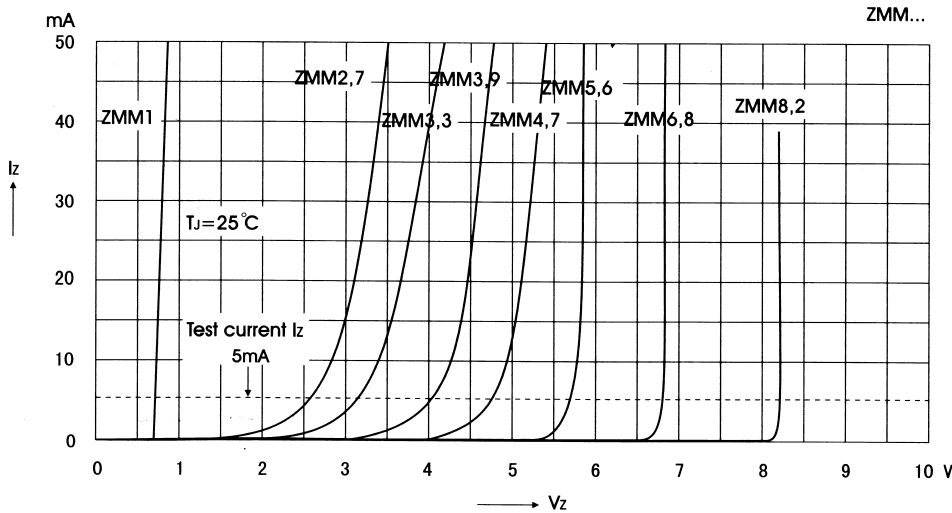
1) Tested with pluse tp=20ms

2) Valid provided that electrodes are kept at ambient temperature

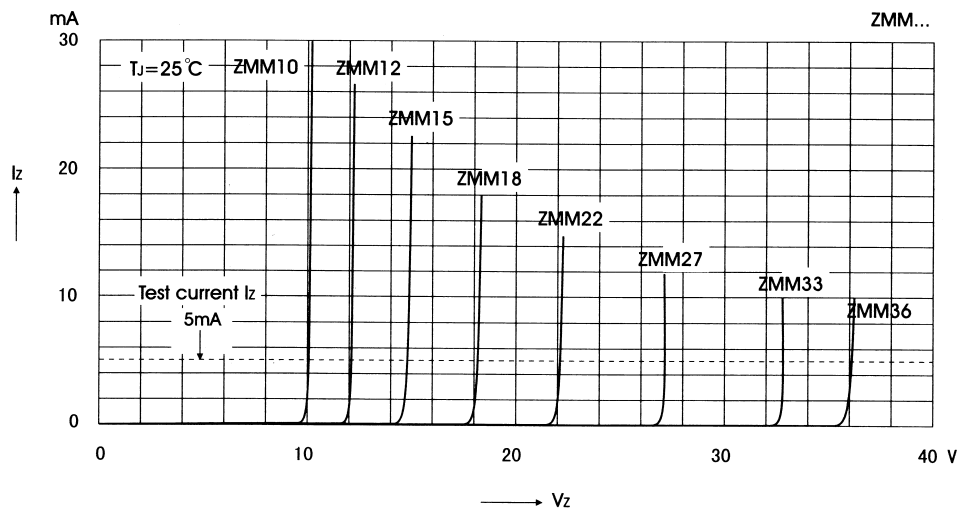
3) The ZMM1 is a silicon diode with operation in forward direction. Hence, the index of all parameters should be "F" instead of "Z",
Connect the cathode to the negative pole.

