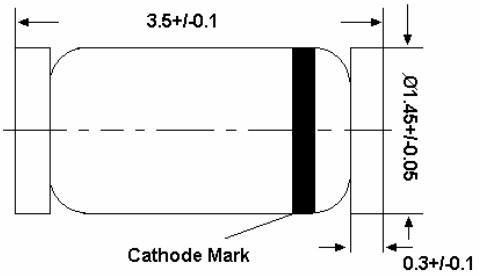
ZMM1B...ZMM200B

SILICON PLANAR ZENER DIODES

in MiniMELF case especially for automatic insertion. The Zener voltages are graded according to the international E 24 standard. Smaller voltage tolerances and higher Zener voltages are upon request.

These diodes are also available in DO-35 case with the type designation BZX55B

LL-34



Glass case MiniMELF
Dimensions in mm

Absolute Maximum Ratings (Ta = 25°C)

	Symbol	Value	Unit
Power Dissipation	P_{tot}	500[1)]	mW
Junction Temperature	T_j	175	°C
Storage Temperature Range	T_S	-55 to +175	°C
[1)] Valid provided that electrodes are kept at ambient temperature			

Characteristics at T_{amb} = 25°C

	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance Junction to Ambient Air	R_{thA}	-	-	0.3[1)]	K/mW
[1)] Valid provided that electrodes are kept at ambient temperature					

