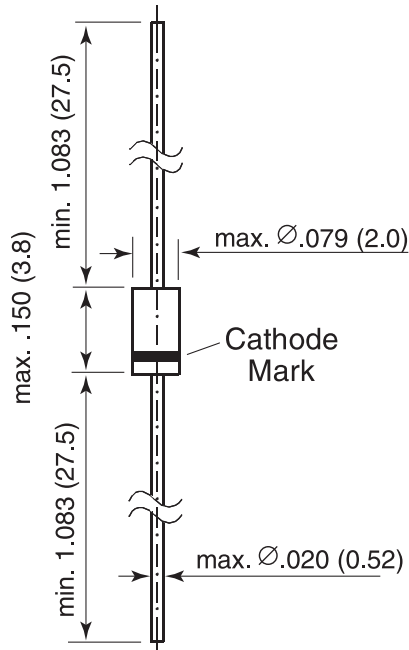


## Silicon Planar Zener Diodes

**V<sub>z</sub> Range** 2.4 to 75V  
**Power Dissipation** 500mW



**DO-204AH (DO-35 Glass)**



*Dimensions in inches and (millimeters)*

### Features

- The Zener voltages are graded according to the international E 24 standard. Higher Zener voltages available on request.
- Diodes available in these tolerance series:  
 $\pm 2\%$  BZX79-B,  $\pm 3\%$  BZX79-F,  $\pm 5\%$  BZX79-C.

### Mechanical Data

**Case:** DO-35 Glass Case

**Weight:** approx. 0.13g

**Packaging codes/options:**

D7/10K per 13" reel (52mm tape), 20K/box

D8/10K per Ammo Tape (52mm tape), 20K/box

### Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Zener Current see Table "Characteristics"			
Power Dissipation at T <sub>amb</sub> = 25°C	P <sub>tot</sub>	500 <sup>(1)</sup>	mW
Junction temperature	T <sub>j</sub>	-65 to +200	°C
Storage temperature range	T <sub>s</sub>	-65 to +200	°C
Continuous Forward Current	I <sub>F</sub>	250	mA
Thermal Resistance Junction to Ambient Air	R <sub>θJA</sub>	300 <sup>(1)</sup>	°C/W
Peak reverse power dissipation (non-repetitive) t <sub>p</sub> = 100μs square wave	P <sub>ZSM</sub>	40	W

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

## Electrical Characteristics (T<sub>A</sub> = 25°C unless otherwise noted) Maximum V<sub>F</sub> = 0.9V at I<sub>F</sub> = 10mA

