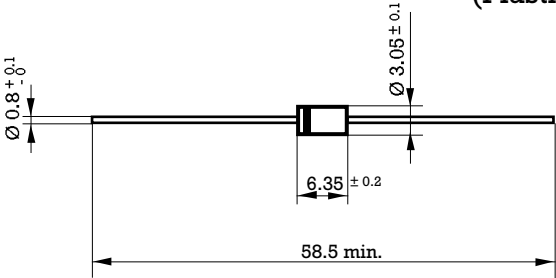


## 2 W Zener Diodes

<p>Dimensions in mm.</p> <p style="text-align: right;">DO-15 (Plastic)</p> 	<p>Voltage 1 to 200 V</p> <p>Power 2.0 W</p>
<p><b>Mounting instructions</b></p> <ol style="list-style-type: none"> <li>1. Min. distance from body to soldering point, 4 mm.</li> <li>2. Max. solder temperature, 350 °C.</li> <li>3. Max. soldering time, 3.5 sec.</li> <li>4. Do not bend lead at a point closer than 2 mm. to the body.</li> </ol>	<ul style="list-style-type: none"> <li>• Diffused junction</li> <li>• The plastic material carries U/L recognition 94 V-0</li> <li>• Terminals: Axial Leads</li> <li>• Polarity: Color band denotes cathode</li> </ul>

### Maximum Ratings, according to IEC publication No. 134

$P_{tot}$	Power dissipation at $T_{amb} = 25\text{ °C}$	2 W
$P_{ZSM}$	Non repetitive peak zener dissipation ( $t = 10\text{ ms}$ )	60 W
$T_j$	Operating temperature range	- 55 to + 150 °C
$T_{stg}$	Storage temperature range	- 55 to + 150 °C

### Electrical Characteristics at $T_{amb} = 25\text{ °C}$

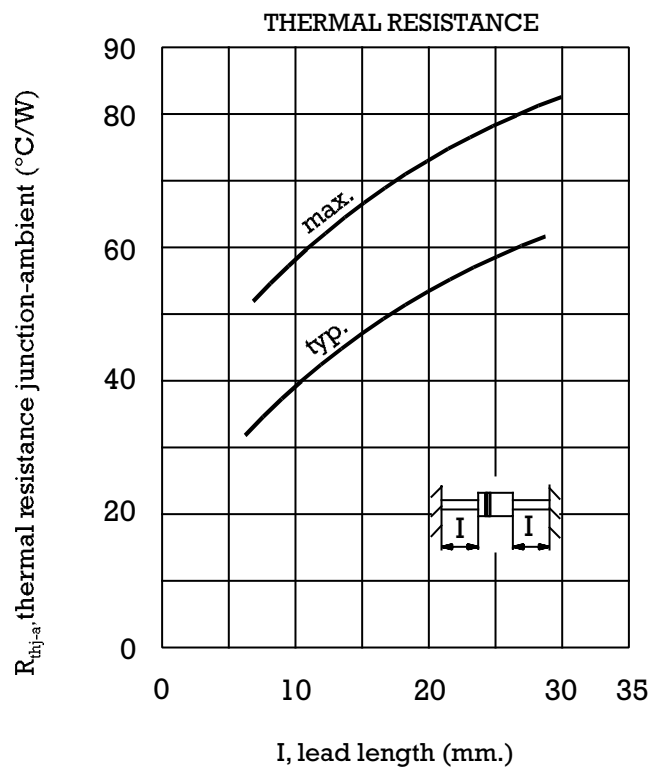
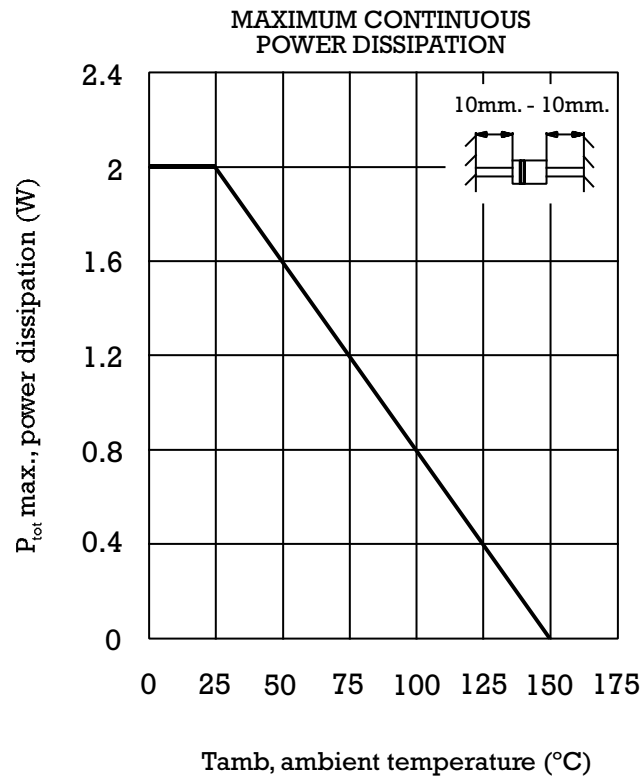
$V_F$	Max. forward voltage drop at $I_F = 1.0\text{ A}$	1.1 V
$R_{thj-a}$	Max. thermal resistance at: 10 mm. lead length	60 °C/W

