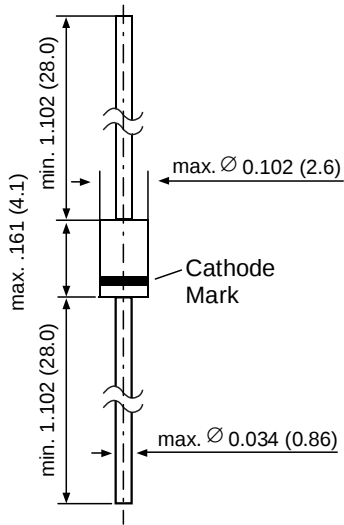


# BZX85-C3V6 THRU BZX85-C62

## ZENER DIODES

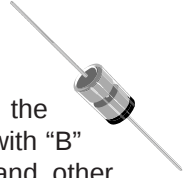
### DO-41 Glass



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 24 standard. Replace suffix "C" with "B" for  $\pm 2\%$  tolerance. Other voltage tolerances and other Zener voltages are available upon request.



### 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 <sup>(1)</sup> | Watts              |
| Junction Temperature                                | $T_j$     | 175                | $^{\circ}\text{C}$ |
| Storage Temperature Range                           | $T_s$     | - 55 to +175       | $^{\circ}\text{C}$ |

|                                               | SYMBOL     | MIN. | TYP. | MAX.               | UNIT                 |
|-----------------------------------------------|------------|------|------|--------------------|----------------------|
| Thermal Resistance<br>Junction to Ambient Air | $R_{thJA}$ | —    | —    | 130 <sup>(1)</sup> | $^{\circ}\text{C/W}$ |
| Forward Voltage<br>at $I_F = 200 \text{ mA}$  | $V_F$      | —    | —    | 1.0                | Volts                |

