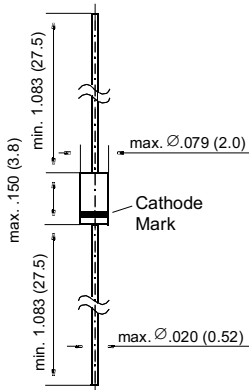


BZX55-C0V8 THRU BZX55-C75

ZENER DIODES

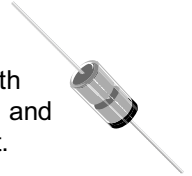
DO-35



Dimensions are in inches and (millimeters)

FEATURES

- ◆ Silicon Planar Power Zener Diodes
- ◆ The Zener voltages are graded according to the international E 24 standard. Standard Zener voltage tolerance is $\pm 5\%$. Replace suffix "C" with "B" for $\pm 2\%$ tolerance. Other voltage tolerances and other Zener voltages are available upon request.



MECHANICAL DATA

Case: DO-35 Glass Case

Weight: approx. 0.13 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} | 500 ⁽¹⁾ | mW |
| 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} | - | - | 300 ⁽¹⁾ | °C/W |
| Forward Voltage at $I_F = 100\text{ mA}$ | V_F | - | - | 1.0 | Volts |

NOTES:

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

BZX55-C0V8 THRU BZX55-C75

ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| Type | Zener Voltage range ⁽¹⁾ at I _Z = 5 mA V _Z V | Dynamic resistance | | Temp. coefficient of Zener Voltage at I _Z = 5 mA αV _Z %/K | | Reverse leakage current | | Admissible Zener current ⁽²⁾ I _{ZM} mA | |
|-----------------------------|---|---|---|---|--------|---|--|---|-----|
| | | at I _Z = 5 mA f = 1 kHz r _{Zj} Ω | at I _Z = 1 mA f = 1 kHz r _{Zj} Ω | min | max | at T _{amb} = 25°C I _R nA | at T _{amb} = 150°C I _R μA | | |
| | | | | | | at V _R V | | | |
| BZX55 – C0V8 ⁽³⁾ | 0.73 ... 0.83 | < 8 | < 600 | – 0.25 | – | – | – | – | |
| BZX55 – C2V7 | 2.5 ... 2.9 | < 85 | < 600 | – 0.08 | – 0.06 | < 10000 | < 50 | 1 | 135 |
| BZX55 – C3V0 | 2.8 ... 3.2 | < 85 | < 600 | – 0.08 | – 0.06 | < 4000 | < 40 | 1 | 125 |
| BZX55 – C3V3 | 3.1 ... 3.5 | < 85 | < 600 | – 0.08 | – 0.05 | < 2000 | < 40 | 1 | 115 |
| BZX55 – C3V6 | 3.4 ... 3.9 | < 85 | < 600 | – 0.08 | – 0.04 | < 2000 | < 40 | 1 | 105 |
| BZX55 – C3V9 | 3.7 ... 4.1 | < 85 | < 600 | – 0.07 | – 0.03 | < 2000 | < 40 | 1 | 95 |
| BZX55 – C4V3 | 4.0 ... 4.6 | < 75 | < 600 | – 0.04 | – 0.01 | < 1000 | < 20 | 1 | 90 |
| BZX55 – C4V7 | 4.4 ... 5.0 | < 60 | < 600 | – 0.03 | +0.01 | < 500 | < 10 | 1 | 85 |
| BZX55 – C5V1 | 4.8 ... 5.4 | < 35 | < 550 | – 0.02 | +0.05 | < 100 | < 2 | 1 | 80 |
| BZX55 – C5V6 | 5.2 ... 6.0 | < 25 | < 450 | – 0.01 | +0.06 | < 100 | < 2 | 1 | 70 |
| BZX55 – C6V2 | 5.8 ... 6.6 | < 10 | < 200 | 0 | +0.07 | < 100 | < 2 | 2 | 64 |
| BZX55 – C6V8 | 6.4 ... 7.2 | < 8 | < 150 | +0.01 | +0.08 | < 100 | < 2 | 3 | 58 |
