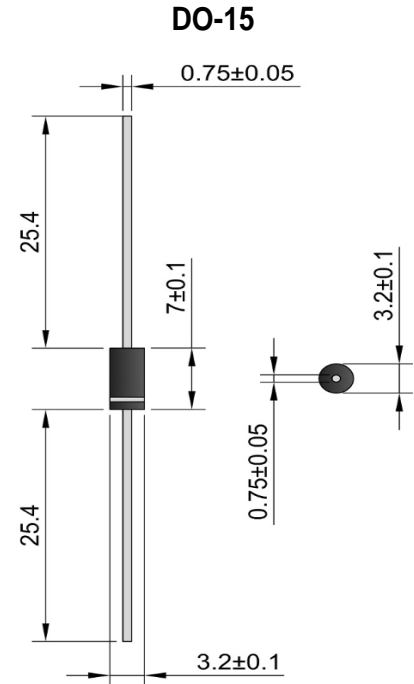


## Features

- Glass Passivated Die Construction
- 3.0W Power Dissipation
- 3.3V – 200V Nominal Zener Voltage
- 5% Standard Vz Tolerance
- Low Inductance
- For Use in Voltage Regulator or Reference
- Plastic Case Material has UL Flammability Classification Rating 94V-0

## Mechanical Data

- Case: DO-15, Molded Plastic
- Terminals: Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: 0.40 grams (approx.)
- Mounting Position: Any
- Marking: Type Number
- **Lead Free: For RoHS / Lead Free Version**



## Maximum Ratings @T<sub>A</sub>=25°C unless otherwise specified

| Characteristic                                      | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation at T <sub>L</sub> = 50°C (Note 1) | P <sub>D</sub>                    | 3.0         | W    |
| Forward Voltage @ I <sub>F</sub> = 200mA            | V <sub>F</sub>                    | 1.5         | V    |
| Thermal Resistance, Junction to Ambient (Note 2)    | R <sub>JA</sub>                   | 100         | °C/W |
| Thermal Resistance, Junction to Lead (Note 1)       | R <sub>JL</sub>                   | 40          | °C/W |
| Operating and Storage Temperature Range             | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

Note: 1. Measured at lead length 3/8" (9.5mm) from body.