ZMM1B...ZMM200B

Type	Zener Voltage Range[1]			Dynamic Resistance			Reverse Leakage Current			Temp coefficient of Zener Voltage
	Vznom	I_{ZT} for V_{ZT}[2]		r_{ZJT}	r_{ZJK} at I_{ZK}		T_a =25°C	T_a = 125°C	I_R at V_R	TKvz
	V	mA	V	Ω	Ω	mA	µA	µA	V	%/K
ZMM 1B[3]	0.75	5	**0.73…0.77**	<8	<50	1	--	--	--	-0.26...-0.23
ZMM 2B0	2.0	5	**1.96…2.04**	<85	<600	1	<100	<200	1	-0.09...-0.06
ZMM 2B2	2.2	5	**2.15…2.25**	<85	<600	1	<75	<160	1	-0.09...-0.06
ZMM 2B4	2.4	5	**2.35…2.45**	<85	<600	1	<50	<100	1	-0.09...-0.06
ZMM 2B7	2.7	5	**2.64…2.75**	<85	<600	1	<10	<50	1	-0.09...-0.06
ZMM 3B0	3.0	5	**2.94…3.06**	<85	<600	1	<4	<40	1	-0.08...-0.05
ZMM 3B3	3.3	5	**3.23…3.36**	<85	<600	1	<2	<40	1	-0.08...-0.05
ZMM 3B6	3.6	5	**3.52…3.67**	<85	<600	1	<2	<40	1	-0.08...-0.05
ZMM 3B9	3.9	5	**3.82…3.98**	<85	<600	1	<2	<40	1	-0.08...-0.05
ZMM 4B3	4.3	5	**4.21…4.39**	<75	<600	1	<1	<20	1	-0.06...-0.03
ZMM 4B7	4.7	5	**4.60…4.80**	<60	<600	1	<0.5	<10	1	-0.05...+0.02
ZMM 5B1	5.1	5	**4.99…5.20**	<35	<550	1	<0.1	<2	1	-0.02...+0.02
ZMM 5B6	5.6	5	**5.49…5.71**	<25	<450	1	<0.1	<2	1	-0.05...+0.05
ZMM 6B2	6.2	5	**6.07…6.32**	<10	<200	1	<0.1	<2	2	0.03...0.06
ZMM 6B8	6.8	5	**6.66…6.94**	<8	<150	1	<0.1	<2	3	0.03...0.07
ZMM 7B5	7.5	5	**7.35…7.65**	<7	<50	1	<0.1	<2	5	0.03...0.07
ZMM 8B2	8.2	5	**8.04…8.36**	<7	<50	1	<0.1	<2	6.2	0.03...0.08
ZMM 9B1	9.1	5	**8.92…9.28**	<10	<50	1	<0.1	<2	6.8	0.03...0.09
ZMM 10B	10	5	**9.8…10.2**	<15	<70	1	<0.1	<2	7.5	0.03...0.1
ZMM 11B	11	5	**10.8…11.2**	<20	<70	1	<0.1	<2	8.2	0.03...0.11
ZMM 12B	12	5	**11.8…12.2**	<20	<90	1	<0.1	<2	9.1	0.03...0.11
ZMM 13B	13	5	**12.7…13.3**	<26	<110	1	<0.1	<2	10	0.03...0.11
ZMM 15B	15	5	**14.7…15.3**	<30	<110	1	<0.1	<2	11	0.03...0.11
ZMM 16B	16	5	**15.7…16.3**	<40	<170	1	<0.1	<2	12	0.03...0.11
ZMM 18B	18	5	**17.6…18.4**	<50	<170	1	<0.1	<2	13	0.03...0.11
ZMM 20B	20	5	**19.6…20.4**	<55	<220	1	<0.1	<2	15	0.03...0.11
ZMM 22B	22	5	**21.6…22.5**	<55	<220	1	<0.1	<2	16	0.04...0.12
ZMM 24B	24	5	**23.5…24.5**	<80	<220	1	<0.1	<2	18	0.04...0.12
ZMM 27B	27	5	**26.4…27.6**	<80	<220	1	<0.1	<2	20	0.04...0.12
ZMM 30B	30	5	**29.4…30.6**	<80	<220	1	<0.1	<2	22	0.04...0.12
ZMM 33B	33	5	**32.3…33.7**	<80	<220	1	<0.1	<2	24	0.04...0.12
ZMM 36B	36	5	**35.2…36.8**	<80	<220	1	<0.1	<2	27	0.04...0.12
ZMM 39B	39	2.5	**38.2…39.8**	<90	<500	0.5	<0.1	<5	30	0.04...0.12
ZMM 43B	43	2.5	**42.1…43.9**	<90	<500	0.5	<0.1	<5	33	0.04...0.12
ZMM 47B	47	2.5	**46.0…48.0**	<110	<600	0.5	<0.1	<5	36	0.04...0.12
ZMM 51B	51	2.5	**49.9…52.1**	<125	<700	0.5	<0.1	<10	39	0.04...0.12
ZMM 56B	56	2.5	**54.8…57.2**	<135	<700	0.5	<0.1	<10	43	0.04...0.12
ZMM 62B	62	2.5	**60.7…63.3**	<150	<1000	0.5	<0.1	<10	47	0.04...0.12
ZMM 68B	68	2.5	**66.6…69.4**	<200	<1000	0.5	<0.1	<10	51	0.04...0.12
ZMM 75B	75	2.5	**73.5…76.5**	<250	<1000	0.5	<0.1	<10	56	0.04...0.12
ZMM 82B	82	2.5	**80.3…83.7**	<300	<1500	0.25	<0.1	<10	62	0.05...0.12
ZMM 91B	91	1	**89.1…92.9**	<450	<2000	0.1	<0.1	<10	68	0.05...0.12
ZMM 100B	100	1	**98.0…102.0**	<450	<5000	0.1	<0.1	<10	75	0.05...0.12
ZMM 110B	110	1	**107.8…112.2**	<600	<5000	0.1	<0.1	<10	82	0.05...0.12
ZMM 120B	120	1	**117.6…122.4**	<800	<5500	0.1	<0.1	<10	91	0.05...0.12
ZMM 130B	130	1	**127.4…132.6**	<950	<6000	0.1	<0.1	<10	100	0.05...0.12
ZMM 150B	150	1	**147.0…153.0**	<1250	<6500	0.1	<0.1	<10	110	0.05...0.12
ZMM 160B	160	1	**156.8…163.2**	<1400	<7000	0.1	<0.1	<10	120	0.05...0.12
ZMM 180B	180	1	**176.4…183.6**	<1700	<8500	0.1	<0.1	<10	130	0.05...0.12
ZMM 200B	200	1	**196.0…204.0**	<2000	<10000	0.1	<0.1	<10	150	0.05...0.12

