

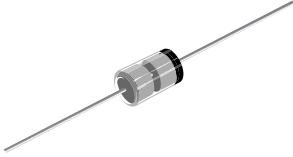


ZPY1 thru ZPY100

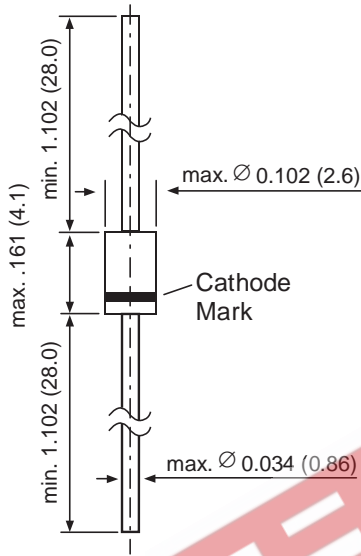
Vishay Semiconductors
formerly General Semiconductor

Zener Diodes

Vz Range 1.0, 3.9 to 100V
Power Dissipation 1.3W



DO-204AL (DO-41 Glass)



Dimensions in inches and (millimeters)

Features

- Silicon Planar Power Zener Diodes
- For use in stabilizing and clipping circuits with high power rating.
- The Zener voltages are graded according to the international E 12 standard. Smaller voltage tolerances are available upon request.
- These diodes are also available in the MELF case with the type designation ZMY10 ... ZMY100.

Mechanical Data

Case: DO-41 Glass Case

Weight: approx. 0.35g

Packaging Codes/Options:

D9/5K per 13" reel (52mm tape), 10K/box

E1/5K per Ammo mag. (52 mm tape), 10K/box

Maximum Ratings and Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | Value | Unit |
|--|------------------|--------------------|------|
| Zener Current (see Table "Characteristics") | | | |
| Power Dissipation at T _{amb} = 25°C | P _{tot} | 1.3 ⁽¹⁾ | W |
| Thermal Resistance Junction to Ambient Air | R _{θJA} | 130 ⁽¹⁾ | °C/W |
| Junction Temperature | T _j | 175 | °C |
| Storage Temperature Range | T _s | -55 to +175 | °C |

Note:

(1) Valid provided that leads at a distance of 10mm from case are kept at ambient temperature

