

# BZX85C

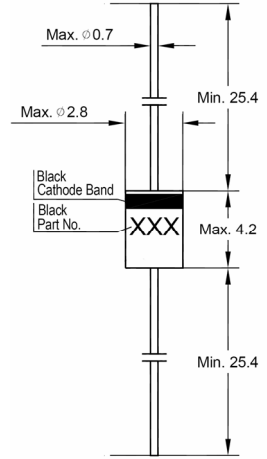
## Silicon Planar Power Zener Diodes

DO-41

### FEATURES

For use in stabilizing and clipping circuits with high power rating.

The Zener voltages are graded according to the international E 24 standard. Other tolerances and higher Zener voltages are upon request.



Glass case DO-41 Dimensions in mm

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

| Parameter                 | Symbol    | Value             | UNIT             |
|---------------------------|-----------|-------------------|------------------|
| Power Dissipation         | $P_{tot}$ | 1.3 <sup>1)</sup> | W                |
| Junction Temperature      | $T_j$     | 200               | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{stg}$ | - 55 to + 200     | $^\circ\text{C}$ |

<sup>1)</sup> Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

### Characteristics at $T_a = 25^\circ\text{C}$

| Parameter                                   | Symbol    | Max.              | UNIT |
|---|-----------|-------------------|------|
| Thermal Resistance Junction to Ambient Air  | $R_{thA}$ | 130 <sup>1)</sup> | K/W  |
| Forward Voltage<br>at $I_F = 200\text{ mA}$ | $V_F$     | 1.2               | V    |

<sup>1)</sup> Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

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## Characteristics at Ta = 25°C

