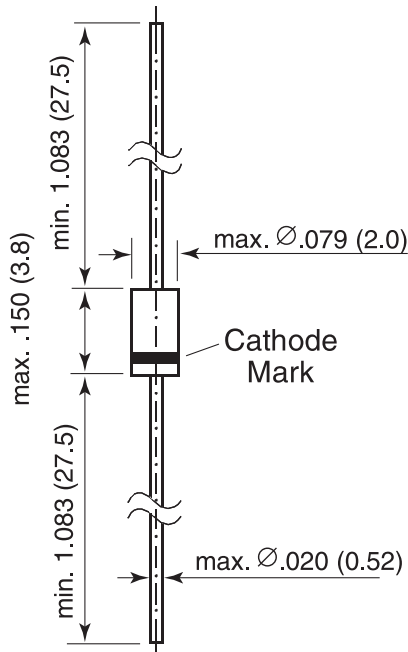


Silicon Planar Zener Diodes

V_Z 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:
±2% BZX79-B, ±3% BZX79-F, ±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_A = 25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|------------------|--------------------|------|
| Zener Current see Table "Characteristics" | | | |
| Power Dissipation at T _{amb} = 25°C | P _{tot} | 500 ⁽¹⁾ | mW |
| Junction temperature | T _j | -65 to +200 | °C |
| Storage temperature range | T _s | -65 to +200 | °C |
| Continuous Forward Current | I _F | 250 | mA |
| Thermal Resistance Junction to Ambient Air | R _{θJA} | 300 ⁽¹⁾ | °C/W |
| Peak reverse power dissipation (non-repetitive) t _p = 100μs square wave | P _{ZSM} | 40 | W |

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

BZX79 Series

Vishay Semiconductors
formerly General Semiconductor



Electrical Characteristics (T_A = 25°C unless otherwise noted) Maximum V_F = 0.9V at I_F = 10mA

| Type y=B for ±2% V _Z y=F for ±3% V _Z y=C for ±5% V _Z | Dynamic Resistance | | Temp. coefficient of Zener Voltage at I _Z = 5 mA α _{mvz} (% / °C) | | Maximum Reverse leakage Current | | Admissible Zener Current ⁽²⁾ I _Z (mA) | Maximum Capacitance V _R = 0 f = 1 MHz (pF) | Non-Repetitive Peak Reverse Current at t _P = 100μs I _{ZSM} (A) |
|--|--|--|--|--------|---------------------------------------|-----|--|---|---|
| | at I _Z = 5 mA f = 1 kHz r _{Zj} (Ω) Max | at I _Z = 1 mA f = 1 kHz r _{Zj} (Ω) Max | | | | | | | |
| | | | | | | | | | |
| 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 ⁽³⁾ | 300 ⁽⁴⁾ | +0.04 ⁽³⁾ | +0.12 | 50 | 20 | 14 | 50 | 1.0 |
| BZX79 – y30 | 80 ⁽³⁾ | 300 ⁽⁴⁾ | +0.04 ⁽³⁾ | +0.12 | 50 | 22 | 13 | 50 | 1.0 |
| BZX79 – y33 | 80 ⁽³⁾ | 325 ⁽⁴⁾ | +0.04 ⁽³⁾ | +0.12 | 50 | 24 | 12 | 45 | 0.9 |
| BZX79 – y36 | 90 ⁽³⁾ | 350 ⁽⁴⁾ | +0.04 ⁽³⁾ | +0.12 | 50 | 27 | 11 | 45 | 0.8 |
| BZX79 – y39 | 130 ⁽³⁾ | 350 ⁽⁴⁾ | +0.04 ⁽³⁾ | +0.12 | 50 | 28 | 10 | 45 | 0.7 |
| BZX79 – y43 | 150 ⁽³⁾ | 375 ⁽⁴⁾ | +0.04 ⁽³⁾ | +0.12 | 50 | 32 | 9.2 | 40 | 0.6 |
| BZX79 – y47 | 170 ⁽³⁾ | 375 ⁽⁴⁾ | +0.04 ⁽³⁾ | +0.12 | 50 | 35 | 8.5 | 40 | 0.5 |
| BZX79 – y51 | 180 ⁽³⁾ | 400 ⁽⁴⁾ | +0.04 ⁽³⁾ | +0.12 | 50 | 38 | 7.8 | 40 | 0.4 |
| BZX79 – y56 | 200 ⁽³⁾ | 425 ⁽⁴⁾ | typ. +0.1 ⁽³⁾ | | 50 | 39 | 7.1 | 40 | 0.3 |
| BZX79 – y62 | 215 ⁽³⁾ | 450 ⁽⁴⁾ | typ. +0.1 ⁽³⁾ | | 50 | 43 | 6.4 | 35 | 0.3 |
| BZX79 – y68 | 240 ⁽³⁾ | 475 ⁽⁴⁾ | typ. +0.1 ⁽³⁾ | | 50 | 48 | 5.8 | 35 | 0.3 |
| BZX79 – y75 | 255 ⁽³⁾ | 500 ⁽⁴⁾ | typ. +0.1 ⁽³⁾ | | 50 | 53 | 5.3 | 35 | 0.2 |

