

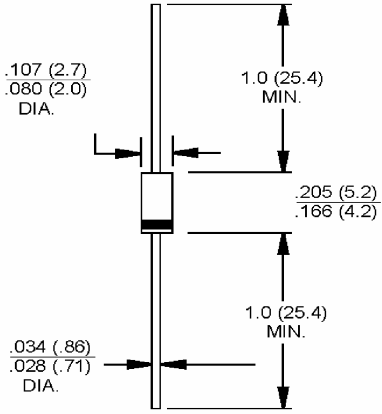


|   |   |  |
|---|---|--|
|    | <h2>BZX85C SERIES</h2> <h3>Zener Diode</h3>   |  |
|    | Voltage Range<br>2.4 to 212 Volts<br>1.3Watts Power Dissipation   |  |
| <p><b>Features</b></p> <ul style="list-style-type: none"> <li>✧ Silicon Planar Power Zener Diodes</li> <li>✧ For use in stabilizing and clipping circuits with high power rating</li> <li>✧ The Zener voltages are graded according to the international E24 standard. Replace suffix "C"</li> </ul> <p><b>Mechanical Data</b></p> <ul style="list-style-type: none"> <li>✧ Case: Molded plastic DO-41</li> <li>✧ Lead: Axial leads, solderable per MIL-STD-202, Method 2025</li> <li>✧ Polarity: Color band denotes cathode end</li> <li>✧ Mounting position: Any</li> <li>✧ Weight: 310 mg (approx.)</li> </ul> | <p><b>DO-41</b></p>  <p style="text-align: center;"><b>Dimensions in inches and (millimeters)</b></p> |  |
| <p><b>Maximum Ratings and Electrical Characteristics</b><br/>                 Rating at 25°C ambient temperature unless otherwise specified.</p>  |   |  |

**Maximum Ratings**

| Type Number   | Symbol                            | Value        | Units |
|---|-----------------------------------|--------------|-------|
| Power Dissipation (Note 1)                          | Pd                                | 1.3          | W     |
| Thermal Resistance Junction to Ambient Air (Note 1) | R <sub>θJA</sub>                  | 130          | °C /W |
| Operating and Storage Temperature Range             | T <sub>J</sub> , T <sub>STG</sub> | -55 to + 175 | °C    |

Notes: 1. Measured with pulses tp=5ms

2. Valid Provided that Lead are Kept at Ambient Temperature at a distance of 10 mm from case..

3. f = 1KHz.

ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

| Device    | Zener Voltage Range (Note 1)     |      | Dynamic Resistance |                 |                 |                 | Temperature Coefficient of Zener Voltage         |       | Reverse Leakage Current |                | Admissible Zener Current (Note 2) |
|-----------|----------------------------------|------|--------------------|-----------------|-----------------|-----------------|--|-------|-------------------------|----------------|-----------------------------------|
|           | V <sub>Z</sub> @ I <sub>ZT</sub> |      | f <sub>ZT</sub>    | I <sub>ZT</sub> | f <sub>ZT</sub> | I <sub>ZK</sub> | V <sub>Z</sub> @ I <sub>Z</sub> =I <sub>ZT</sub> |       | I <sub>R</sub>          | V <sub>R</sub> | I <sub>Z</sub>                    |
|           | V                                |      | (Note 3)           |                 | (Note 3)        |                 | % / °C   |       |                         |                |                                   |
|           | Min                              | Max  | Ohm                | mA              | Ohms            | mA              | Min  | Max   | uA                      | V              | mA                                |
| BZX85C2V7 | 2.5                              | 2.9  | <20                | 80              | <400            | 1               | -0.08  | -0.05 | <150                    | 1.0            | 360                               |
| BZX85C3V0 | 2.8                              | 3.2  | <20                | 80              | <400            | 1               | -0.08  | -0.05 | <100                    | 1.0            | 330                               |
| BZX85C3V3 | 3.1                              | 3.5  | <20                | 80              | <400            | 1               | -0.08  | -0.05 | <40                     | 1.0            | 300                               |
| BZX85C3V6 | 3.4                              | 3.8  | <20                | 60              | <500            | 1               | -0.08  | -0.05 | <20                     | 1.0            | 290                               |
| BZX85C3V9 | 3.7                              | 4.1  | <15                | 60              | <500            | 1               | -0.07  | -0.02 | <10                     | 1.0            | 280                               |
| BZX85C4V3 | 4                                | 4.6  | <13                | 50              | <500            | 1               | -0.05  | 0.01  | <3                      | 1.0            | 250                               |
| BZX85C4V7 | 4.4                              | 5.0  | <13                | 45              | <600            | 1               | -0.03  | 0.04  | <3                      | 1.0            | 215.0                             |
| BZX85C5V1 | 4.8                              | 5.4  | <10                | 45              | <500            | 1               | -0.01  | 0.04  | <1                      | 1.5            | 200.0                             |
| BZX85C5V6 | 5.2                              | 6    | <7                 | 45              | <400            | 1               | 0  | 0.045 | <1                      | 2.0            | 190.0                             |
| BZX85C6V2 | 5.8                              | 6.6  | <4                 | 35              | <300            | 1               | 0.01   | 0.055 | <1                      | 3.0            | 170.0                             |
| BZX85C6V8 | 6.4                              | 7.2  | <3.5               | 35              | <300            | 1               | 0.015  | 0.06  | <1                      | 4.0            | 155.0                             |
| BZX85C7V5 | 7                                | 7.9  | <3                 | 35              | <200            | 0.5             | 0.02   | 0.065 | <1                      | 4.5            | 140.0                             |
| BZX85C8V2 | 7.7                              | 8.7  | <5                 | 25              | <200            | 0.5             | 0.03   | 0.07  | <1                      | 6.2            | 130.0                             |
| BZX85C9V1 | 8.5                              | 9.6  | <5                 | 25              | <200            | 0.5             | 0.035  | 0.075 | <1                      | 6.8            | 120.0                             |
| BZX85C10  | 9.4                              | 10.6 | <7                 | 25              | <200            | 0.5             | 0.04   | 0.08  | <0.5                    | 7.5            | 105.0                             |
| BZX85C11  | 10.4                             | 11.6 | <8                 | 20              | <300            | 0.5             | 0.045  | 0.08  | <0.5                    | 8.2            | 97.0                              |
| BZX85C12  | 11.4                             | 12.7 | <9                 | 20              | <350            | 0.5             | 0.045  | 0.085 | <0.5                    | 9.1            | 88.0                              |
| BZX85C13  | 12.4                             | 14.1 | <10                | 20              | <400            | 0.5             | 0.05   | 0.085 | <0.5                    | 10             | 79.0                              |
| BZX85C15  | 13.8                             | 15.6 | <15                | 15              | <500            | 0.5             | 0.055  | 0.09  | <0.5                    | 11             | 71.0                              |
| BZX85C16  | 15.3                             | 17.1 | <15                | 15              | <500            | 0.5             | 0.055  | 0.09  | <0.5                    | 12             | 66.0                              |
| BZX85C18  | 16.8                             | 19.1 | <20                | 15              | <500            | 0.5             | 0.06   | 0.09  | <0.5                    | 13             | 62.0                              |
| BZX85C20  | 18.8                             | 21.2 | <24                | 10              | <600            | 0.5             | 0.06   | 0.09  | <0.5                    | 15             | 56.0                              |
| BZX85C22  | 20.8                             | 23.3 | <25                | 10              | <600            | 0.5             | 0.06   | 0.095 | <0.5                    | 16             | 52.0                              |
| BZX85C24  | 22.8                             | 25.6 | <25                | 10              | <600            | 0.5             | 0.06   | 0.095 | <0.5                    | 18             | 47.0                              |
| BZX85C27  | 25.1                             | 28.9 | <30                | 8               | <750            | 0.25            | 0.06   | 0.095 | <0.5                    | 20             | 41.0                              |
| BZX85C30  | 28                               | 32   | <30                | 8               | <1000           | 0.25            | 0.06   | 0.095 | <0.5                    | 22             | 36.0                              |
| BZX85C33  | 31                               | 35   | <35                | 8               | <1000           | 0.25            | 0.06   | 0.095 | <0.5                    | 24             | 33.0                              |
| BZX85C36  | 34                               | 38   | <40                | 8               | <1000           | 0.25            | 0.06   | 0.095 | <0.5                    | 27             | 30.0                              |
| BZX85C39  | 37                               | 41   | <50                | 6               | <1000           | 0.25            | 0.06   | 0.095 | <0.5                    | 30             | 28.0                              |
| BZX85C43  | 40                               | 46   | <50                | 6               | <1000           | 0.25            | 0.06   | 0.095 | <0.5                    | 33             | 26.0                              |
| BZX85C47  | 44                               | 50   | <90                | 4               | <1500           | 0.25            | 0.06   | 0.095 | <0.5                    | 36             | 23.0                              |
| BZX85C51  | 48                               | 54   | <115               | 4               | <1500           | 0.25            | 0.06   | 0.095 | <0.5                    | 39             | 21.0                              |
| BZX85C56  | 52                               | 60   | <120               | 4               | <2000           | 0.25            | 0.06   | 0.095 | <0.5                    | 43             | 19.0                              |

Notes: 1. Valid provided that device terminals are kept at ambient temperature.