2. Mounted on FR-4 PCB with 2.0 x 2.0mm copper pads and track width 1.0mm, length 25mm.

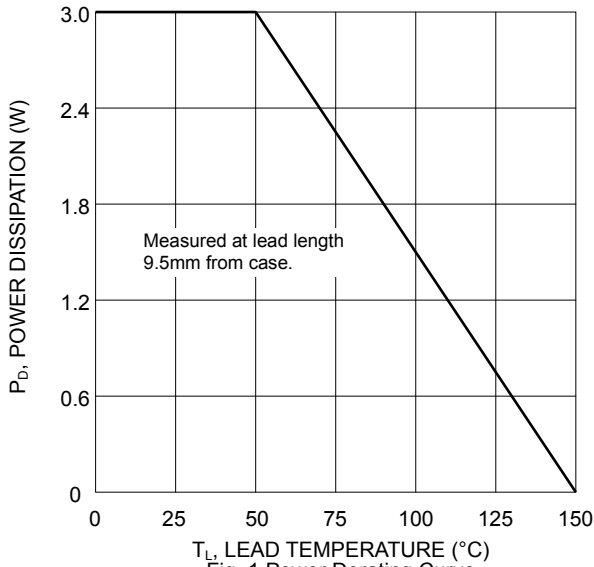


Fig. 1 Power Derating Curve

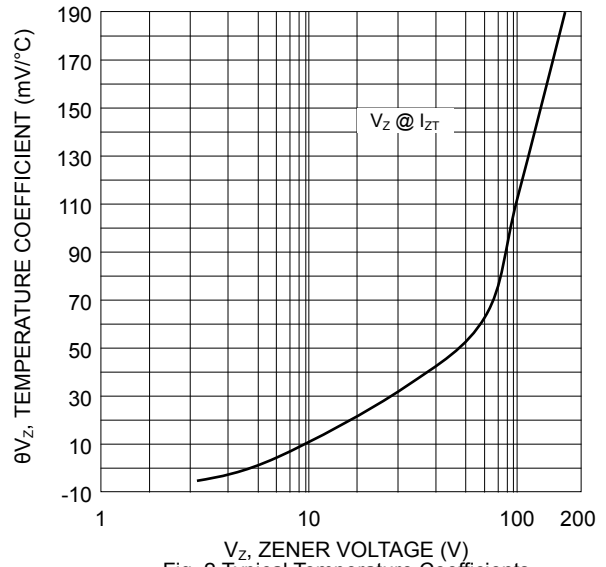


Fig. 2 Typical Temperature Coefficients

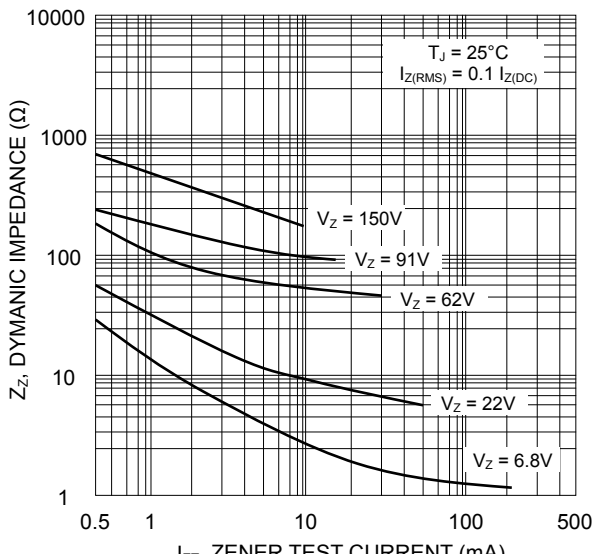


Fig. 3 Dynamic Resistance vs. Zener Current

