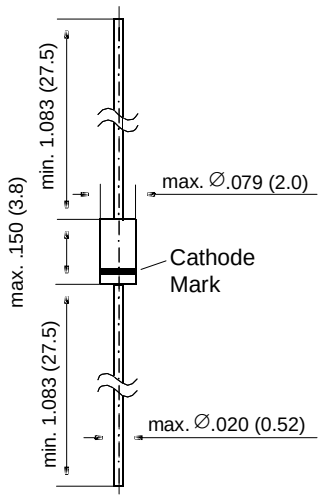
ZPD1 THRU ZPD75

ZENER DIODES

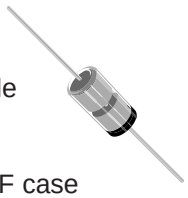
DO-35



Dimensions are in inches and (millimeters)

FEATURES

- Silicon Planar Zener Diodes
- The Zener voltages are graded according to the international E 12 standard. Smaller voltage tolerances and other Zener voltages are available upon request.



- These diodes are also available in the Mini-MELF case with the type designation ZMM1 … ZMM75.

MECHANICAL DATA

Case: DO-35 Glass Case
Weight: approx. 0.13 g

MAXIMUM RATINGS

Ratings at 25°C ambient temperature unless otherwise specified.

	SYMBOL	*VALUE*	*UNIT*
Zener Current (see Table “Characteristics”)			
Power Dissipation at T_{amb} = 25°C	P_{tot}	500(1)	mW
Junction Temperature	T_j	175	°C
Storage Temperature Range	T_S	– 55 to +175	°C

NOTES:
(1) Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

	SYMBOL	*MIN.*	*TYP.*	*MAX.*	*UNIT*
Thermal Resistance Junction to Ambient Air	R_{thJA}	–	–	0.3(1)	°C/W

NOTES:
(1) Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature.