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Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Type | Zener Voltage ⁽²⁾ at I _{ZT} V _Z (V) | | Dynamic Resistance at I _{ZT} f = 1 kHz r _{Zi} (Ω) | Temp. Coeff. of Zener Voltage at I _{ZT} α _{VZ} (10 ⁻⁴ /°C) | | Test current I _{ZT} (mA) | Reverse Voltage at I _R = 0.5 μA V _R (V) | Admissible Zener current ⁽¹⁾ at T _{amb} = 25°C I _Z (mA) |
|---------------------|---|------|--|---|------|--------------------------------------|---|--|
| | Min | Max | | Min | Max | | | |
| ZPY1 ⁽³⁾ | 0.65 | 0.75 | 6.5 (< 8) | - 26 | - 23 | 5 | - | 580 |
| ZPY3.9 | 3.7 | 4.1 | 4 (< 7) | - 7 | +2 | 100 | - | 290 |
| ZPY4.3 | 4.0 | 4.6 | 4 (< 7) | - 7 | +3 | 100 | - | 260 |
| ZPY4.7 | 4.4 | 5.0 | 4 (< 7) | - 7 | +4 | 100 | - | 235 |
| ZPY5.1 | 4.8 | 5.4 | 2 (< 5) | - 6 | +5 | 100 | > 0.7 | 215 |
| ZPY5.6 | 5.2 | 6.0 | 1 (< 2) | - 3 | +5 | 100 | > 1.5 | 193 |
| ZPY6.2 | 5.8 | 6.6 | 1 (< 2) | - 1 | +6 | 100 | > 2.0 | 183 |
| ZPY6.8 | 6.4 | 7.2 | 1 (< 2) | 0 | +7 | 100 | > 3.0 | 157 |
| ZPY7.5 | 7.0 | 7.9 | 1 (< 2) | 0 | +7 | 100 | > 5.0 | 143 |
| ZPY8.2 | 7.7 | 8.7 | 1 (< 2) | +3 | +8 | 100 | > 6.0 | 127 |
| ZPY9.1 | 8.5 | 9.6 | 2 (< 4) | +3 | +8 | 50 | > 7.0 | 117 |
| ZPY10 | 9.41 | 10.6 | 2 (< 4) | +5 | +9 | 50 | > 7.5 | 105 |
| ZPY11 | 10.4 | 11.6 | 3 (< 7) | +5 | +10 | 50 | > 8.5 | 94 |
| ZPY12 | 11.4 | 12.7 | 3 (< 7) | +5 | +10 | 50 | > 9.0 | 85 |
| ZPY13 | 12.4 | 14.1 | 4 (< 9) | +5 | +10 | 50 | > 10 | 78 |
| ZPY15 | 13.8 | 15.8 | 4 (< 9) | +5 | +10 | 50 | > 11 | 70 |
| ZPY16 | 15.3 | 17.1 | 5 (< 10) | +7 | +11 | 25 | > 12 | 63 |
| ZPY18 | 16.8 | 19.1 | 5 (< 11) | +7 | +11 | 25 | > 14 | 57 |
| ZPY20 | 18.8 | 21.2 | 6 (< 12) | +7 | +11 | 25 | > 15 | 52 |
| ZPY22 | 20.8 | 23.3 | 7 (< 13) | +7 | +11 | 25 | > 17 | 48 |
| ZPY24 | 22.8 | 25.6 | 8 (< 14) | +7 | +12 | 25 | > 18 | 42 |
| ZPY27 | 25.1 | 28.9 | 9 (< 15) | +7 | +12 | 25 | > 20 | 38 |
| ZPY30 | 28 | 32 | 10 (< 20) | +7 | +12 | 25 | > 22.5 | 35 |
| ZPY33 | 31 | 35 | 11 (< 20) | +7 | +12 | 25 | > 25 | 31 |
| ZPY36 | 34 | 38 | 25 (< 60) | +7 | +12 | 10 | > 27 | 29 |
| ZPY39 | 37 | 41 | 30 (< 60) | +8 | +12 | 10 | > 29 | 26 |
| ZPY43 | 40 | 46 | 35 (< 80) | +8 | +13 | 10 | > 32 | 24 |
| ZPY47 | 44 | 50 | 40 (< 80) | +8 | +13 | 10 | > 35 | 22 |
| ZPY51 | 48 | 54 | 45 (< 100) | +8 | +13 | 10 | > 38 | 20 |
| ZPY56 | 52 | 60 | 50 (< 100) | +8 | +13 | 10 | > 42 | 18 |
| ZPY62 | 58 | 66 | 60 (< 130) | +8 | +13 | 10 | > 47 | 16 |
| ZPY68 | 64 | 72 | 65 (< 130) | +8 | +13 | 10 | > 51 | 14 |
| ZPY75 | 70 | 79 | 70 (< 160) | +8 | +13 | 10 | > 56 | 13 |
| ZPY82 | 77 | 88 | 80 (< 160) | +8 | +13 | 10 | > 61 | 12 |
| ZPY91 | 85 | 96 | 120 (< 250) | +9 | +13 | 5 | > 68 | 11 |
| ZPY100 | 94 | 106 | 130 (< 250) | +9 | +13 | 5 | > 75 | 10 |

Notes: (1) Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case

(2) Tested with pulses t_p = 5 ms

(3) The ZPY1 is a silicon diode operated in forward direction. Hence, the index of all characteristics and maximum ratings should be "F" instead of "Z"

Connect the cathode terminal to the negative pole

For devices in glass case DO-41 with higher Zener voltage but same power dissipation see types ZPU100 ... ZPU180



