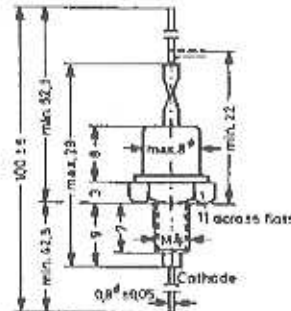


## ZX3,9 . . . ZX200 (12.5 W)

### Silicon Power Zener Diodes

for use in stabilizing and clipping circuits with high power rating.  
The Zener voltages are graded according to the international  
E 24 standard. Smaller voltage tolerances on request.



Stud mounted metal case  
Cathode connected to case

Weight approx. 5.5 g  
Dimensions in mm

### Absolute Maximum Ratings

	Symbol	Value	Unit
Zener Current see Table "Characteristics"			
Power Dissipation at $T_{amb} = 25^\circ\text{C}$ without Cooling Fin with vertically mounted Aluminium Cooling Fin 12.5 cm x 12.5 cm x 2 mm	$P_{tot}$ $P_{tot}$	1.56 12.5	W W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_s$	-55 to +150	$^\circ\text{C}$

### Characteristics at $T_{amb} = 25^\circ\text{C}$

	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance Junction to Stud	$R_{thc}$	-	-	5	K/W
Junction to Ambient Air	$R_{thA}$	-	-	80	K/W