| Type      | Zener Voltage <sup>1)</sup> |                 |                    | Dynamic Resistance |                    |                 |                    | Reverse Current |                   |
|-----------|-----------------------------|-----------------|--------------------|--------------------|--------------------|-----------------|--------------------|-----------------|-------------------|
|           | V <sub>Znom</sub>           | V <sub>ZT</sub> | at I <sub>ZT</sub> | Z <sub>ZT</sub>    | at I <sub>ZT</sub> | Z <sub>ZK</sub> | at I <sub>ZK</sub> | I <sub>R</sub>  | at V <sub>R</sub> |
|           | (V)                         | (V)             | (mA)               | Max.(Ω)            | (mA)               | Max.(Ω)         | (mA)               | Max.(μA)        | (V)               |
| BZX85C2V7 | 2.7                         | 2.5...2.9       | 80                 | 20                 | 80                 | 400             | 1                  | 150             | 1                 |
| BZX85C3V0 | 3                           | 2.8...3.2       | 80                 | 20                 | 80                 | 400             | 1                  | 100             | 1                 |
| BZX85C3V3 | 3.3                         | 3.1...3.5       | 70                 | 20                 | 70                 | 400             | 1                  | 40              | 1                 |
| BZX85C3V6 | 3.6                         | 3.4...3.8       | 60                 | 15                 | 60                 | 500             | 1                  | 20              | 1                 |
| BZX85C3V9 | 3.9                         | 3.7...4.1       | 60                 | 15                 | 60                 | 500             | 1                  | 10              | 1                 |
| BZX85C4V3 | 4.3                         | 4...4.6         | 50                 | 13                 | 50                 | 500             | 1                  | 3               | 1                 |
| BZX85C4V7 | 4.7                         | 4.4...5         | 45                 | 13                 | 45                 | 600             | 1                  | 3               | 1                 |
| BZX85C5V1 | 5.1                         | 4.8...5.4       | 45                 | 10                 | 45                 | 500             | 1                  | 1               | 1.5               |
| BZX85C5V6 | 5.6                         | 5.2...6         | 45                 | 7                  | 45                 | 400             | 1                  | 1               | 2                 |
| BZX85C6V2 | 6.2                         | 5.8...6.6       | 35                 | 4                  | 35                 | 300             | 1                  | 1               | 3                 |
| BZX85C6V8 | 6.8                         | 6.4...7.2       | 35                 | 3.5                | 35                 | 300             | 1                  | 1               | 4                 |
| BZX85C7V5 | 7.5                         | 7...7.9         | 35                 | 3                  | 35                 | 200             | 0.5                | 1               | 4.5               |
| BZX85C8V2 | 8.2                         | 7.7...8.7       | 25                 | 5                  | 25                 | 200             | 0.5                | 1               | 6.2               |
| BZX85C9V1 | 9.1                         | 8.5...9.6       | 25                 | 5                  | 25                 | 200             | 0.5                | 1               | 6.8               |
| BZX85C10  | 10                          | 9.4...10.6      | 25                 | 7                  | 25                 | 200             | 0.5                | 0.5             | 7                 |
| BZX85C11  | 11                          | 10.4...11.6     | 20                 | 8                  | 20                 | 300             | 0.5                | 0.5             | 8.2               |
| BZX85C12  | 12                          | 11.4...12.7     | 20                 | 9                  | 20                 | 350             | 0.5                | 0.5             | 9.1               |
| BZX85C13  | 13                          | 12.4...14.1     | 20                 | 10                 | 20                 | 400             | 0.5                | 0.5             | 10                |
| BZX85C15  | 15                          | 13.8...15.6     | 15                 | 15                 | 15                 | 500             | 0.5                | 0.5             | 11                |
| BZX85C16  | 16                          | 15.3...17.1     | 15                 | 15                 | 15                 | 500             | 0.5                | 0.5             | 12                |
| BZX85C18  | 18                          | 16.8...19.1     | 15                 | 20                 | 15                 | 500             | 0.5                | 0.5             | 13                |
| BZX85C20  | 20                          | 18.8...21.2     | 10                 | 24                 | 10                 | 600             | 0.5                | 0.5             | 15                |
| BZX85C22  | 22                          | 20.8...23.3     | 10                 | 25                 | 10                 | 600             | 0.5                | 0.5             | 16                |
| BZX85C24  | 24                          | 22.8...25.6     | 10                 | 25                 | 10                 | 600             | 0.5                | 0.5             | 18                |
| BZX85C27  | 27                          | 25.1...28.9     | 8                  | 30                 | 8                  | 750             | 0.25               | 0.5             | 20                |
| BZX85C30  | 30                          | 28...32         | 8                  | 30                 | 8                  | 1000            | 0.25               | 0.5             | 22                |
| BZX85C33  | 33                          | 31...35         | 8                  | 35                 | 8                  | 1000            | 0.25               | 0.5             | 24                |
| BZX85C36  | 36                          | 34...38         | 8                  | 40                 | 8                  | 1000            | 0.25               | 0.5             | 27                |

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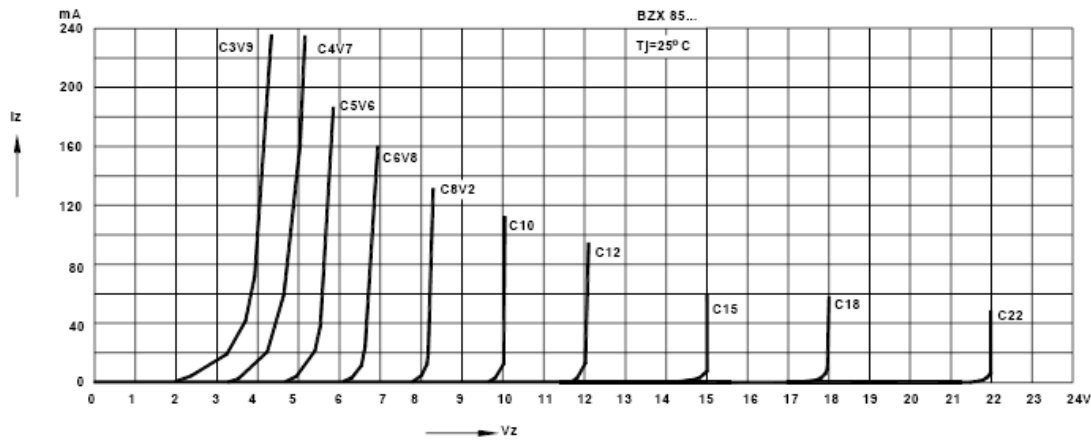
## Characteristics at Ta = 25°C