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ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Type	Zener Voltage[1] at I_Z = 5 mA V_Z (V)	Dynamic Resistance at I_Z = 5 mA f = 1 kHz r_{zj} (Ω)	Dynamic Resistance at I_Z = 1 mA f = 1 kHz r_{zj} (Ω)	Temp. Coeff. of Zener Voltage at I_Z = 5 mA α_{vz} (10^{-4}/K)	Reverse Voltage at I_R = 100 nA V_R (V)	Admissible Zener current[2] at T_{amb} = 45°C I_Z (mA)	Admissible Zener current[2] at T_{amb} = 25°C I_Z (mA)
ZPD1[3]	0.7 ... 0.8	6.5 (< 8)	< 50	–26 ... –23	–	280	340
ZPD2.7	2.5 ... 2.9	75 (< 83)	< 500	–9 ... –4	–	135	160
ZPD3	2.8 ... 3.2	80 (< 95)	< 500	–9 ... –3	–	117	140
ZPD3.3	3.1 ... 3.5	80 (< 95)	< 500	–8 ... –3	–	109	130
ZPD3.6	3.4 ... 3.8	80 (< 95)	< 500	–8 ... –3	–	101	120
ZPD3.9	3.7 ... 4.1	80 (< 95)	< 500	–7 ... –3	–	92	110
ZPD4.3	4.0 ... 4.6	80 (< 95)	< 500	–6 ... –1	–	85	100
ZPD4.7	4.4 ... 5.0	70 (< 78)	< 500	–5 ... +2	–	76	90
ZPD5.1	4.8 ... 5.4	30 (< 60)	< 480	–3 ... +4	> 0.8	67	80
ZPD5.6	5.2 ... 6.0	10 (< 40)	< 400	–2 ... +6	> 1	59	70
ZPD6.2	5.8 ... 6.6	4.8 (< 10)	< 200	–1 ... +7	> 2	54	64
ZPD6.8	6.4 ... 7.2	4.5 (< 8)	< 150	+2 ... +7	> 3	49	58
ZPD7.5	7.0 ... 7.9	4 (< 7)	< 50	+3 ... +7	> 5	44	53
ZPD8.2	7.7 ... 8.7	4.5 (< 7)	< 50	+4 ... +7	> 6	40	47
ZPD9.1	8.5 ... 9.6	4.8 (< 10)	< 50	+5 ... +8	> 7	36	43
ZPD10	9.4 ... 10.6	5.2 (< 15)	< 70	+5 ... +8	> 7.5	33	40
ZPD11	10.4 ... 11.6	6 (< 20)	< 70	+5 ... +9	> 8.5	30	36
ZPD12	11.4 ... 12.7	7 (< 20)	< 90	+6 ... +9	> 9	28	32
ZPD13	12.4 ... 14.1	9 (< 25)	< 110	+7 ... +9	> 10	25	29
ZPD15	13.8 ... 15.6	11 (< 30)	< 110	+7 ... +9	> 11	23	27
ZPD16	15.3 ... 17.1	13 (< 40)	< 170	+8 ... +9.5	> 12	20	24
ZPD18	16.8 ... 19.1	18 (< 50)	< 170	+8 ... +9.5	> 14	18	21
ZPD20	18.8 ... 21.2	20 (< 50)	< 220	+8 ... +10	> 15	17	20
ZPD22	20.8 ... 23.3	25 (< 55)	< 220	+8 ... +10	> 17	16	18
ZPD24	22.8 ... 25.6	28 (< 80)	< 220	+8 ... +10	> 18	13	16
ZPD27	25.1 ... 28.9	30 (< 80)	< 250	+8 ... +10	> 20	12	14
ZPD30	28 ... 32	35 (< 80)	< 250	+8 ... +10	> 22.5	10	13
ZPD33	31 ... 35	40 (< 80)	< 250	+8 ... +10	> 25	9	12
ZPD36	34 ... 38	40 (< 90)	< 250	+8 ... +10	> 27	9	11
ZPD39	37 ... 41	50 (< 90)	< 300	+10 ... +12	> 29	8	10
ZPD43	40 ... 46	60 (< 100)	< 700	+10 ... +12	> 32	7	9.2
ZPD47	44 ... 50	70 (< 100)	< 750	+10 ... +12	> 35	6	8.5
ZPD51	48 ... 54	70 (< 100)	< 750	+10 ... +12	> 38	6	7.8
ZPD56	52.0 ... 60.0[4]	< 135[4]	< 1000[5]	typ. +10[4]	–	–	–
ZPD62	58.0 ... 66.0[4]	< 150[4]	< 1000[5]	typ. +10[4]	–	–	–
ZPD68	64.0 ... 72.0[4]	< 200[4]	< 1000[5]	typ. +10[4]	–	–	–
ZPD75	70.0 ... 79.0[4]	< 250[4]	< 1500[5]	typ. +10[4]	–	–	–

NOTES:

(1) Tested with pulses t_p = 5 ms

(2) Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature

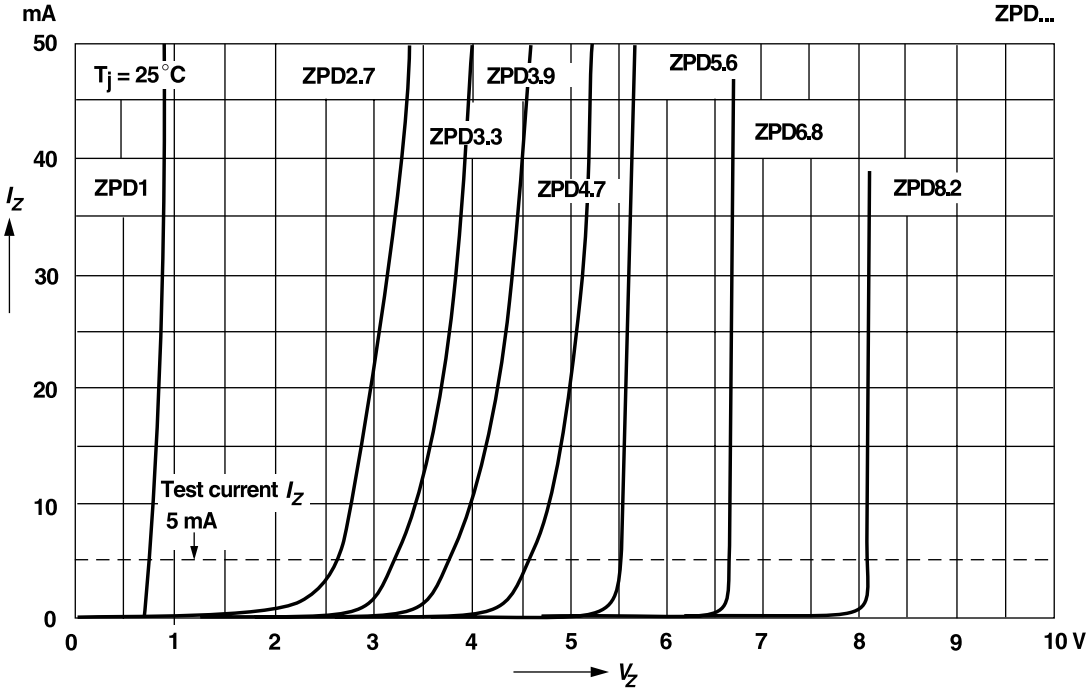
(3) The ZPD1 is a silicon diode operated in forward direction. Hence, the subscript of all parameters should be “F” instead of “Z”. Connect the cathode terminal to the negative pole

