



Micro Commercial Components  
20736 Marilla Street Chatsworth  
CA 91311  
Phone: (818) 701-4933  
Fax: (818) 701-4939

## 3EZ11 THRU 3EZ200

### Features

- Low Profile Package
- Built-in Strain Relief
- Glass Passivated Junction
- Low Inductance
- Excellent Clamping Capability

### Mechanical Data

- CASE: JEDEC DO-15 Molded plastic over passivated junction
- WEIGHT: 0.015 ounce, 0.04 gram
- TERMINALS : Solder plated, solderable per MIL-STD-750, method 2026
- POLARITY : Color band denotes positive end (cathode)

Maximum Ratings @ 25°C Unless Otherwise Specified

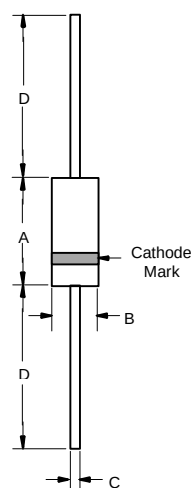
|                                                                                                           |                                       |                            |                        |
|-----------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------|------------------------|
| Peak Pulse Power Dissipation (Note A)<br>Derate above 75°C                                                | <b>P<sub>D</sub></b>                  | <b>3<br/>24</b>            | <b>Watts<br/>mW/°C</b> |
| Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) (Note B) | <b>I<sub>FSM</sub></b>                | <b>15</b>                  | <b>Amps</b>            |
| Operating And Storage Temperature Range                                                                   | <b>T<sub>J</sub>, T<sub>STG</sub></b> | <b>-55°C to<br/>+150°C</b> |                        |

#### NOTES:

- A. Mounted on 5.0mm<sup>2</sup> (.013mm thick) land areas.
- B. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

### 3 W Glass Passivated Junction Silicon Zener Diode 11-200 Volts

DO-15



| DIMENSIONS |        |       |       |      |      |
|------------|--------|-------|-------|------|------|
| DIM        | INCHES |       | MM    |      | NOTE |
|            | MIN    | MAX   | MIN   | MAX  |      |
| A          | 0.230  | 0.300 | 5.80  | 7.60 |      |
| B          | 0.104  | 0.140 | 2.60  | 3.60 |      |
| C          | 0.028  | 0.034 | 0.71  | 0.86 |      |
| D          | 1.000  | ----  | 25.40 | ---- |      |

### 3EZ11 THRU 3EZ200

ELECTRICAL CHARACTERISTICS ( $T_A=25\text{ }^{\circ}\text{C}$  unless otherwise noted)  $V_F=1.2\text{ V max}$ ,  $I_F=500\text{ mA}$  for all types

