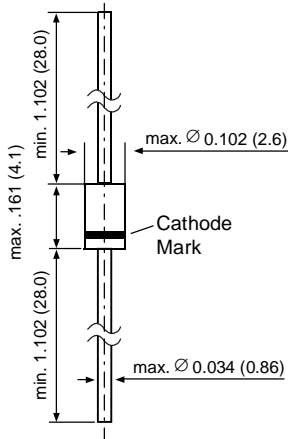


ZPY1 THRU ZPY100

ZENER DIODES

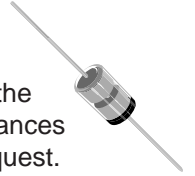
DO-41 Glass



Dimensions are 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 E12 standard. Smaller voltage tolerances and other Zener voltages are available upon request.
- ◆ These diode are also available in the MELF case with type designation ZMY1 ... ZMY100.



MECHANICAL DATA

Case: DO-41 Glass Case

Weight: approx. 0.35 g

MAXIMUM RATINGS

Ratings at 25°C ambient temperature unless otherwise specified.

| | SYMBOL | VALUE | UNIT |
|---|-----------|-------------------|-------|
| Zener Current (see Table "Characteristics") | | | |
| Power Dissipation at $T_{amb} = 25^{\circ}\text{C}$ | P_{tot} | 1.3 ¹⁾ | Watts |
| Junction Temperature | T_j | 175 | °C |
| Storage Temperature Range | T_s | - 55 to +175 | °C |

| | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---|------------|------|------|-------------------|------|
| Thermal Resistance Junction to Ambient Air | R_{thJA} | - | - | 130 ¹⁾ | °C/W |

NOTES:

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

ZPY1 THRU ZPY100

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 max r _{zj} (Ω) | Temp. coeff. of Zener volt. at I _{ZT} α _{VZ} (10 ⁻⁴ /K) | Test current I _{ZT} (mA) | Reverse voltage at I _R = 0.5μA V _R (V) | Admissible Zener current ⁽¹⁾ at T _{amb} = 25°C I _Z (mA) |
|---------------------|--|---|---|--------------------------------------|--|--|
| 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 | 9.4 ... 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

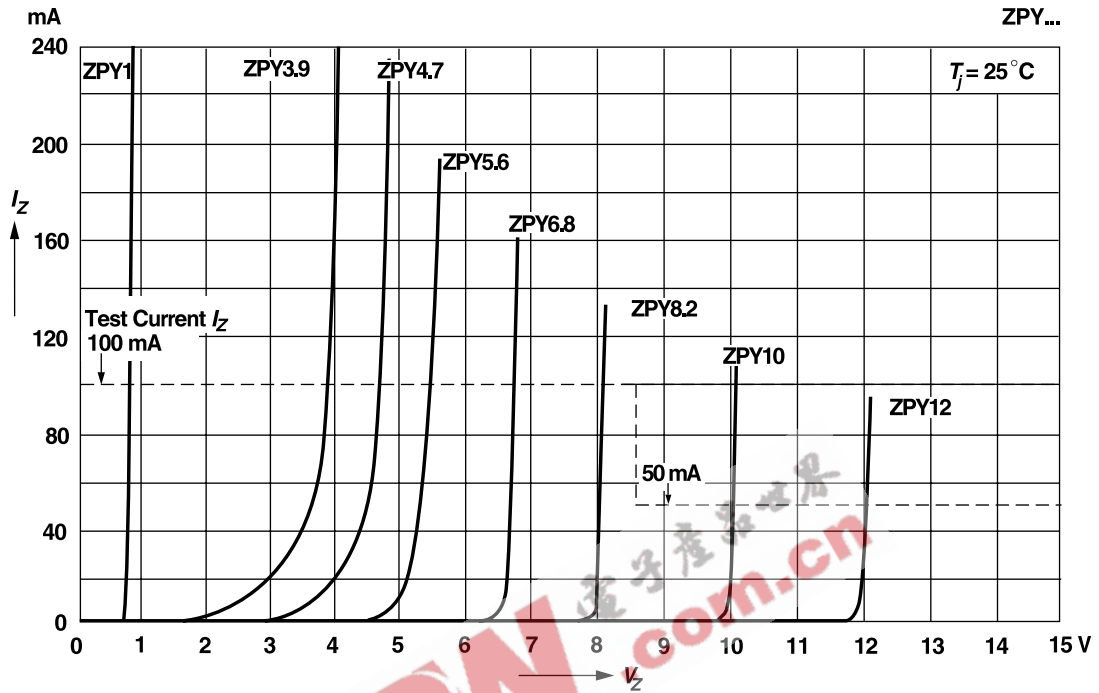
(3) The ZPY1 is a silicon diode operated in forward direction. Hence, the index of all characteristics and maximum ratings should be "F" instead of "Z"
Connect the cathode terminal to the negative pole

