

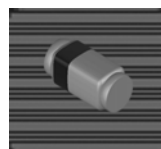


## BZT55 Series

Zener Diodes  
Zener Voltage Range: 2.4 to 75 Volts Power Dissipation: 500mW

### Features

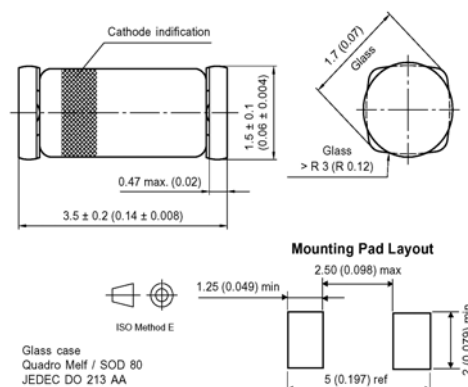
- ◆ Very sharp reverse characteristic
- ◆ Low reverse current level
- ◆ Available with tighter tolerances
- ◆ Very high stability
- ◆ Low noise
- ◆ For voltage stabilization



### Package Dimensions in mm (inches)

### Mechanical Data

- ◆ Case: QuadroMELF (SOD-80)
- ◆ Weight: approx. 0.034g



### Maximum Ratings and Thermal Characteristics

(T<sub>amb</sub> = 25°C, unless otherwise specified)

| Parameter                                        | Symbol           | Value                            | Unit |
|--------------------------------------------------|------------------|----------------------------------|------|
| Zener current (see Table "Characteristics")      | I <sub>Z</sub>   | P <sub>tot</sub> /V <sub>Z</sub> | mA   |
| Power dissipation at R <sub>θJA</sub> ≤ 300K/W   | P <sub>tot</sub> | 500                              | mW   |
| Junction temperature                             | T <sub>j</sub>   | 175                              | °C   |
| Storage temperature range                        | T <sub>stg</sub> | -65 to +175                      | °C   |
| Forward voltage at I <sub>F</sub> =200mA         | V <sub>F</sub>   | 1.5                              | V    |
| Junction ambient on PC board 50mm X 50mm X 1.6mm | R <sub>θJA</sub> | 500                              | K/W  |

Electrical Characteristics

(T<sub>A</sub> =25°C unless otherwise noted)