| Type     | Zener Voltage <sup>1)</sup> |                 |                    | Dynamic Resistance |                    |                 |                    | Reverse Current |                   |
|----------|-----------------------------|-----------------|--------------------|--------------------|--------------------|-----------------|--------------------|-----------------|-------------------|
|          | V <sub>Znom</sub>           | V <sub>ZT</sub> | at I <sub>ZT</sub> | Z <sub>ZT</sub>    | at I <sub>ZT</sub> | Z <sub>ZK</sub> | at I <sub>ZK</sub> | I <sub>R</sub>  | at V <sub>R</sub> |
|          | (V)                         | (V)             | (mA)               | Max.(Ω)            | (mA)               | Max.(Ω)         | (mA)               | Max.(μA)        | (V)               |
| BZX85C39 | 39                          | 37...41         | 6                  | 50                 | 6                  | 1000            | 0.25               | 0.5             | 30                |
| BZX85C43 | 43                          | 40...46         | 6                  | 50                 | 6                  | 1000            | 0.25               | 0.5             | 33                |
| BZX85C47 | 47                          | 44...50         | 4                  | 90                 | 4                  | 1500            | 0.25               | 0.5             | 36                |
| BZX85C51 | 51                          | 48...54         | 4                  | 115                | 4                  | 1500            | 0.25               | 0.5             | 39                |
| BZX85C56 | 56                          | 52...60         | 4                  | 120                | 4                  | 2000            | 0.25               | 0.5             | 43                |
| BZX85C62 | 62                          | 58...66         | 4                  | 125                | 4                  | 2000            | 0.25               | 0.5             | 47                |
| BZX85C68 | 68                          | 64...72         | 4                  | 130                | 4                  | 2000            | 0.25               | 0.5             | 51                |
| BZX85C75 | 75                          | 70...79         | 4                  | 135                | 4                  | 2000            | 0.25               | 0.5             | 56                |

<sup>1)</sup> Tested with pulses t<sub>p</sub> = 20 ms.

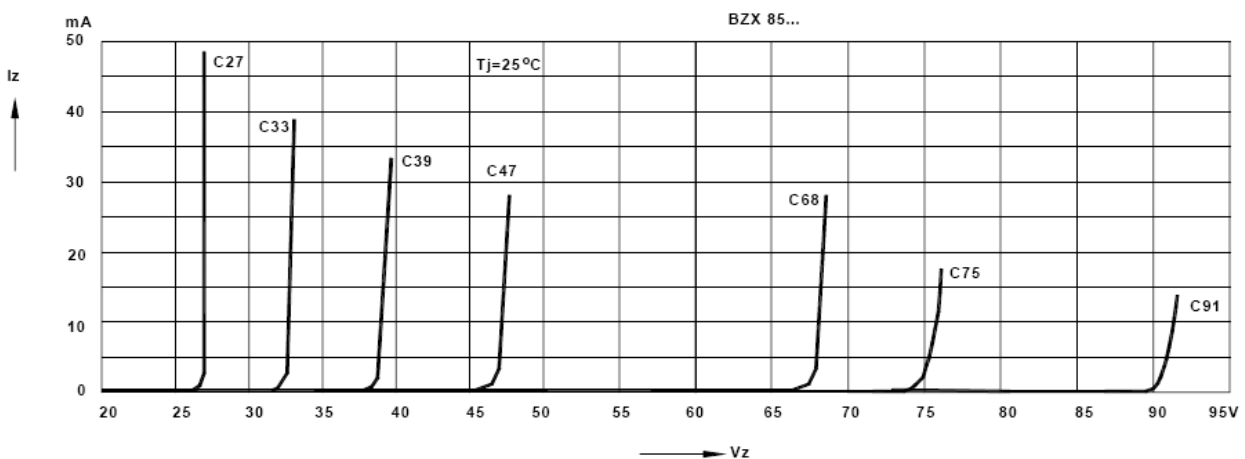
### Breakdown characteristics

at T<sub>j</sub>=constant (pulsed)