Type	Zener <sup>(1)</sup> Voltage Range $V_Z$ at $I_{ZT}$	Maximum Zener Impedance $Z_{ZT}$ at $I_{ZT}$	Typical Temperature Coefficient at $I_{ZT}$	Test Current $I_{ZT}$	Min. Reverse Voltage at $I_R = 1 \mu A$ $V_R$	Max. Regulator Current at $45^\circ C$ $I_{ZM}$
	(V)	( )	(% / °C)	(mA)	(V)	(mA)
<b>ZY1</b> <sup>(2)</sup>	0.71 - 0.82	0.5	- 0.002	100	-	1000
<b>ZY10</b>	9.4 - 10.6	4	+ 0.070	50	5.0	145
<b>ZY11</b>	10.4 - 11.6	7	+ 0.075	50	5.0	135
<b>ZY12</b>	11.4 - 12.7	7	+ 0.075	50	7.0	120
<b>ZY13</b>	12.4 - 14.1	10	+ 0.075	50	7.0	110
<b>ZY15</b>	13.8 - 15.8	10	+ 0.075	50	10	98
<b>ZY16</b>	15.3 - 17.1	15	+ 0.085	25	10	90
<b>ZY18</b>	16.8 - 19.1	15	+ 0.085	25	10	80
<b>ZY20</b>	18.8 - 21.2	15	+ 0.085	25	10	72
<b>ZY22</b>	20.8 - 23.3	15	+ 0.085	25	12	66
<b>ZY24</b>	22.8 - 25.6	15	+ 0.085	25	12	60
<b>ZY27</b>	25.1 - 28.9	15	+ 0.085	25	14	53
<b>ZY30</b>	28 - 32	15	+ 0.085	25	14	48
<b>ZY33</b>	31 - 35	15	+ 0.085	25	17	44
<b>ZY36</b>	34 - 38	40	+ 0.085	10	17	40
<b>ZY39</b>	37 - 41	40	+ 0.085	10	20	37
<b>ZY43</b>	40 - 46	45	+ 0.095	10	20	33
<b>ZY47</b>	44 - 50	45	+ 0.095	10	24	30
<b>ZY51</b>	48 - 54	60	+ 0.095	10	24	27
<b>ZY56</b>	52 - 60	60	+ 0.095	10	28	25
<b>ZY62</b>	58 - 66	80	+ 0.105	10	28	21
<b>ZY68</b>	64 - 72	80	+ 0.105	10	34	20
<b>ZY75</b>	70 - 79	100	+ 0.105	10	34	18
<b>ZY82</b>	77 - 88	100	+ 0.105	10	41	16
<b>ZY91</b>	85 - 96	200	+ 0.11	5	41	15
<b>ZY100</b>	94 - 106	200	+ 0.11	5	50	13
<b>ZY110</b>	104 - 116	250	+ 0.11	5	50	12
<b>ZY120</b>	114 - 127	250	+ 0.11	5	60	11
<b>ZY130</b>	124 - 141	300	+ 0.11	5	60	10
<b>ZY150</b>	138 - 156	300	+ 0.11	5	75	9
<b>ZY160</b>	153 - 171	350	+ 0.11	5	75	8.5
<b>ZY180</b>	168 - 191	350	+ 0.11	5	90	8.0
<b>ZY200</b>	188 - 212	350	+ 0.11	5	90	7.5