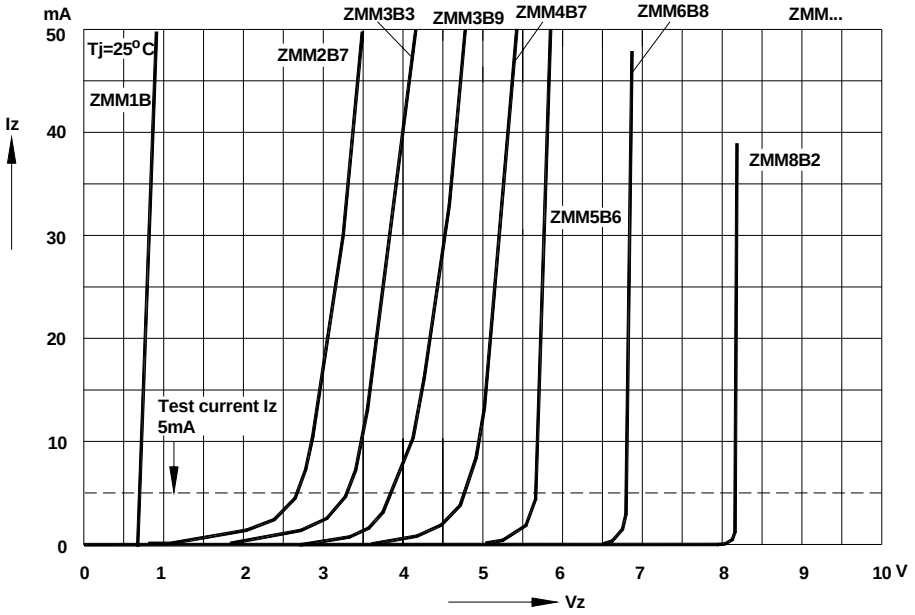
1) Tested with pulses t_p = 20 ms.

1) Valid provided that electrodes are kept at ambient temperature

2) 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.

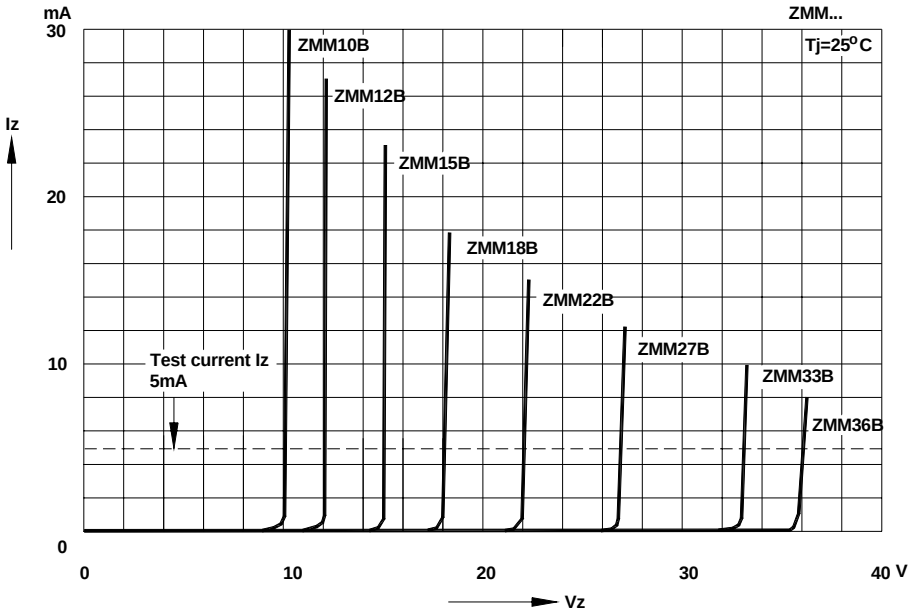
Breakdown characteristics

T_j = constant (pulsed)