## ZX3,9 ... ZX200 (12.5 W)

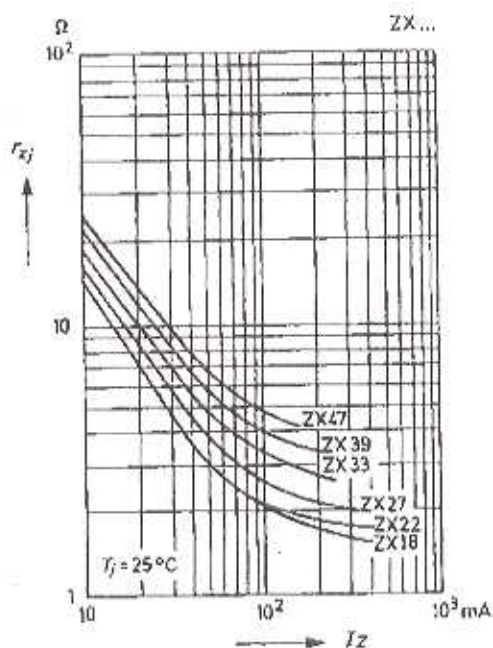
Type	Zener voltage <sup>1)</sup> at $I_Z$ test $V_Z$ V	Dynamic resistance at $I_Z$ test $r_d$ $\Omega$ $f = 1 \text{ kHz}$	Temp. coeff. of Zener volt. at $I_Z$ test $\alpha_{VZ}$ $10^{-4}/\text{K}$	Test current $I_Z$ test mA	Reverse voltage at $I_R = 1 \mu\text{A}$ $V_R$ V	Admissible Zener current at $T_{amb} = 45^\circ\text{C}$ without cooling fin $I_Z$ mA	with <sup>2)</sup> $I_Z$ mA
ZX3,9	3.7 ... 4.1	3.8 (<7)	-7 ... +2	100	-	280	2100
ZX4,3	4.0 ... 4.6	3.8 (<7)	-7 ... +3	100	-	240	1750
ZX4,7	4.4 ... 5.0	3.8 (<7)	-7 ... +4	100	-	210	1500
ZX5,1	4.8 ... 5.4	2 (<5)	-6 ... +5	100	-	190	1430
ZX5,6	5.2 ... 6.0	1 (<2)	-3 ... +5	100	>1.5	180	1350
ZX6,2	5.8 ... 6.6	1 (<2)	-1 ... +6	100	>1.5	160	1250
ZX6,8	6.4 ... 7.2	1 (<2)	0 ... +7	100	>2	150	1150
ZX7,5	7.0 ... 7.9	1 (<2)	0 ... +7	100	>2	140	1060
ZX8,2	7.7 ... 8.7	1 (<2)	+3 ... +8	100	>3.5	130	980
ZX9,1	8.5 ... 9.6	2 (<4)	+3 ... +8	50	>3.5	117	890
ZX10	9.4 ... 10.6	2 (<4)	+5 ... +9	50	>5	105	800
ZX11	10.4 ... 11.6	4 (<7)	+5 ... +10	50	>5	95	710
ZX12	11.4 ... 12.7	4 (<7)	+5 ... +10	50	>7	86	620
ZX13	12.4 ... 14.1	5 (<10)	+5 ... +10	50	>7	78	560
ZX15	13.8 ... 15.8	5 (<10)	+5 ... +10	50	>10	71	500
ZX16	15.3 ... 17.1	6 (<15)	+6 ... +11	25	>10	65	465
ZX18	16.8 ... 19.1	6 (<15)	+6 ... +11	25	>10	60	430
ZX20	18.8 ... 21.2	6 (<15)	+6 ... +11	25	>10	55	400
ZX22	20.8 ... 23.3	6 (<15)	+6 ... +11	25	>12	50	375
ZX24	22.8 ... 25.6	7 (<15)	+6 ... +11	25	>12	45	345
ZX27	25.1 ... 28.9	7 (<15)	+6 ... +11	25	>14	40	320
ZX30	28 ... 32	8 (<15)	+6 ... +11	25	>14	36	290
ZX33	31 ... 35	8 (<15)	+6 ... +11	25	>17	33	260
ZX36	34 ... 38	21 (<40)	+6 ... +11	10	>17	30	235
ZX39	37 ... 41	21 (<40)	+6 ... +11	10	>20	28	210
ZX43	40 ... 46	24 (<45)	+7 ... +12	10	>20	25	192
ZX47	44 ... 50	24 (<45)	+7 ... +12	10	>24	22	175
ZX51	48 ... 54	25 (<60)	+7 ... +12	10	>24	20	162
ZX56	52 ... 60	25 (<60)	+7 ... +12	10	>28	18.5	150
ZX62	58 ... 66	25 (<80)	+8 ... +13	10	>28	17	137
ZX68	64 ... 72	25 (<80)	+8 ... +13	10	>34	15.5	125
ZX75	70 ... 79	30 (<100)	+8 ... +13	10	>34	14	112
ZX82	77 ... 88	30 (<100)	+8 ... +13	10	>41	12.5	100
ZX91	85 ... 96	60 (<200)	+9 ... +13	5	>41	11.5	92
ZX100	94 ... 106	60 (<200)	+9 ... +13	5	>50	10.5	85
ZX110	104 ... 116	80 (<250)	+9 ... +13	5	>50	9.5	77
ZX120	114 ... 127	80 (<250)	+9 ... +13	5	>60	8.6	70
ZX130	124 ... 141	110 (<300)	+9 ... +13	5	>60	7.8	63
ZX150	138 ... 156	110 (<300)	+9 ... +13	5	>75	7.0	56
ZX160	153 ... 171	150 (<350)	+9 ... +13	5	>75	6.3	51
ZX180	168 ... 191	150 (<350)	+9 ... +13	5	>90	5.7	46
ZX200	188 ... 212	150 (<350)	+9 ... +13	5	>90	5.2	42

<sup>1)</sup> Tested with pulses.

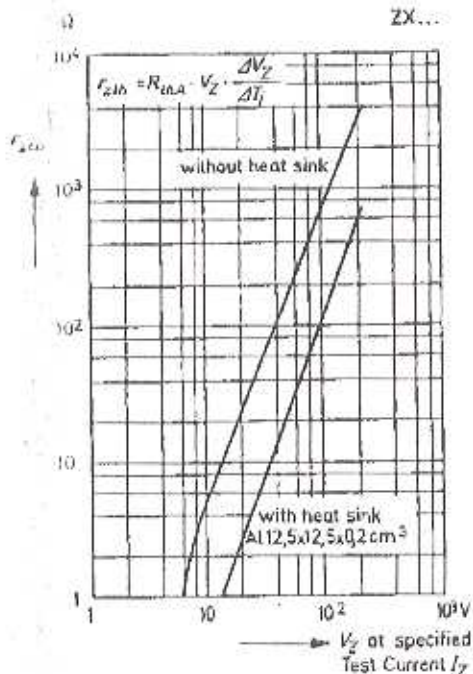
<sup>2)</sup> With vertically mounted aluminium cooling fin 12.5 × 12.5 × 2 mm.