| Part number<br>C for ±5% V <sub>z</sub> | Zener voltage <sup>1)</sup><br>V <sub>z</sub> @ I <sub>zT</sub><br>(V) |       | Dynamic resistance                                  |                                                     | Test<br>current         | Temperature<br>coefficient<br>TK <sub>Vz</sub> (% / K) |        | Test<br>current         | Reverse leakage current                          |                                                    |                              |
|-----------------------------------------|------------------------------------------------------------------------|-------|-----------------------------------------------------|-----------------------------------------------------|-------------------------|--------------------------------------------------------|--------|-------------------------|--------------------------------------------------|----------------------------------------------------|------------------------------|
|                                         | Min.                                                                   | Max.  | at I <sub>zT</sub><br>f=1kHz<br>r <sub>zi</sub> (Ω) | at I <sub>zK</sub><br>f=1kHz<br>r <sub>zi</sub> (Ω) | I <sub>zT</sub><br>(mA) | Min.                                                   | Max.   | I <sub>zK</sub><br>(mA) | T <sub>amb</sub><br>T <sub>R</sub> =25°C<br>(μA) | T <sub>amb</sub><br>T <sub>R</sub> =-150°C<br>(μA) | at V <sub>R</sub><br>(Volts) |
| BZT55-C2V4                              | 2.28                                                                   | 2.56  | < 85                                                | < 600                                               | 5                       | - 0.09                                                 | - 0.06 | 1                       | <50                                              | <100                                               | 1                            |
| BZT55-C2V7                              | 2.50                                                                   | 2.90  | < 85                                                | < 600                                               | 5                       | - 0.09                                                 | - 0.06 | 1                       | <10                                              | <50                                                | 1                            |
| BZT55-C3V0                              | 2.80                                                                   | 3.20  | < 90                                                | < 600                                               | 5                       | - 0.08                                                 | - 0.05 | 1                       | <4                                               | <40                                                | 1                            |
| BZT55-C3V3                              | 3.10                                                                   | 3.50  | < 90                                                | < 600                                               | 5                       | - 0.08                                                 | - 0.05 | 1                       | <2                                               | <40                                                | 1                            |
| BZT55-C3V6                              | 3.40                                                                   | 3.80  | < 90                                                | < 600                                               | 5                       | - 0.08                                                 | - 0.05 | 1                       | <2                                               | <40                                                | 1                            |
| BZT55-C3V9                              | 3.70                                                                   | 4.10  | < 90                                                | < 600                                               | 5                       | - 0.06                                                 | - 0.03 | 1                       | <2                                               | <40                                                | 1                            |
| BZT55-C4V3                              | 4.00                                                                   | 4.60  | < 90                                                | < 600                                               | 5                       | - 0.05                                                 | + 0.02 | 1                       | <1                                               | <20                                                | 1                            |
| BZT55-C4V7                              | 4.40                                                                   | 5.00  | < 80                                                | < 600                                               | 5                       | - 0.02                                                 | + 0.02 | 1                       | <0.5                                             | <10                                                | 1                            |
| BZT55-C5V1                              | 4.80                                                                   | 5.40  | < 60                                                | < 550                                               | 5                       | - 0.05                                                 | + 0.05 | 1                       | <0.1                                             | <2                                                 | 1                            |
| BZT55-C5V6                              | 5.20                                                                   | 6.00  | < 40                                                | < 450                                               | 5                       | + 0.03                                                 | + 0.06 | 1                       | <0.1                                             | <2                                                 | 1                            |
| BZT55-C6V2                              | 5.80                                                                   | 6.60  | < 10                                                | < 200                                               | 5                       | + 0.03                                                 | + 0.07 | 1                       | <0.1                                             | <2                                                 | 2                            |
| BZT55-C6V8                              | 6.40                                                                   | 7.20  | < 8                                                 | < 150                                               | 5                       | + 0.03                                                 | + 0.07 | 1                       | <0.1                                             | <2                                                 | 3                            |
| BZT55-C7V5                              | 7.00                                                                   | 7.90  | < 7                                                 | < 50                                                | 5                       | + 0.03                                                 | + 0.08 | 1                       | <0.1                                             | <2                                                 | 5                            |
| BZT55-C8V2                              | 7.70                                                                   | 8.70  | < 7                                                 | < 50                                                | 5                       | + 0.03                                                 | + 0.09 | 1                       | <0.1                                             | <2                                                 | 6.2                          |
| BZT55-C9V1                              | 8.50                                                                   | 9.60  | < 10                                                | < 50                                                | 5                       | + 0.03                                                 | + 0.1  | 1                       | <0.1                                             | <2                                                 | 6.8                          |
| BZT55-C10                               | 9.40                                                                   | 10.60 | < 15                                                | < 70                                                | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                             | <2                                                 | 7.5                          |
| BZT55-C11                               | 10.40                                                                  | 11.60 | < 20                                                | < 70                                                | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                             | <2                                                 | 8.2                          |
| BZT55-C12                               | 11.40                                                                  | 12.70 | < 20                                                | < 90                                                | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                             | <2                                                 | 9.1                          |
| BZT55-C13                               | 12.40                                                                  | 14.10 | < 26                                                | < 110                                               | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                             | <2                                                 | 10                           |
| BZT55-C15                               | 13.80                                                                  | 15.60 | < 30                                                | < 110                                               | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                             | <2                                                 | 11                           |
| BZT55-C16                               | 15.30                                                                  | 17.10 | < 40                                                | < 170                                               | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                             | <2                                                 | 12                           |
| BZT55-C18                               | 16.80                                                                  | 19.10 | < 50                                                | < 170                                               | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                             | <2                                                 | 13                           |
| BZT55-C20                               | 18.80                                                                  | 21.20 | < 55                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                             | <2                                                 | 15                           |
| BZT55-C22                               | 20.80                                                                  | 23.30 | < 55                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                             | <2                                                 | 16                           |
| BZT55-C24                               | 22.80                                                                  | 25.60 | < 80                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                             | <2                                                 | 18                           |
| BZT55-C27                               | 25.10                                                                  | 28.90 | < 80                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                             | <2                                                 | 20                           |
| BZT55-C30                               | 28.00                                                                  | 32.00 | < 80                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                             | <2                                                 | 22                           |
| BZT55-C33                               | 31.00                                                                  | 35.00 | < 80                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                             | <2                                                 | 24                           |
| BZT55-C36                               | 34.00                                                                  | 38.00 | < 80                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                             | <2                                                 | 27                           |
| BZT55-C39                               | 37.00                                                                  | 41.00 | < 90                                                | < 500                                               | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                             | <5                                                 | 30                           |
| BZT55-C43                               | 40.00                                                                  | 46.00 | < 90                                                | < 600                                               | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                             | <5                                                 | 33                           |
| BZT55-C47                               | 44.00                                                                  | 50.00 | < 110                                               | < 700                                               | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                             | <5                                                 | 36                           |
| BZT55-C51                               | 48.00                                                                  | 54.00 | < 125                                               | < 700                                               | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                             | <10                                                | 39                           |
| BZT55-C56                               | 52.00                                                                  | 60.00 | < 135                                               | < 1000                                              | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                             | <10                                                | 43                           |
| BZT55-C62                               | 58.00                                                                  | 66.00 | < 150                                               | < 1000                                              | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                             | <10                                                | 47                           |
| BZT55-C68                               | 64.00                                                                  | 72.00 | < 200                                               | < 1000                                              | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                             | <10                                                | 51                           |
| BZT55-C75                               | 70.00                                                                  | 79.00 | < 250                                               | < 1500                                              | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                             | <10                                                | 56                           |