#### NOTES:

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

# BZX85-C3V6 THRU BZX85-C62

## ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| Type         | Zener Voltage range <sup>(1)</sup><br>at<br>I <sub>Z</sub> = I <sub>ZT</sub><br>V <sub>Z</sub> V | Dynamic resistance |                                     |                   |                                     | Temp. coefficient of Zener Voltage<br>at<br>I <sub>Z</sub> = I <sub>ZT</sub><br>α <sub>VZ</sub> %/K |        | Reverse leakage current |                        | Admissible Zener current <sup>(2)</sup> |                                                    |
|--------------|--------------------------------------------------------------------------------------------------|--------------------|-------------------------------------|-------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------|--------|-------------------------|------------------------|-----------------------------------------|----------------------------------------------------|
|              |                                                                                                  | r <sub>Zj</sub> Ω  | at<br>f=1 kHz<br>I <sub>ZT</sub> mA | r <sub>Zj</sub> Ω | at<br>f=1 kHz<br>I <sub>ZT</sub> mA |                                                                                                     |        |                         |                        |                                         |                                                    |
|              |                                                                                                  |                    |                                     |                   |                                     | min.                                                                                                | max.   | at<br>I <sub>R</sub> μA | at<br>V <sub>R</sub> V | I <sub>Z</sub> mA                       | at<br>t <sub>p</sub> =10 ms<br>I <sub>ZSM</sub> mA |
| BZX85 – C3V6 | 3.4 ... 3.8                                                                                      | < 15               | 60                                  | < 500             | 1                                   | – 0.08                                                                                              | – 0.05 | < 20                    | 1                      | 290                                     | 2660                                               |
| BZX85 – C3V9 | 3.7 ... 4.1                                                                                      | < 15               | 60                                  | < 500             | 1                                   | – 0.07                                                                                              | – 0.02 | < 10                    | 1                      | 280                                     | 2540                                               |
| BZX85 – C4V3 | 4.0 ... 4.6                                                                                      | < 13               | 50                                  | < 500             | 1                                   | – 0.05                                                                                              | +0.01  | < 3                     | 1                      | 250                                     | 2440                                               |
| BZX85 – C4V7 | 4.4 ... 5.0                                                                                      | < 13               | 45                                  | < 600             | 1                                   | – 0.03                                                                                              | +0.04  | < 3                     | 1                      | 215                                     | 2320                                               |
| BZX85 – C5V1 | 4.8 ... 5.4                                                                                      | < 10               | 45                                  | < 500             | 1                                   | – 0.01                                                                                              | +0.04  | < 1                     | 1.5                    | 200                                     | 2200                                               |
| BZX85 – C5V6 | 5.2 ... 6.0                                                                                      | < 7                | 45                                  | < 400             | 1                                   | 0                                                                                                   | +0.045 | < 1                     | 2                      | 190                                     | 2080                                               |
| BZX85 – C6V2 | 5.8 ... 6.6                                                                                      | < 4                | 35                                  | < 300             | 1                                   | +0.01                                                                                               | +0.055 | < 1                     | 3                      | 170                                     | 1960                                               |
| BZX85 – C6V8 | 6.4 ... 7.2                                                                                      | < 3.5              | 35                                  | < 300             | 1                                   | +0.015                                                                                              | +0.06  | < 1                     | 4                      | 155                                     | 1800                                               |
| BZX85 – C7V5 | 7.0 ... 7.9                                                                                      | < 3                | 35                                  | < 200             | 0.5                                 | +0.02                                                                                               | +0.065 | < 1                     | 4.5                    | 140                                     | 1620                                               |
| BZX85 – C8V2 | 7.7 ... 8.7                                                                                      | < 5                | 25                                  | < 200             | 0.5                                 | +0.03                                                                                               | +0.07  | < 1                     | 6.2                    | 130                                     | 1520                                               |
| BZX85 – C9V1 | 8.5 ... 9.6                                                                                      | < 5                | 25                                  | < 200             | 0.5                                 | +0.035                                                                                              | +0.075 | < 1                     | 6.8                    | 120                                     | 1340                                               |
| BZX85 – C10  | 9.4 ... 10.6                                                                                     | < 7                | 25                                  | < 200             | 0.5                                 | +0.04                                                                                               | +0.08  | < 0.5                   | 7.5                    | 105                                     | 1200                                               |
| BZX85 – C11  | 10.4 ... 11.6                                                                                    | < 8                | 20                                  | < 300             | 0.5                                 | +0.045                                                                                              | +0.08  | < 0.5                   | 8.2                    | 97                                      | 1100                                               |