Type  y=B for ±2% V <sub>Z</sub> y=F for ±3% V <sub>Z</sub> y=C for ±5% V <sub>Z</sub>	Dynamic Resistance		Temp. coefficient of Zener Voltage at I <sub>Z</sub> = 5 mA α <sub>mvz</sub> (% / °C)		Maximum Reverse leakage Current		Admissible Zener Current <sup>(2)</sup>  I <sub>Z</sub> (mA)	Maximum Capacitance V <sub>R</sub> = 0 f = 1 MHz  (pF)	Non-Repetitive Peak Reverse Current at t <sub>p</sub> = 100μs  I <sub>ZSM</sub> (A)
	at I <sub>Z</sub> = 5 mA f = 1 kHz r <sub>Zj</sub> (Ω) Max	at I <sub>Z</sub> = 1 mA f = 1 kHz r <sub>Zj</sub> (Ω) Max	Min	Max	I <sub>R</sub> (nA)	at V <sub>R</sub> (V)			
BZX79 – y2V4	100	< 600	- 0.08	- 0.06	50,000	1	167	450	6.0
BZX79 – y2V7	100	< 600	- 0.08	- 0.06	20,000	1	135	450	6.0
BZX79 – y3V0	95	< 600	- 0.08	- 0.06	10,000	1	125	450	6.0
BZX79 – y3V3	95	< 600	- 0.08	- 0.05	5,000	1	115	450	6.0
BZX79 – y3V6	90	< 600	- 0.08	- 0.04	5,000	1	105	450	6.0
BZX79 – y3V9	90	< 600	- 0.07	- 0.03	3,000	1	95	450	6.0
BZX79 – y4V3	90	< 600	- 0.04	- 0.01	3,000	1	90	450	6.0
BZX79 – y4V7	80	500	- 0.03	+0.01	3,000	1	85	300	6.0
BZX79 – y5V1	60	480	- 0.02	+0.05	2,000	1	80	300	6.0
BZX79 – y5V6	40	400	- 0.01	+0.06	1,000	1	70	300	6.0
BZX79 – y6V2	10	150	0	+0.07	3,000	2	64	200	6.0
BZX79 – y6V8	15	80	+0.01	+0.08	2,000	3	58	200	6.0
BZX79 – y7V5	15	80	+0.01	+0.09	1,000	5	53	150	4.0
BZX79 – y8V2	15	80	+0.01	+0.09	700	6	47	150	4.0
BZX79 – y9V1	15	100	+0.02	+0.10	500	7	43	150	3.0
BZX79 – y10	20	150	+0.03	+0.11	200	7.5	40	90	3.0
BZX79 – y11	20	150	+0.03	+0.11	100	8.5	36	85	2.5
BZX79 – y12	25	150	+0.03	+0.11	100	9	32	85	2.5
BZX79 – y13	30	170	+0.03	+0.11	100	10	29	80	2.5
BZX79 – y15	30	200	+0.03	+0.11	50	11	27	75	2.0
BZX79 – y16	40	200	+0.03	+0.11	50	12	24	75	1.5
BZX79 – y18	45	225	+0.03	+0.11	50	14	21	70	1.5
BZX79 – y20	55	225	+0.03	+0.11	50	15	20	60	1.5
BZX79 – y22	55	250	+0.03	+0.11	50	17	18	60	1.3
BZX79 – y24	70	250	+0.04	+0.12	50	18	16	55	1.3
BZX79 – y27	80 <sup>(3)</sup>	300 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12	50	20	14	50	1.0
BZX79 – y30	80 <sup>(3)</sup>	300 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12	50	22	13	50	1.0
BZX79 – y33	80 <sup>(3)</sup>	325 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12	50	24	12	45	0.9
BZX79 – y36	90 <sup>(3)</sup>	350 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12	50	27	11	45	0.8
BZX79 – y39	130 <sup>(3)</sup>	350 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12	50	28	10	45	0.7
BZX79 – y43	150 <sup>(3)</sup>	375 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12	50	32	9.2	40	0.6
BZX79 – y47	170 <sup>(3)</sup>	375 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12	50	35	8.5	40	0.5
BZX79 – y51	180 <sup>(3)</sup>	400 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12	50	38	7.8	40	0.4
BZX79 – y56	200 <sup>(3)</sup>	425 <sup>(4)</sup>	typ. +0.1 <sup>(3)</sup>		50	39	7.1	40	0.3
BZX79 – y62	215 <sup>(3)</sup>	450 <sup>(4)</sup>	typ. +0.1 <sup>(3)</sup>		50	43	6.4	35	0.3
BZX79 – y68	240 <sup>(3)</sup>	475 <sup>(4)</sup>	typ. +0.1 <sup>(3)</sup>		50	48	5.8	35	0.3
BZX79 – y75	255 <sup>(3)</sup>	500 <sup>(4)</sup>	typ. +0.1 <sup>(3)</sup>		50	53	5.3	35	0.2

- Notes: (1) Tested with pulses t<sub>p</sub> = 5 ms.  
(2) Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.  
(3) at I<sub>Z</sub> = 2.0 mA  
(4) at I<sub>Z</sub> = 0.5 mA  
Y = Zener voltage tolerance designator



