



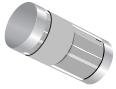
New Product

BZV55 Series

Vishay Semiconductors  
formerly General Semiconductor

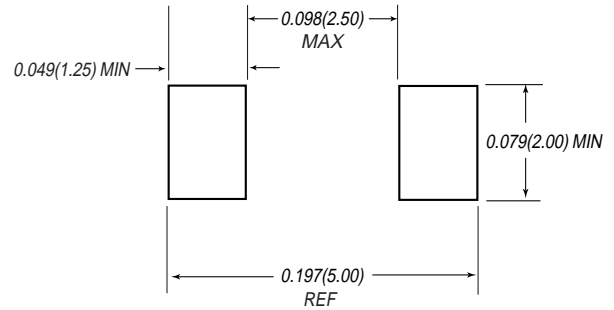
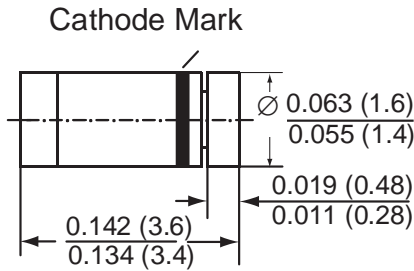
## Zener Diodes

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



### MiniMELF (SOD-80C)

### Mounting Pad Layout



Dimensions in inches and (millimeters)

## Mechanical Data

**Case:** MiniMELF Glass Case (SOD-80C)

**Weight:** approx. 0.05g

**Cathode band color:** Blue

**Packaging codes/options:**

D1/10K per 13" reel (8mm tape), 20K/box

D2/2.5K per 7" reel (8mm tape), 20K/box

## Features

- Silicon Planar Power Zener Diodes
- For use as low voltage stabilizer or voltage reference.
- The Zener voltages are graded according to the international E 24 standard. Higher Zener voltages and 1% tolerance available on request.
- Diodes available in these tolerance series:  
±2% BZV55-B, ±3% BZV55-F, ±5% BZV55-C.

## 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>flange</sub> = 50°C	P <sub>tot</sub>	500	mW
Power Dissipation at T <sub>A</sub> = 50°C	P <sub>tot</sub>	400 <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>	0.38 <sup>(1)</sup>	°C/mW
Thermal Resistance Junction to Lead	R <sub>θJL</sub>	0.30	°C/mW
Peak reverse power dissipation (non-repetitive) t <sub>p</sub> = 100μs	P <sub>ZSM</sub>	30 <sup>(2)</sup>	W