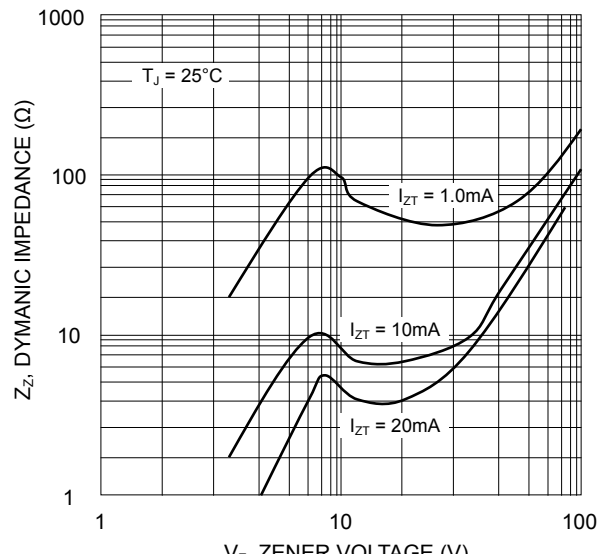


Fig. 3 Dynamic Resistance vs. Zener Voltage

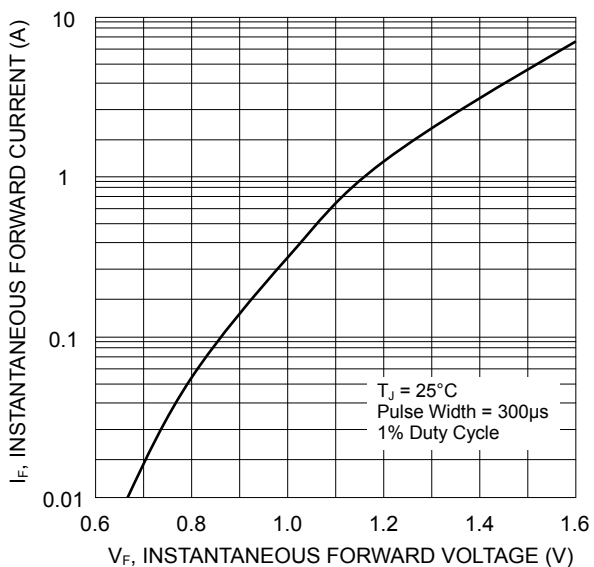


Fig. 5 Typical Forward Characteristics

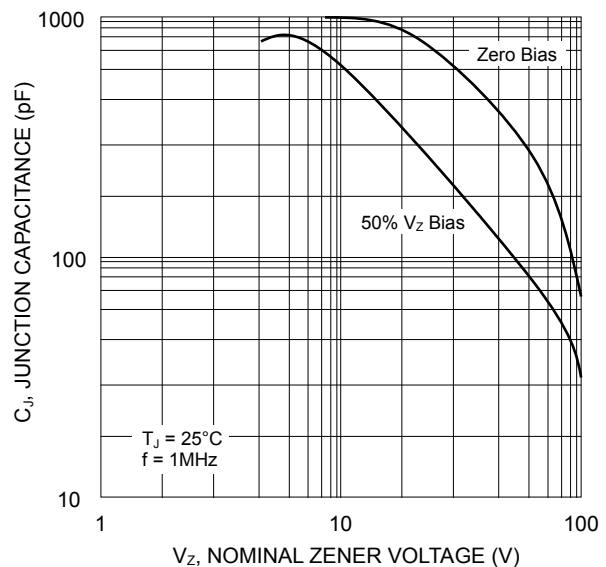


Fig. 6 Junction Capacitance vs. Nominal Zener Voltage



Electrical Characteristics (@T<sub>A</sub>=25°C unless otherwise specified) Table 1