| BZX85 – C12  | 11.4 ... 12.7                                                                                    | < 9                | 20                                  | < 350             | 0.5                                 | +0.045                                                                                              | +0.085 | < 0.5                   | 9.1                    | 88                                      | 1000                                               |
| BZX85 – C13  | 12.4 ... 14.1                                                                                    | < 10               | 20                                  | < 400             | 0.5                                 | +0.05                                                                                               | +0.085 | < 0.5                   | 10                     | 79                                      | 900                                                |
| BZX85 – C15  | 13.8 ... 15.6                                                                                    | < 10               | 15                                  | < 500             | 0.5                                 | +0.055                                                                                              | +0.09  | < 0.5                   | 11                     | 71                                      | 760                                                |
| BZX85 – C16  | 15.3 ... 17.1                                                                                    | < 15               | 15                                  | < 500             | 0.5                                 | +0.055                                                                                              | +0.09  | < 0.5                   | 12                     | 66                                      | 700                                                |
| BZX85 – C18  | 16.8 ... 19.1                                                                                    | < 20               | 15                                  | < 500             | 0.5                                 | +0.06                                                                                               | +0.09  | < 0.5                   | 13                     | 62                                      | 600                                                |
| BZX85 – C20  | 18.8 ... 21.2                                                                                    | < 24               | 10                                  | < 600             | 0.5                                 | +0.06                                                                                               | +0.09  | < 0.5                   | 15                     | 56                                      | 540                                                |
| BZX85 – C22  | 20.8 ... 23.3                                                                                    | < 25               | 10                                  | < 600             | 0.5                                 | +0.06                                                                                               | +0.095 | < 0.5                   | 16                     | 52                                      | 500                                                |
| BZX85 – C24  | 22.8 ... 25.6                                                                                    | < 25               | 10                                  | < 600             | 0.5                                 | +0.06                                                                                               | +0.095 | < 0.5                   | 18                     | 47                                      | 450                                                |
| BZX85 – C27  | 25.1 ... 28.9                                                                                    | < 30               | 8                                   | < 750             | 0.25                                | +0.06                                                                                               | +0.095 | < 0.5                   | 20                     | 41                                      | 400                                                |
| BZX85 – C30  | 28 ... 32                                                                                        | < 30               | 8                                   | < 1000            | 0.25                                | +0.06                                                                                               | +0.095 | < 0.5                   | 22                     | 36                                      | 380                                                |
| BZX85 – C33  | 31 ... 35                                                                                        | < 35               | 8                                   | < 1000            | 0.25                                | +0.06                                                                                               | +0.095 | < 0.5                   | 24                     | 33                                      | 350                                                |
| BZX85 – C36  | 34 ... 38                                                                                        | < 40               | 8                                   | < 1000            | 0.25                                | +0.06                                                                                               | +0.095 | < 0.5                   | 27                     | 30                                      | 320                                                |
| BZX85 – C39  | 37 ... 41                                                                                        | < 50               | 6                                   | < 1000            | 0.25                                | +0.06                                                                                               | +0.095 | < 0.5                   | 30                     | 28                                      | 296                                                |
| BZX85 – C43  | 40 ... 46                                                                                        | < 50               | 6                                   | < 1000            | 0.25                                | +0.06                                                                                               | +0.095 | < 0.5                   | 33                     | 26                                      | 270                                                |
| BZX85 – C47  | 44 ... 50                                                                                        | < 90               | 4                                   | < 1500            | 0.25                                | +0.06                                                                                               | +0.095 | < 0.5                   | 36                     | 23                                      | 246                                                |
| BZX85 – C51  | 48 ... 54                                                                                        | < 115              | 4                                   | < 1500            | 0.25                                | +0.06                                                                                               | +0.095 | < 0.5                   | 39                     | 21                                      | 226                                                |
| BZX85 – C56  | 52 ... 60                                                                                        | < 120              | 4                                   | < 2000            | 0.25                                | +0.06                                                                                               | +0.095 | < 0.5                   | 43                     | 19                                      | 208                                                |
| BZX85 – C62  | 58 ... 66                                                                                        | < 125              | 4                                   | < 2000            | 0.25                                | +0.06                                                                                               | +0.095 | < 0.5                   | 47                     | 16                                      | 186                                                |