**Notes:** (1) Mounted on ceramic substrate 10mm x 10mm x 0.6mm

(2) T<sub>J</sub> = 150°C

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## 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		Temperature coefficient of Zener Voltage at I <sub>Z</sub> = 5mA α <sub>VZ</sub> (% / °C)		Reverse leakage current at T <sub>amb</sub> = 25°C I <sub>R</sub> (μA) at V <sub>R</sub> (V)	
	at I <sub>Z</sub> = 5mA f = 1kHz r <sub>Zj</sub> (Ω) max	at I <sub>Z</sub> = 1mA f = 1kHz r <sub>Zj</sub> (Ω) max	Min	Max		
BZV55-y2V4	100	600	-0.08	-0.06	50	1
BZV55-y2V7	100	600	-0.08	-0.06	20	1
BZV55-y3V0	95	600	-0.08	-0.06	10	1
BZV55-y3V3	95	600	-0.08	-0.05	5	1
BZV55-y3V6	90	600	-0.08	-0.04	5	1
BZV55-y3V9	90	600	-0.07	-0.03	3	1
BZV55-y4V3	90	600	-0.04	-0.01	3	1
BZV55-y4V7	80	500	-0.03	+0.01	3	2
BZV55-y5V1	60	480	-0.02	+0.05	2	2
BZV55-y5V6	40	400	-0.01	+0.06	1	2
BZV55-y6V2	10	150	0	+0.07	3	4
BZV55-y6V8	15	80	+0.01	+0.08	2	4
BZV55-y7V5	15	80	+0.01	+0.09	1	5
BZV55-y8V2	15	80	+0.01	+0.09	0.7	5
BZV55-y9V1	15	100	+0.02	+0.10	0.5	6
BZV55-y10	20	150	+0.03	+0.11	0.2	7
BZV55-y11	20	150	+0.03	+0.11	0.1	8
BZV55-y12	25	150	+0.03	+0.11	0.1	8
BZV55-y13	30	170	+0.03	+0.11	0.1	8
BZV55-y15	30	200	+0.03	+0.11	0.05	10
BZV55-y16	40	200	+0.03	+0.11	0.05	11
BZV55-y18	45	225	+0.03	+0.11	0.05	13
BZV55-y20	55	225	+0.03	+0.11	0.05	14
BZV55-y22	55	250	+0.03	+0.11	0.05	15
BZV55-y24	70	250	+0.04	+0.12	0.05	17
BZV55-y27	80 <sup>(3)</sup>	300 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12 <sup>(3)</sup>	0.05	19
BZV55-y30	80 <sup>(3)</sup>	300 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12 <sup>(3)</sup>	0.05	21
BZV55-y33	80 <sup>(3)</sup>	325 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12 <sup>(3)</sup>	0.05	23
BZV55-y36	90 <sup>(3)</sup>	350 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12 <sup>(3)</sup>	0.05	25
BZV55-y39	130 <sup>(3)</sup>	350 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12 <sup>(3)</sup>	0.05	27
BZV55-y43	150 <sup>(3)</sup>	375 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12 <sup>(3)</sup>	0.05	30
BZV55-y47	170 <sup>(3)</sup>	375 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12 <sup>(3)</sup>	0.05	33
BZV55-y51	180 <sup>(3)</sup>	400 <sup>(4)</sup>	+0.04 <sup>(3)</sup>	+0.12 <sup>(3)</sup>	0.05	36
BZV55-y56	200 <sup>(3)</sup>	425 <sup>(4)</sup>	typ. +0.1 <sup>(3)</sup>		0.05	39
BZV55-y62	215 <sup>(3)</sup>	450 <sup>(4)</sup>	typ. +0.1 <sup>(3)</sup>		0.05	43
BZV55-y68	240 <sup>(3)</sup>	475 <sup>(4)</sup>	typ. +0.1 <sup>(3)</sup>		0.05	48
BZV55-y75	255 <sup>(3)</sup>	500 <sup>(4)</sup>	typ. +0.1 <sup>(3)</sup>		0.05	53

**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
  - (4) at I<sub>Z</sub> = 0.5 mA
- y = Zener voltage tolerance designator (see next page for V<sub>Z</sub> specifications)