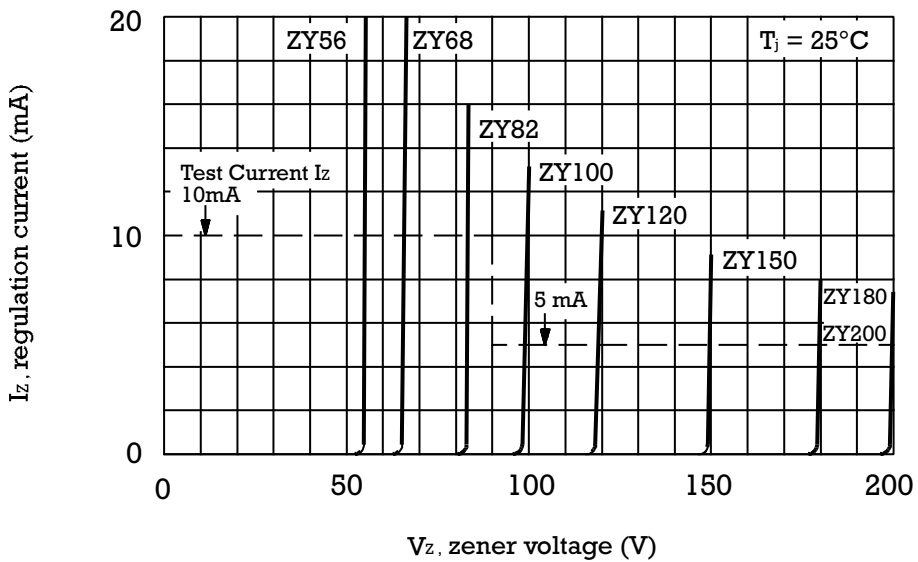
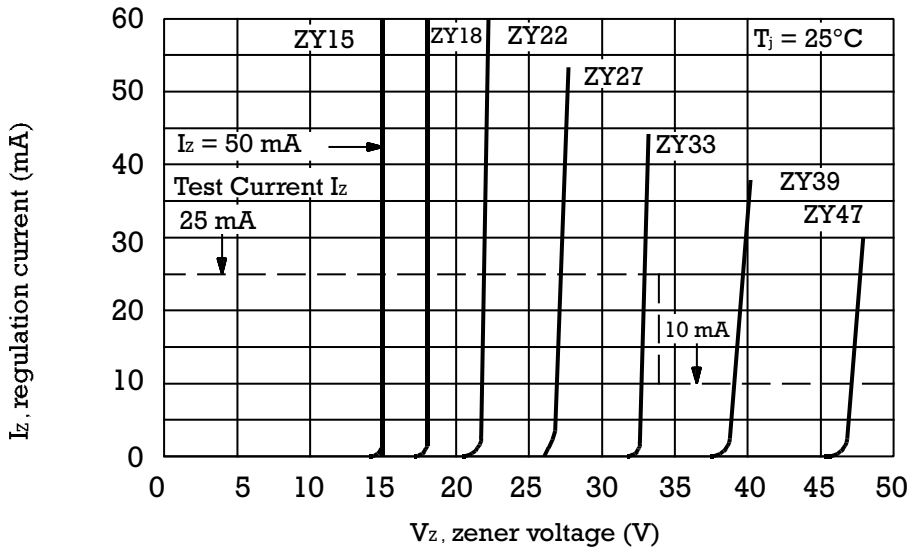
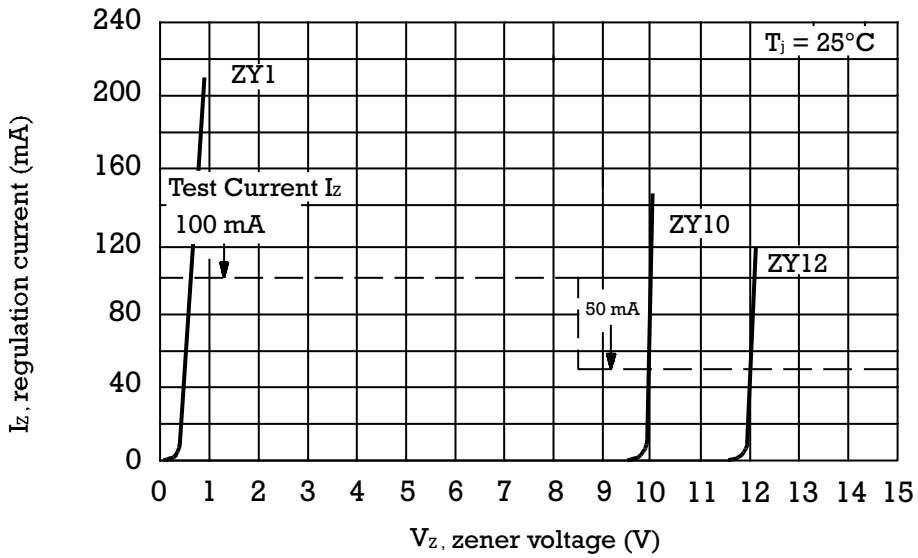
(1) Tested with pulses.  
Pulse test:  $t_p = 50 \text{ ms}$ ;  $\delta < 2\%$ .