# ZX3,9 ... ZX200 (12.5 W)

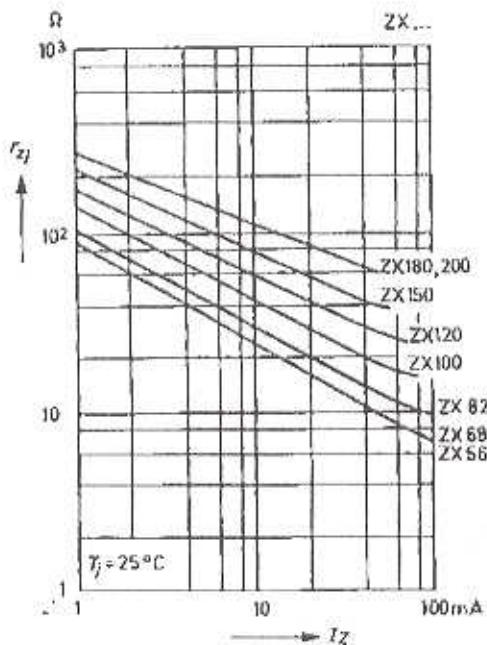
Dynamic resistance versus Zener current



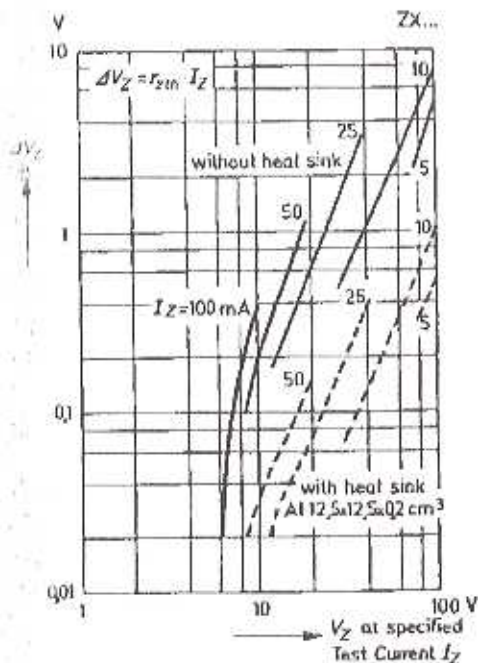
Thermal differential resistance versus Zener voltage