## 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.
BZV55-C2V4	2.20	2.60
BZV55-C2V7	2.50	2.90
BZV55-C3V0	2.80	3.20
BZV55-C3V3	3.10	3.50
BZV55-C3V6	3.40	3.80
BZV55-C3V9	3.70	4.10
BZV55-C4V3	4.00	4.60
BZV55-C4V7	4.40	5.00
BZV55-C5V1	4.80	5.40
BZV55-C5V6	5.20	6.00
BZV55-C6V2	5.80	6.60
BZV55-C6V8	6.40	7.20
BZV55-C7V5	7.00	7.90
BZV55-C8V2	7.70	8.70
BZV55-C9V1	8.50	9.60
BZV55-C10	9.40	10.60
BZV55-C11	10.40	11.60
BZV55-C12	11.40	12.70
BZV55-C13	12.40	14.10
BZV55-C15	13.80	15.60
BZV55-C16	15.30	17.10
BZV55-C18	16.80	19.10
BZV55-C20	18.80	21.20
BZV55-C22	20.80	23.30
BZV55-C24	22.80	25.60
BZV55-C27	25.10	28.90 <sup>(3)</sup>
BZV55-C30	28.00	32.00 <sup>(3)</sup>
BZV55-C33	31.00	35.00 <sup>(3)</sup>
BZV55-C36	34.00	38.00 <sup>(3)</sup>
BZV55-C39	37.00	41.00 <sup>(3)</sup>
BZV55-C43	40.00	46.00 <sup>(3)</sup>
BZV55-C47	44.00	50.00 <sup>(3)</sup>
BZV55-C51	48.00	54.00 <sup>(3)</sup>
BZV55-C56	52.00	60.00 <sup>(3)</sup>
BZV55-C62	58.00	66.00 <sup>(3)</sup>
BZV55-C68	64.00	72.00 <sup>(3)</sup>
BZV55-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.
BZV55-F2V4	2.33	2.47
BZV55-F2V7	2.62	2.78
BZV55-F3V0	2.91	3.09
BZV55-F3V3	3.20	3.40
BZV55-F3V6	3.49	3.71
BZV55-F3V9	3.78	4.02
BZV55-F4V3	4.17	4.43
BZV55-F4V7	4.56	4.84
BZV55-F5V1	4.95	5.25
BZV55-F5V6	5.43	5.77
BZV55-F6V2	6.01	6.39
BZV55-F6V8	6.60	7.00
BZV55-F7V5	7.28	7.72
BZV55-F8V2	7.95	8.45
BZV55-F9V1	8.83	9.37
BZV55-F10	9.70	10.30
BZV55-F11	10.67	11.33
BZV55-F12	11.64	12.36
BZV55-F13	12.61	13.39
BZV55-F15	14.55	15.45
BZV55-F16	15.50	16.50
BZV55-F18	17.50	18.50
BZV55-F20	19.40	20.60
BZV55-F22	21.30	22.70
BZV55-F24	23.30	24.70
BZV55-F27	26.20	27.80 <sup>(3)</sup>
BZV55-F30	29.10	30.90 <sup>(3)</sup>
BZV55-F33	32.00	34.00 <sup>(3)</sup>
BZV55-F36	34.90	37.10 <sup>(3)</sup>
BZV55-F39	37.80	40.20 <sup>(3)</sup>
BZV55-F43	41.70	44.30 <sup>(3)</sup>
BZV55-F47	45.60	48.40 <sup>(3)</sup>
BZV55-F51	49.50	52.50 <sup>(3)</sup>
BZV55-F56	54.30	57.70 <sup>(3)</sup>
BZV55-F62	60.10	63.90 <sup>(3)</sup>
BZV55-F68	66.00	70.00 <sup>(3)</sup>
BZV55-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.
BZV55-B2V4	2.35	2.45
BZV55-B2V7	2.65	2.75
BZV55-B3V0	2.94	3.06
BZV55-B3V3	3.23	3.37
BZV55-B3V6	3.53	3.67
BZV55-B3V9	3.82	3.98
BZV55-B4V3	4.21	4.39
BZV55-B4V7	4.61	4.79
BZV55-B5V1	5.00	5.20
BZV55-B5V6	5.49	5.71
BZV55-B6V2	6.08	6.32
BZV55-B6V8	6.66	6.94
BZV55-B7V5	7.35	7.65
BZV55-B8V2	8.04	8.36
BZV55-B9V1	8.92	9.28
BZV55-B10	9.80	10.20
BZV55-B11	10.80	11.20
BZV55-B12	11.80	12.20
BZV55-B13	12.70	13.30
BZV55-B15	14.70	15.30
BZV55-B16	15.70	16.30
BZV55-B18	17.60	18.40
BZV55-B20	19.60	20.40
BZV55-B22	21.60	22.40
BZV55-B24	23.50	24.50
BZV55-B27	26.50	27.50 <sup>(3)</sup>
BZV55-B30	29.40	30.60 <sup>(3)</sup>
BZV55-B33	32.30	33.70 <sup>(3)</sup>
BZV55-B36	35.30	36.70 <sup>(3)</sup>
BZV55-B39	38.20	39.80 <sup>(3)</sup>
BZV55-B43	42.10	43.90 <sup>(3)</sup>
BZV55-B47	46.10	47.90 <sup>(3)</sup>
BZV55-B51	50.00	52.00 <sup>(3)</sup>
BZV55-B56	54.90	57.10 <sup>(3)</sup>
BZV55-B62	60.80	63.20 <sup>(3)</sup>
BZV55-B68	66.60	69.40 <sup>(3)</sup>
BZV55-B75	73.50	76.50 <sup>(3)</sup>

- Notes: (1) Tested with pulses t<sub>p</sub> = 5ms  
 (2) Valid provided that electrodes are kept at ambient temperature  
 (3) at I<sub>Z</sub> = 2.0mA