| BZX55 – C7V5 | 7.0 ... 7.9 | < 7 | < 50 | +0.01 | +0.09 | < 100 | < 2 | 5 | 53 |
| BZX55 – C8V2 | 7.7 ... 8.7 | < 7 | < 50 | +0.01 | +0.09 | < 100 | < 2 | 6 | 47 |
| BZX55 – C9V1 | 8.5 ... 9.6 | < 10 | < 50 | +0.02 | +0.10 | < 100 | < 2 | 7 | 43 |
| BZX55 – C10 | 9.4 ... 10.6 | < 15 | < 70 | +0.03 | +0.11 | < 100 | < 2 | 7.5 | 40 |
| BZX55 – C11 | 10.4 ... 11.6 | < 20 | < 70 | +0.03 | +0.11 | < 100 | < 2 | 8.5 | 36 |
| BZX55 – C12 | 11.4 ... 12.7 | < 20 | < 90 | +0.03 | +0.11 | < 100 | < 2 | 9 | 32 |
| BZX55 – C13 | 12.4 ... 14.1 | < 26 | < 110 | +0.03 | +0.11 | < 100 | < 2 | 10 | 29 |
| BZX55 – C15 | 13.8 ... 15.6 | < 30 | < 110 | +0.03 | +0.11 | < 100 | < 2 | 11 | 27 |
| BZX55 – C16 | 15.3 ... 17.1 | < 40 | < 170 | +0.03 | +0.11 | < 100 | < 2 | 12 | 24 |
| BZX55 – C18 | 16.8 ... 19.1 | < 50 | < 170 | +0.03 | +0.11 | < 100 | < 2 | 14 | 21 |
| BZX55 – C20 | 18.8 ... 21.2 | < 55 | < 220 | +0.03 | +0.11 | < 100 | < 2 | 15 | 20 |
| BZX55 – C22 | 20.8 ... 23.3 | < 55 | < 220 | +0.03 | +0.11 | < 100 | < 2 | 17 | 18 |
| BZX55 – C24 | 22.8 ... 25.6 | < 80 | < 220 | +0.04 | +0.12 | < 100 | < 2 | 18 | 16 |
| BZX55 – C27 | 25.1 ... 28.9 | < 80 | < 220 | +0.04 | +0.12 | < 100 | < 2 | 20 | 14 |
| BZX55 – C30 | 28 ... 32 | < 80 | < 220 | +0.04 | +0.12 | < 100 | < 2 | 22 | 13 |
| BZX55 – C33 | 31 ... 35 | < 80 | < 220 | +0.04 | +0.12 | < 100 | < 2 | 24 | 12 |
| BZX55 – C36 | 34 ... 38 | < 80 | < 220 | +0.04 | +0.12 | < 100 | < 2 | 27 | 11 |
| BZX55 – C39 | 37 ... 41 ⁽⁴⁾ | < 90 ⁽⁴⁾ | < 500 ⁽⁵⁾ | +0.04 | +0.12 | < 100 | < 5 | 28 | 10 |
| BZX55 – C43 | 40 ... 46 ⁽⁴⁾ | < 90 ⁽⁴⁾ | < 600 ⁽⁵⁾ | +0.04 | +0.12 | < 100 | < 5 | 32 | 9.2 |
| BZX55 – C47 | 44 ... 50 ⁽⁴⁾ | < 110 ⁽⁴⁾ | < 700 ⁽⁵⁾ | +0.04 | +0.12 | < 100 | < 5 | 35 | 8.5 |
| BZX55 – C51 | 48 ... 54 ⁽⁴⁾ | < 125 ⁽⁴⁾ | < 700 ⁽⁵⁾ | +0.04 | +0.12 | < 100 | < 10 | 38 | 7.8 |
| BZX55-C56 | 52.0 ... 60.0 ⁽⁴⁾ | < 135 ⁽⁴⁾ | < 1000 ⁽⁵⁾ | typ. +0.1 ⁽⁴⁾ | | < 100 | < 10 | 42 | 7.0 |
| BZX55-C62 | 58.0 ... 66.0 ⁽⁴⁾ | < 150 ⁽⁴⁾ | < 1000 ⁽⁵⁾ | typ. +0.1 ⁽⁴⁾ | | < 100 | < 10 | 47 | 6.4 |
| BZX55-C68 | 64.0 ... 72.0 ⁽⁴⁾ | < 200 ⁽⁴⁾ | < 1000 ⁽⁵⁾ | typ. +0.1 ⁽⁴⁾ | | < 100 | < 10 | 51 | 5.9 |
| BZX55-C75 | 70.0 ... 79.0 ⁽⁴⁾ | < 250 ⁽⁴⁾ | < 1000 ⁽⁵⁾ | typ. +0.1 ⁽⁴⁾ | | < 100 | < 10 | 56 | 5.3 |

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) The BZX55–C0V8 is a silicon diode with operation in forward direction. Hence, the index of all parameters should be "F" instead of "Z".