Notes: 1. t<sub>p</sub> < 10 ms, T/t<sub>p</sub> > 1000.  
\*) Additional measurement of Voltage group 9V1 to 75 at 95 % V<sub>zmin</sub> < 35 nA at T<sub>j</sub> 25 °C

## Electrical Characteristics

(T<sub>A</sub> = 25°C unless otherwise noted)

| Part number<br>B for ±2% V <sub>Z</sub> | Zener voltage <sup>1)</sup><br>V <sub>Z</sub> @ I <sub>ZT</sub><br>(V) |       | Dynamic resistance                                  |                                                     | Test<br>current         | Temperature<br>coefficient<br>TK <sub>VZ</sub> (% / K) |        | Test<br>current         | Reverse leakage current                        |                                                 |                              |
|-----------------------------------------|------------------------------------------------------------------------|-------|-----------------------------------------------------|-----------------------------------------------------|-------------------------|--------------------------------------------------------|--------|-------------------------|------------------------------------------------|-------------------------------------------------|------------------------------|
|                                         | Min.                                                                   | Max.  | at I <sub>ZT</sub><br>f=1kHz<br>r <sub>zj</sub> (Ω) | at I <sub>ZK</sub><br>f=1kHz<br>r <sub>zj</sub> (Ω) | I <sub>ZT</sub><br>(mA) | Min.                                                   | Max.   | I <sub>ZK</sub><br>(mA) | T <sub>amb</sub> = 25°C<br>I <sub>R</sub> (μA) | T <sub>amb</sub> = 150°C<br>I <sub>R</sub> (μA) | at V <sub>Z</sub><br>(Volts) |
| BZT55-B2V4                              | 2.35                                                                   | 2.45  | < 85                                                | < 600                                               | 5                       | - 0.09                                                 | - 0.06 | 1                       | <50                                            | <100                                            | 1                            |
| BZT55-B2V7                              | 2.65                                                                   | 2.76  | < 85                                                | < 600                                               | 5                       | - 0.09                                                 | - 0.06 | 1                       | <10                                            | <50                                             | 1                            |
| BZT55-B3V0                              | 2.94                                                                   | 3.06  | < 90                                                | < 600                                               | 5                       | - 0.08                                                 | - 0.05 | 1                       | <4                                             | <40                                             | 1                            |
| BZT55-B3V3                              | 3.24                                                                   | 3.36  | < 90                                                | < 600                                               | 5                       | - 0.08                                                 | - 0.05 | 1                       | <2                                             | <40                                             | 1                            |
| BZT55-B3V6                              | 3.52                                                                   | 3.68  | < 90                                                | < 600                                               | 5                       | - 0.08                                                 | - 0.05 | 1                       | <2                                             | <40                                             | 1                            |
| BZT55-B3V9                              | 3.82                                                                   | 3.98  | < 90                                                | < 600                                               | 5                       | - 0.06                                                 | - 0.03 | 1                       | <2                                             | <40                                             | 1                            |
| BZT55-B4V3                              | 4.22                                                                   | 4.38  | < 90                                                | < 600                                               | 5                       | - 0.05                                                 | + 0.02 | 1                       | <1                                             | <20                                             | 1                            |
| BZT55-B4V7                              | 4.6                                                                    | 4.8   | < 80                                                | < 600                                               | 5                       | - 0.02                                                 | + 0.02 | 1                       | <0.5                                           | <10                                             | 1                            |
| BZT55-B5V1                              | 5.00                                                                   | 5.20  | < 60                                                | < 550                                               | 5                       | - 0.05                                                 | + 0.05 | 1                       | <0.1                                           | <2                                              | 1                            |
| BZT55-B5V6                              | 5.48                                                                   | 5.72  | < 40                                                | < 450                                               | 5                       | + 0.03                                                 | + 0.06 | 1                       | <0.1                                           | <2                                              | 1                            |
| BZT55-B6V2                              | 6.08                                                                   | 6.32  | < 10                                                | < 200                                               | 5                       | + 0.03                                                 | + 0.07 | 1                       | <0.1                                           | <2                                              | 2                            |
| BZT55-B6V8                              | 6.66                                                                   | 6.94  | < 8                                                 | < 150                                               | 5                       | + 0.03                                                 | + 0.07 | 1                       | <0.1                                           | <2                                              | 3                            |
| BZT55-B7V5                              | 7.35                                                                   | 7.65  | < 7                                                 | < 50                                                | 5                       | + 0.03                                                 | + 0.08 | 1                       | <0.1                                           | <2                                              | 5                            |
| BZT55-B8V2                              | 8.04                                                                   | 8.36  | < 7                                                 | < 50                                                | 5                       | + 0.03                                                 | + 0.09 | 1                       | <0.1                                           | <2                                              | 6.2                          |
| BZT55-B9V1                              | 8.92                                                                   | 9.28  | < 10                                                | < 50                                                | 5                       | + 0.03                                                 | + 0.1  | 1                       | <0.1                                           | <2                                              | 6.8                          |