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

RATINGS AND CHARACTERISTIC CURVES ZPY1 THRU ZPY100

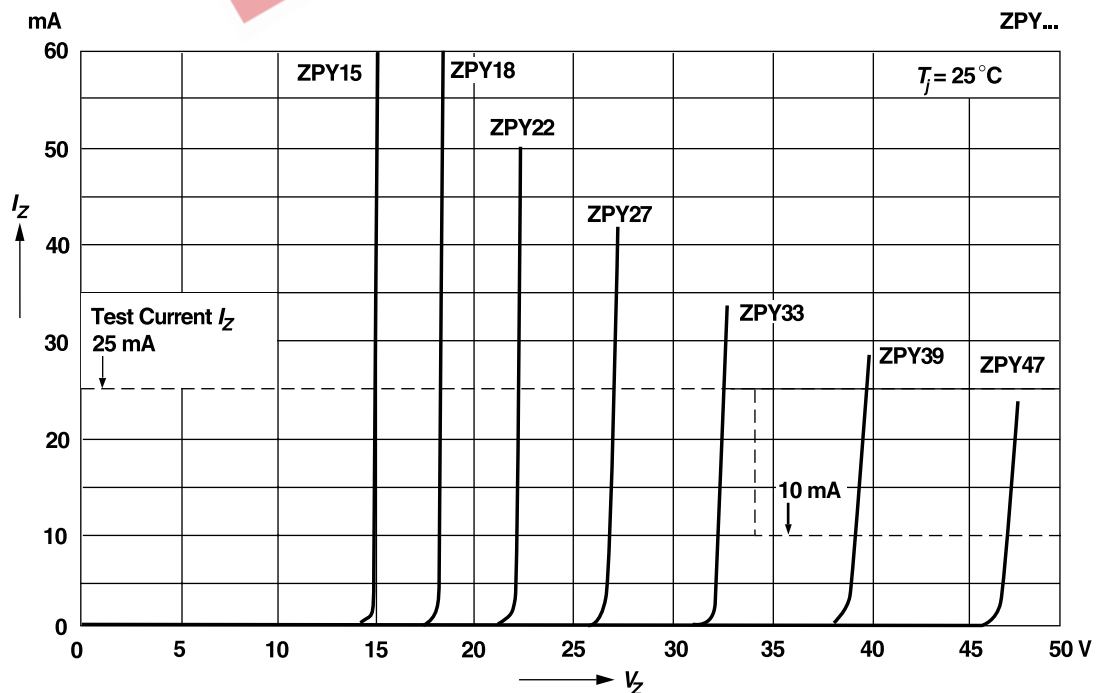
Breakdown characteristics

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



Breakdown characteristics

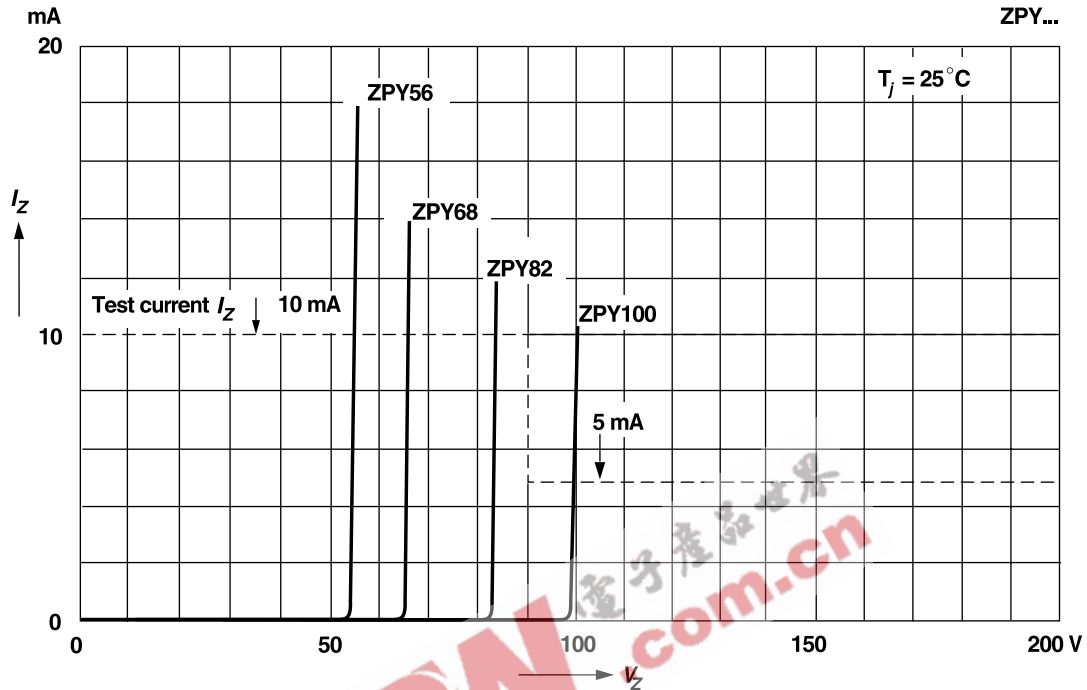