### NOTES:

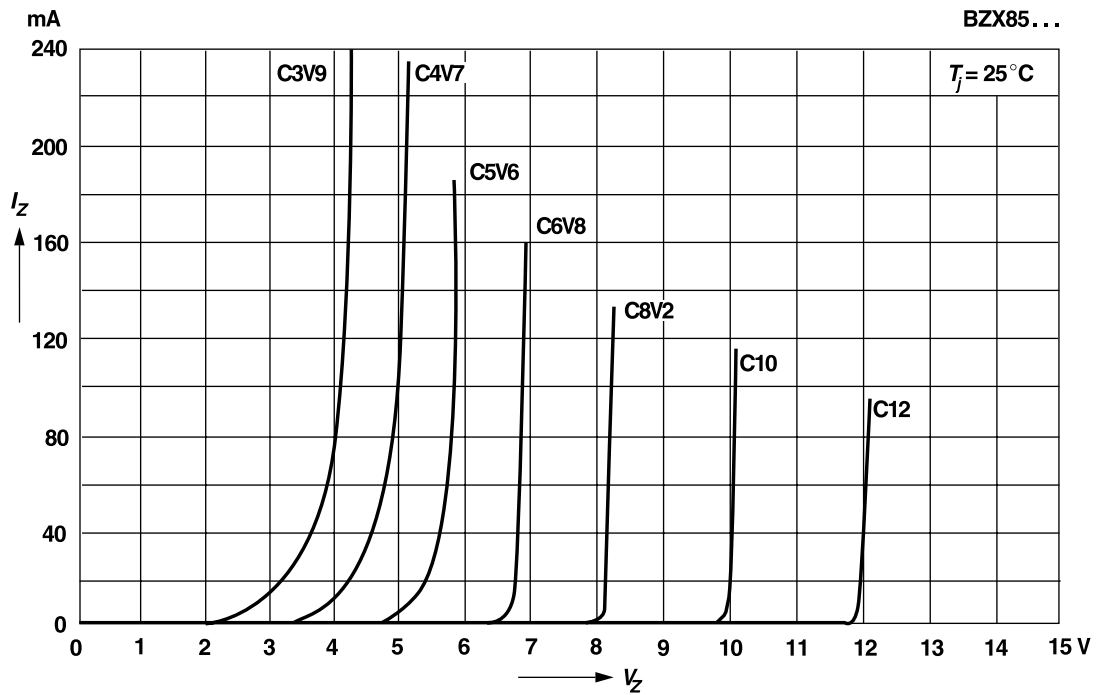
(1) Measured with pulses  $t_p = 5$  ms

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

# RATINGS AND CHARACTERISTIC CURVES BZX85-C3V6 THRU BZX85-C62

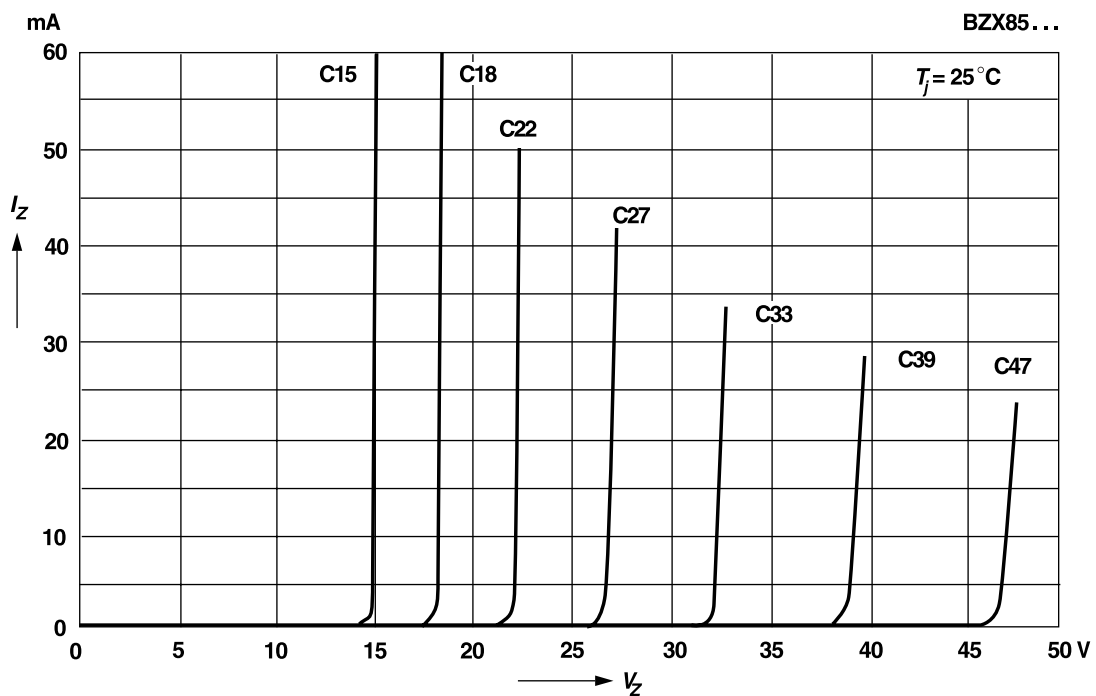
