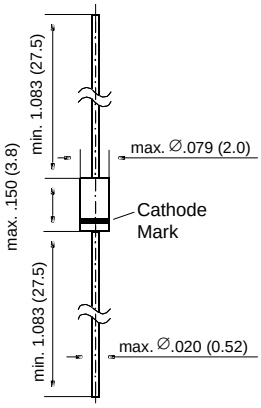
# BZX55-C0V8 THRU BZX55-C75

## ZENER DIODES

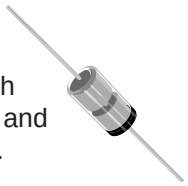
**DO-35**




*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 ±5%. Replace suffix “C” with “B” for ±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 Tamb = 25°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 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.



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# 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 | Dynamic resistance | | Temp. coefficient of Zener Voltage at $I_Z$ = 5 mA $\alpha V_Z$ %/K | | Reverse leakage current | | | Admissible Zener current[2] |
|---|---|---|---|---|---|---|---|---|---|
| | | at $I_Z$ = 5 mA f = 1 kHz | at $I_Z$ = 1mA f = 1 kHz | | | at $T_{amb}$ = 25°C | at $T_{amb}$ = 150°C | at $V_R$ V | |
| | $V_Z$ V | $r_{zj}$ Ω | $r_{zj}$ Ω | min | max | $I_R$ nA | $I_R$ µA | | $I_{ZM}$ mA |
| 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

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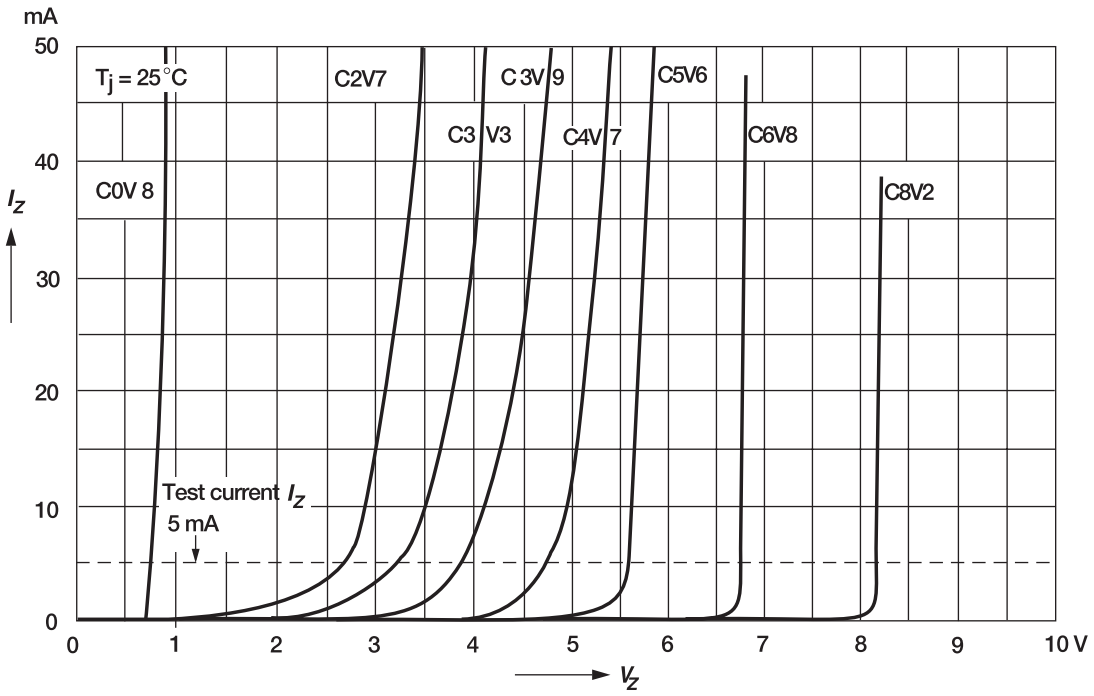
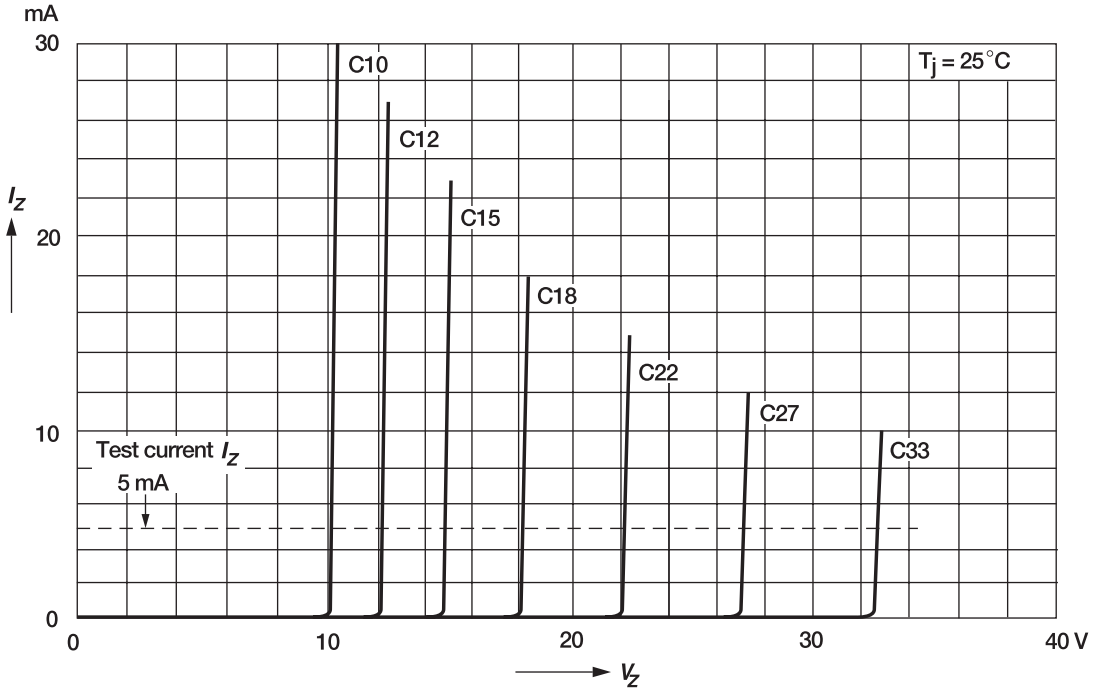
**Breakdown characteristics**