$T_j = \text{constant (pulsed)}$



RATINGS AND CHARACTERISTIC CURVES ZPY1 THRU ZPY100

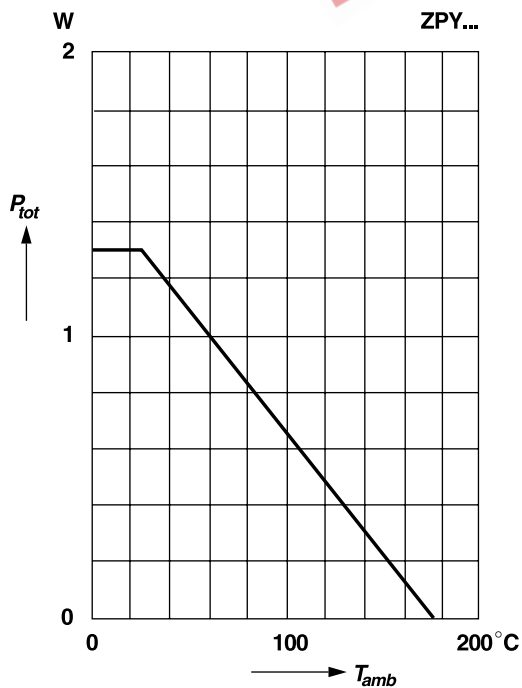
Breakdown characteristics

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



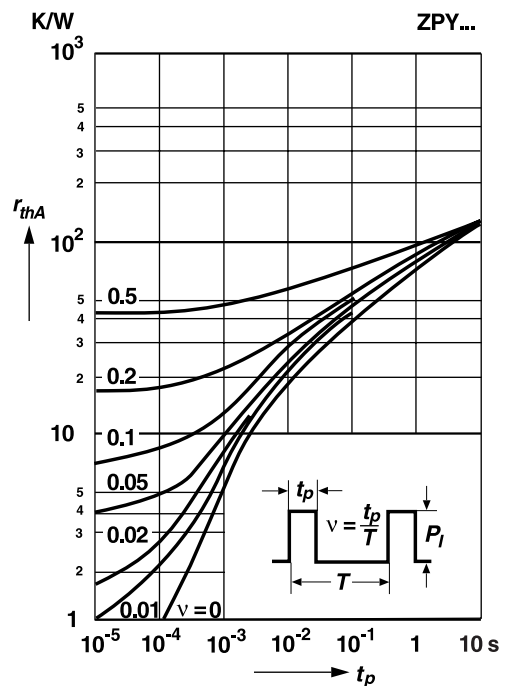
Admissible power dissipation versus ambient temperature