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at T<sub>j</sub>=constant (pulsed)

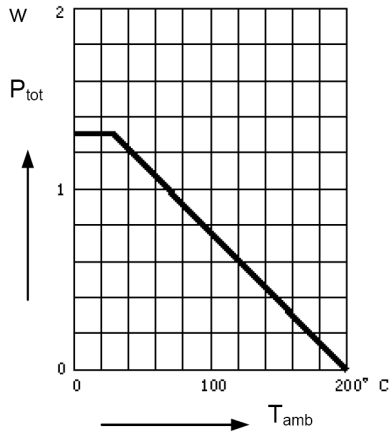


# BZX85C

Admissible power dissipation Versus ambient temperature

Valid provided that leads are kept at ambient

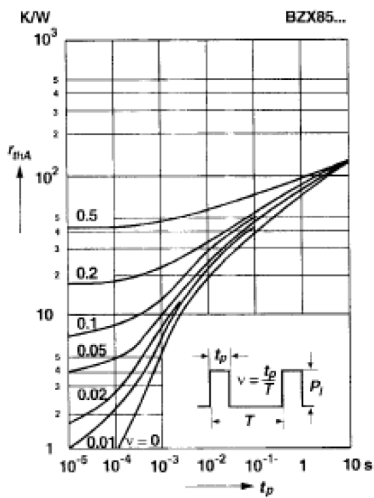
Temperature at a distance of 10 mm from case



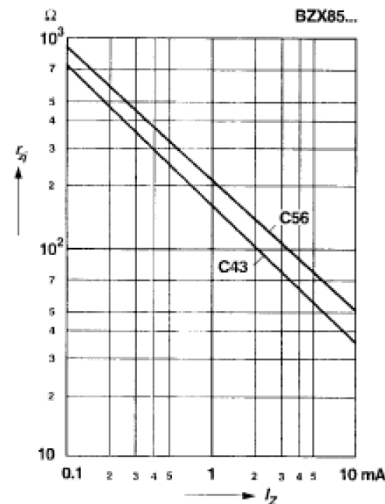
Pulse thermal resistance versus pulse duration

Valid provided that leads are kept at ambient

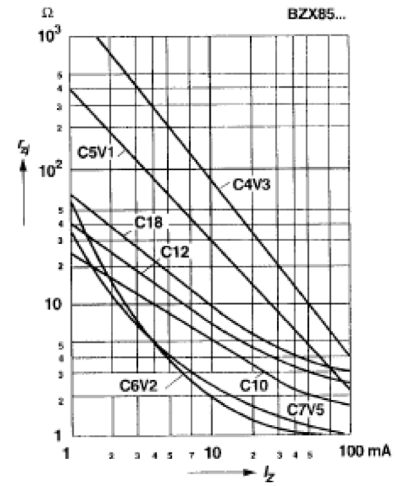
Temperature at a distance of 10 mm from case



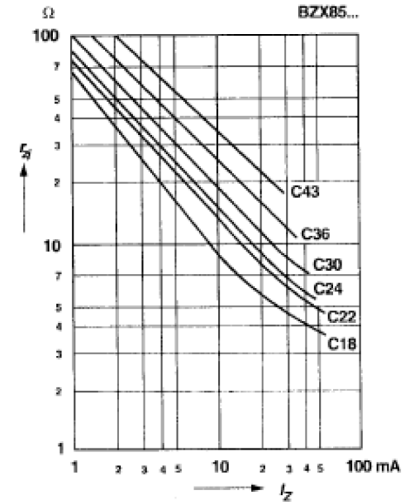
Dynamic resistance versus Zener current



Dynamic resistance versus Zener current



Dynamic resistance versus Zener current



Thermal resistance versus lead length