at $T_j$ = constant (pulsed)



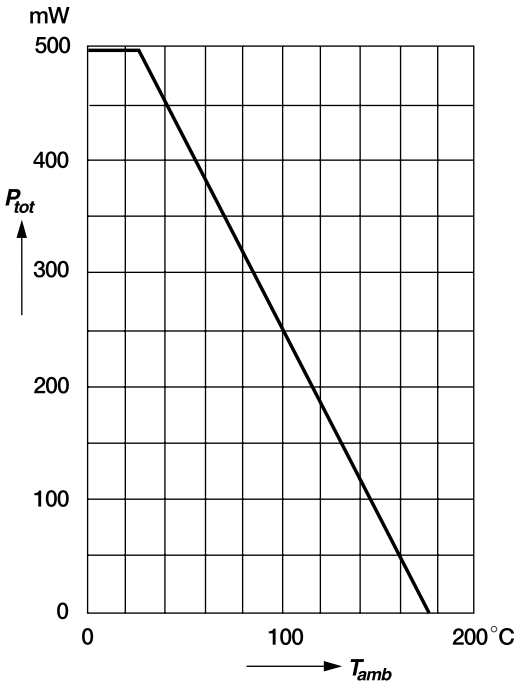

**Breakdown characteristics**

at $T_j$ = constant (pulsed)