Connect the cathode lead to the negative pole

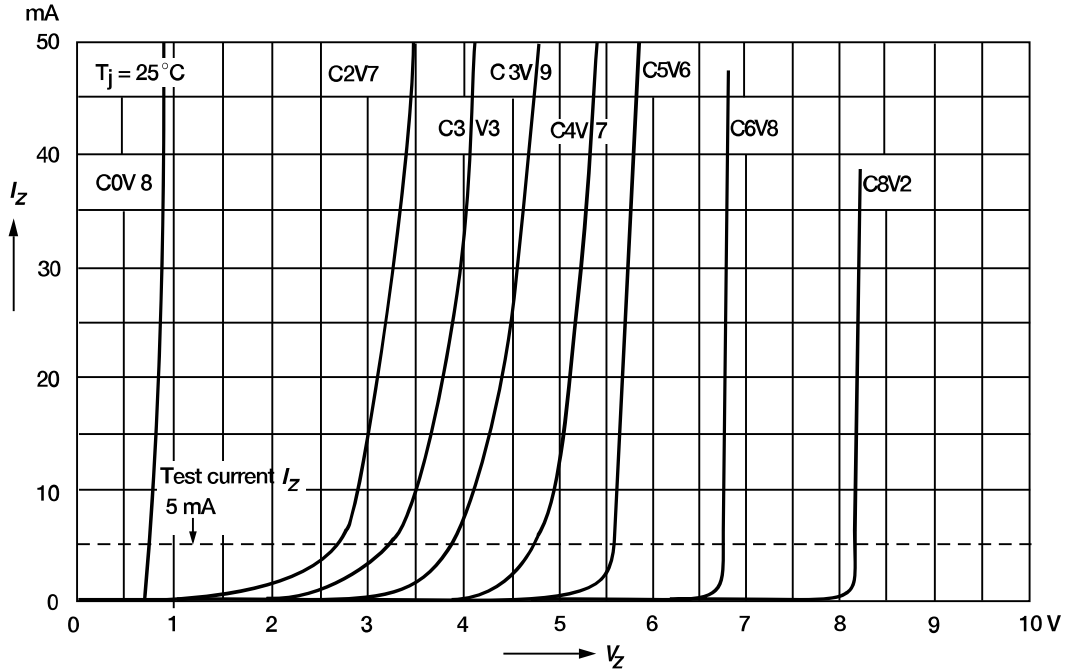
(4) at I_Z = 2.5 mA

(5) at I_Z = 0.5 mA

RATINGS AND CHARACTERISTIC CURVES BZX55-C0V8 THRU BZX55-C75