(2) ZY1 is a diode operating in forward sense. Connect the cathode terminal to the negative pole.

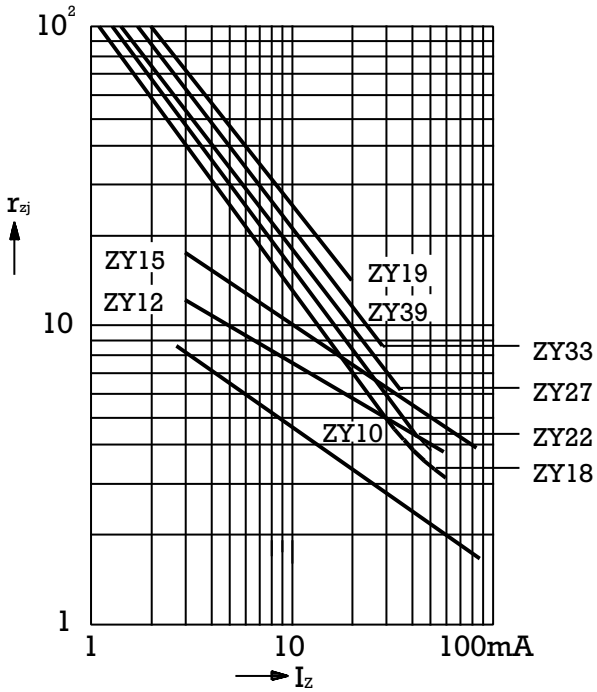
## Characteristic Curves



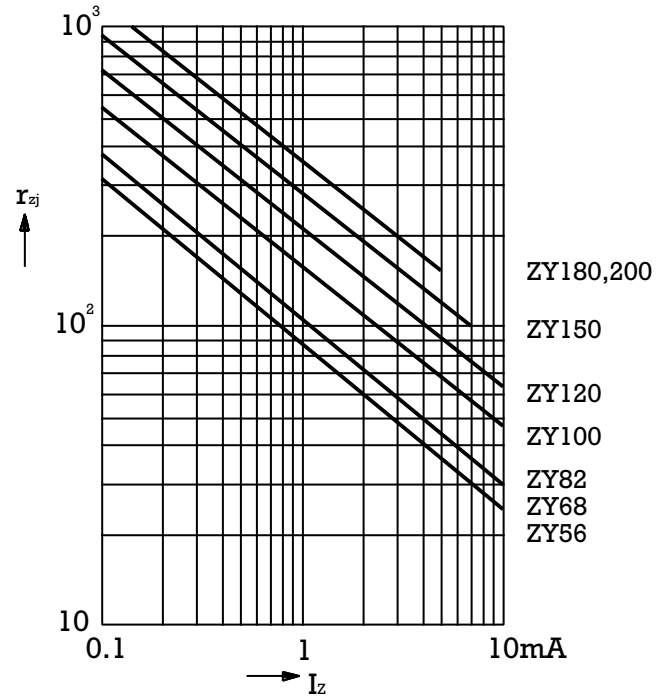
BREAKDOWN CHARACTERISTICS



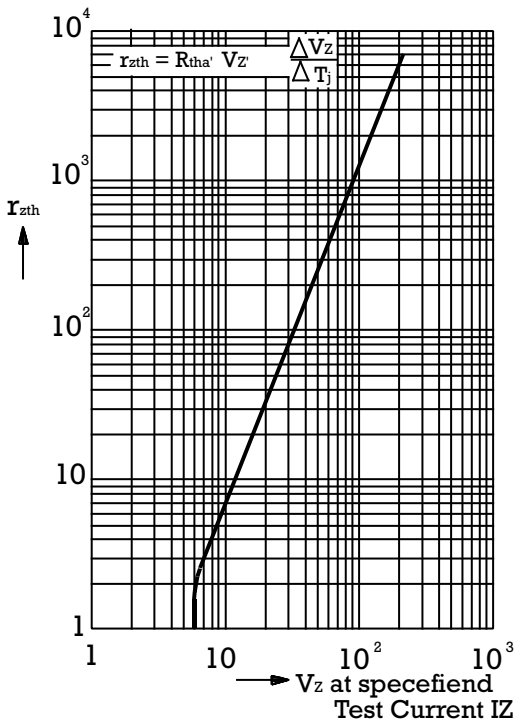