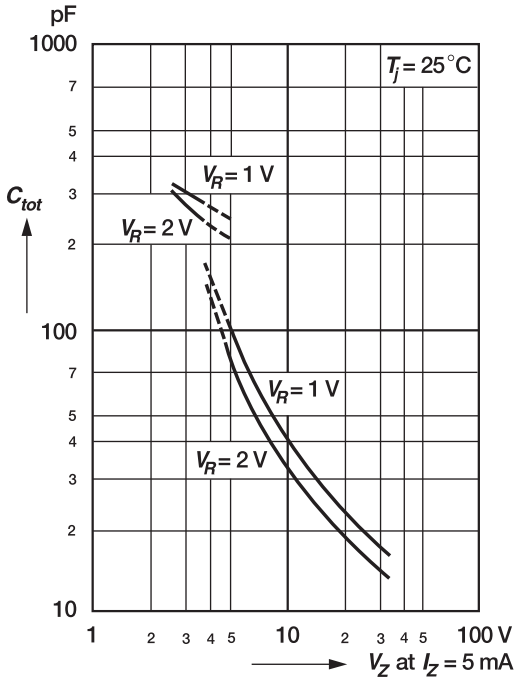


### Admissible power dissipation versus ambient temperature

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

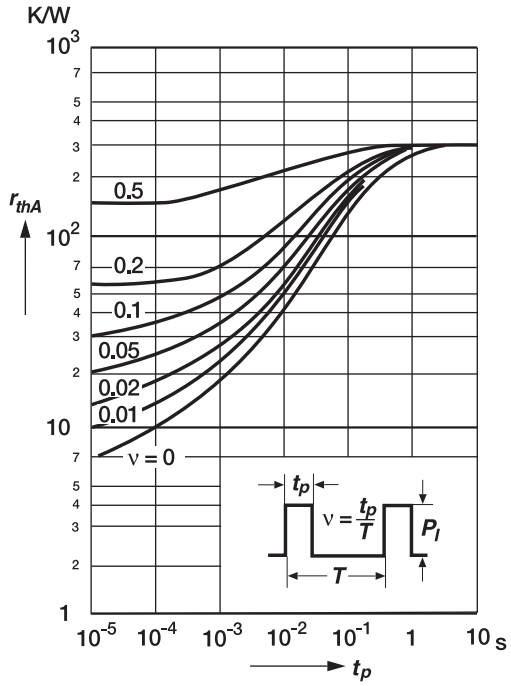



### Capacitance versus Zener voltage

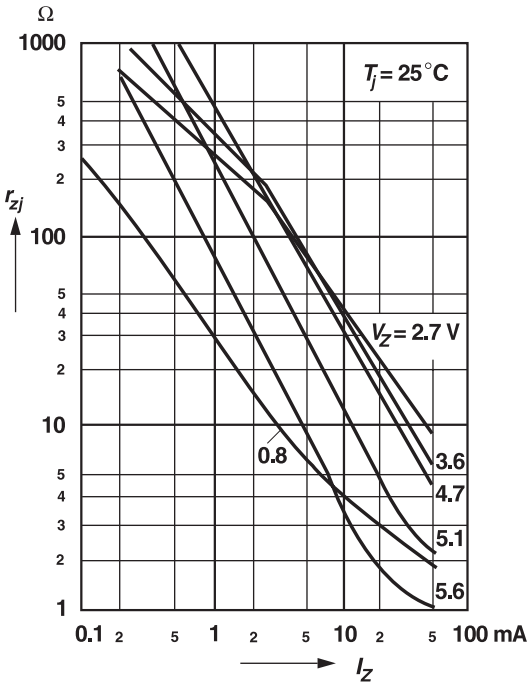



### Pulse thermal resistance versus pulse duration

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