2. Tested with pulses, 300us pulse width, period = 5ms.

3. f = 1KHz.

**ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)**

| Device    | Zener Voltage Range (Note 1)     |     | Dynamic Resistance |                 |                 |                 | Temperature Coefficient of Zener Voltage          |       | Reverse Leakage Current |                | Admissible Zener Current (Note 2) |
|-----------|----------------------------------|-----|--------------------|-----------------|-----------------|-----------------|---|-------|-------------------------|----------------|-----------------------------------|
|           | V <sub>Z</sub> @ I <sub>ZT</sub> |     | f <sub>ZT</sub>    | I <sub>ZT</sub> | f <sub>ZT</sub> | I <sub>ZK</sub> | V <sub>Z</sub> @ I <sub>Z</sub> = I <sub>ZT</sub> |       | I <sub>R</sub>          | V <sub>R</sub> | I <sub>Z</sub>                    |
|           | V                                |     | (Note 3)           |                 | (Note 3)        |                 | % / °C  |       |                         |                |                                   |
|           | Min                              | Max | Ohm                | mA              | Ohms            | mA              | Min   | Max   | uA                      | V              | mA                                |
| BZX85C62  | 58                               | 66  | <125               | 4.0             | <2000           | 0.25            | 0.06  | 0.095 | <0.5                    | 47             | 16                                |
| BZX85C68  | 64                               | 72  | <130               | 4.0             | <2000           | 0.25            | 0.055   | 0.095 | <0.5                    | 51             | 15                                |
| BZX85C75  | 70                               | 80  | <135               | 4.0             | <2000           | 0.25            | 0.055   | 0.095 | <0.5                    | 56             | 14                                |
| BZX85C82  | 77                               | 87  | <200               | 2.7             | <3000           | 0.25            | 0.055   | 0.095 | <0.5                    | 62             | 12                                |
| BZX85C91  | 85                               | 96  | <250               | 2.7             | <3000           | 0.25            | 0.055   | 0.095 | <0.5                    | 68             | 10                                |
| BZX85C100 | 96                               | 106 | <350               | 2.7             | <3000           | 0.25            | 0.055   | 0.095 | <0.5                    | 75             | 9.4                               |
| BZX85C110 | 104                              | 116 | <450               | 2.7             | <4000           | 0.25            | 0.055   | 0.095 | <0.5                    | 82             | 8.6                               |
| BZX85C120 | 114                              | 127 | <550               | 2.0             | <4500           | 0.25            | 0.055   | 0.095 | <0.5                    | 91             | 7.8                               |
| BZX85C130 | 124                              | 141 | <700               | 2.0             | <5000           | 0.25            | 0.055   | 0.095 | <0.5                    | 100            | 7.0                               |
| BZX85C150 | 138                              | 156 | <1000              | 2.0             | <6000           | 0.25            | 0.055   | 0.095 | <0.5                    | 110            | 6.4                               |
| BZX85C160 | 153                              | 171 | <1100              | 1.5             | <6500           | 0.25            | 0.055   | 0.095 | <0.5                    | 120            | 5.8                               |
| BZX85C180 | 168                              | 191 | <1200              | 1.5             | <7000           | 0.25            | 0.055   | 0.095 | <0.5                    | 130            | 5.2                               |
| BZX85C200 | 188                              | 212 | <1500              | 1.5             | <8000           | 0.25            | 0.055   | 0.095 | <0.5                    | 150            | 4.7                               |

Notes: 1. Valid provided that device terminals are kept at ambient temperature.

2. Tested with pulses, 300us pulse width, period = 5ms.

3. f = 1KHz.