- Notes:** (1) Tested with pulses t_p = 5 ms.
(2) Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.
(3) at I_Z = 2.0 mA
(4) at I_Z = 0.5 mA
Y = Zener voltage tolerance designator



Electrical Characteristics

(T_A = 25°C unless otherwise noted) Maximum V_F = 0.9V at I_F = 10mA

| Type ±5% Tol. | Zener Voltage Range ⁽¹⁾ at I _Z = 5mA | |
|------------------|---|----------------------|
| | V _Z (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 ⁽³⁾ |
| BZX79 - C30 | 28.00 | 32.00 ⁽³⁾ |
| BZX79 - C33 | 31.00 | 35.00 ⁽³⁾ |
| BZX79 - C36 | 34.00 | 38.00 ⁽³⁾ |
| BZX79 - C39 | 37.00 | 41.00 ⁽³⁾ |
| BZX79 - C43 | 40.00 | 46.00 ⁽³⁾ |
| BZX79 - C47 | 44.00 | 50.00 ⁽³⁾ |
| BZX79 - C51 | 48.00 | 54.00 ⁽³⁾ |
| BZX79 - C56 | 52.00 | 60.00 ⁽³⁾ |
| BZX79 - C62 | 58.00 | 66.00 ⁽³⁾ |
| BZX79 - C68 | 64.00 | 72.00 ⁽³⁾ |
| BZX79 - C75 | 70.00 | 79.00 ⁽³⁾ |

| Type ±3% Tol. | Zener Voltage Range ⁽¹⁾ at I _Z = 5mA | |
|------------------|---|----------------------|
| | V _Z (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 ⁽³⁾ |
| BZX79 - F30 | 29.10 | 30.90 ⁽³⁾ |
| BZX79 - F33 | 32.00 | 34.00 ⁽³⁾ |
| BZX79 - F36 | 34.90 | 37.10 ⁽³⁾ |
| BZX79 - F39 | 37.80 | 40.20 ⁽³⁾ |
| BZX79 - F43 | 41.70 | 44.30 ⁽³⁾ |
| BZX79 - F47 | 45.60 | 48.40 ⁽³⁾ |
| BZX79 - F51 | 49.50 | 52.50 ⁽³⁾ |
| BZX79 - F56 | 54.30 | 57.70 ⁽³⁾ |
| BZX79 - F62 | 60.10 | 63.90 ⁽³⁾ |
| BZX79 - F68 | 66.00 | 70.00 ⁽³⁾ |
| BZX79 - F75 | 72.80 | 77.20 ⁽³⁾ |

| Type ±2% Tol. | Zener Voltage Range ⁽¹⁾ at I _Z = 5mA | |
|------------------|---|----------------------|
| | V _Z (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 ⁽³⁾ |
| BZX79 - B30 | 29.40 | 30.60 ⁽³⁾ |
| BZX79 - B33 | 32.30 | 33.70 ⁽³⁾ |
| BZX79 - B36 | 35.30 | 36.60 ⁽³⁾ |
| BZX79 - B39 | 38.20 | 39.80 ⁽³⁾ |
| BZX79 - B43 | 42.10 | 43.90 ⁽³⁾ |
| BZX79 - B47 | 46.10 | 47.90 ⁽³⁾ |
| BZX79 - B51 | 50.00 | 52.00 ⁽³⁾ |
| BZX79 - B56 | 54.90 | 57.10 ⁽³⁾ |
| BZX79 - B62 | 60.80 | 63.20 ⁽³⁾ |
| BZX79 - B68 | 66.60 | 69.40 ⁽³⁾ |
| BZX79 - B75 | 73.50 | 76.50 ⁽³⁾ |

Notes: (1) Tested with pulses t_p = 5 ms

(2) Valid provided that electrodes are kept at ambient temperature

(3) at I_Z = 2.0 mA

See BZV55-y table for all characteristics other than zener voltage range.