(4) at I_Z = 2.5 mA

(5) at I_Z = 0.5 mA

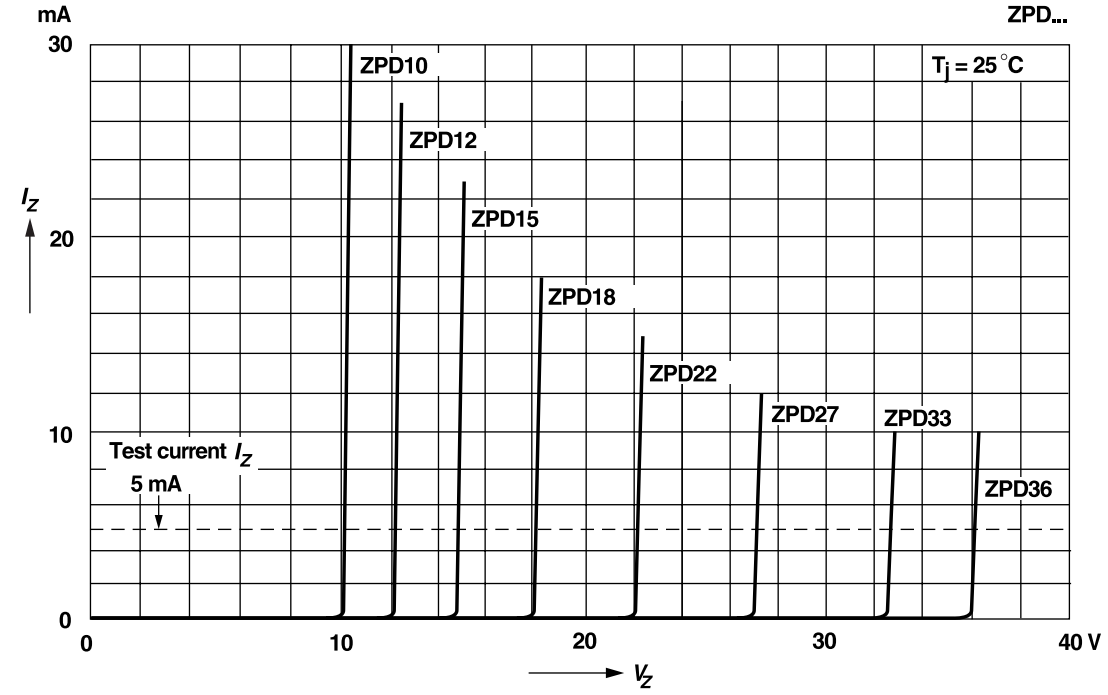
Breakdown characteristics

T_j = constant (pulsed)