**Electrical Characteristics** (T<sub>A</sub> = 25°C unless otherwise noted) **Maximum V<sub>F</sub> = 0.9V at I<sub>F</sub> = 10mA**

Type ±5% Tol.	Zener Voltage Range <sup>(1)</sup> at I <sub>Z</sub> = 5mA	
	V <sub>Z</sub> (V)	
	Min	Max
BZX79 - C2V4	2.20	2.60
BZX79 - C2V7	2.50	2.90
BZX79 - C3V0	2.80	3.20
BZX79 - C3V3	3.10	3.50
BZX79 - C3V6	3.40	3.80
BZX79 - C3V9	3.70	4.10
BZX79 - C4V3	4.00	4.60
BZX79 - C4V7	4.40	5.00
BZX79 - C5V1	4.80	5.40
BZX79 - C5V6	5.20	6.00
BZX79 - C6V2	5.80	6.60
BZX79 - C6V8	6.40	7.20
BZX79 - C7V5	7.00	7.90
BZX79 - C8V2	7.70	8.70
BZX79 - C9V1	8.50	9.60
BZX79 - C10	9.40	10.60
BZX79 - C11	10.40	11.60
BZX79 - C12	11.40	12.70
BZX79 - C13	12.40	14.10
BZX79 - C15	13.80	15.60
BZX79 - C16	15.30	17.10
BZX79 - C18	16.80	19.10
BZX79 - C20	18.80	21.20
BZX79 - C22	20.80	23.30
BZX79 - C24	22.80	25.60
BZX79 - C27	25.10	28.90 <sup>(3)</sup>
BZX79 - C30	28.00	32.00 <sup>(3)</sup>
BZX79 - C33	31.00	35.00 <sup>(3)</sup>
BZX79 - C36	34.00	38.00 <sup>(3)</sup>
BZX79 - C39	37.00	41.00 <sup>(3)</sup>
BZX79 - C43	40.00	46.00 <sup>(3)</sup>
BZX79 - C47	44.00	50.00 <sup>(3)</sup>
BZX79 - C51	48.00	54.00 <sup>(3)</sup>
BZX79 - C56	52.00	60.00 <sup>(3)</sup>
BZX79 - C62	58.00	66.00 <sup>(3)</sup>
BZX79 - C68	64.00	72.00 <sup>(3)</sup>
BZX79 - C75	70.00	79.00 <sup>(3)</sup>

Type ±3% Tol.	Zener Voltage Range <sup>(1)</sup> at I <sub>Z</sub> = 5mA	
	V <sub>Z</sub> (V)	
	Min	Max
BZX79 - F2V4	2.33	2.47
BZX79 - F2V7	2.62	2.78
BZX79 - F3V0	2.91	3.09
BZX79 - F3V3	3.20	3.40
BZX79 - F3V6	3.49	3.71
BZX79 - F4V3	4.17	4.43
BZX79 - F4V3	4.17	4.43
BZX79 - F4V7	4.56	4.84
BZX79 - F5V1	4.95	5.25
BZX79 - F5V6	5.43	5.77
BZX79 - F6V2	6.01	6.39
BZX79 - F6V8	6.60	7.00
BZX79 - F7V5	7.28	7.72
BZX79 - F8V2	7.95	8.45
BZX79 - F9V1	8.83	9.37
BZX79 - F10	9.70	10.30
BZX79 - F11	10.67	11.33
BZX79 - F12	11.64	12.36
BZX79 - F13	12.61	13.39
BZX79 - F15	14.55	15.45
BZX79 - F16	15.50	16.50
BZX79 - F18	17.50	18.50
BZX79 - F20	19.40	20.60
BZX79 - F22	21.30	22.70
BZX79 - F24	23.30	24.70
BZX79 - F27	26.20	27.80 <sup>(3)</sup>
BZX79 - F30	29.10	30.90 <sup>(3)</sup>
BZX79 - F33	32.00	34.00 <sup>(3)</sup>
BZX79 - F36	34.90	37.10 <sup>(3)</sup>
BZX79 - F39	37.80	40.20 <sup>(3)</sup>
BZX79 - F43	41.70	44.30 <sup>(3)</sup>
BZX79 - F47	45.60	48.40 <sup>(3)</sup>
BZX79 - F51	49.50	52.50 <sup>(3)</sup>
BZX79 - F56	54.30	57.70 <sup>(3)</sup>
BZX79 - F62	60.10	63.90 <sup>(3)</sup>
BZX79 - F68	66.00	70.00 <sup>(3)</sup>
BZX79 - F75	72.80	77.20 <sup>(3)</sup>