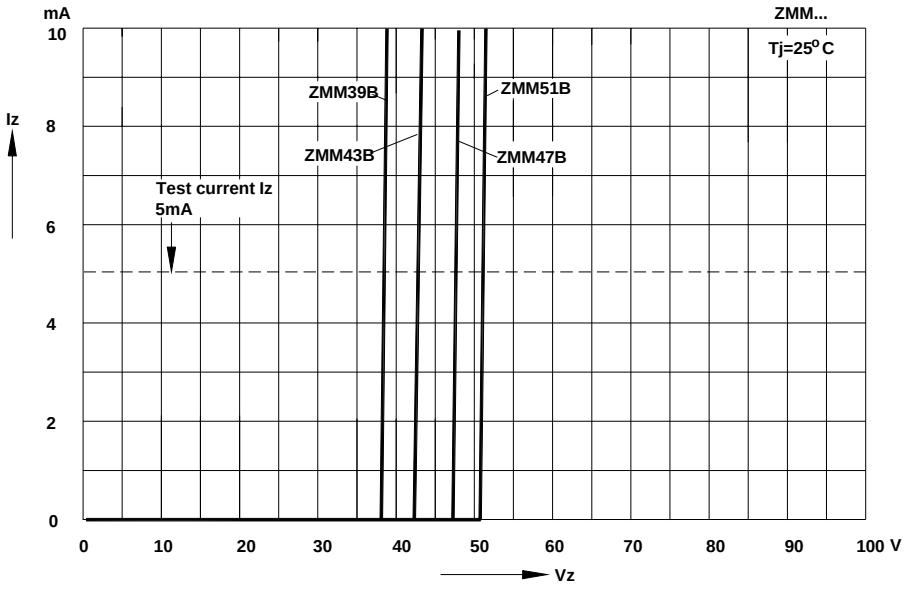
Breakdown characteristics

T_j = constant (pulsed)

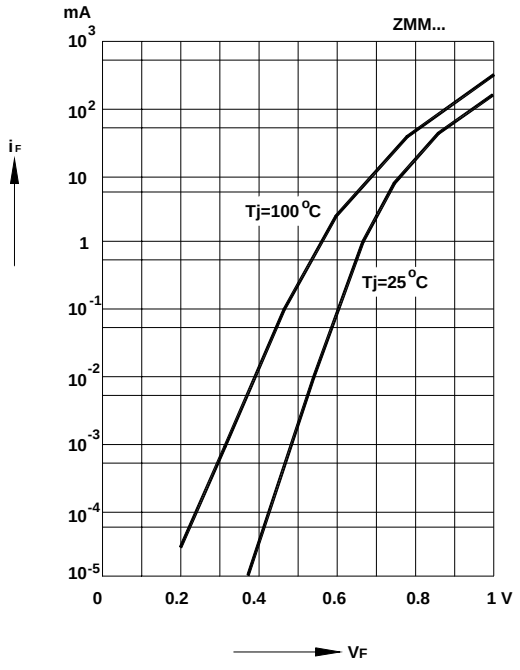


Breakdown characteristics

T_j = constant (pulsed)

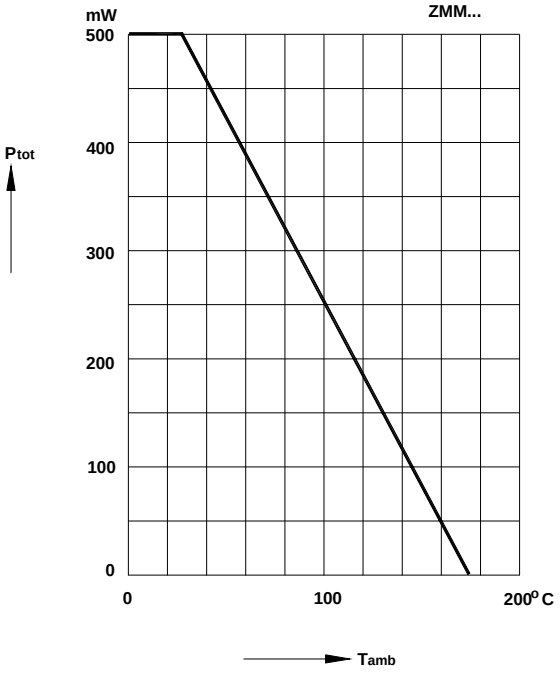


Forward characteristics



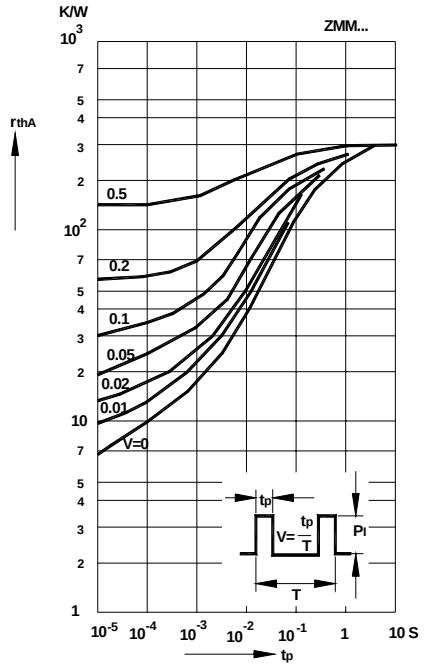
Admissible power dissipation versus ambient temperature

Valid provided that electrodes are kept at ambient temperature.