# BZV55 Series

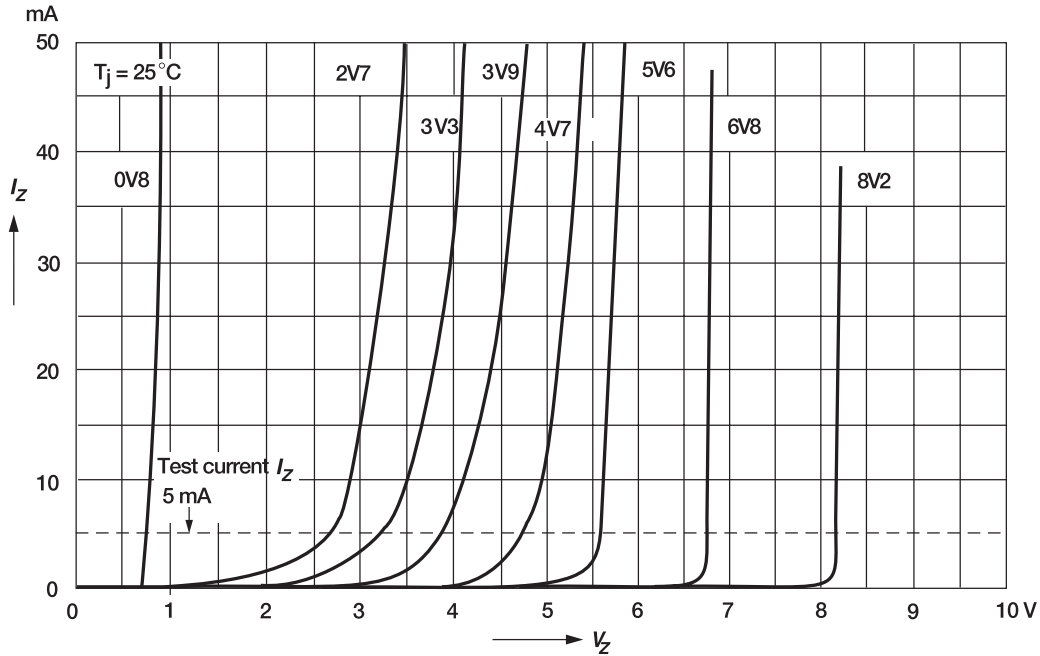
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## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