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



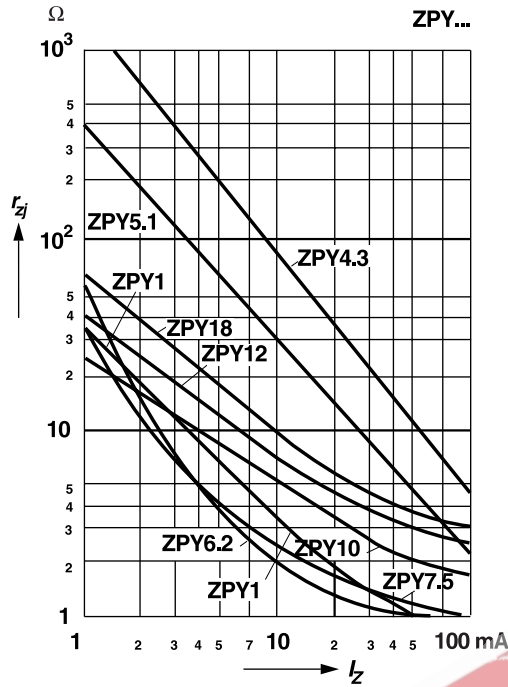
Pulse thermal resistance versus pulse duration

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

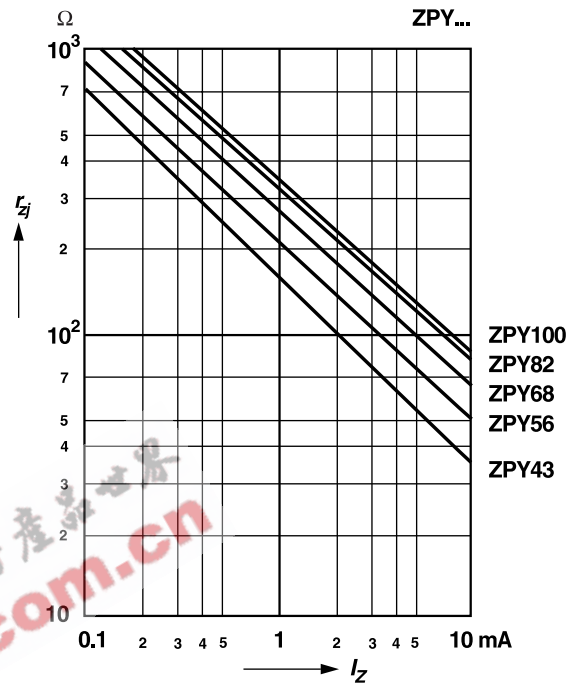


RATINGS AND CHARACTERISTIC CURVES ZPY1 THRU ZPY100

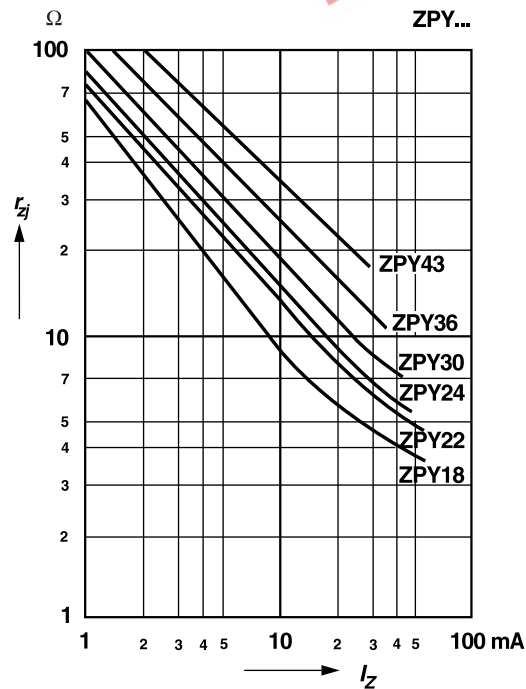
Dynamic resistance versus Zener current



Dynamic resistance versus Zener current



Dynamic resistance versus Zener current



Thermal resistance versus lead length