BZX79 Series

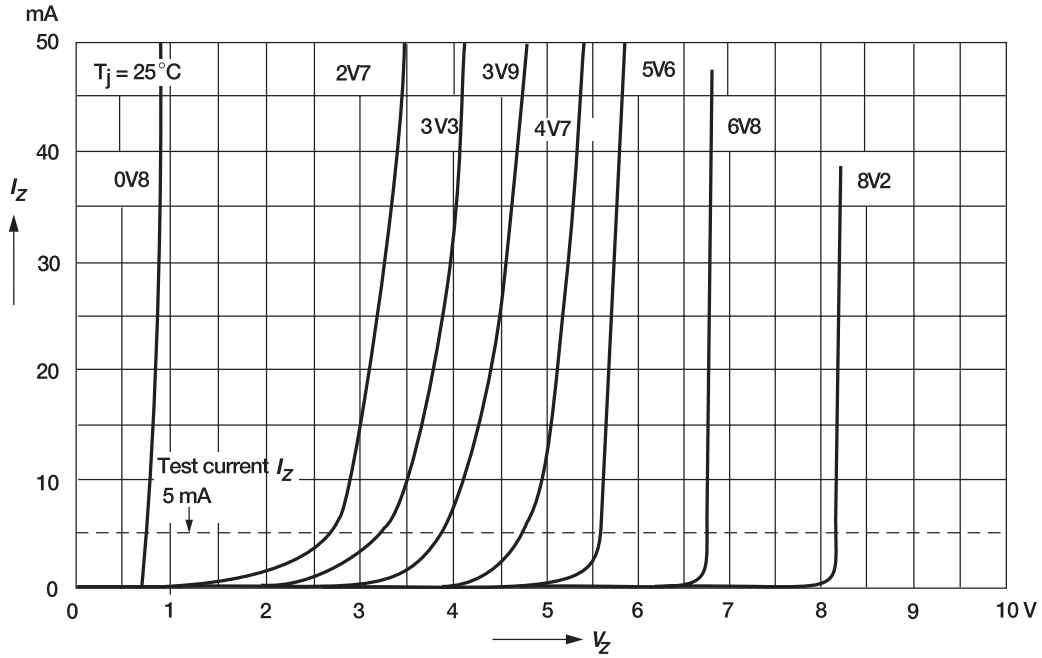
Vishay Semiconductors
formerly General Semiconductor