### Dynamic resistance versus Zener current

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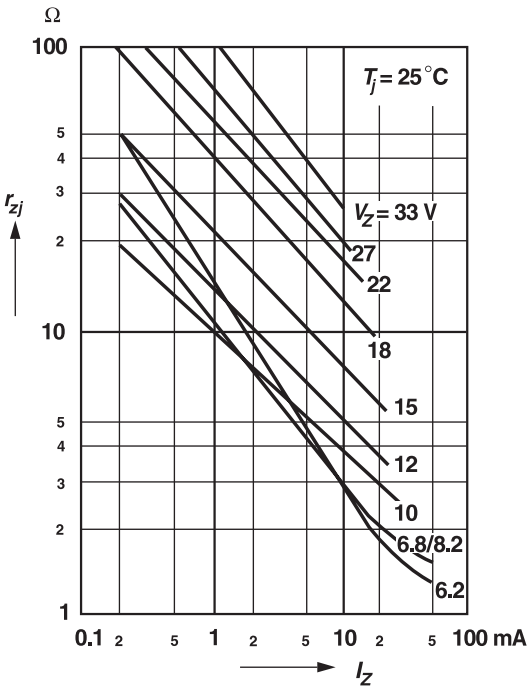
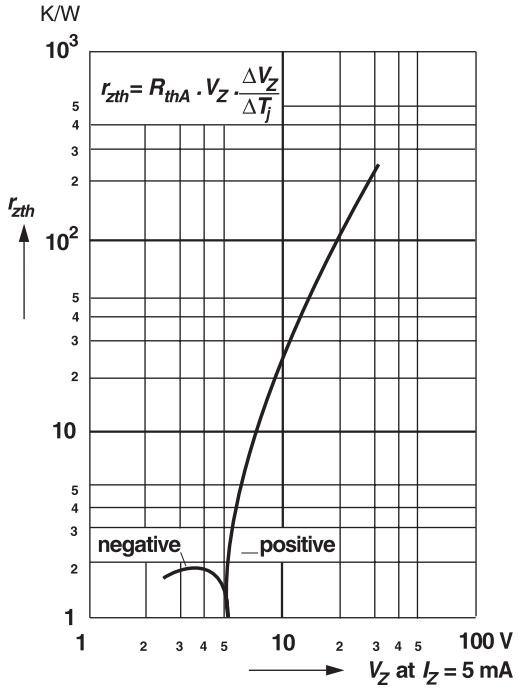
# RATINGS AND CHARACTERISTIC CURVES BZX55-C0V8 THRU BZX55-C75

### Dynamic resistance versus Zener current

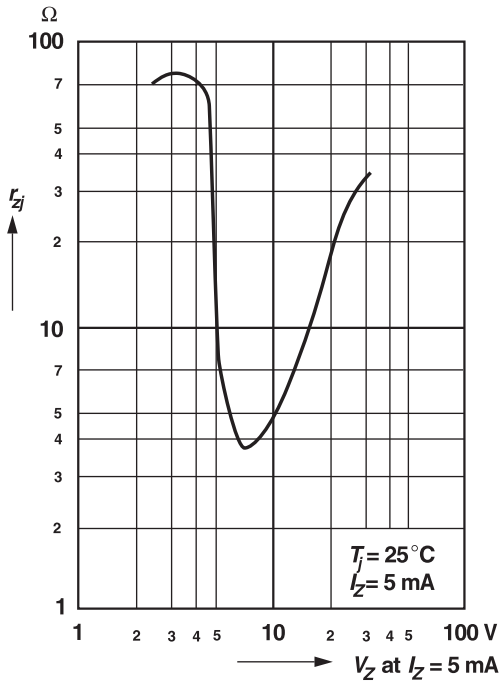



### Thermal differential resistance versus Zener voltage

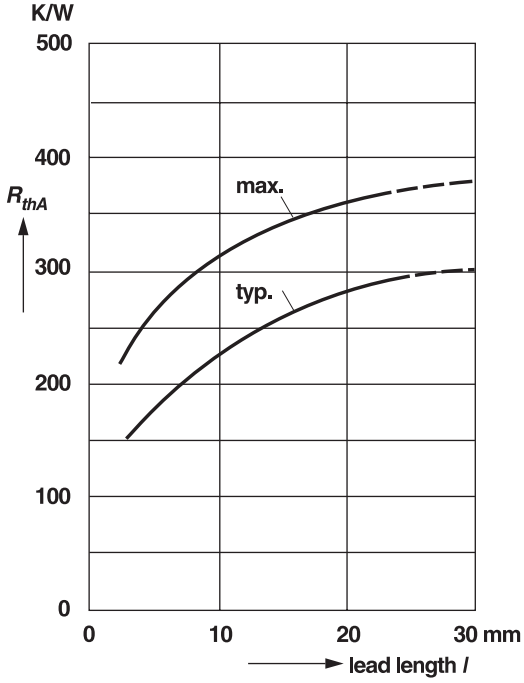
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.