| BZT55-B10                               | 9.80                                                                   | 10.20 | < 15                                                | < 70                                                | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                           | <2                                              | 7.5                          |
| BZT55-B11                               | 10.78                                                                  | 11.22 | < 20                                                | < 70                                                | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                           | <2                                              | 8.2                          |
| BZT55-B12                               | 11.76                                                                  | 12.24 | < 20                                                | < 90                                                | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                           | <2                                              | 9.1                          |
| BZT55-B13                               | 12.74                                                                  | 13.26 | < 26                                                | < 110                                               | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                           | <2                                              | 10                           |
| BZT55-B15                               | 14.70                                                                  | 15.30 | < 30                                                | < 110                                               | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                           | <2                                              | 11                           |
| BZT55-B16                               | 15.70                                                                  | 16.30 | < 40                                                | < 170                                               | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                           | <2                                              | 12                           |
| BZT55-B18                               | 17.64                                                                  | 18.36 | < 50                                                | < 170                                               | 5                       | + 0.03                                                 | + 0.11 | 1                       | <0.1                                           | <2                                              | 13                           |
| BZT55-B20                               | 19.60                                                                  | 20.40 | < 55                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                           | <2                                              | 15                           |
| BZT55-B22                               | 21.55                                                                  | 22.45 | < 55                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                           | <2                                              | 16                           |
| BZT55-B24                               | 23.50                                                                  | 24.50 | < 80                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                           | <2                                              | 18                           |
| BZT55-B27                               | 26.40                                                                  | 27.60 | < 80                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                           | <2                                              | 20                           |
| BZT55-B30                               | 29.40                                                                  | 30.60 | < 80                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                           | <2                                              | 22                           |
| BZT55-B33                               | 32.40                                                                  | 33.60 | < 80                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                           | <2                                              | 24                           |
| BZT55-B36                               | 35.30                                                                  | 36.70 | < 80                                                | < 220                                               | 5                       | + 0.04                                                 | + 0.12 | 1                       | <0.1                                           | <2                                              | 27                           |
| BZT55-B39                               | 38.20                                                                  | 39.80 | < 90                                                | < 500                                               | 2.5                     | + 0.04                                                 | + 0.12 | 1                       | <0.1                                           | <5                                              | 30                           |
| BZT55-B43                               | 42.10                                                                  | 43.90 | < 90                                                | < 600                                               | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                           | <5                                              | 33                           |
| BZT55-B47                               | 46.10                                                                  | 47.90 | < 110                                               | < 700                                               | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                           | <5                                              | 36                           |
| BZT55-B51                               | 50.00                                                                  | 52.00 | < 125                                               | < 700                                               | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                           | <10                                             | 39                           |
| BZT55-B56                               | 54.90                                                                  | 57.10 | < 135                                               | < 1000                                              | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                           | <10                                             | 43                           |
| BZT55-B62                               | 60.80                                                                  | 63.20 | < 150                                               | < 1000                                              | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                           | <10                                             | 47                           |
| BZT55-B68                               | 66.60                                                                  | 69.40 | < 200                                               | < 1000                                              | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                           | <10                                             | 51                           |
| BZT55-B75                               | 73.50                                                                  | 76.50 | < 250                                               | < 1500                                              | 2.5                     | + 0.04                                                 | + 0.12 | 0.5                     | <0.1                                           | <10                                             | 56                           |