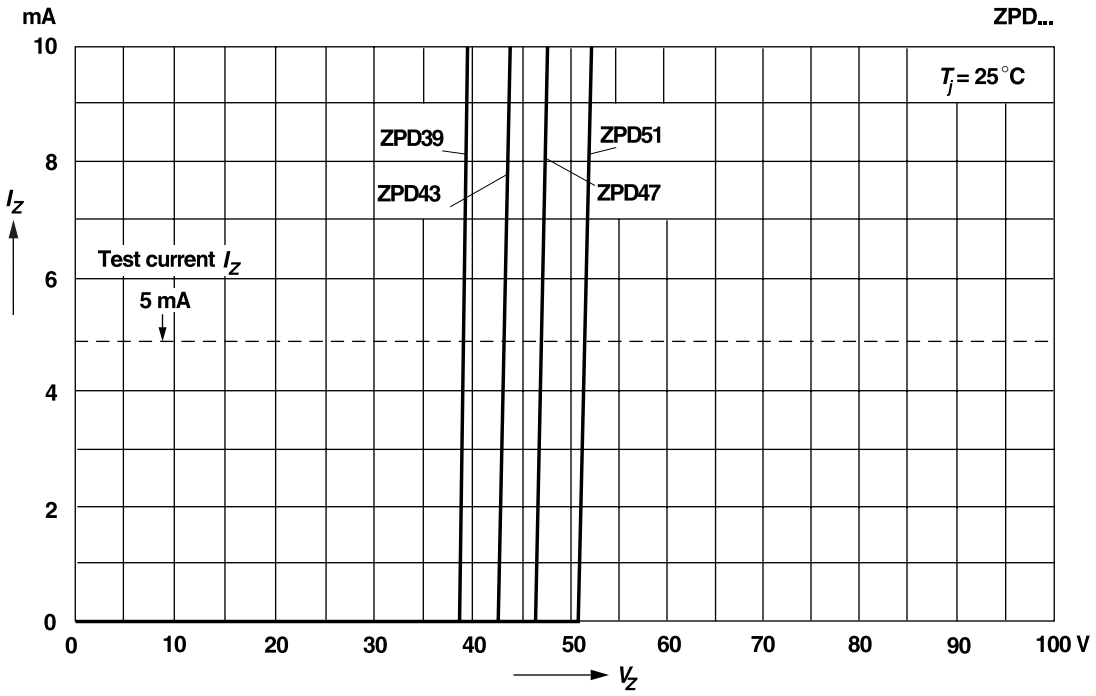
Breakdown characteristics

T_j = constant (pulsed)

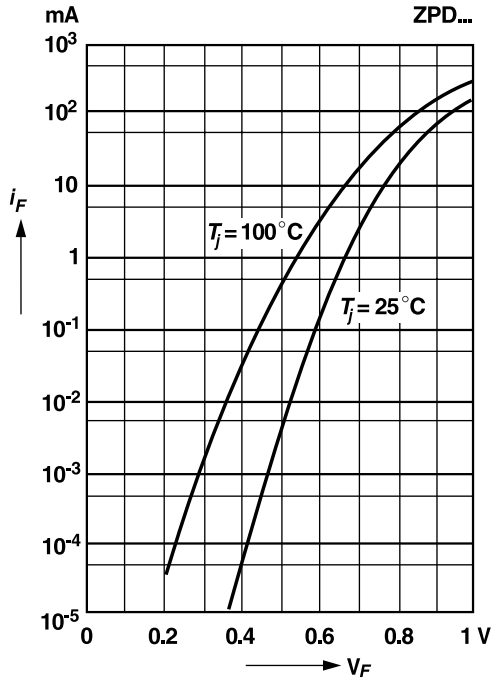


Breakdown characteristics

T_j = constant (pulsed)