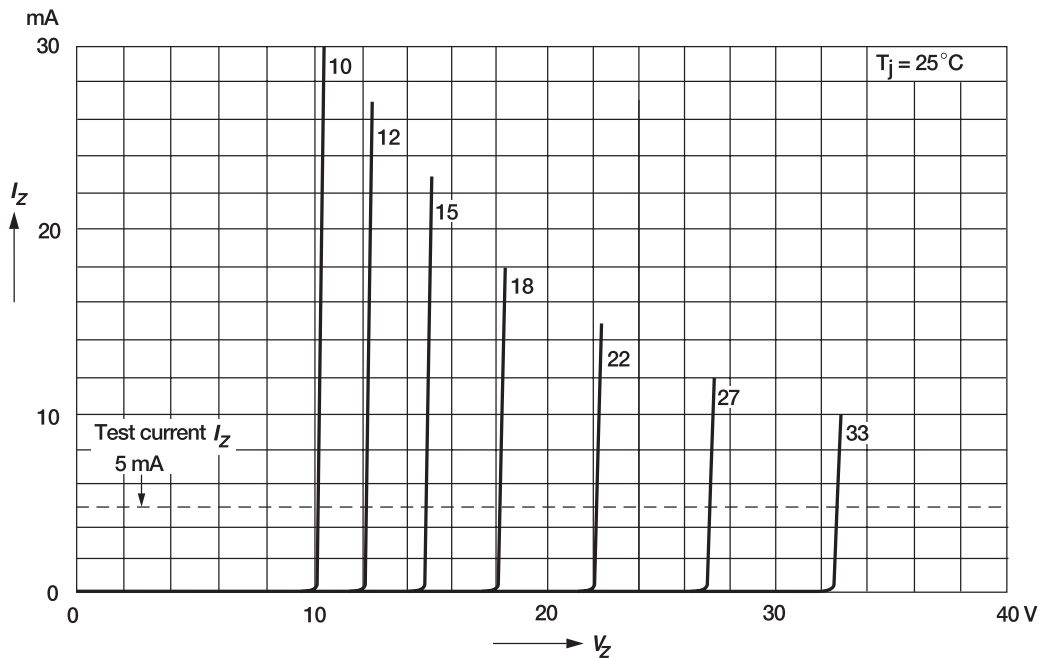
### Breakdown characteristics

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



### Breakdown characteristics

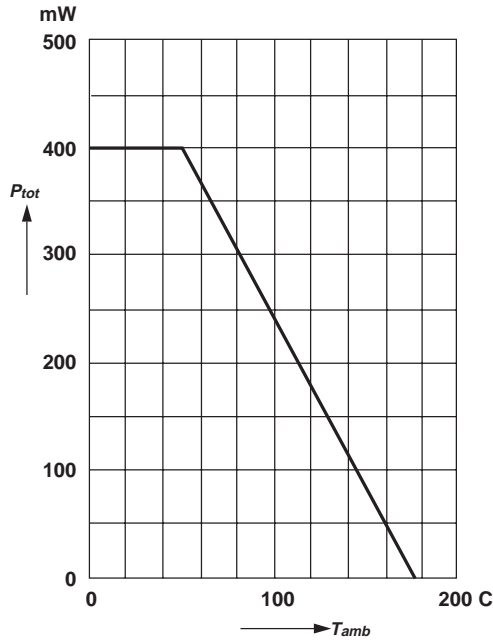
at  $T_j = \text{constant}$  (pulsed)



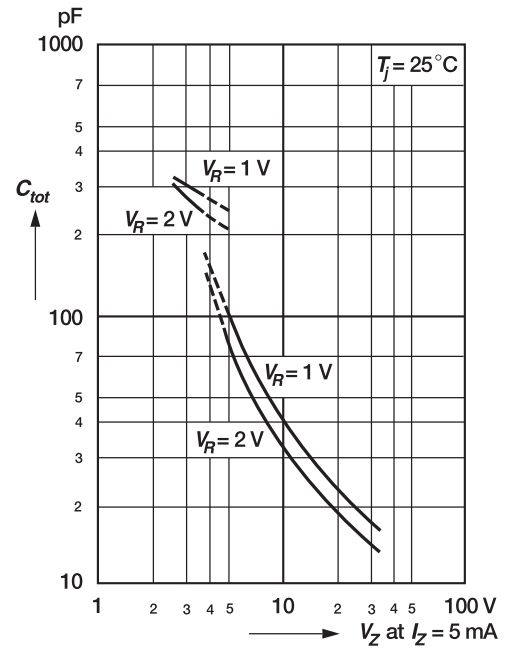
## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

### Admissible power dissipation versus ambient temperature

Valid provided that leads are kept ambient temperature.