ZMM1.ZMM200 SILICON PLANER ZENER DIODES

BREAKDOWN CHARACTERISTICS AT T_J =CONSTANT (PULSED)

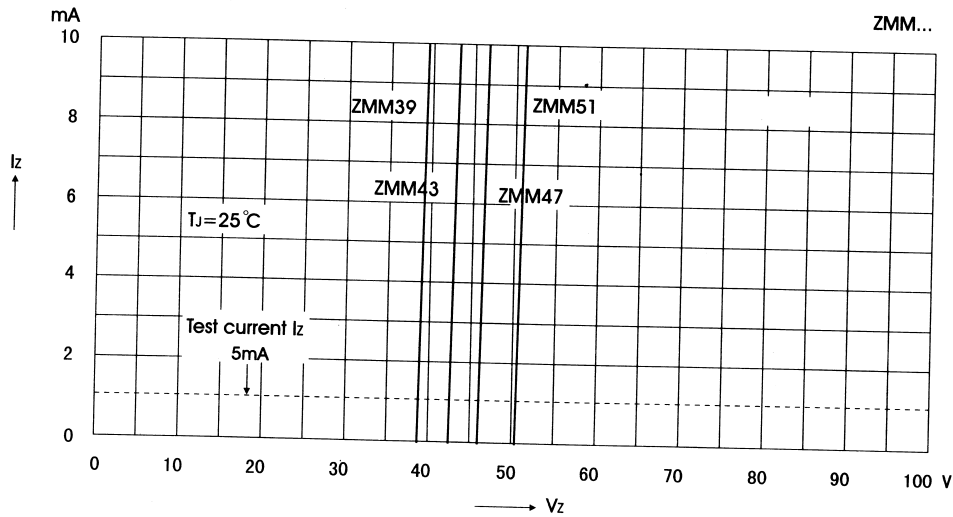


BREAKDOWN CHARACTERISTICS AT T_J =CONSTANT (PULSED)

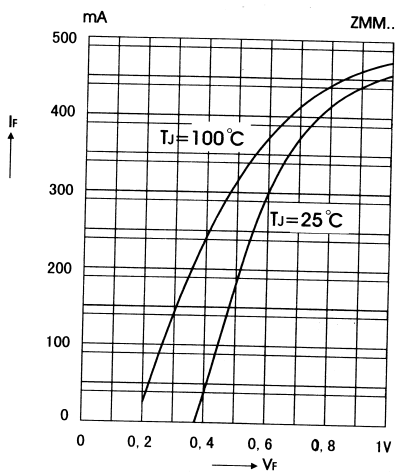


ZMM1.ZMM200 SILICON PLANER ZENER DIODES

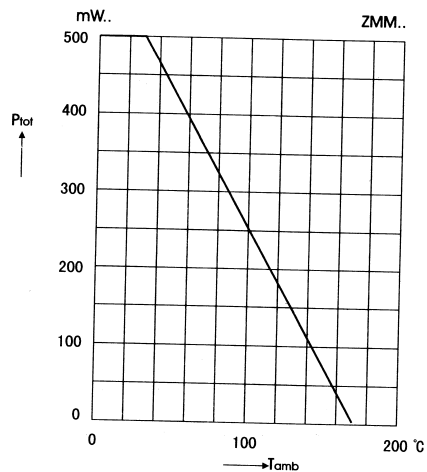
BREAKDOWN CHARACTERISTICS AT $T_J = \text{CONSTANT}$ (PULSED)