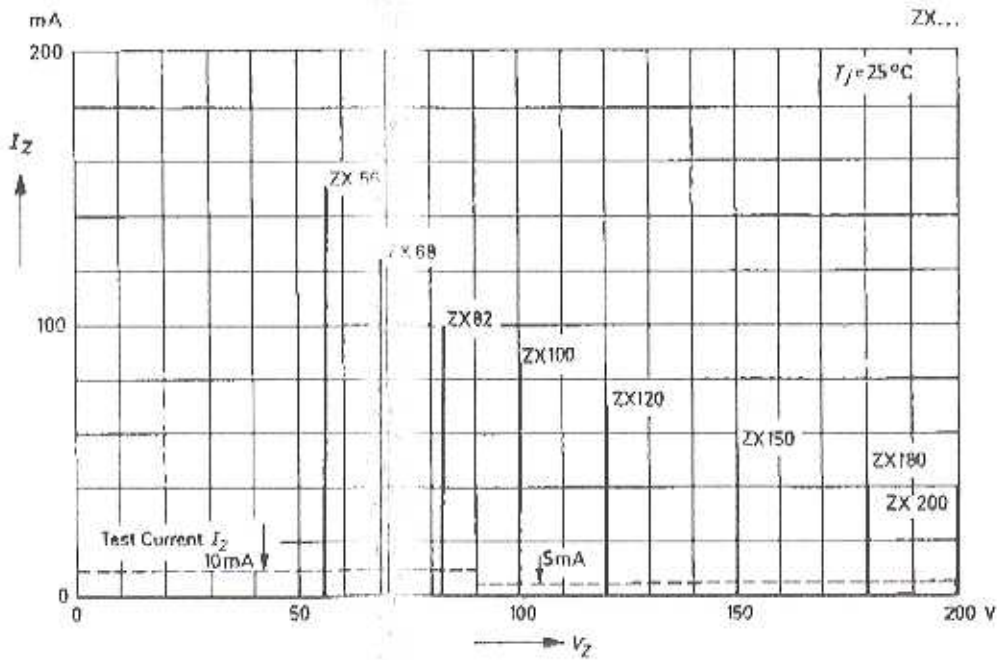
Dynamic resistance versus Zener current



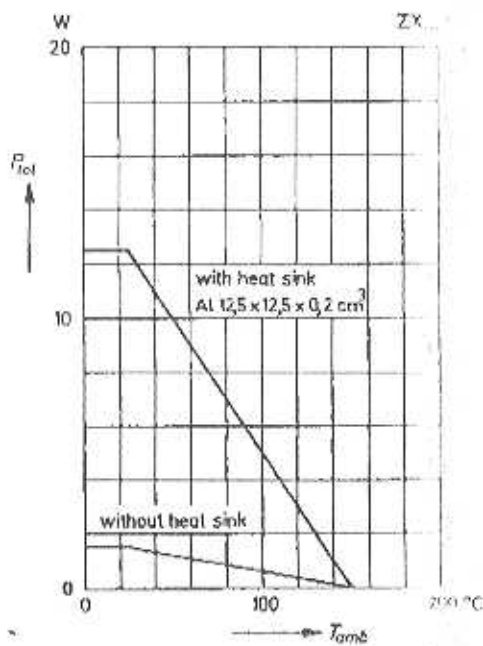
Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener Voltage



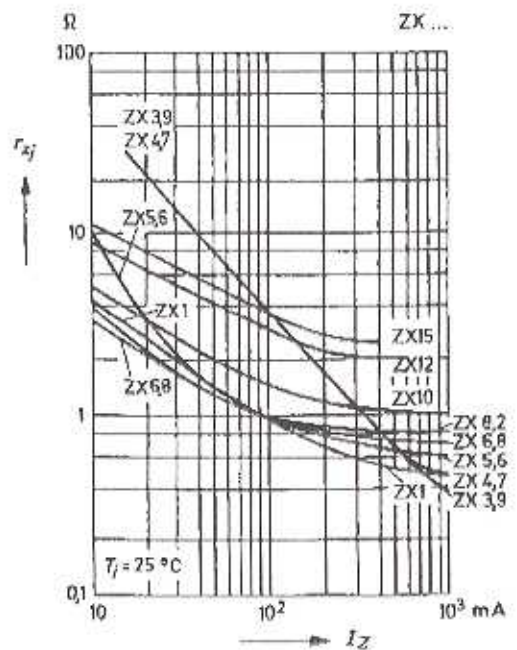
**Breakdown characteristics**  
 $T_j = \text{constant (pulsed)}$