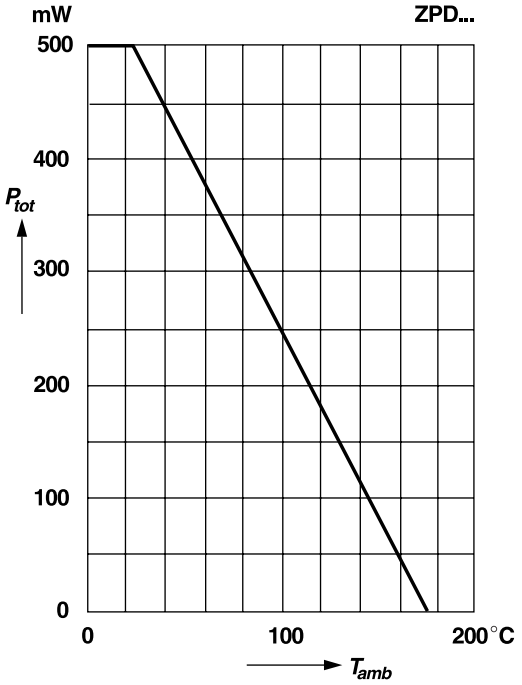


Forward characteristics



Admissible power dissipation versus ambient temperature

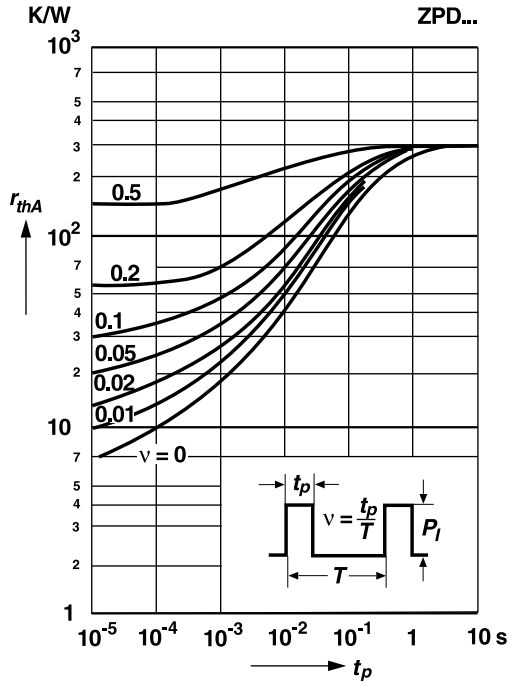
Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature



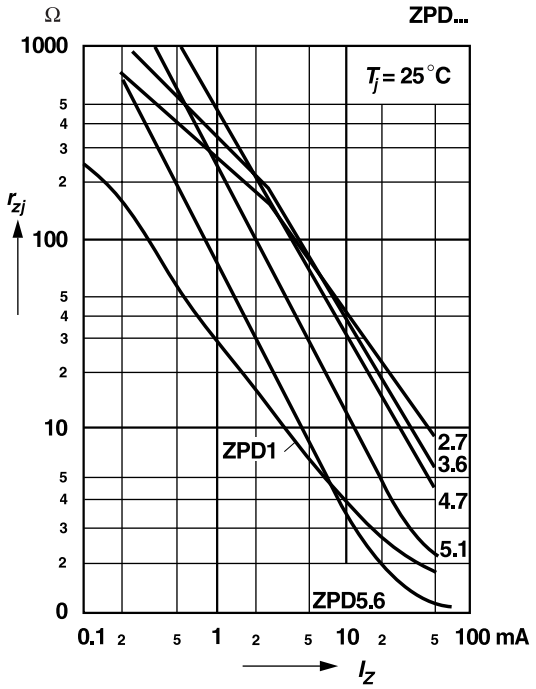
RATINGS AND CHARACTERISTIC CURVES ZPD1 THRU ZPD75

Pulse thermal resistance versus pulse duration

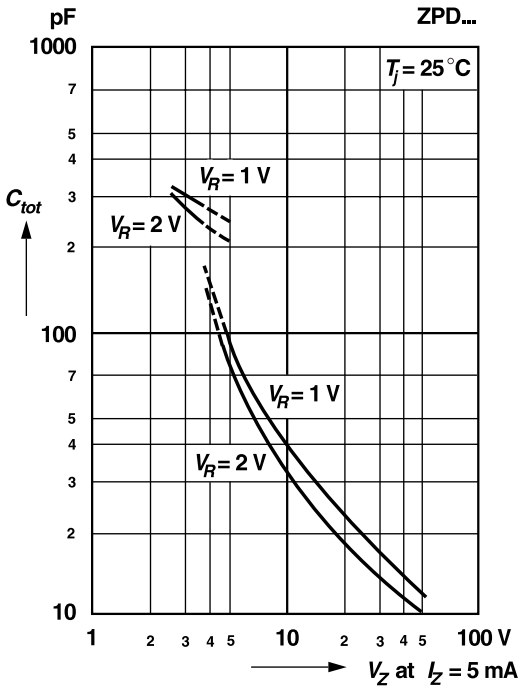
Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature



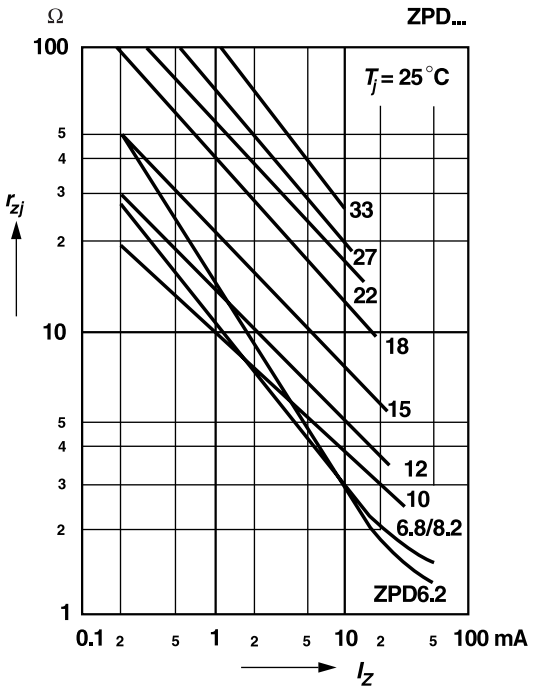
Dynamic resistance versus Zener current



Capacitance versus Zener voltage



Dynamic resistance versus Zener current



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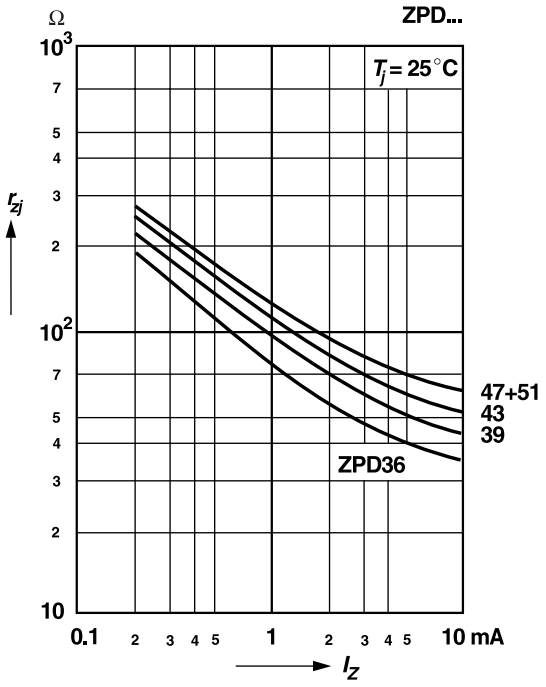
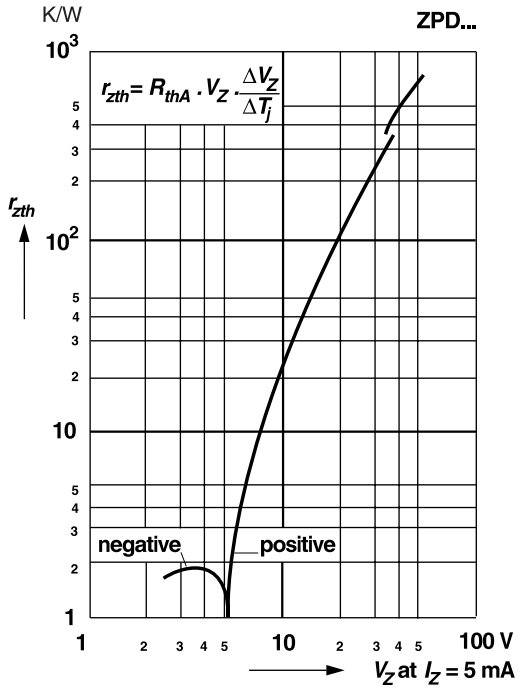
RATINGS AND CHARACTERISTIC CURVES ZPD1 THRU ZPD75