**Notes:** 1. t<sub>p</sub> < 10 ms, T/t<sub>p</sub> > 1000.

\*) Additional measurement of Voltage group 9V1 to 75 at 95 % V<sub>Zmin</sub> < 35 nA at T<sub>j</sub> 25 °C

RATINGS AND CHARACTERISTIC CURVES

(T<sub>A</sub> = 25°C unless otherwise noted)

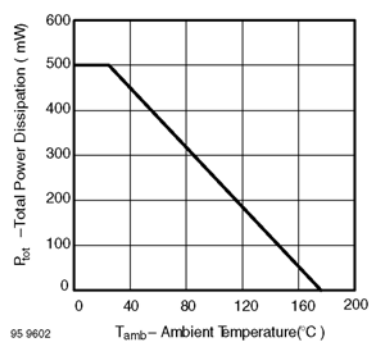


Fig. 1 Total Power Dissipation vs. Ambient Temperature

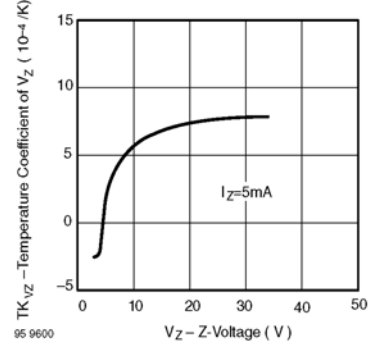


Fig. 4 Temperature Coefficient of Vz vs. Z-Voltage

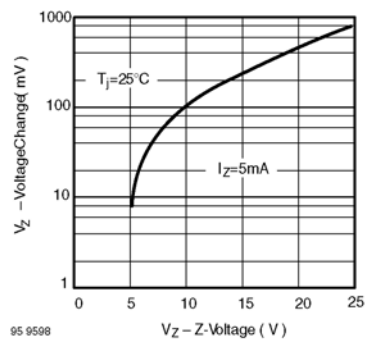


Fig. 2 Typical Change of Working Voltage under Operating Conditions at T<sub>amb</sub>=25°C