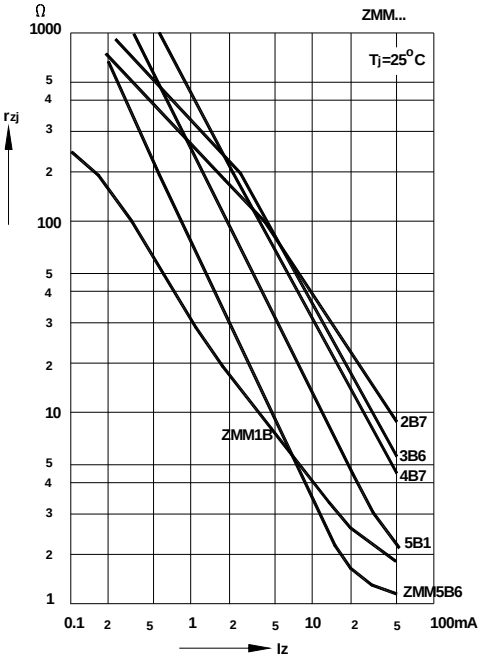


Pulse thermal resistance versus pulse duration

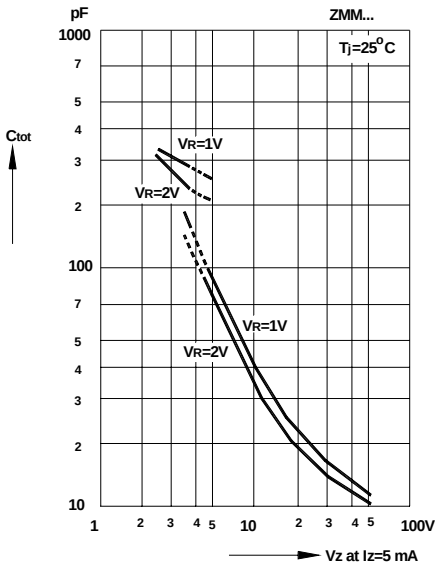
Valid provided that the electrodes are kept at ambient temperature.