### Dynamic resistance versus Zener voltage




### Thermal resistance versus lead length

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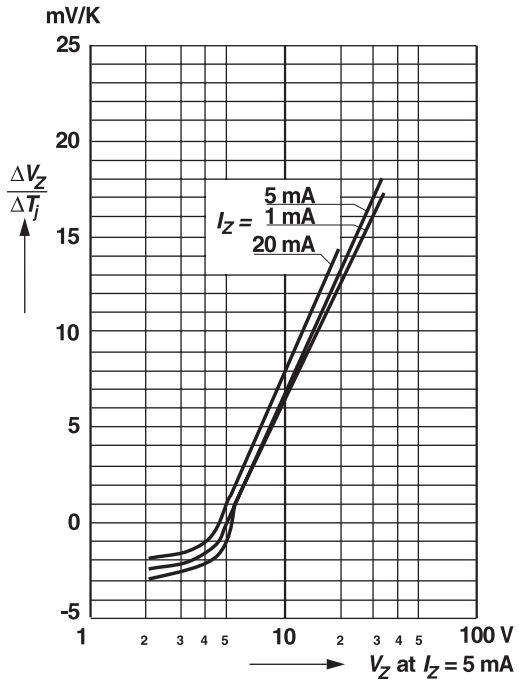
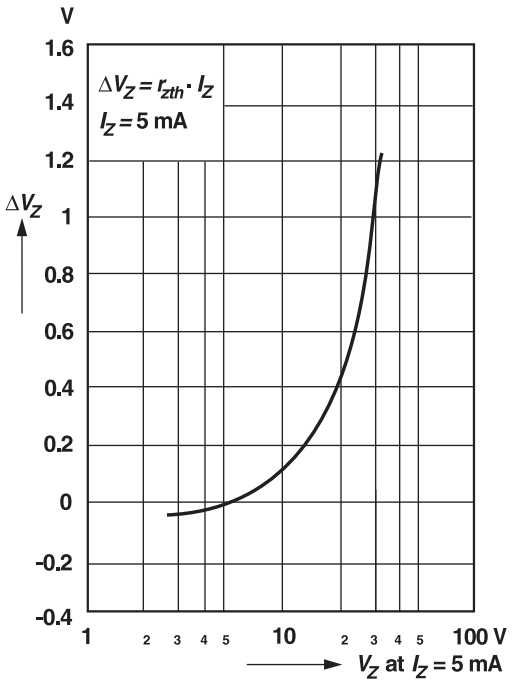
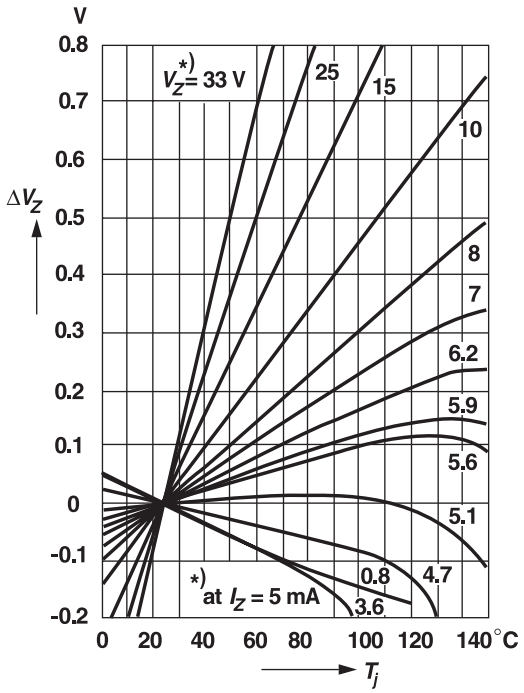
**Temperature dependence of Zener voltage versus Zener voltage**




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




**Change of Zener voltage versus junction temperature**



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