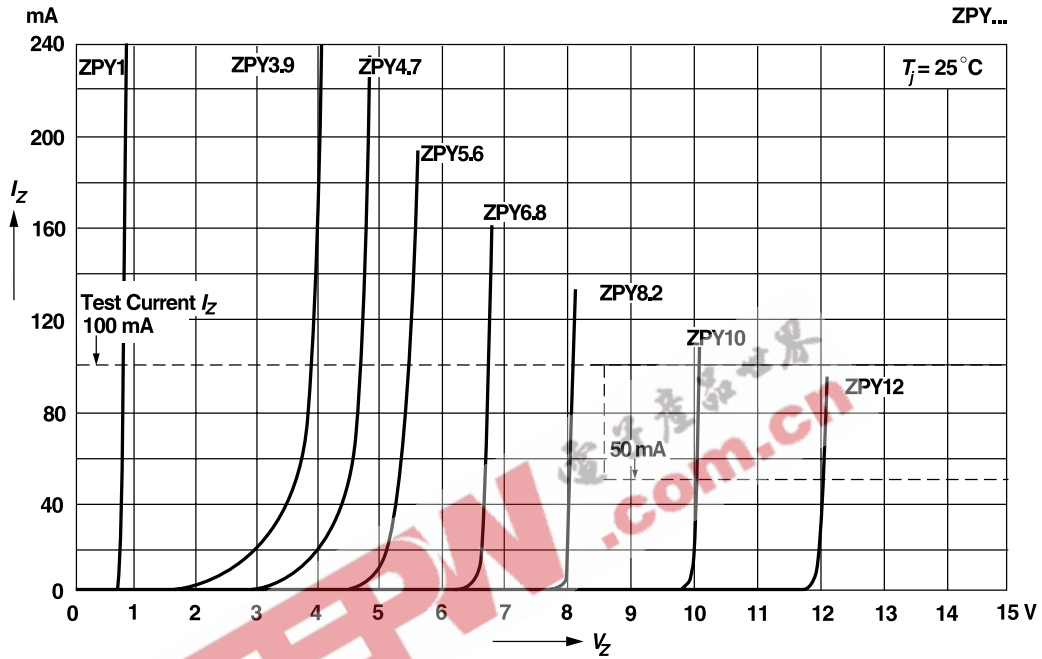
ZPY1 thru ZPY100

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

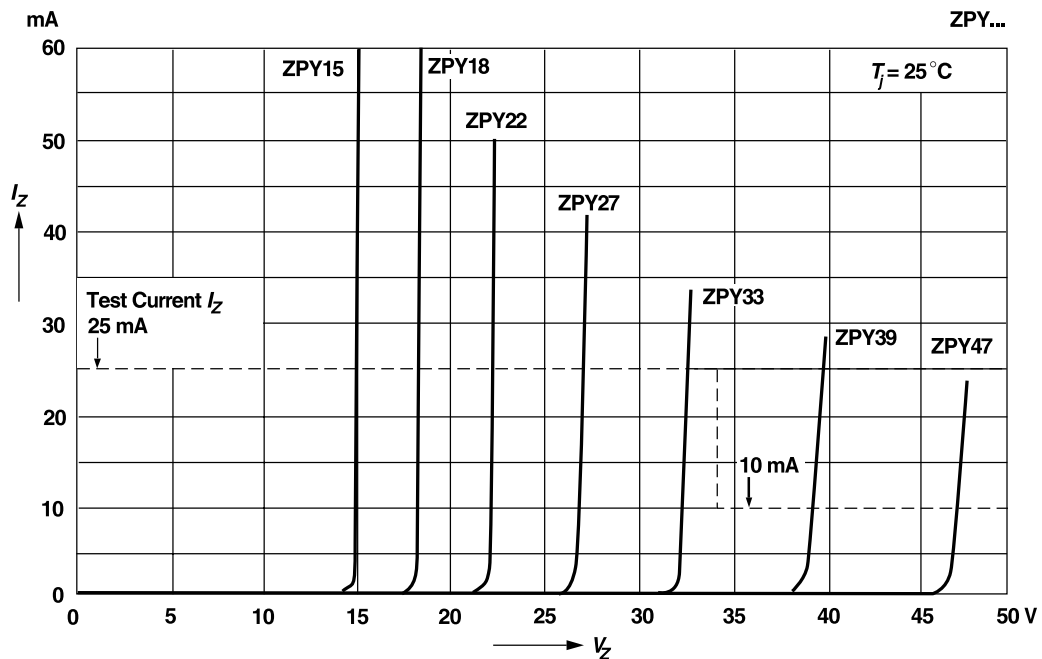
Breakdown characteristics

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



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



ZPY1 thru ZPY100