## Breakdown characteristics

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



## Breakdown characteristics

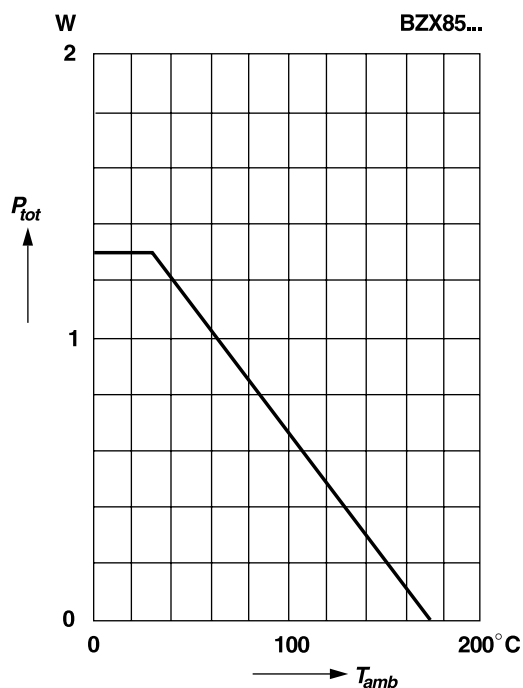
at  $T_j = \text{constant}$  (pulsed)



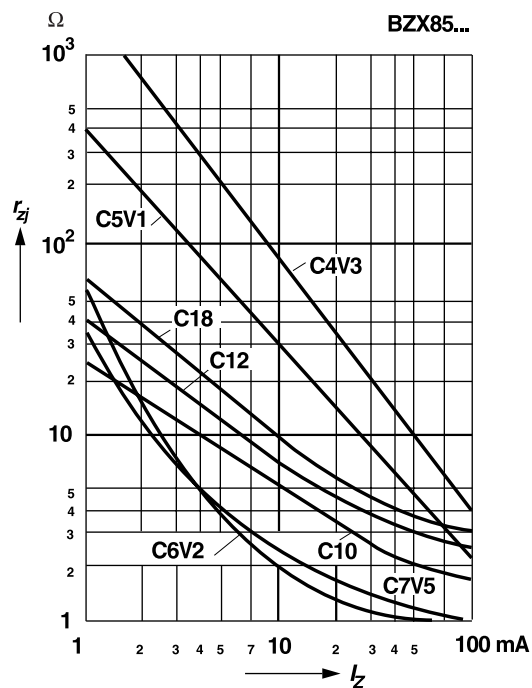
# RATINGS AND CHARACTERISTIC CURVES BZX85-C3V6 THRU BZX85-C62