Type ±2% Tol.	Zener Voltage Range <sup>(1)</sup> at I <sub>Z</sub> = 5mA	
	V <sub>Z</sub> (V)	
	Min	Max
BZX79 - B2V4	2.35	2.45
BZX79 - B2V7	2.65	2.75
BZX79 - B3V0	2.94	3.06
BZX79 - B3V3	3.23	3.37
BZX79 - B3V6	3.53	3.67
BZX79 - B3V9	3.82	3.98
BZX79 - B4V3	4.21	4.39
BZX79 - B4V7	4.61	4.79
BZX79 - B5V1	5.00	5.20
BZX79 - B5V6	5.49	5.71
BZX79 - B6V2	6.08	6.32
BZX79 - B6V8	6.66	6.94
BZX79 - B7V5	7.35	7.65
BZX79 - B8V2	8.04	8.36
BZX79 - B9V1	8.92	9.28
BZX79 - B10	9.80	10.20
BZX79 - B11	10.80	11.20
BZX79 - B12	11.80	12.20
BZX79 - B13	12.70	13.30
BZX79 - B15	14.70	15.30
BZX79 - B16	15.70	16.30
BZX79 - B18	17.60	18.40
BZX79 - B20	19.60	20.40
BZX79 - B22	21.60	22.40
BZX79 - B24	23.50	24.50
BZX79 - B27	26.50	27.50 <sup>(3)</sup>
BZX79 - B30	29.40	30.60 <sup>(3)</sup>
BZX79 - B33	32.30	33.70 <sup>(3)</sup>
BZX79 - B36	35.30	36.60 <sup>(3)</sup>
BZX79 - B39	38.20	39.80 <sup>(3)</sup>
BZX79 - B43	42.10	43.90 <sup>(3)</sup>
BZX79 - B47	46.10	47.90 <sup>(3)</sup>
BZX79 - B51	50.00	52.00 <sup>(3)</sup>
BZX79 - B56	54.90	57.10 <sup>(3)</sup>
BZX79 - B62	60.80	63.20 <sup>(3)</sup>
BZX79 - B68	66.60	69.40 <sup>(3)</sup>
BZX79 - B75	73.50	76.50 <sup>(3)</sup>

**Notes:** (1) Tested with pulses t<sub>p</sub> = 5 ms  
(2) Valid provided that electrodes are kept at ambient temperature

(3) at I<sub>Z</sub> = 2.0 mA  
See BZV55-y table for all characteristics other than zener voltage range.