Dynamic resistance versus Zener current

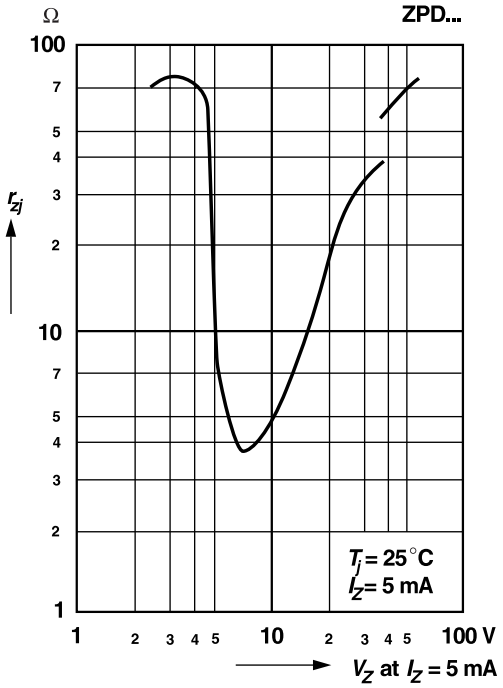


Thermal differential resistance versus Zener voltage

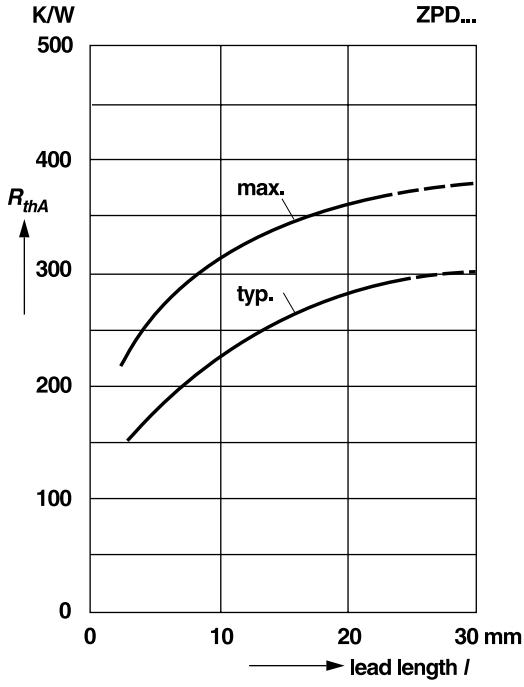
Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature



Dynamic resistance versus Zener voltage



Thermal resistance versus lead length



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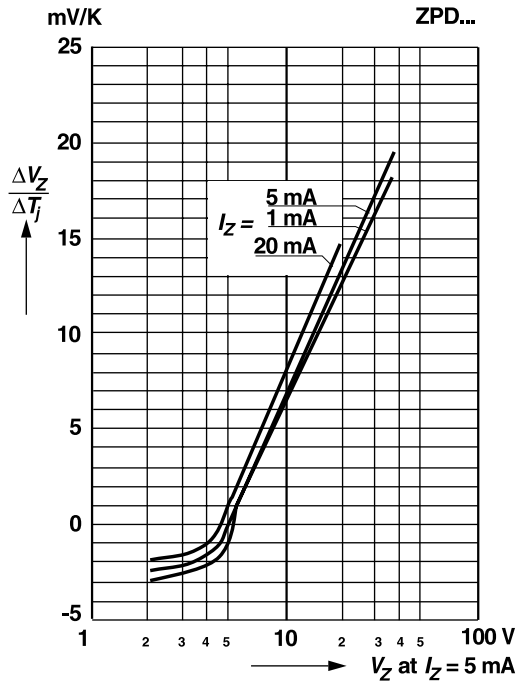
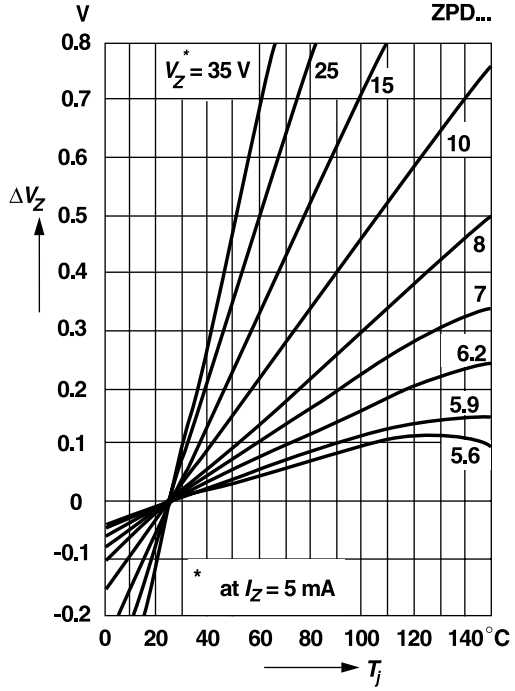
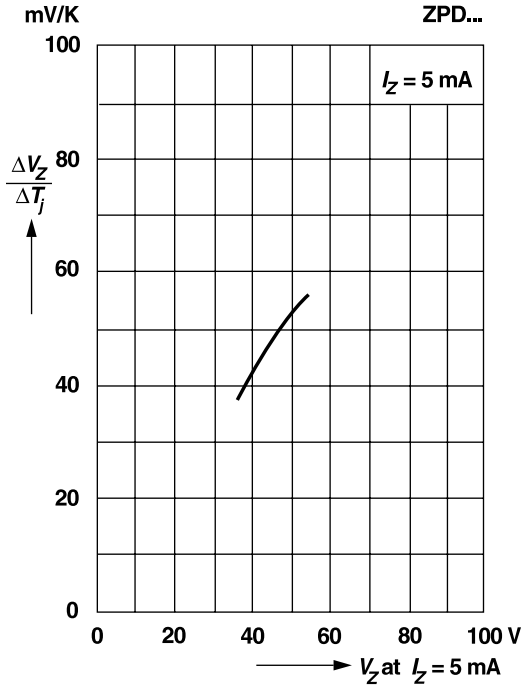
Temperature dependence of Zener voltage versus Zener voltage