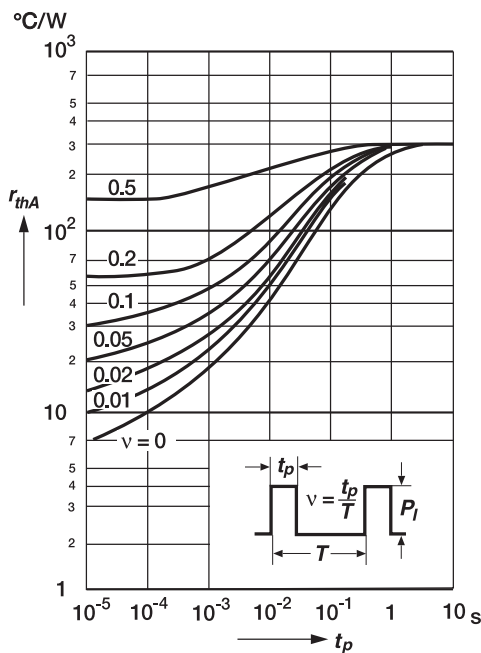


### Capacitance versus Zener voltage

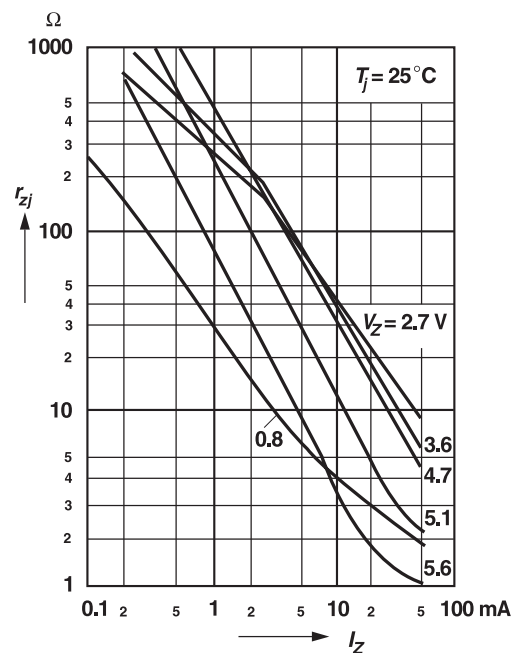


### Pulse thermal resistance versus pulse duration

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



### Dynamic resistance versus Zener current



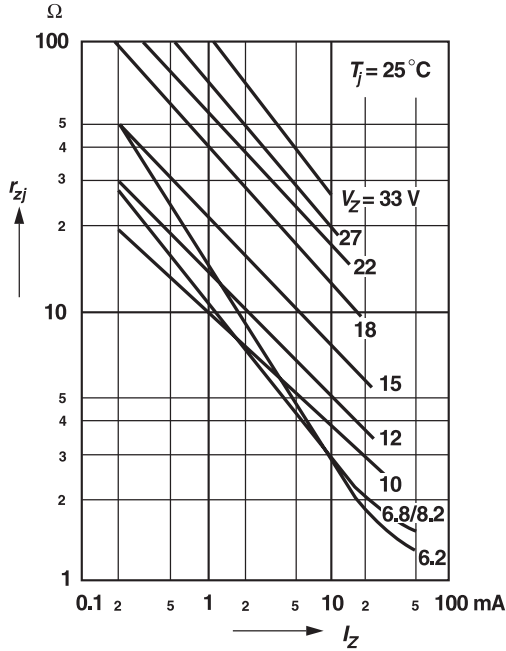
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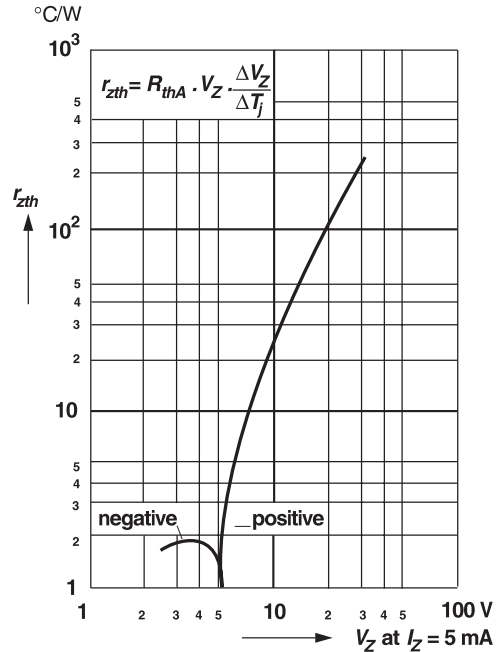
## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