# BZX79 Series

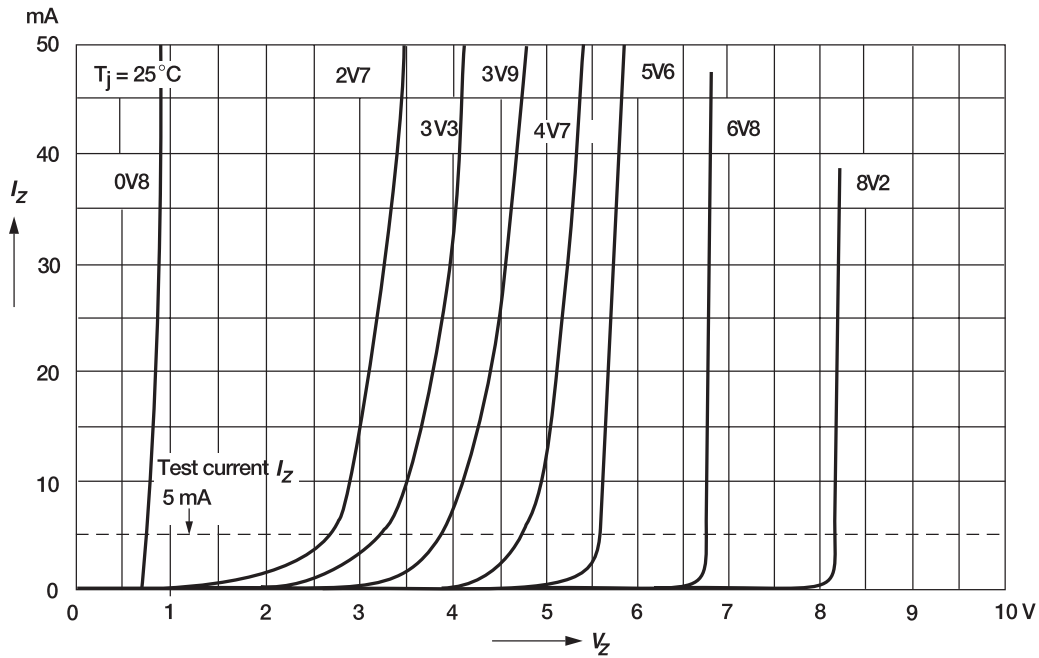
Vishay Semiconductors  
formerly General Semiconductor



## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

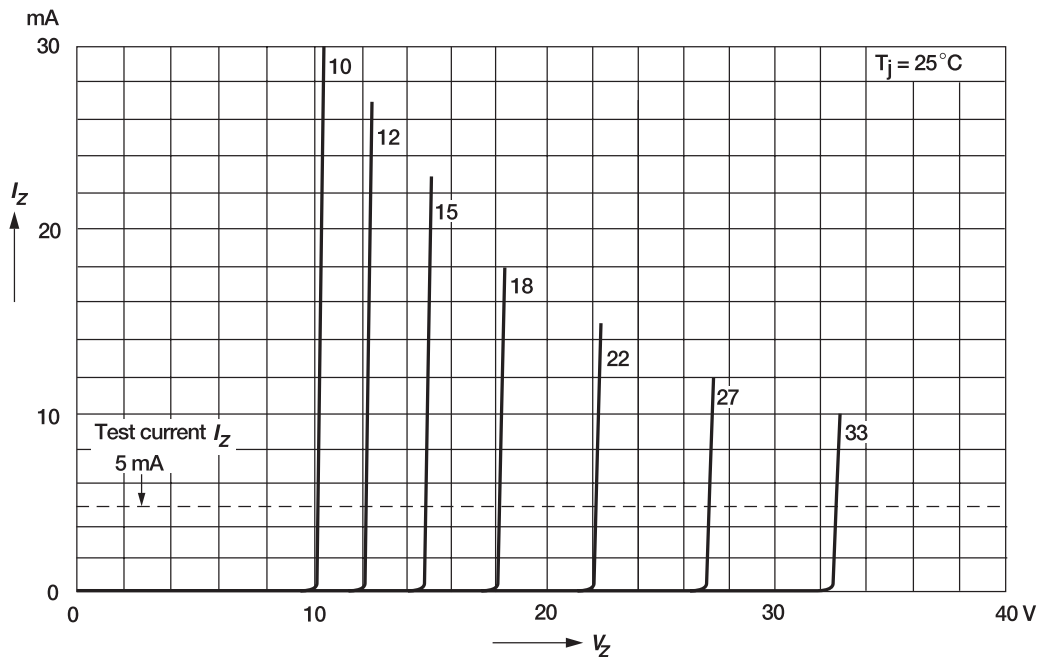
### Breakdown characteristics

at  $T_j = \text{constant}$  (pulsed)