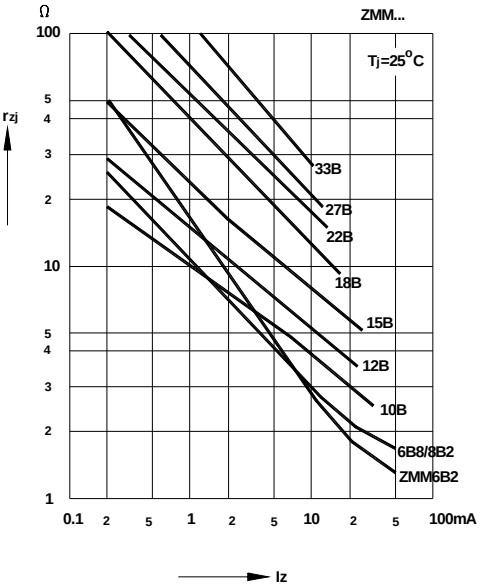
Dynamic resistance versus Zener current



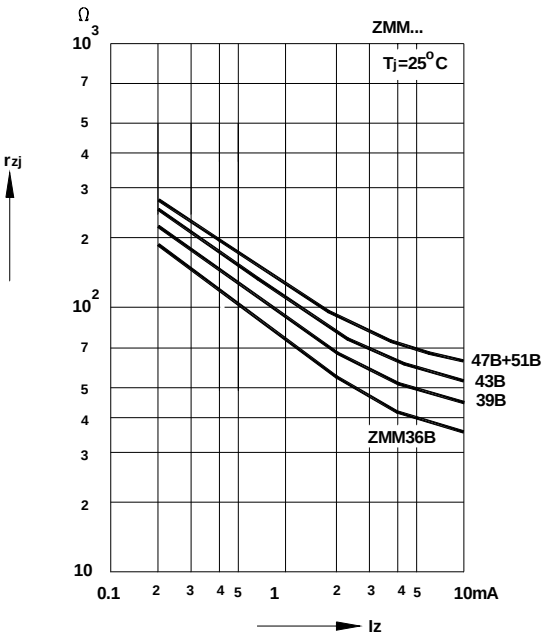
Capacitance versus Zener voltage



Dynamic resistance versus Zener current

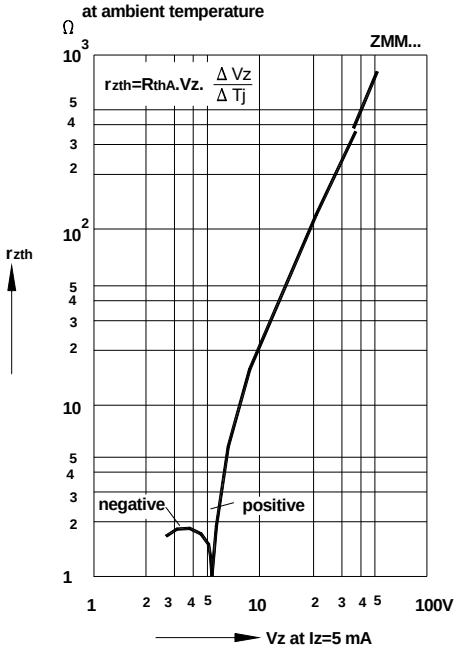


Dynamic resistance versus Zener current

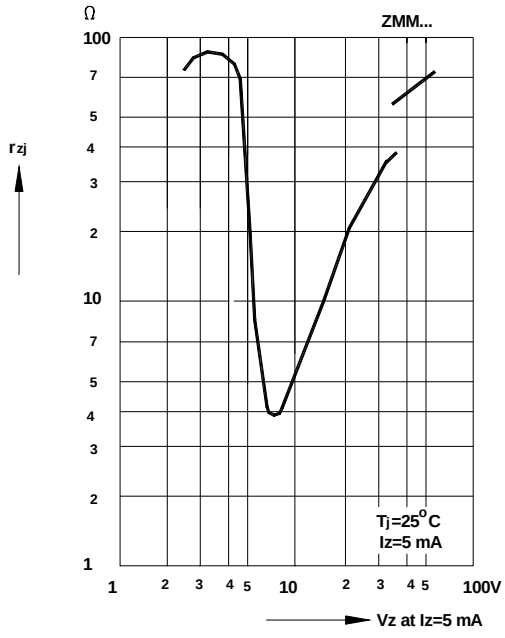


Thermal differential resistance versus Zener voltage

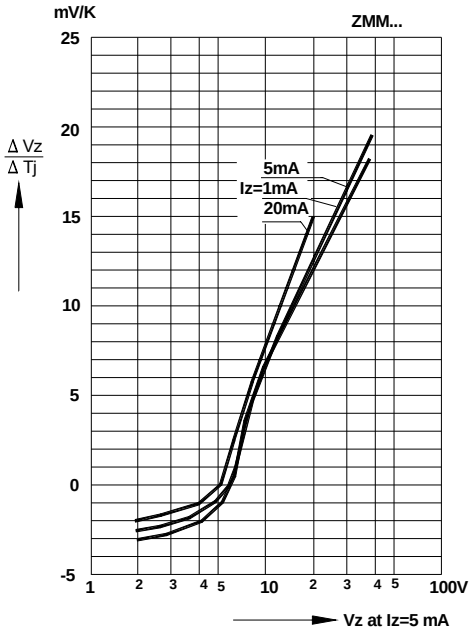
Valid provided that electrodes are kept at ambient temperature