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

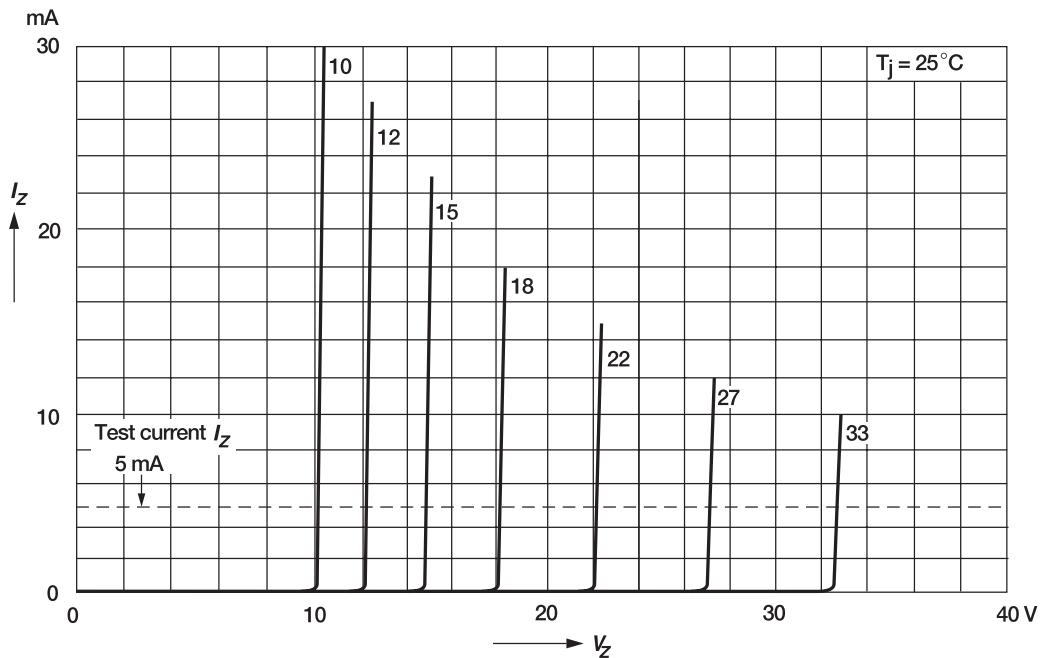
Breakdown characteristics

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



Breakdown characteristics

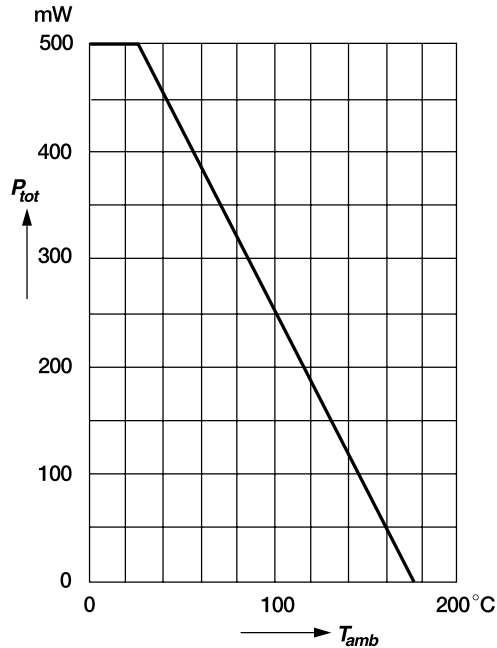
at $T_j = \text{constant}$ (pulsed)



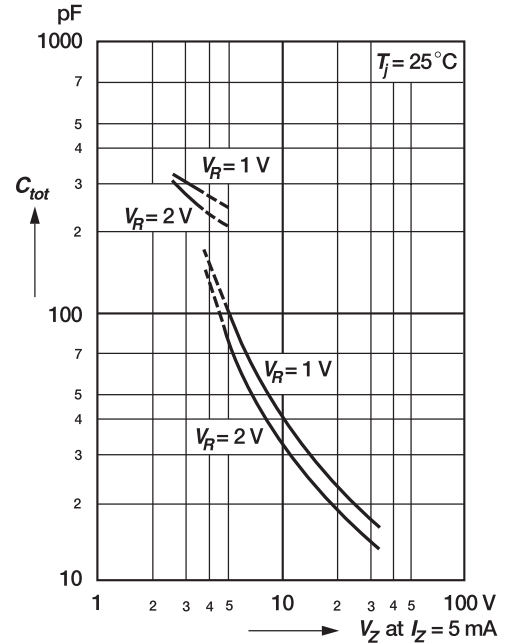
Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Admissible power dissipation versus ambient temperature