## RATINGS AND CHARACTERISTIC CURVES (BZX85C SERIES)

FIG.1- PULSE THERMAL RESISTANCE VS PULSE DURATION

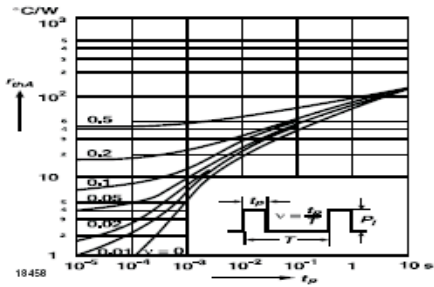


FIG.2- DYNAMIC RESISTANCE VS ZENER CURRENT

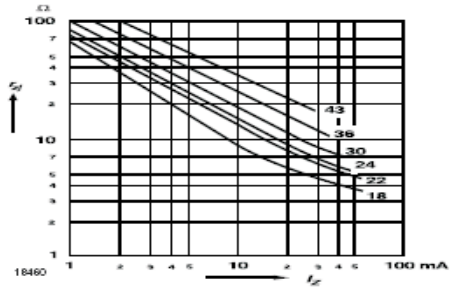


FIG.3- DYNAMIC RESISTANCE VS ZENER CURRENT

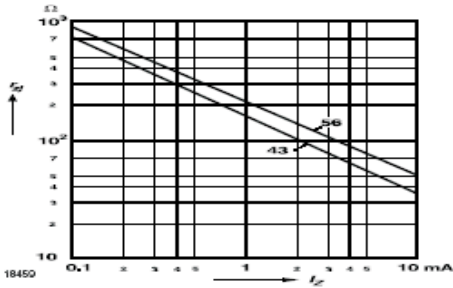


FIG.4- THERMAL RESISTANCE VS LEAD LENGTH

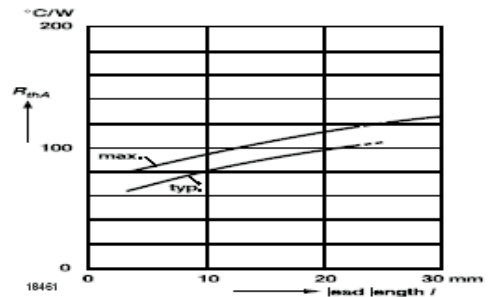


FIG.5- ADMISSIBLE POWER DISSIPATION VS AMBIENT TEMPERATURE

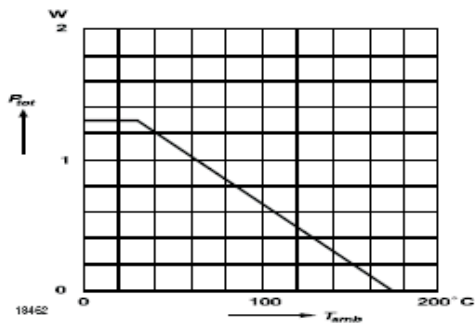
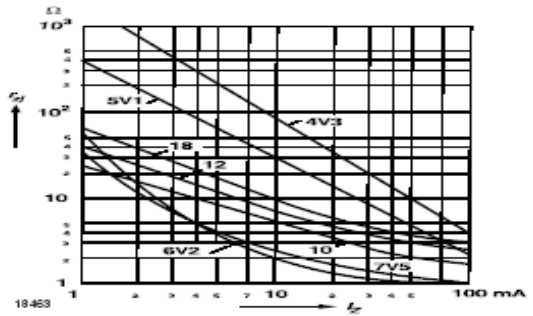


FIG.6- DYNAMIC RESISTANCE VS ZENER CURRENT



## RATINGS AND CHARACTERISTIC CURVES (BZX85C SERIES)

FIG.7- BREAKDOWN CHARACTERISTICS

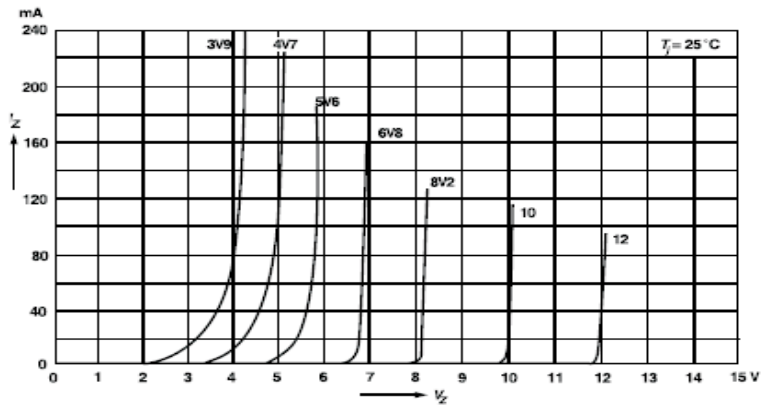


FIG.8- BREAKDOWN CHARACTERISTICS