| Type Number<br>(Note 1) | Nominal Zener Voltage (Note 2)   | Test Current    | Maximum Zener Impedance (Note 3)  |                                   |                 | Maximum Leakage Current         |      | Max DC Zener Current |
|-------------------------|----------------------------------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|------|----------------------|
|                         | V <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |      | I <sub>ZM</sub>      |
|                         | (V)                              | (mA)            | ( )                               | ( )                               | (mA)            | (μA)                            | (V)  | (mA)                 |
| 3EZ3.3D5                | 3.3                              | 113.6           | 10.0                              | 500                               | 1.00            | 100                             | 1.0  | 817                  |
| 3EZ3.6D5                | 3.6                              | 104.2           | 9.0                               | 500                               | 1.00            | 75                              | 1.0  | 749                  |
| 3EZ3.9D5                | 3.9                              | 192.0           | 4.5                               | 400                               | 1.00            | 80                              | 1.0  | 630                  |
| 3EZ4.3D5                | 4.3                              | 174.0           | 4.5                               | 400                               | 1.00            | 30                              | 1.0  | 590                  |
| 3EZ4.7D5                | 4.7                              | 160.0           | 4.0                               | 500                               | 1.00            | 20                              | 1.0  | 550                  |
| 3EZ5.1D5                | 5.1                              | 147.0           | 3.5                               | 550                               | 1.00            | 5.0                             | 1.0  | 520                  |
| 3EZ5.6D5                | 5.6                              | 134.0           | 2.5                               | 600                               | 1.00            | 5.0                             | 2.0  | 480                  |
| 3EZ6.2D5                | 6.2                              | 121.0           | 1.5                               | 700                               | 1.00            | 5.0                             | 3.0  | 435                  |
| 3EZ6.8D5                | 6.8                              | 110.0           | 2.0                               | 700                               | 1.00            | 5.0                             | 4.0  | 393                  |
| 3EZ7.5D5                | 7.5                              | 100.0           | 2.0                               | 700                               | 0.50            | 5.0                             | 5.0  | 360                  |
| 3EZ8.2D5                | 8.2                              | 91.0            | 2.3                               | 700                               | 0.50            | 5.0                             | 6.0  | 330                  |
| 3EZ9.1D5                | 9.1                              | 82.0            | 2.5                               | 700                               | 0.50            | 3.0                             | 7.0  | 297                  |
| 3EZ10D5                 | 10                               | 75.0            | 3.5                               | 700                               | 0.25            | 3.0                             | 7.6  | 270                  |
| 3EZ11D5                 | 11                               | 68.0            | 4.0                               | 700                               | 0.25            | 1.0                             | 8.4  | 225                  |
| 3EZ12D5                 | 12                               | 63.0            | 4.5                               | 700                               | 0.25            | 1.0                             | 9.1  | 246                  |
| 3EZ13D5                 | 13                               | 58.0            | 4.5                               | 700                               | 0.25            | 0.5                             | 9.9  | 208                  |
| 3EZ14D5                 | 14                               | 53.0            | 5.0                               | 700                               | 0.25            | 0.5                             | 10.6 | 193                  |
| 3EZ15D5                 | 15                               | 50.0            | 5.5                               | 700                               | 0.25            | 0.5                             | 11.4 | 180                  |
| 3EZ16D5                 | 16                               | 47.0            | 5.5                               | 700                               | 0.25            | 0.5                             | 12.2 | 169                  |
| 3EZ17D5                 | 17                               | 44.0            | 6.0                               | 750                               | 0.25            | 0.5                             | 13.0 | 159                  |
| 3EZ18D5                 | 18                               | 42.0            | 6.0                               | 750                               | 0.25            | 0.5                             | 13.7 | 150                  |
| 3EZ19D5                 | 19                               | 40.0            | 7.0                               | 750                               | 0.25            | 0.5                             | 14.4 | 142                  |
| 3EZ20D5                 | 20                               | 37.0            | 7.0                               | 750                               | 0.25            | 0.5                             | 15.2 | 135                  |
| 3EZ22D5                 | 22                               | 34.0            | 8.0                               | 750                               | 0.25            | 0.5                             | 16.7 | 123                  |
| 3EZ24D5                 | 24                               | 31.0            | 9.0                               | 750                               | 0.25            | 0.5                             | 18.2 | 112                  |
| 3EZ27D5                 | 27                               | 28.0            | 10.0                              | 750                               | 0.25            | 0.5                             | 20.6 | 100                  |
| 3EZ28D5                 | 28                               | 27.0            | 12.0                              | 750                               | 0.25            | 0.5                             | 21.0 | 96                   |
| 3EZ30D5                 | 30                               | 25.0            | 16.0                              | 1000                              | 0.25            | 0.5                             | 22.5 | 90                   |
| 3EZ33D5                 | 33                               | 23.0            | 20.0                              | 1000                              | 0.25            | 0.5                             | 25.1 | 82                   |
| 3EZ36D5                 | 36                               | 21.0            | 22.0                              | 1000                              | 0.25            | 0.5                             | 27.4 | 75                   |
| 3EZ39D5                 | 39                               | 19.0            | 28.0                              | 1000                              | 0.25            | 0.5                             | 29.7 | 69                   |
| 3EZ43D5                 | 43                               | 17.0            | 33.0                              | 1500                              | 0.25            | 0.5                             | 32.7 | 63                   |
| 3EZ47D5                 | 47                               | 16.0            | 38.0                              | 1500                              | 0.25            | 0.5                             | 35.6 | 57                   |
| 3EZ51D5                 | 51                               | 15.0            | 45.0                              | 1500                              | 0.25            | 0.5                             | 38.8 | 53                   |
| 3EZ56D5                 | 56                               | 13.0            | 50.0                              | 2000                              | 0.25            | 0.5                             | 42.6 | 48                   |
| 3EZ62D5                 | 62                               | 12.0            | 55.0                              | 2000                              | 0.25            | 0.5                             | 47.1 | 44                   |
| 3EZ68D5                 | 68                               | 11.0            | 70.0                              | 2000                              | 0.25            | 0.5                             | 51.7 | 40                   |
| 3EZ75D5                 | 75                               | 10.0            | 85.0                              | 2000                              | 0.25            | 0.5                             | 56.0 | 36                   |
| 3EZ82D5                 | 82                               | 9.1             | 95.0                              | 3000                              | 0.25            | 0.5                             | 62.2 | 33                   |
| 3EZ91D5                 | 91                               | 8.2             | 115.0                             | 3000                              | 0.25            | 0.5                             | 69.2 | 30                   |