Dynamic resistance versus Zener current.



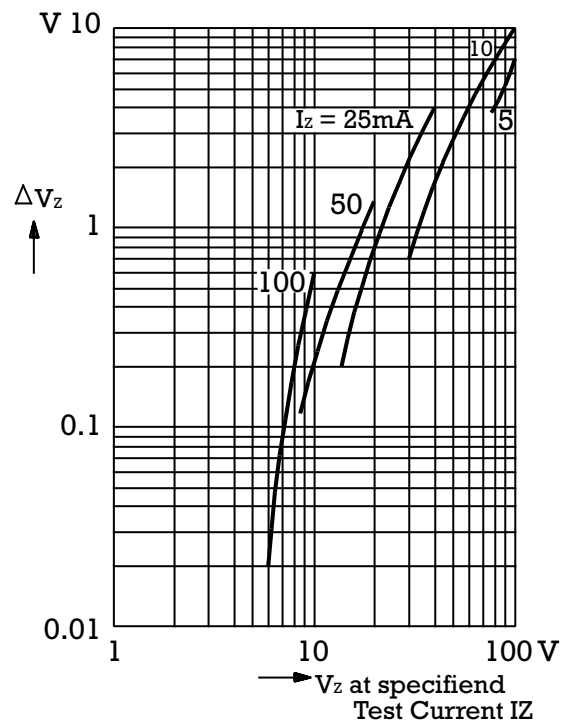
Dynamic resistance versus Zener current.



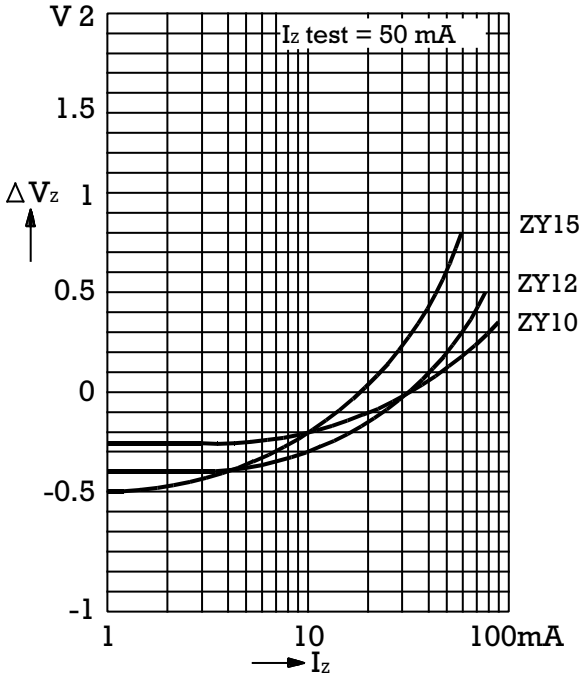
Thermal differential resistance versus Zener voltage. Valid provided that leads are kept at ambient temperature at a distance of 10 mm. from case.