**Dynamic resistance versus Zener current**

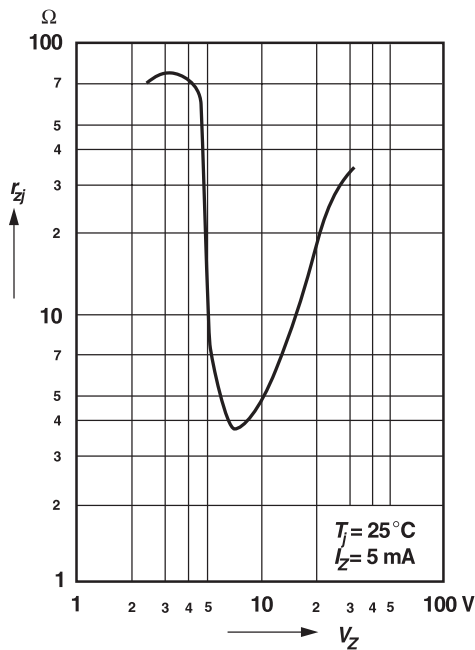


**Thermal differential resistance versus Zener voltage**

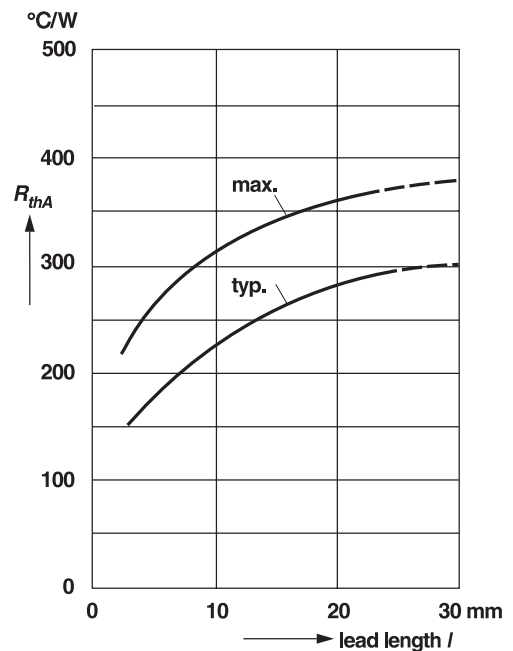
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



**Dynamic resistance versus Zener voltage**



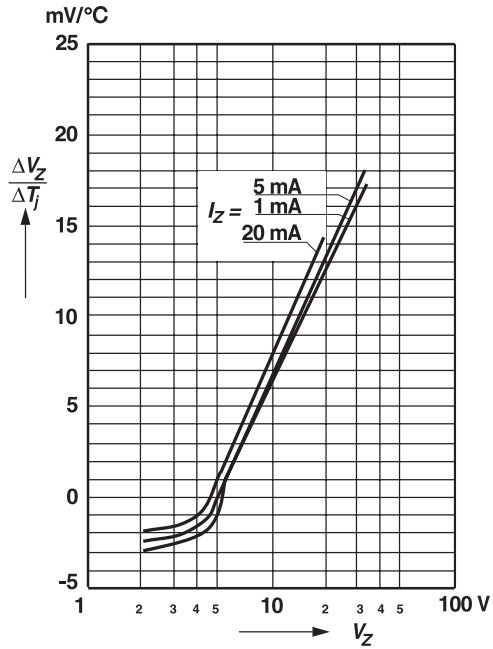
**Thermal resistance versus lead length**



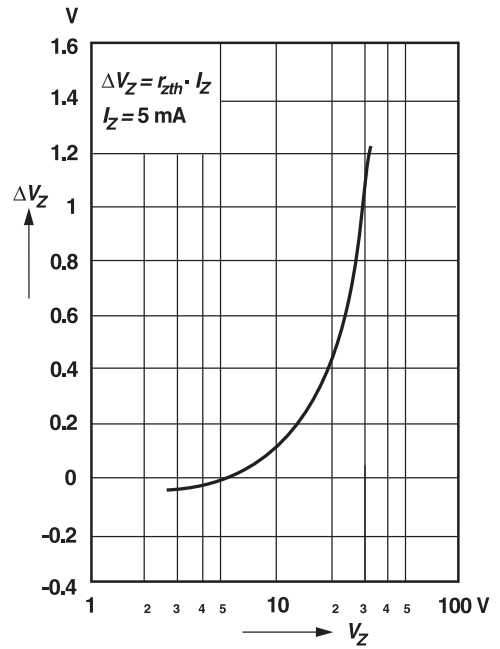


**Ratings and Characteristic Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

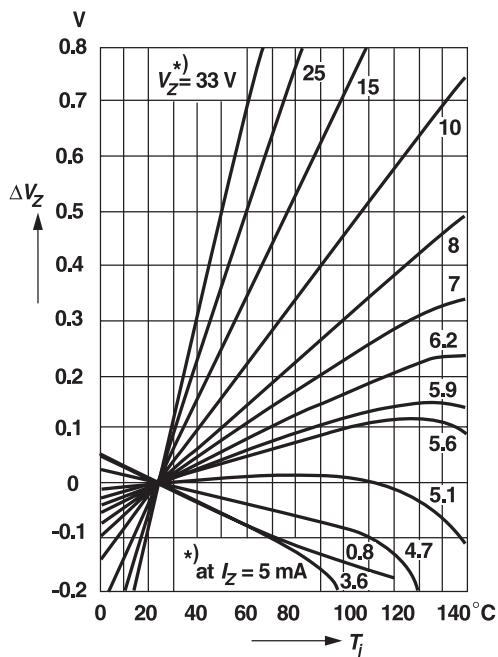
**Temperature dependence of Zener voltage versus Zener voltage**



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



**Change of Zener voltage versus junction temperature**





## Disclaimer

All product specifications and data are subject to change without notice.

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