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

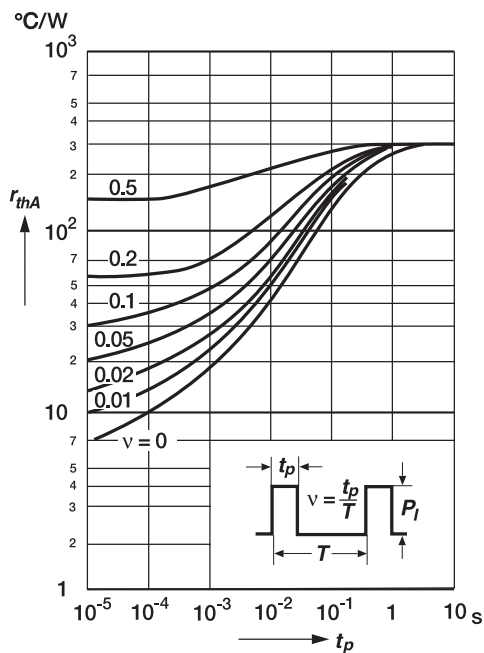


Capacitance versus Zener voltage

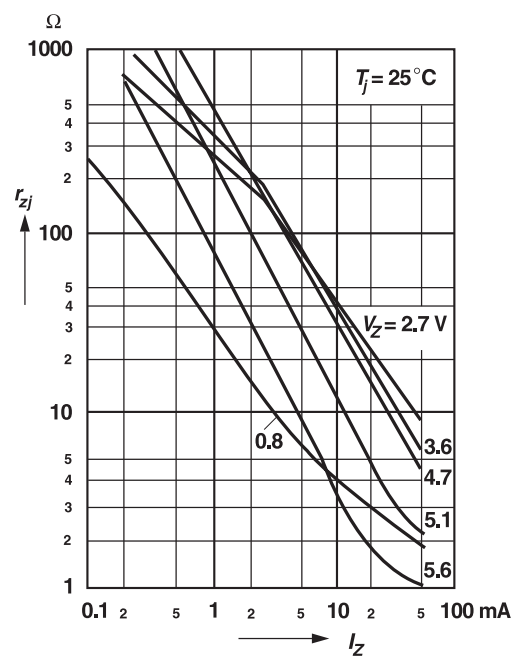


Pulse thermal resistance versus pulse duration

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



Dynamic resistance versus Zener current



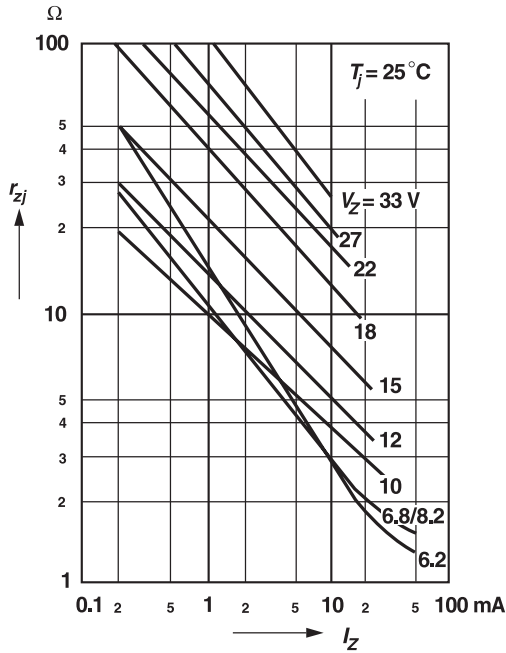
BZX79 Series

Vishay Semiconductors
formerly General Semiconductor



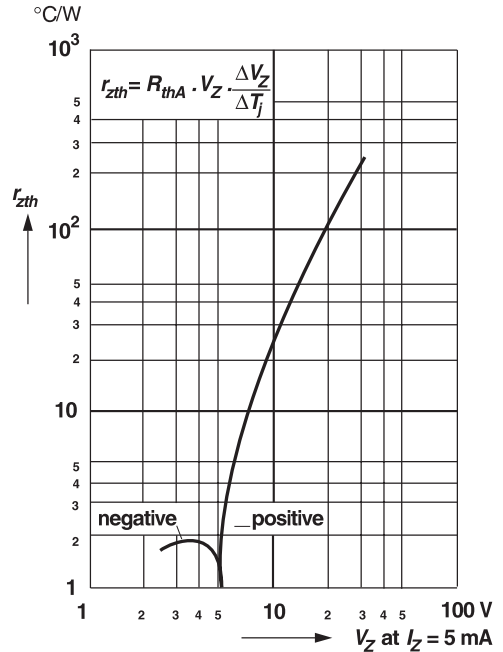
Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Dynamic resistance versus Zener current