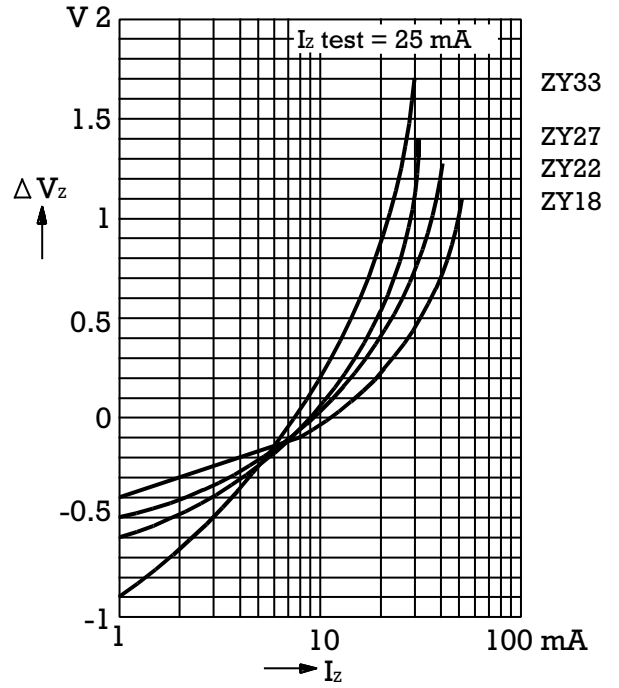
Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage.



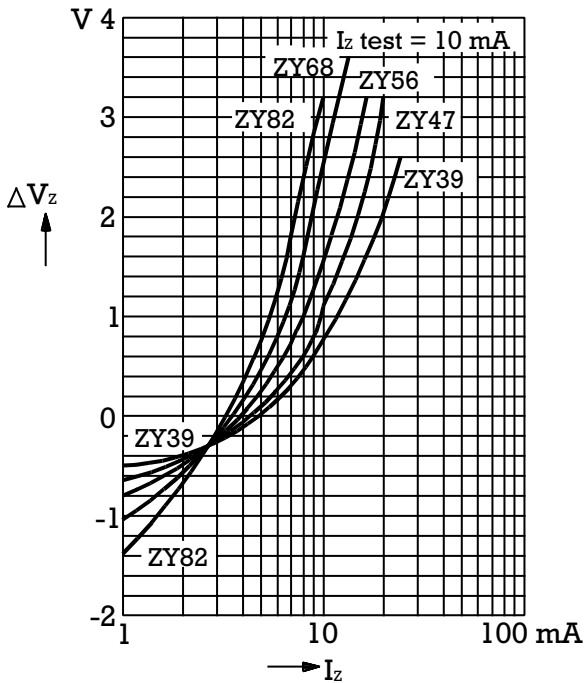
Difference between Zener voltage at test current pulses less than 1 S duration and Zener voltage at the point of thermal equilibrium versus Zener current.



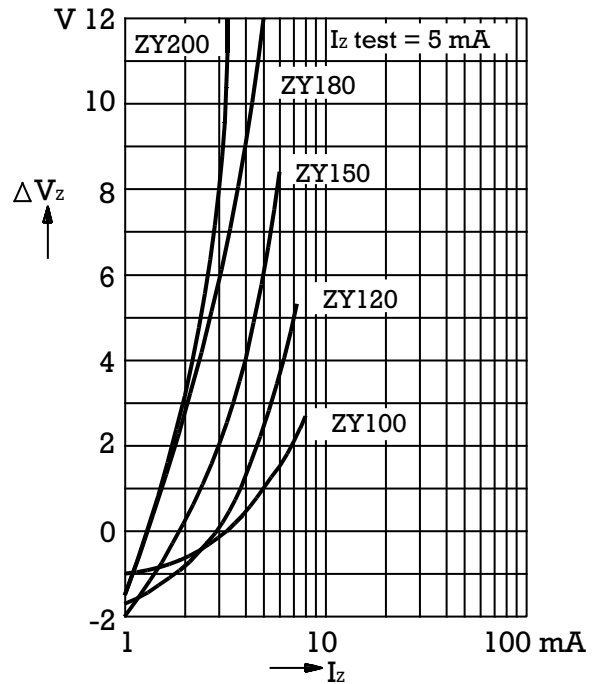
Difference between Zener voltage at test current pulses less than 1 S duration and Zener voltage at the point of thermal equilibrium versus Zener current.