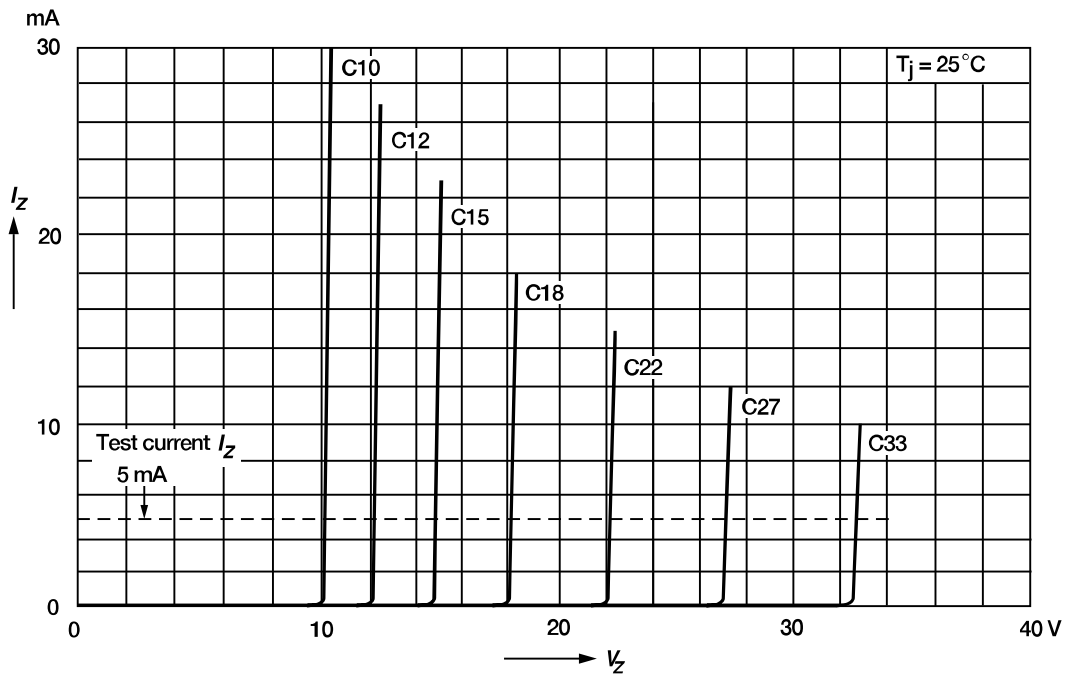
Breakdown characteristics

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



Breakdown characteristics

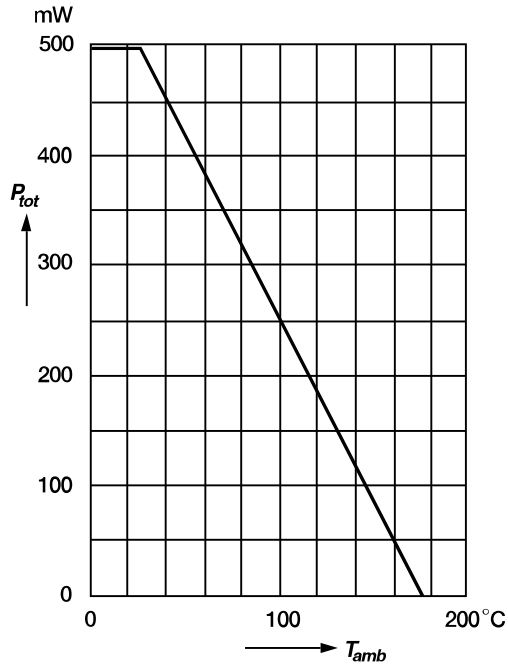
at $T_j = \text{constant}$ (pulsed)