## Admissible power dissipation versus ambient temperature

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

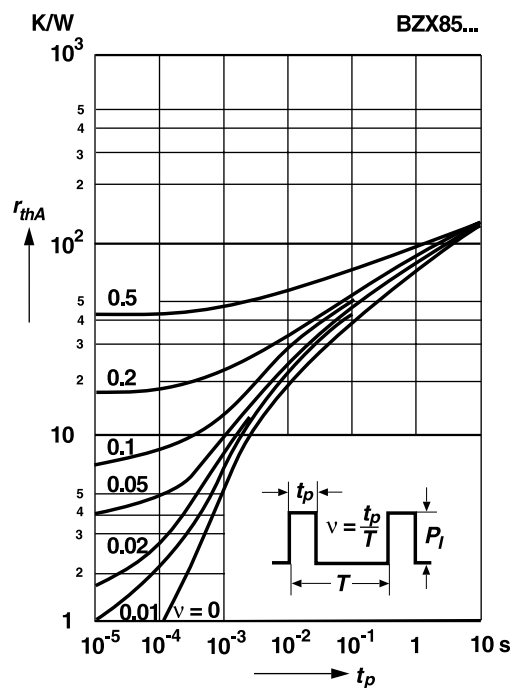


## Dynamic resistance versus Zener current

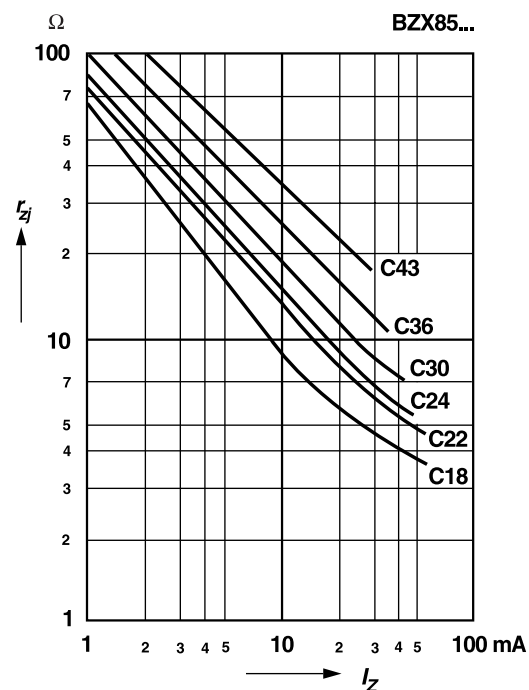


## Pulse thermal resistance versus pulse duration

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

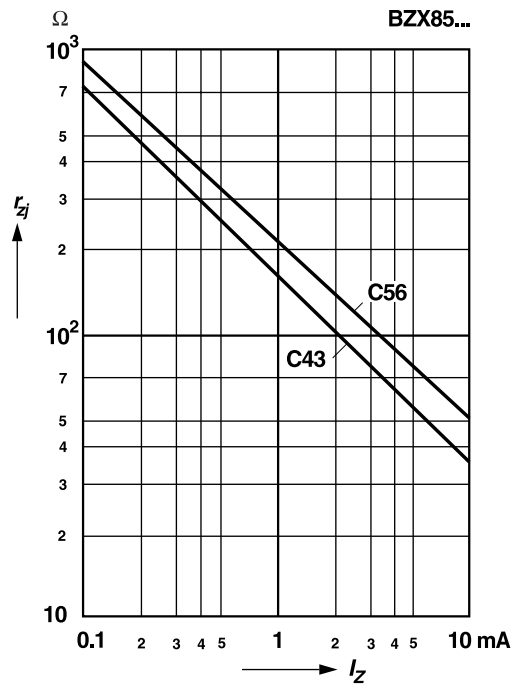


## Dynamic resistance versus Zener current

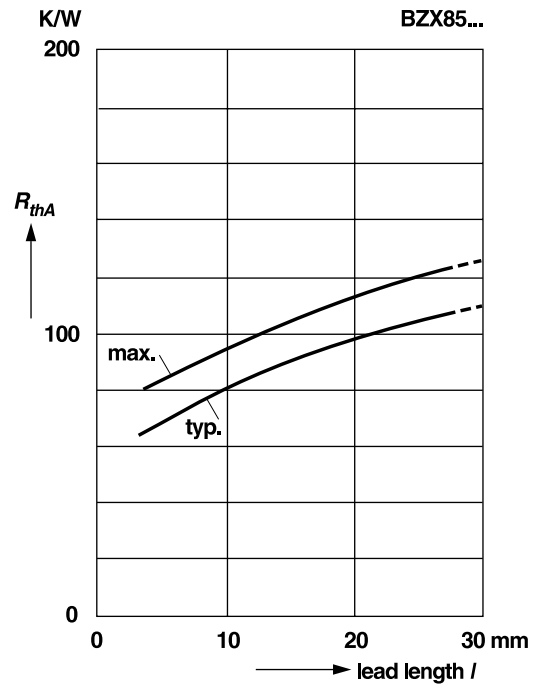


## RATINGS AND CHARACTERISTIC CURVES BZX85-C3V6 THRU BZX85-C62

Dynamic resistance  
versus Zener current



Thermal resistance  
versus lead length



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