**Admissible power dissipation versus ambient temperature**

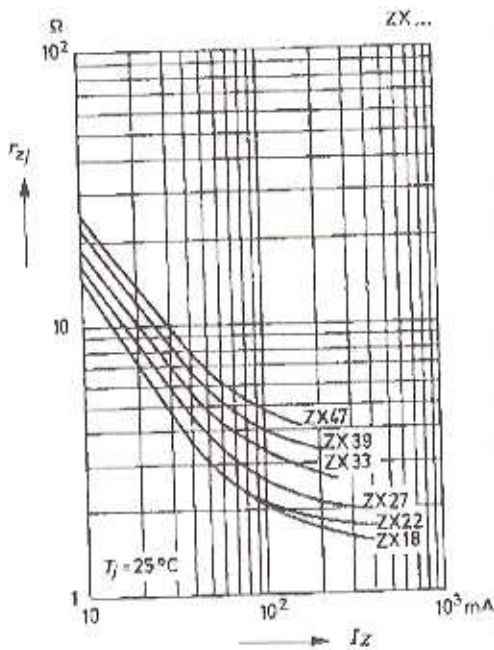


**Dynamic resistance versus Zener current**

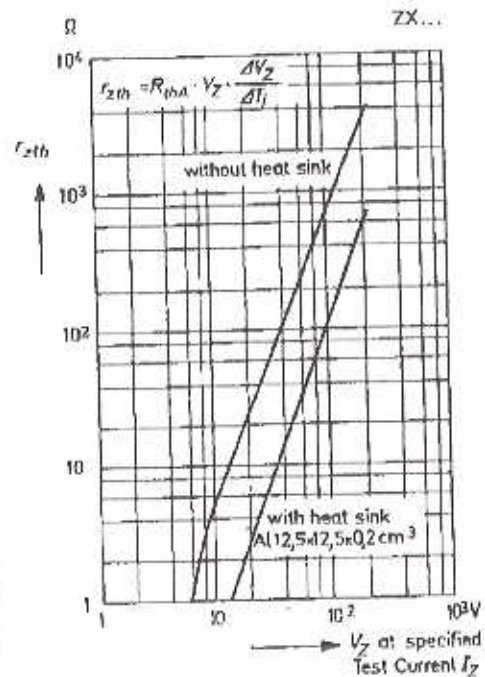


# ZX3,9 ... ZX200 (12.5 W)

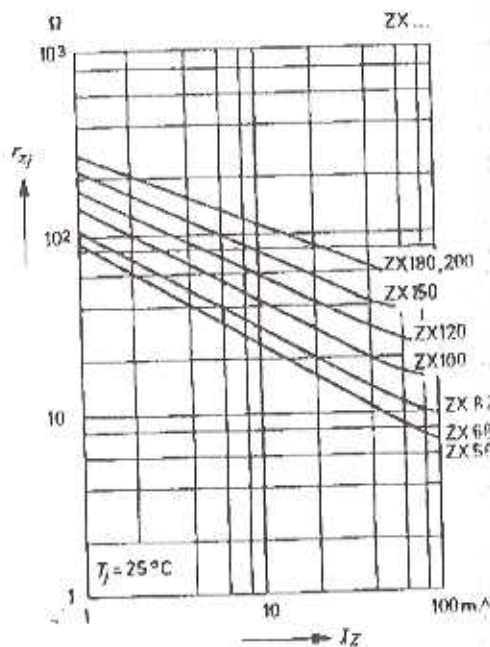
Dynamic resistance versus Zener current



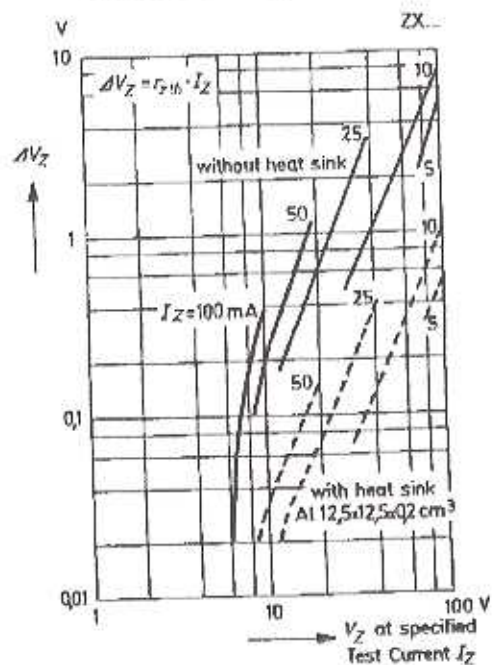
Thermal differential resistance versus Zener voltage