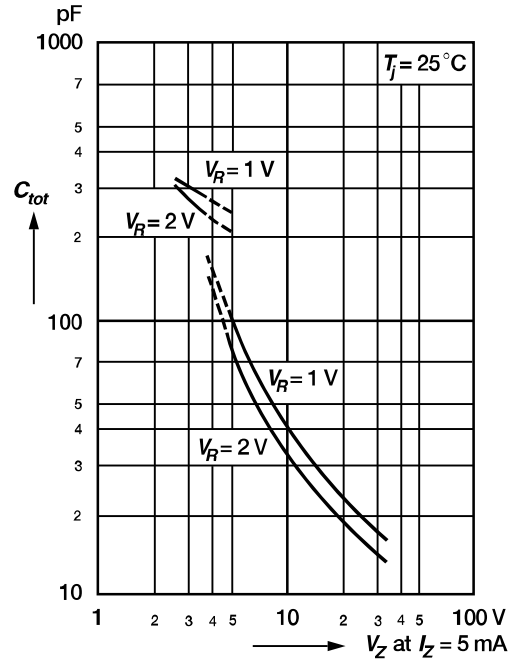
RATINGS AND CHARACTERISTIC CURVES BZX55-C0V8 THRU BZX55-C75

Admissible power dissipation versus ambient temperature

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

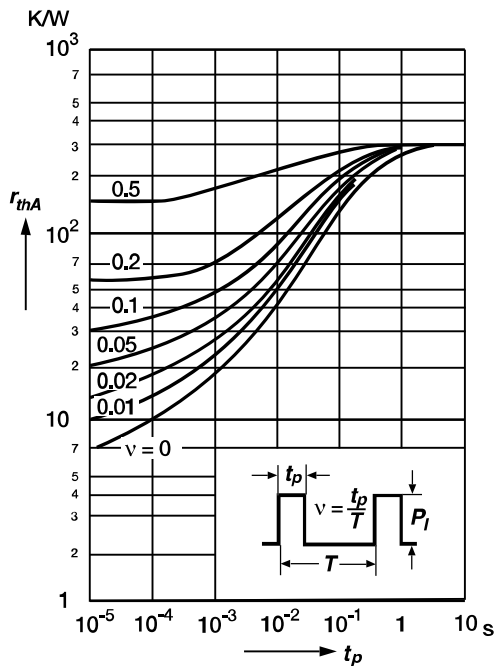


Capacitance versus Zener voltage

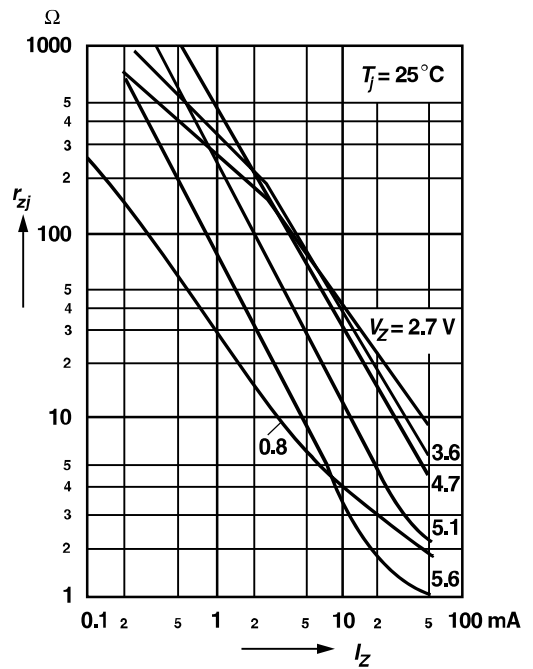


Pulse thermal resistance versus pulse duration

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

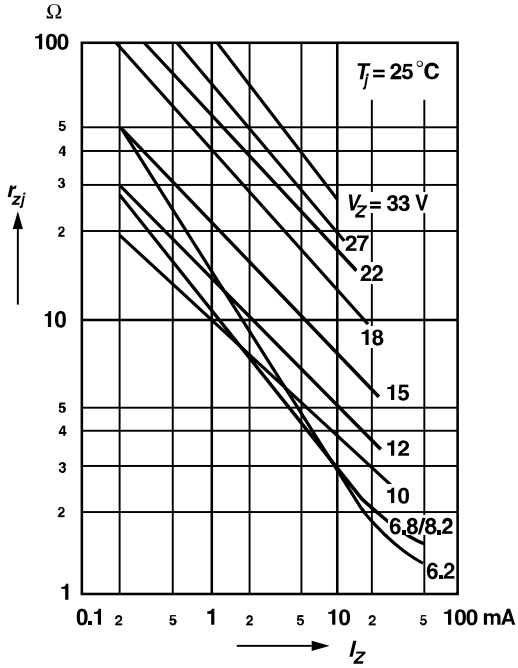


Dynamic resistance versus Zener current



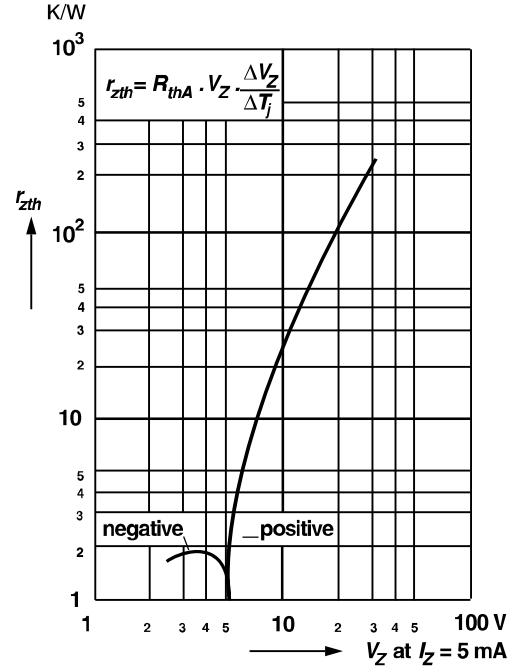
RATINGS AND CHARACTERISTIC CURVES BZX55-C0V8 THRU BZX55-C75