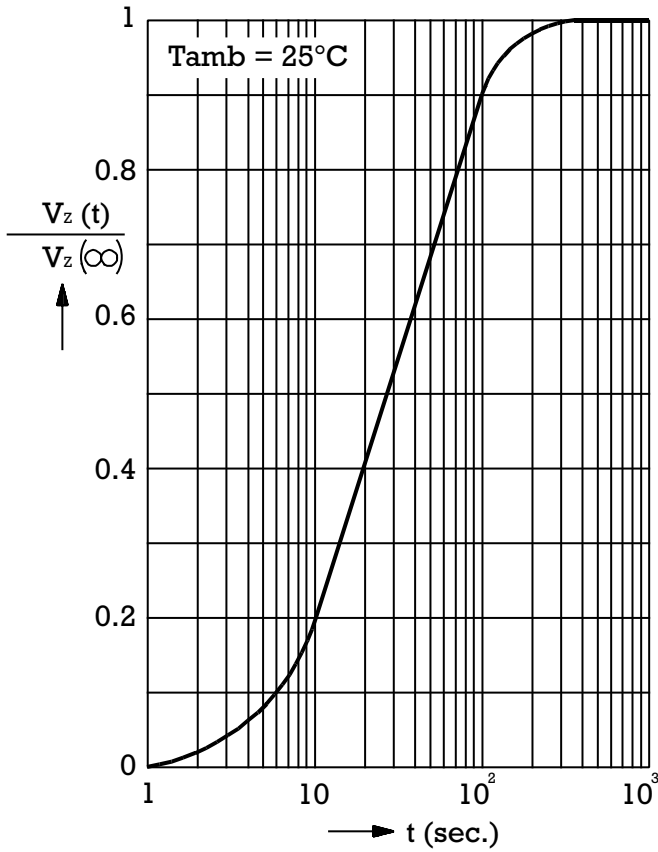


Difference between Zener voltage at test current pulses less than 1 S duration and Zener voltage at the point of thermal equilibrium versus Zener current.

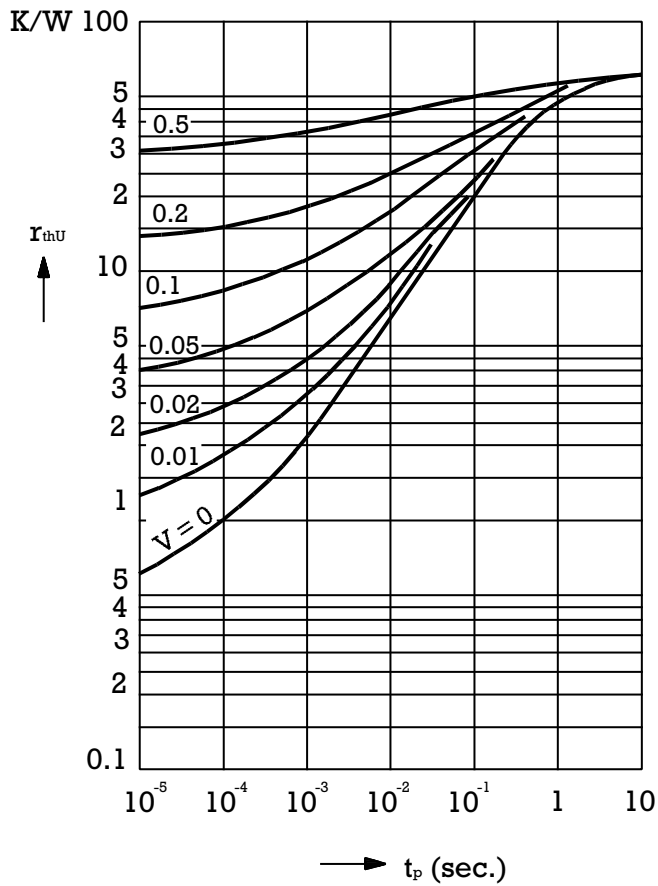


Difference between Zener voltage at test current pulses less than 1 S duration and Zener voltage at the point of thermal equilibrium versus Zener current.





Relative change of Zener voltage versus turn-on time.



Pulse thermal resistance versus pulse duration. Valid provided that leads are kept at ambient temperature at a distance of 10mm. from case.