### Breakdown characteristics

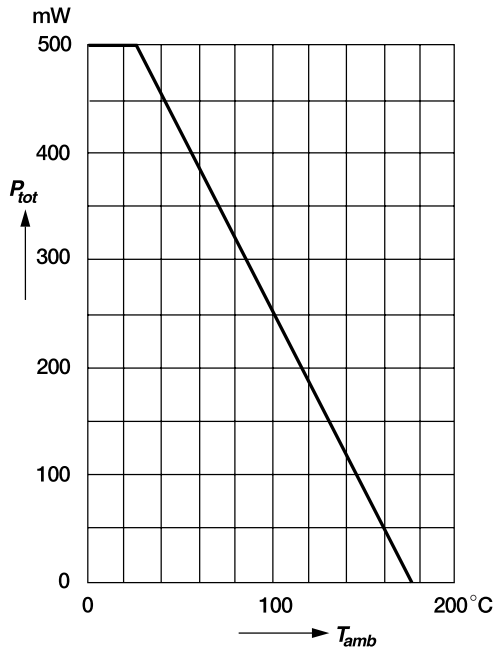
at  $T_j = \text{constant}$  (pulsed)



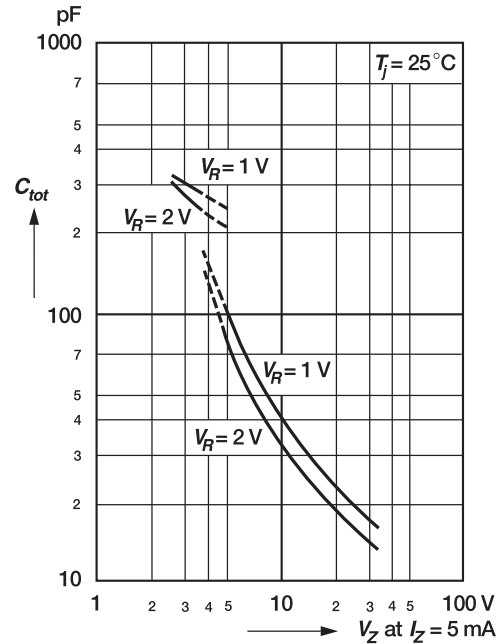
## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

### Admissible power dissipation versus ambient temperature

Valid provided that leads are kept ambient temperature at a distance of 8 mm from case.