Forward Characteristics

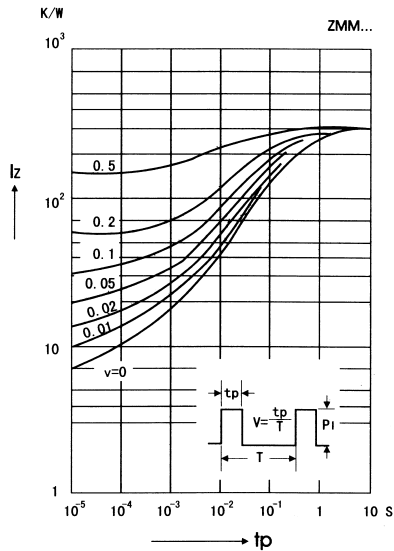


Admissible power dissipation versus ambient temperature

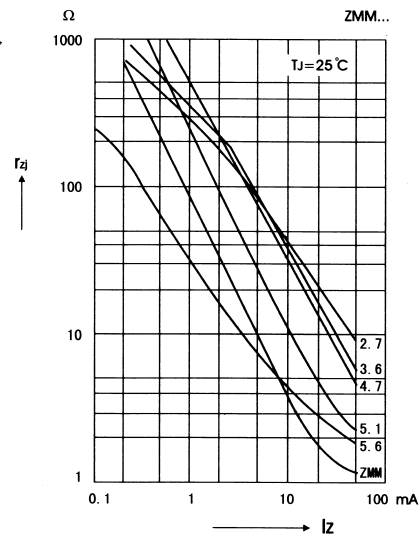


ZMM1.ZMM200 SILICON PLANER ZENER DIODES

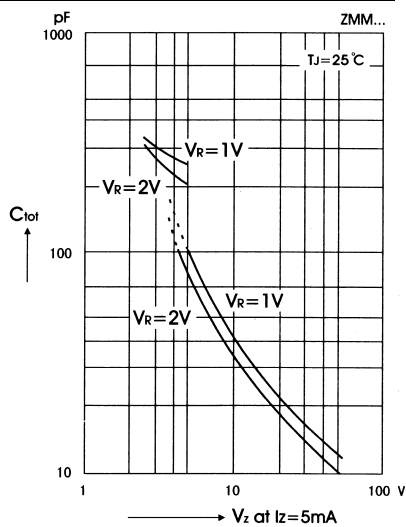
Pulse thermal resistance versus pulse duration