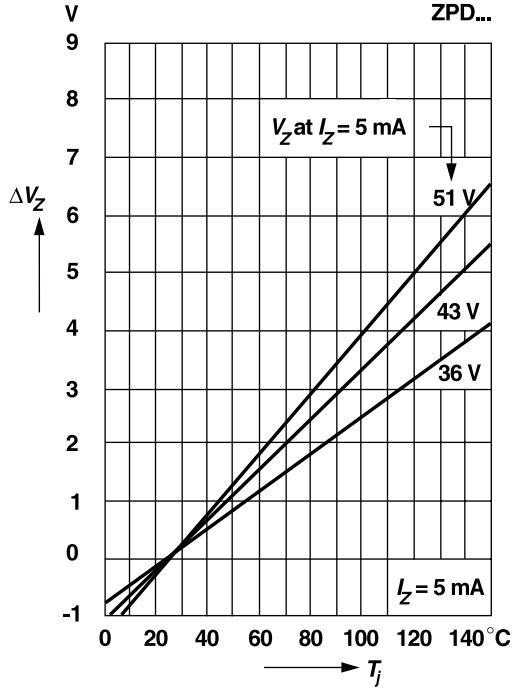
Change of Zener voltage versus junction temperature



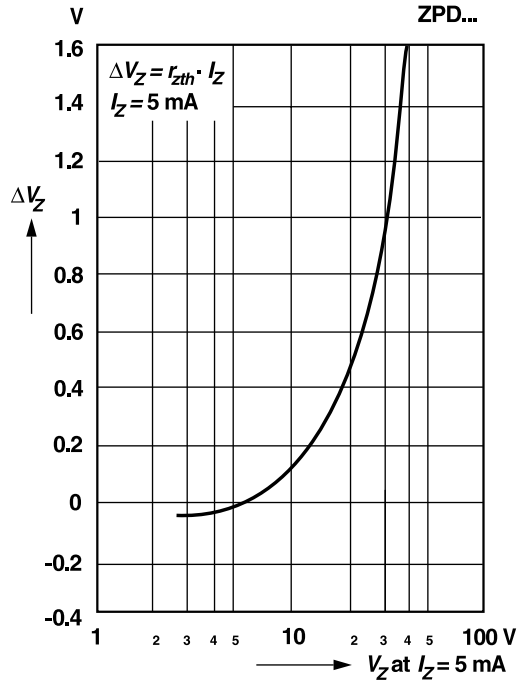
Temperature dependence of Zener voltage versus Zener voltage



Change of Zener voltage versus junction temperature



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



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