Dynamic resistance versus Zener current

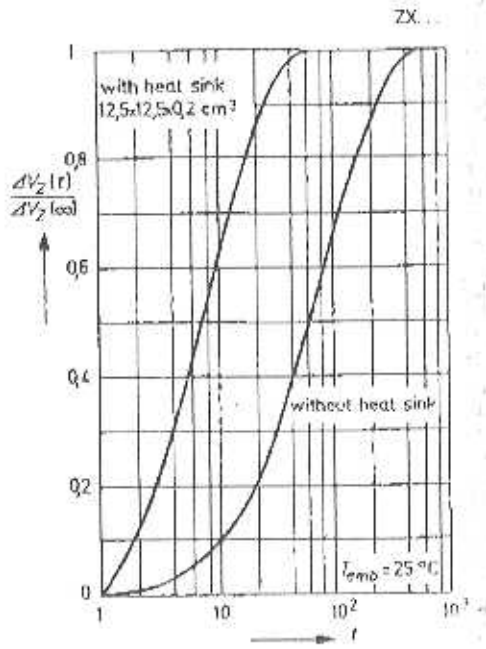


Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener Voltage

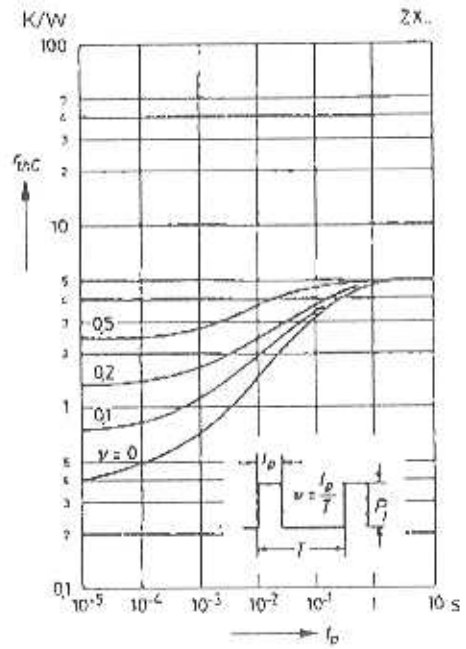


ZX3,9 . . . ZX200 (12.5 W)

Relative change of Zener voltage versus turn-on time

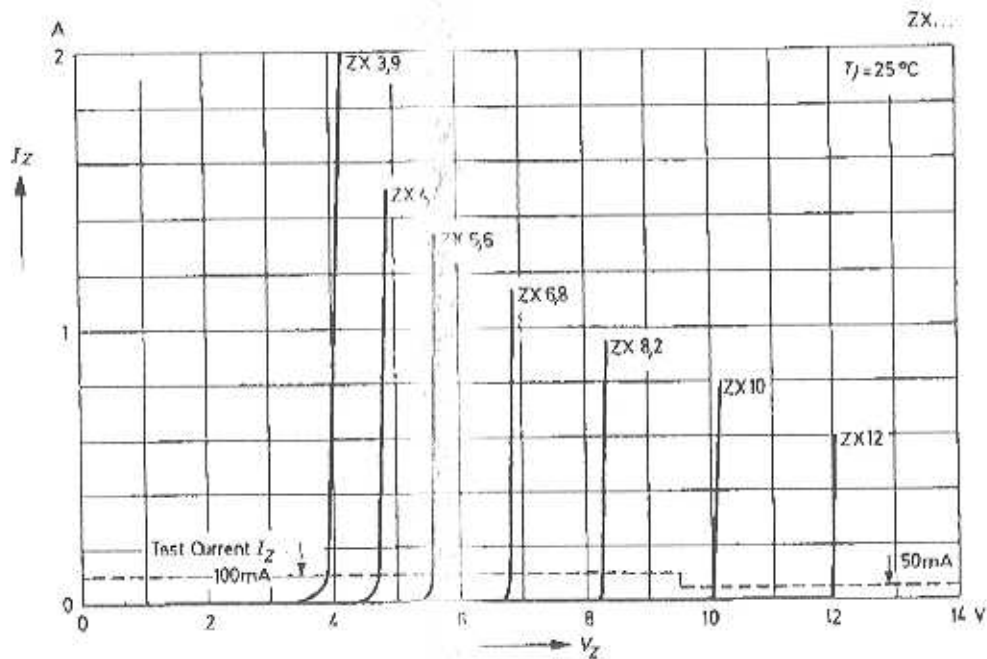


Pulse thermal resistance versus pulse duration



# ZX3,9 ... ZX200 (12.5 W)

Breakdown characteristics  
 $T_j = \text{constant (pulsed)}$



Breakdown characteristics  
 $T_j = \text{constant (pulsed)}$