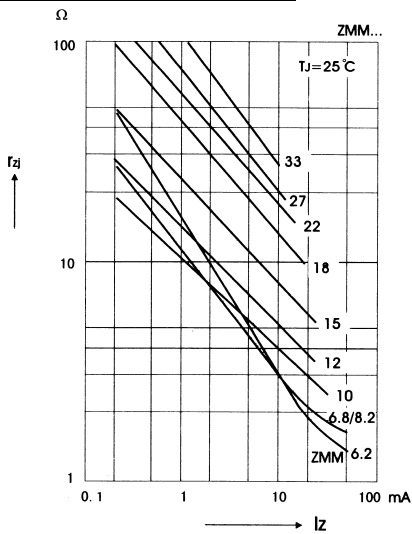
Dynamic resistance versus Zener current



Capacitance versus Zener voltage

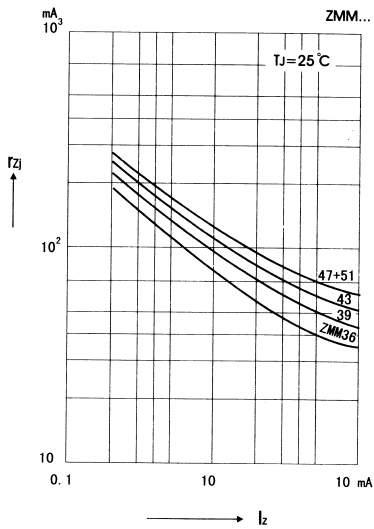


Dynamic resistance versus Zener current

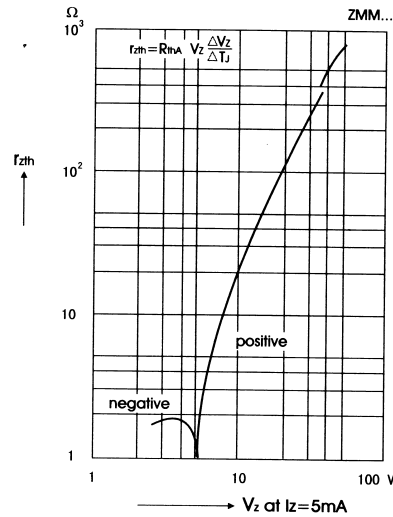


ZMM1.ZMM200 SILICON PLANER ZENER DIODES

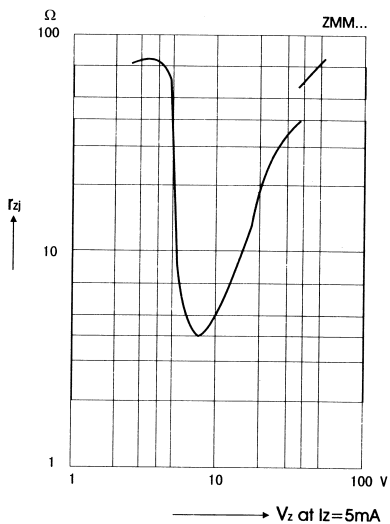
Dynamic resistance versus
Zener current



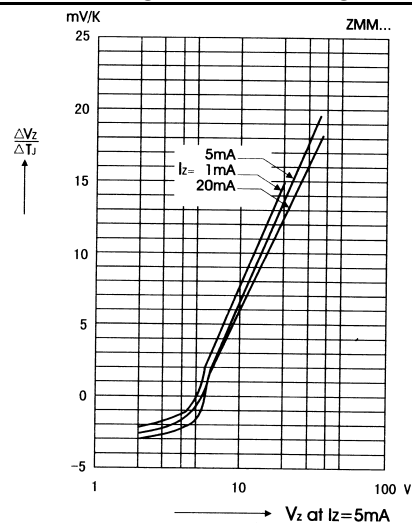
Thermal differential resistance
versus Zener voltage



Dynamic resistance versus
Zener voltage

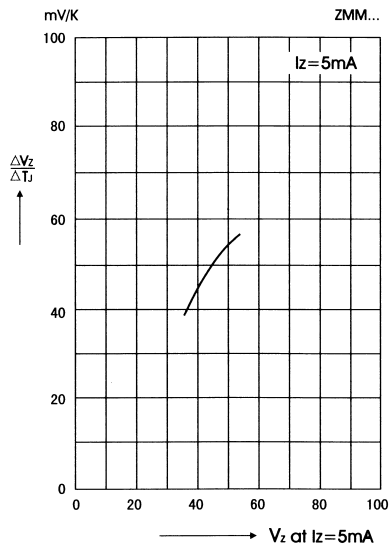


Temperature dependence of
Zener voltage versus voltage

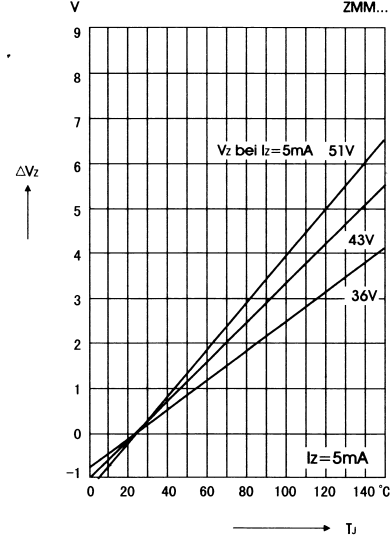


ZMM1.ZMM200 SILICON PLANER ZENER DIODES

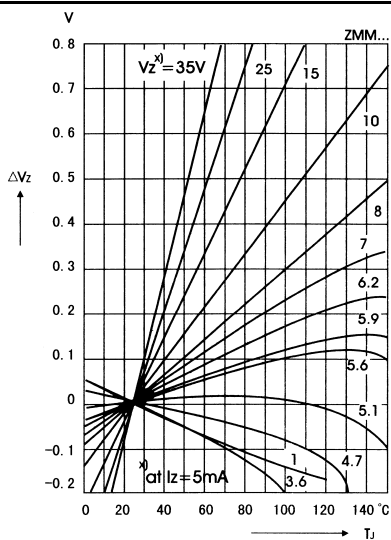
Temperature dependence of
Zener voltage versus voltage



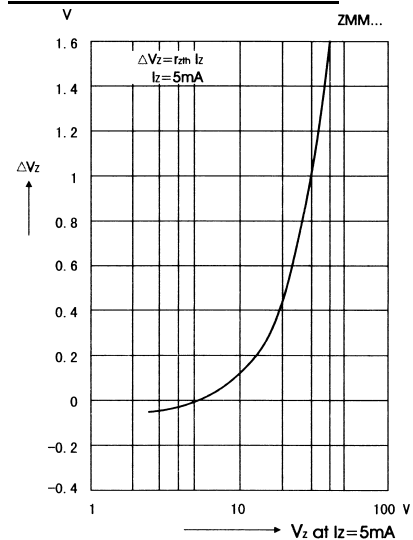
Thermal differential resistance
versus Zener voltage



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