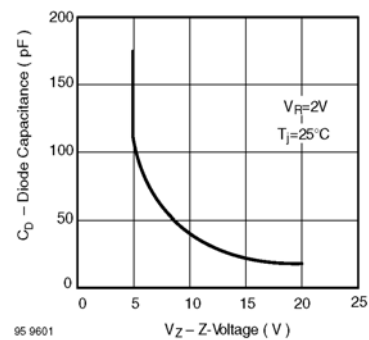


Fig. 5 Diode Capacitance vs. Z-Voltage

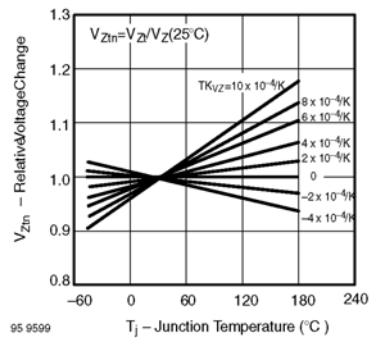


Fig. 3 Typical Change of Working Voltage vs. Junction Temperature

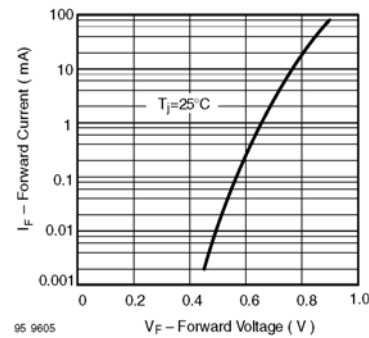


Fig. 6 Forward Current vs. Forward Voltage

RATINGS AND CHARACTERISTIC CURVES

(T<sub>A</sub> = 25°C unless otherwise noted)

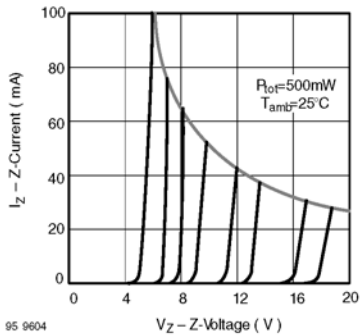


Fig. 7 Z-Current vs. Z-Voltage

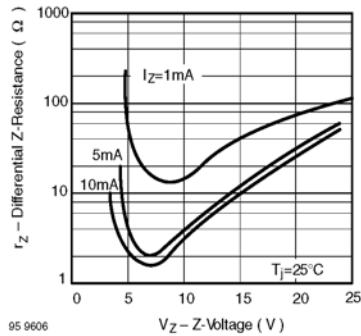


Fig. 9 Differential Z-Resistance vs. Z-Voltage

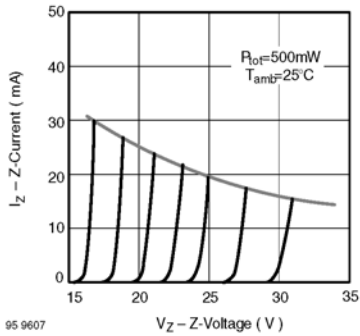


Fig. 8 Z-Current vs. Z-Voltage

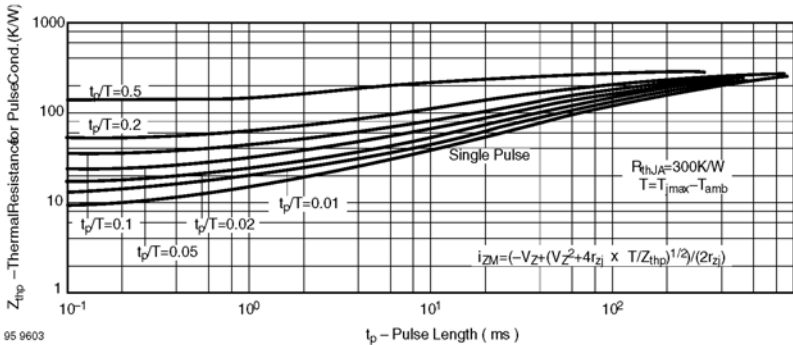


Fig. 10 Thermal Response