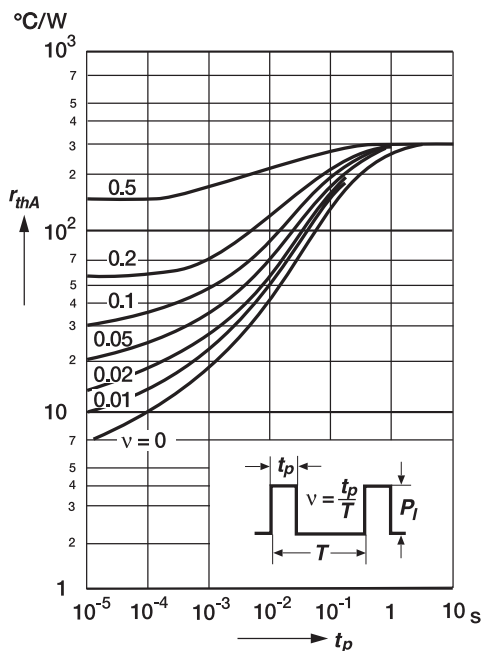


### Capacitance versus Zener voltage

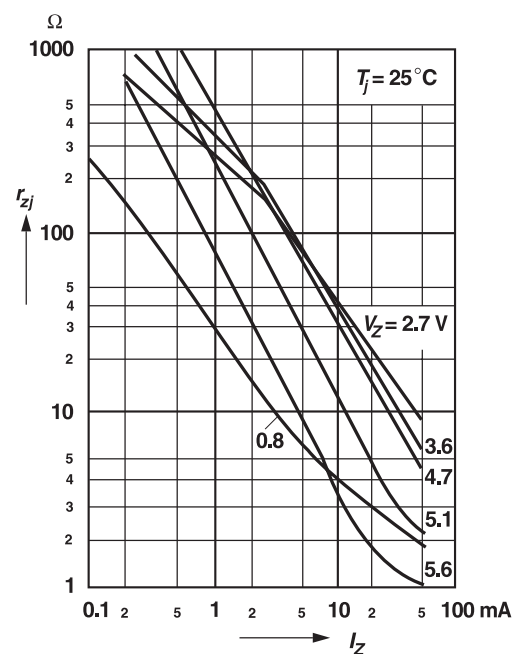


### Pulse thermal resistance versus pulse duration

Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.

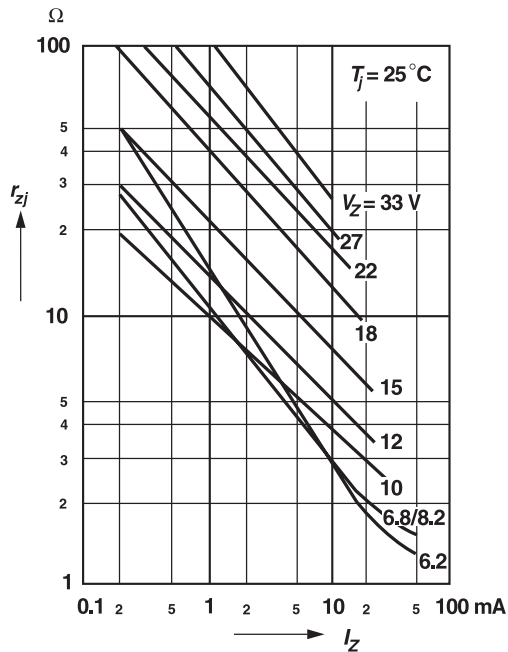


### Dynamic resistance versus Zener current



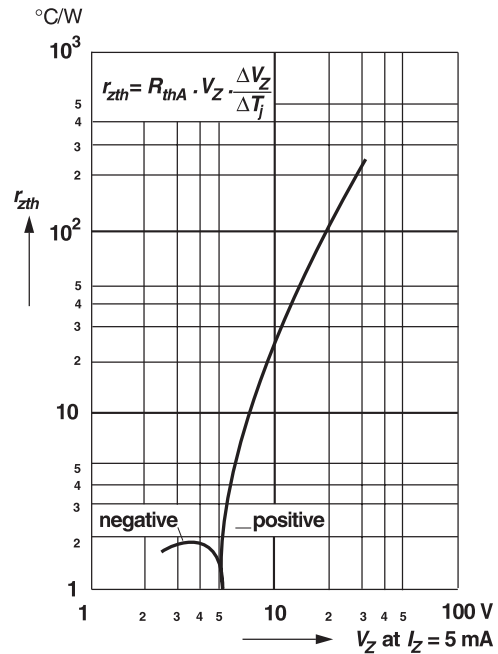
## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