Dynamic resistance versus Zener current

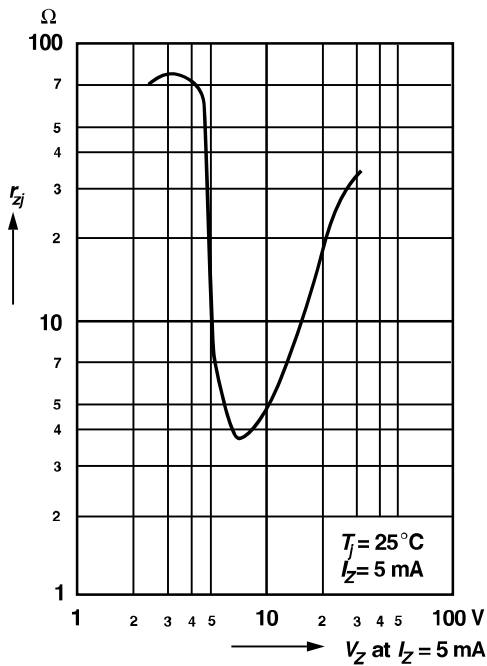


Thermal differential resistance versus Zener voltage

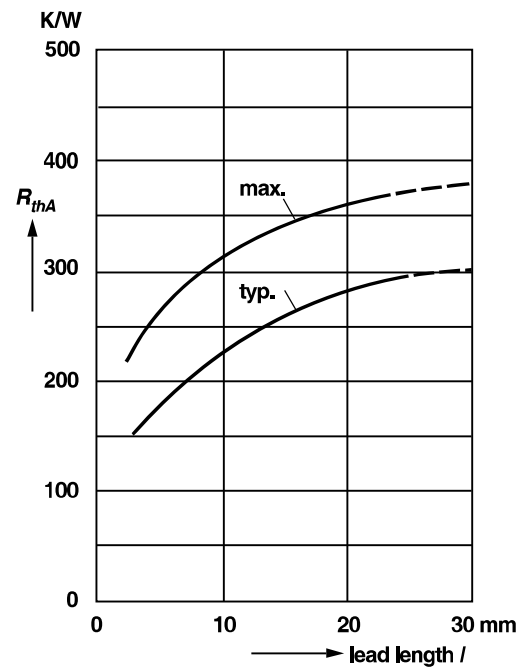
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



Dynamic resistance versus Zener voltage

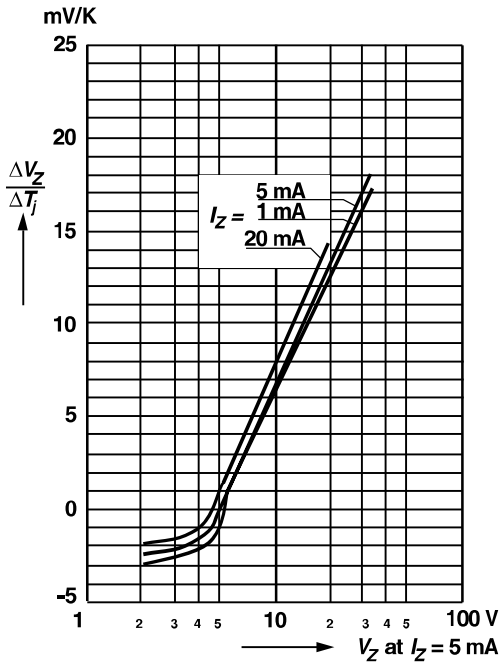


Thermal resistance versus lead length

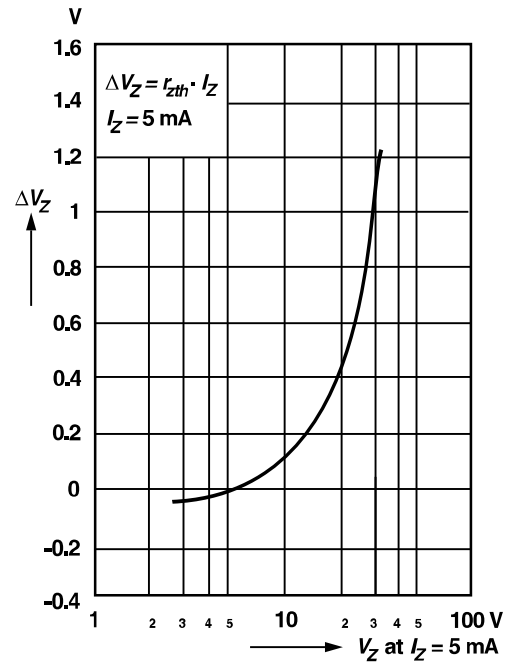


RATINGS AND CHARACTERISTIC CURVES BZX55-C0V8 THRU BZX55-C75

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