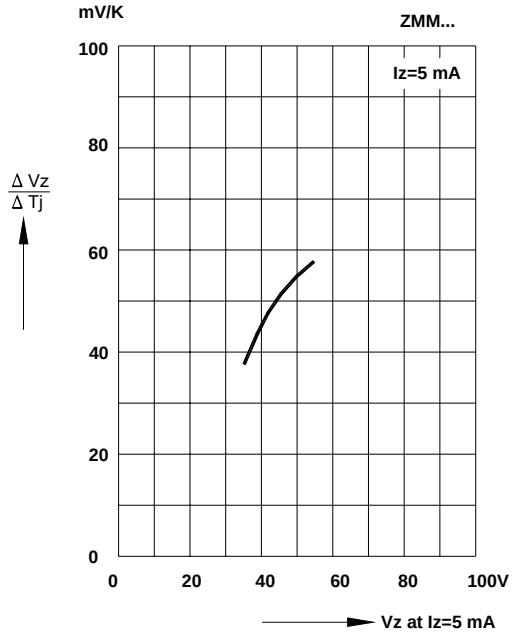
Dynamic resistance versus Zener voltage



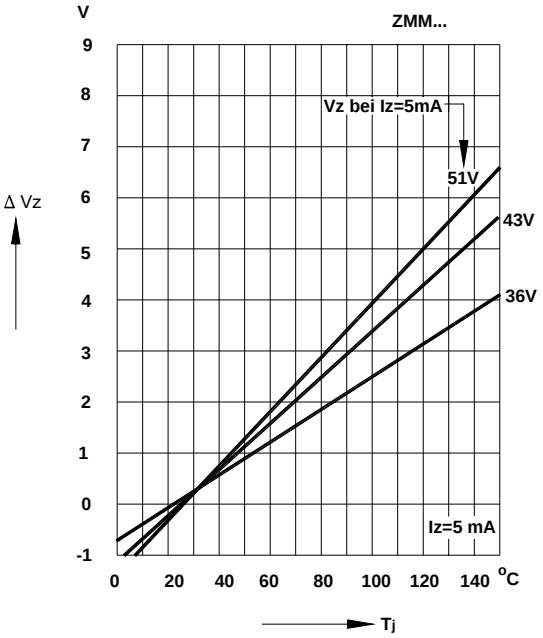
Temperature dependence of Zener voltage versus Zener voltage



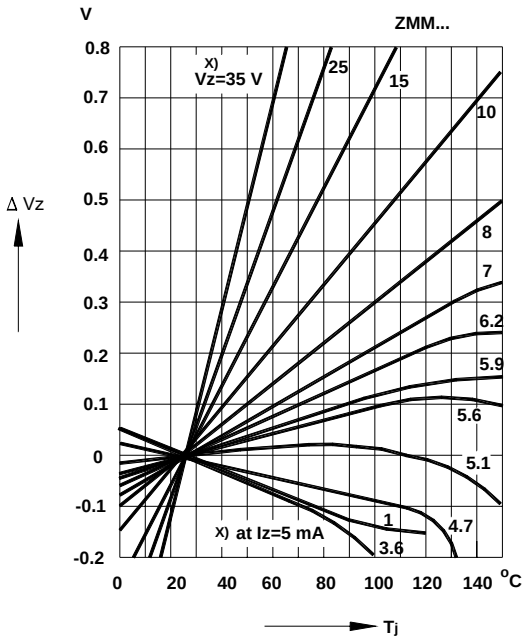
Temperature dependence of Zener voltage versus Zener voltage



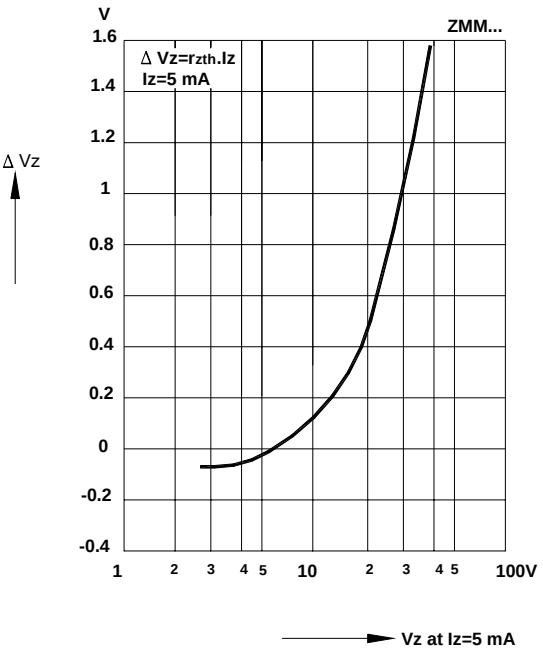
Change of Zener voltage versus junction temperature



Change of Zener voltage versus junction temperature



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



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