**Dynamic resistance versus Zener current**

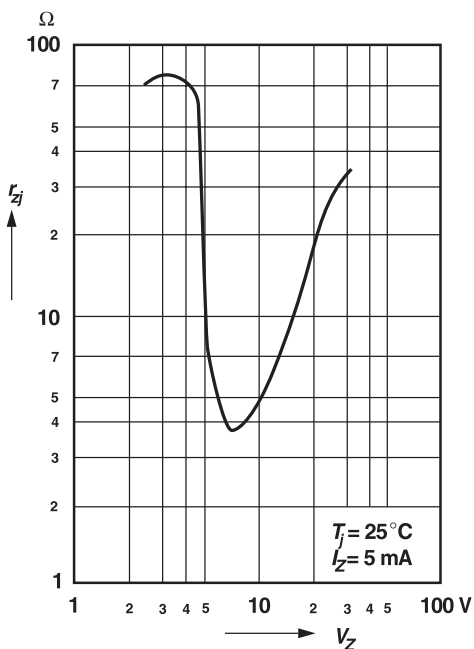


**Thermal differential resistance versus Zener voltage**

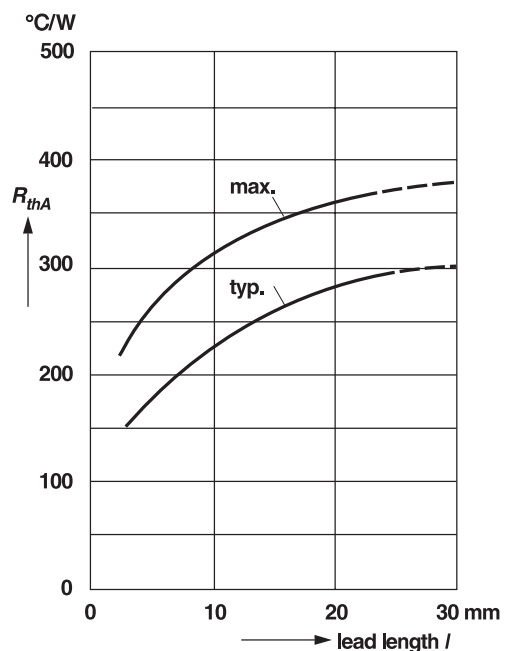
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



**Dynamic resistance versus Zener voltage**

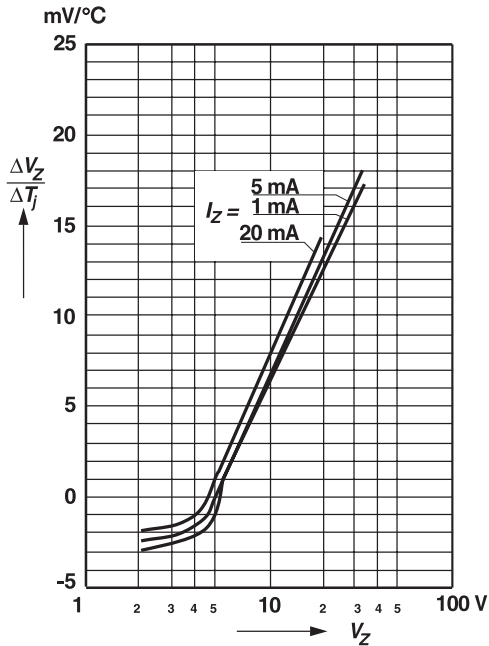


**Thermal resistance versus lead length**

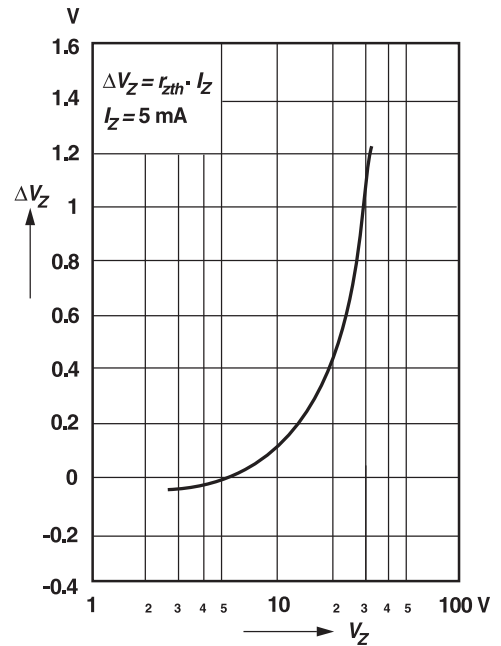


## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Temperature dependence of Zener voltage versus Zener voltage



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



Change of Zener voltage versus junction temperature