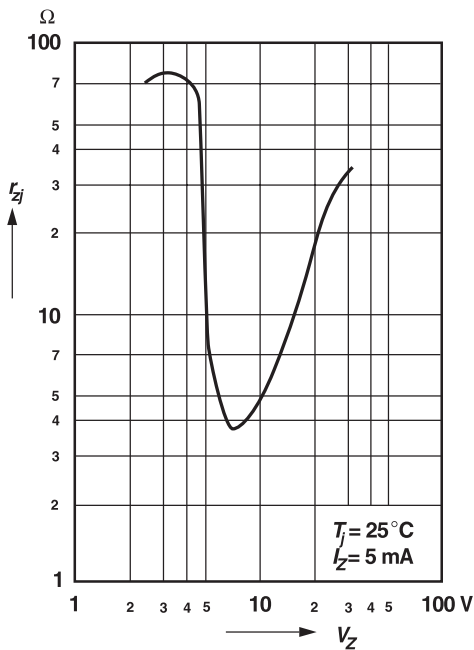


Thermal differential resistance versus Zener voltage

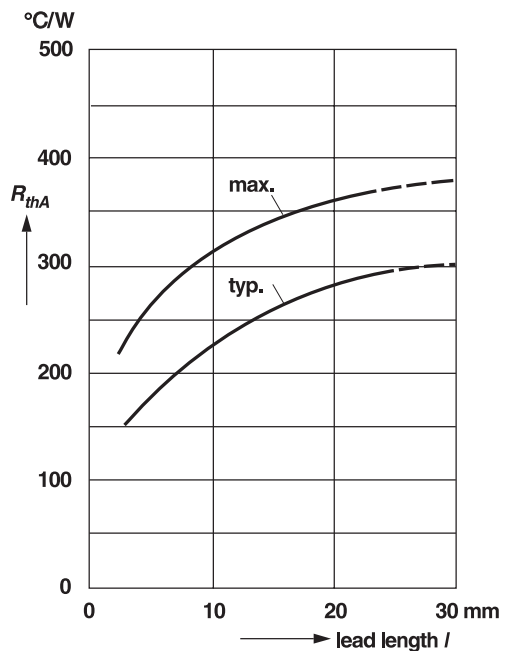
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



Dynamic resistance versus Zener voltage



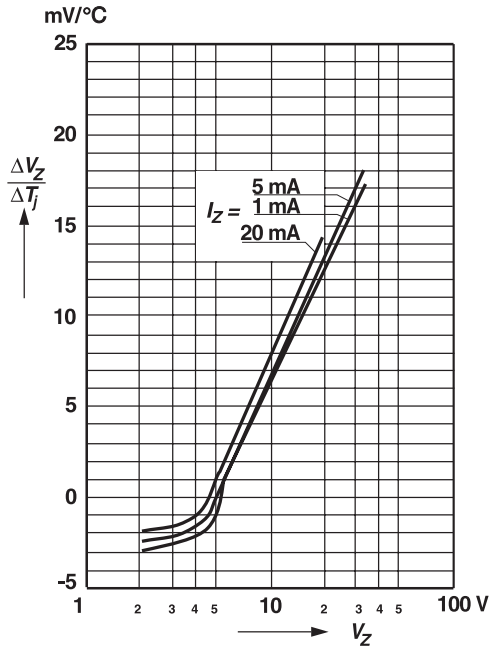
Thermal resistance versus lead length



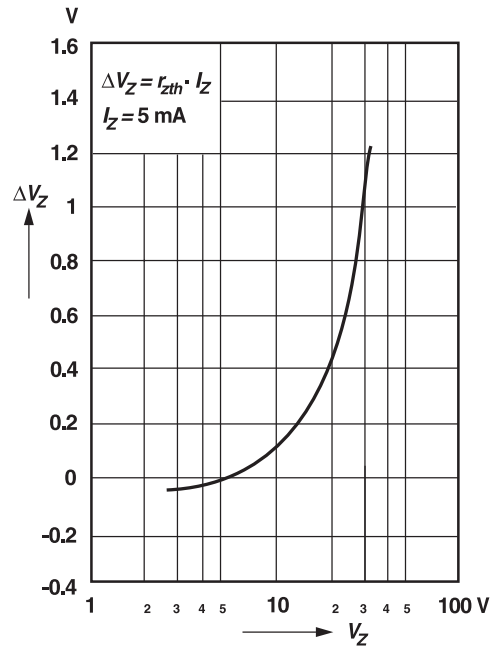


Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

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