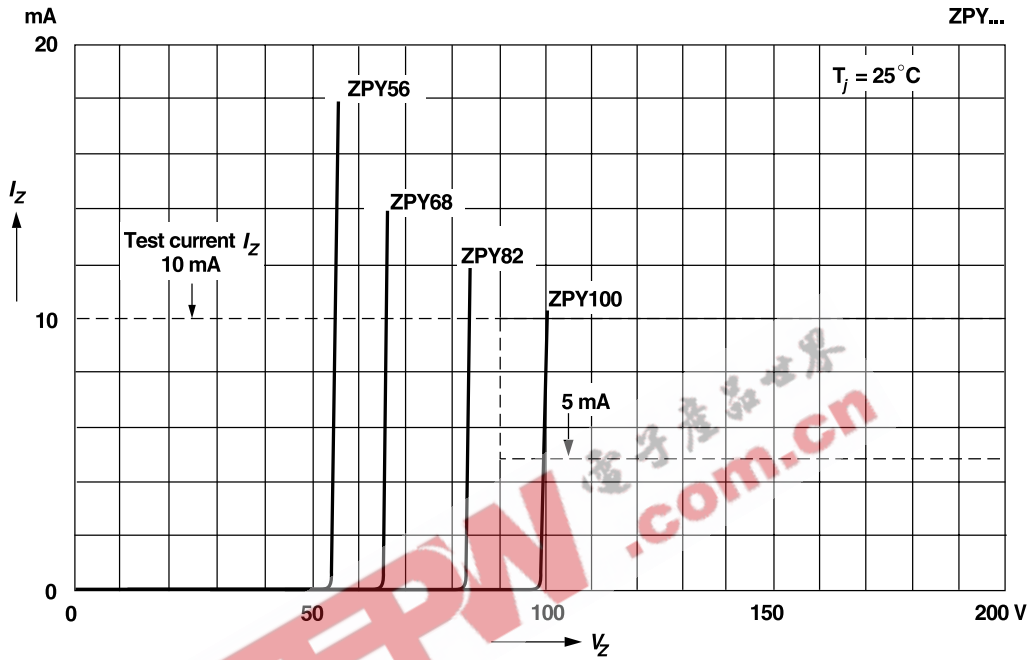
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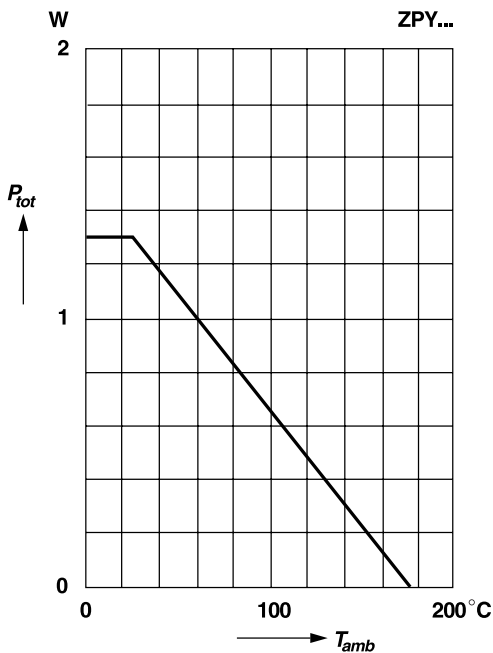
Breakdown characteristics

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



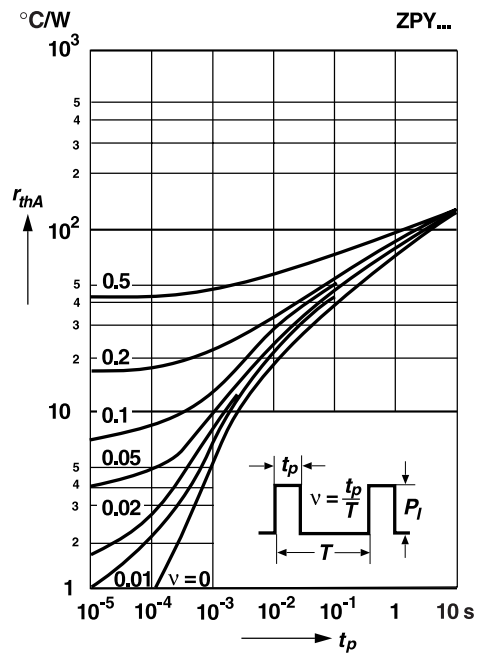
Admissible power dissipation versus ambient temperature

Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case



Pulse thermal resistance versus pulse duration

Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case



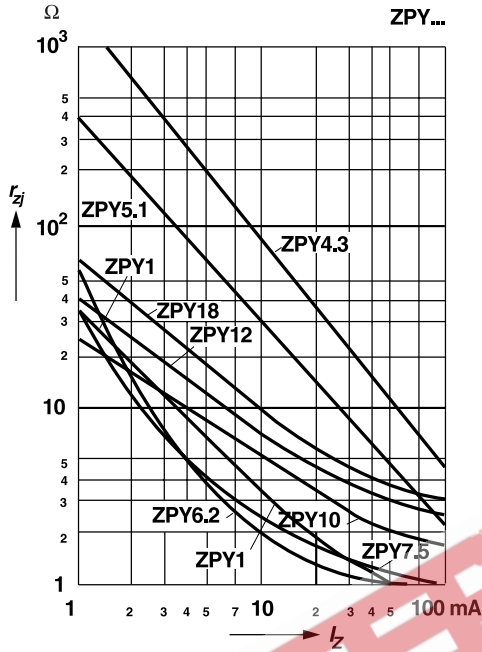


ZPY1 thru ZPY100

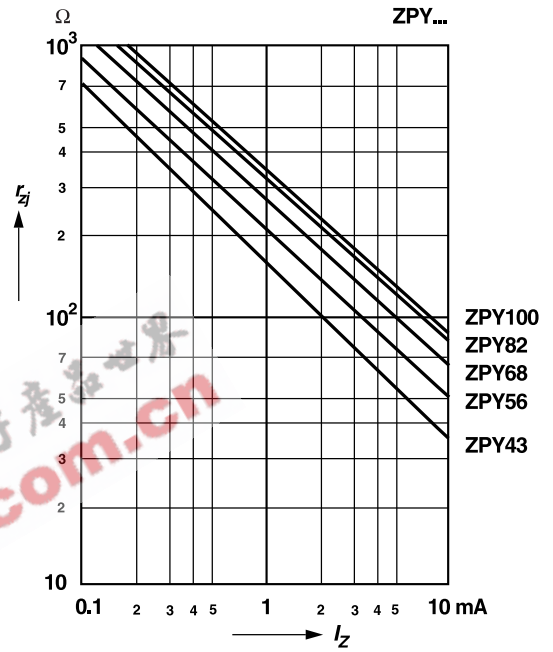
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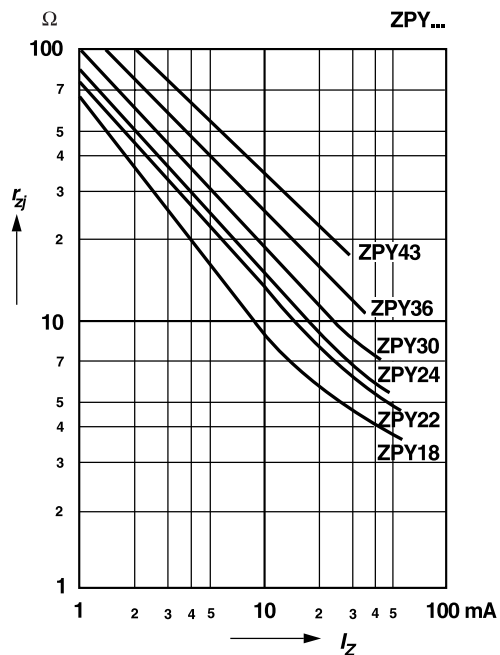
Dynamic resistance versus Zener current



Dynamic resistance versus Zener current



Dynamic resistance versus Zener current



Thermal resistance versus lead length