- Note: 1. Type numbers listed have standard tolerance on the nominal zener voltage of ±5%.  
 2. Measured under thermal equilibrium and DC (I<sub>ZT</sub>) test conditions.  
 3. The Zener impedance is derived from the 60Hz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current (I<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed on I<sub>ZT</sub> or I<sub>ZK</sub>. Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

**Electrical Characteristics (@T<sub>A</sub>=25°C unless otherwise specified) Table 1 (Cont'd)**

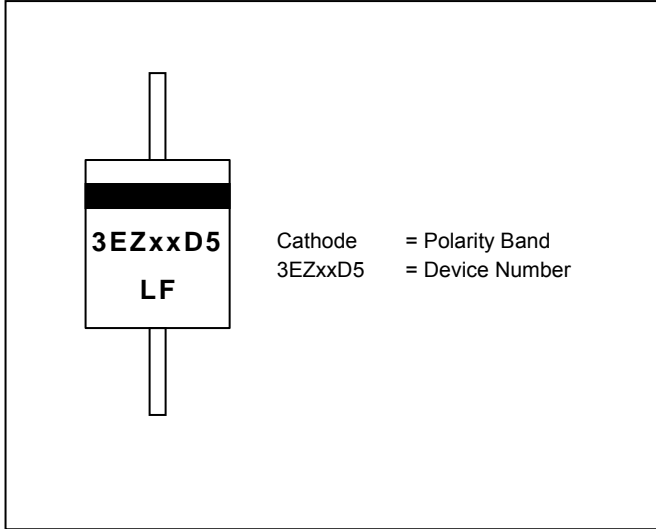
| Type Number<br>(Note 1) | Nominal Zener<br>Voltage (Note 2) | Test<br>Current | Maximum Zener Impedance<br>(Note 3) |                                   |                 | Maximum<br>Leakage Current      |       | Max DC Zener<br>Current |
|-------------------------|-----------------------------------|-----------------|-------------------------------------|-----------------------------------|-----------------|---------------------------------|-------|-------------------------|
|                         | V <sub>Z</sub> @ I <sub>ZT</sub>  | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub>   | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |       | I <sub>ZM</sub>         |
|                         | (V)                               | (mA)            | ( )                                 | ( )                               | (mA)            | (μA)                            | (V)   | (mA)                    |
| 3EZ100D5                | 100                               | 7.5             | 160.0                               | 3000                              | 0.25            | 0.5                             | 76.0  | 27                      |
| 3EZ110D5                | 110                               | 6.8             | 225.0                               | 4000                              | 0.25            | 0.5                             | 83.6  | 25                      |
| 3EZ120D5                | 120                               | 6.3             | 300.0                               | 4500                              | 0.25            | 0.5                             | 91.2  | 22                      |
| 3EZ130D5                | 130                               | 5.8             | 375.0                               | 5000                              | 0.25            | 0.5                             | 98.8  | 21                      |
| 3EZ140D5                | 140                               | 5.3             | 475.0                               | 5000                              | 0.25            | 0.5                             | 106.4 | 19                      |
| 3EZ150D5                | 150                               | 5.0             | 550.0                               | 6000                              | 0.25            | 0.5                             | 114.0 | 18                      |
| 3EZ160D5                | 160                               | 4.7             | 625.0                               | 6500                              | 0.25            | 0.5                             | 121.6 | 17                      |
| 3EZ170D5                | 170                               | 4.4             | 650.0                               | 7000                              | 0.25            | 0.5                             | 130.4 | 16                      |
| 3EZ180D5                | 180                               | 4.2             | 700.0                               | 7000                              | 0.25            | 0.5                             | 136.8 | 15                      |
| 3EZ190D5                | 190                               | 4.0             | 800.0                               | 8000                              | 0.25            | 0.5                             | 144.8 | 14                      |
| 3EZ200D5                | 200                               | 3.7             | 875.0                               | 8000                              | 0.25            | 0.5                             | 152.0 | 13                      |

Note: 1. Type numbers listed have standard tolerance on the nominal zener voltage of ±5%.

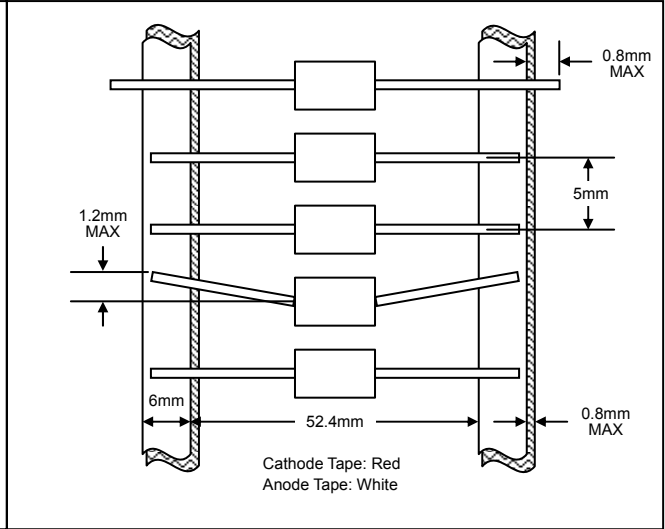
2. Measured under thermal equilibrium and DC (I<sub>ZT</sub>) test conditions.

3. The Zener impedance is derived from the 60Hz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current (I<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed on I<sub>ZT</sub> or I<sub>ZK</sub>. Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

## MARKING INFORMATION



## TAPING SPECIFICATIONS



## PACKAGING INFORMATION

### TAPE & REEL

330mm  
Product ID Label  
80±5mm

### TAPE & BOX

150mm  
255mm  
75mm  
Product ID Label  
Inspection Hole (both ends)

### BULK

25mm  
200mm  
85mm

| Packaging              | Reel Diameter / Box Size (mm) | Quantity (PCS) | Carton Size (mm) | Quantity (PCS) | Approx. Gross Weight (KG) |
|------------------------|-------------------------------|----------------|------------------|----------------|---------------------------|
| <b>TAPE &amp; REEL</b> | 330                           | 4,000          | 370 x 370 x 420  | 20,000         | 12.0                      |
| <b>TAPE &amp; BOX</b>  | 255 x 75 x 150                | 3,000          | 400 x 273 x 415  | 30,000         | 15.0                      |
| <b>BULK</b>            | 200 x 85 x 25                 | 1,000          | 459 x 214 x 256  | 40,000         | 17.5                      |