| Type No.<br>(Note 1.) | Nominal Zener<br>Voltage $V_Z$ @ $I_{ZT}$<br>volts<br>(Note 2.) | Test<br>current<br>$I_{ZT}$<br>mA | Maximum Zener Impedance (Note 3.) |                             |                | Leakage Current     |                | Maximum Zener<br>Current<br>$I_{ZM}$<br>Madc | Surge Current<br>@ $T_A = 25\text{ }^{\circ}\text{C}$<br>$I_R$ - mA<br>(Note 4.) |
|-----------------------|-----------------------------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------|----------------|---------------------|----------------|----------------------------------------------|----------------------------------------------------------------------------------|
|                       |                                                                 |                                   | $Z_{ZT}$ @ $I_{ZT}$<br>Ohms       | $Z_{ZK}$ @ $I_{ZK}$<br>Ohms | $I_{ZK}$<br>mA | $I_R$<br>Eg A Max @ | $V_R$<br>Volts |                                              |                                                                                  |
| 3EZ11                 | 11                                                              | 68                                | 4                                 | 700                         | 0.25           | 1                   | 8.4            | 225                                          | 1.82                                                                             |
| 3EZ12                 | 12                                                              | 63                                | 4.5                               | 700                         | 0.25           | 1                   | 9.1            | 246                                          | 1.66                                                                             |
| 3EZ13                 | 13                                                              | 58                                | 4.5                               | 700                         | 0.25           | 0.5                 | 9.9            | 208                                          | 1.54                                                                             |
| 3EZ14                 | 14                                                              | 53                                | 5                                 | 700                         | 0.25           | 0.5                 | 10.6           | 193                                          | 1.43                                                                             |
| 3EZ15                 | 15                                                              | 50                                | 5.5                               | 700                         | 0.25           | 0.5                 | 11.4           | 180                                          | 1.33                                                                             |
| 3EZ16                 | 16                                                              | 47                                | 5.5                               | 700                         | 0.25           | 0.5                 | 12.2           | 169                                          | 1.25                                                                             |
| 3EZ17                 | 17                                                              | 44                                | 6                                 | 750                         | 0.25           | 0.5                 | 13             | 150                                          | 1.18                                                                             |
| 3EZ18                 | 18                                                              | 42                                | 6                                 | 750                         | 0.25           | 0.5                 | 13.7           | 159                                          | 1.11                                                                             |
| 3EZ19                 | 19                                                              | 40                                | 7                                 | 750                         | 0.25           | 0.5                 | 14.4           | 142                                          | 1.05                                                                             |
| 3EZ20                 | 20                                                              | 37                                | 7                                 | 750                         | 0.25           | 0.5                 | 15.2           | 135                                          | 1                                                                                |
| 3EZ22                 | 22                                                              | 34                                | 8                                 | 750                         | 0.25           | 0.5                 | 16.7           | 123                                          | 0.91                                                                             |
| 3EZ24                 | 24                                                              | 31                                | 9                                 | 750                         | 0.25           | 0.5                 | 18.2           | 112                                          | 0.83                                                                             |
| 3EZ27                 | 27                                                              | 28                                | 10                                | 750                         | 0.25           | 0.5                 | 20.6           | 100                                          | 0.74                                                                             |
| 3EZ28                 | 28                                                              | 27                                | 12                                | 750                         | 0.25           | 0.5                 | 21             | 96                                           | 0.71                                                                             |
| 3EZ30                 | 30                                                              | 25                                | 16                                | 1000                        | 0.25           | 0.5                 | 22.5           | 90                                           | 0.67                                                                             |
| 3EZ33                 | 33                                                              | 23                                | 20                                | 1000                        | 0.25           | 0.5                 | 25.1           | 82                                           | 0.61                                                                             |
| 3EZ36                 | 36                                                              | 21                                | 22                                | 1000                        | 0.25           | 0.5                 | 27.4           | 75                                           | 0.56                                                                             |
| 3EZ39                 | 39                                                              | 19                                | 28                                | 1000                        | 0.25           | 0.5                 | 29.7           | 69                                           | 0.51                                                                             |
| 3EZ43                 | 43                                                              | 17                                | 33                                | 1500                        | 0.25           | 0.5                 | 32.7           | 63                                           | 0.45                                                                             |
| 3EZ47                 | 47                                                              | 16                                | 38                                | 1500                        | 0.25           | 0.5                 | 35.6           | 57                                           | 0.42                                                                             |
| 3EZ51                 | 51                                                              | 15                                | 45                                | 1500                        | 0.25           | 0.5                 | 38.8           | 53                                           | 0.39                                                                             |
| 3EZ56                 | 56                                                              | 13                                | 50                                | 2000                        | 0.25           | 0.5                 | 42.6           | 48                                           | 0.36                                                                             |
| 3EZ62                 | 62                                                              | 12                                | 55                                | 2000                        | 0.25           | 0.5                 | 47.1           | 44                                           | 0.32                                                                             |
| 3EZ68                 | 68                                                              | 11                                | 70                                | 2000                        | 0.25           | 0.5                 | 51.7           | 40                                           | 0.29                                                                             |
| 3EZ75                 | 75                                                              | 10                                | 85                                | 2000                        | 0.25           | 0.5                 | 56             | 36                                           | 0.27                                                                             |
| 3EZ82                 | 82                                                              | 9.1                               | 95                                | 3000                        | 0.25           | 0.5                 | 62.2           | 33                                           | 0.24                                                                             |
| 3EZ91                 | 91                                                              | 8.2                               | 115                               | 3000                        | 0.25           | 0.5                 | 69.2           | 30                                           | 0.22                                                                             |
| 3EZ100                | 100                                                             | 7.5                               | 160                               | 3000                        | 0.25           | 0.5                 | 76             | 27                                           | 0.2                                                                              |
| 3EZ110                | 110                                                             | 6.8                               | 225                               | 4000                        | 0.25           | 0.5                 | 83.6           | 25                                           | 0.18                                                                             |
| 3EZ120                | 120                                                             | 6.3                               | 300                               | 4500                        | 0.25           | 0.5                 | 91.2           | 22                                           | 0.16                                                                             |
| 3EZ130                | 130                                                             | 5.8                               | 375                               | 5000                        | 0.25           | 0.5                 | 98.8           | 21                                           | 0.15                                                                             |
| 3EZ140                | 140                                                             | 5.3                               | 475                               | 5000                        | 0.25           | 0.5                 | 106.4          | 19                                           | 0.14                                                                             |
| 3EZ150                | 150                                                             | 5                                 | 550                               | 6000                        | 0.25           | 0.5                 | 114            | 18                                           | 0.13                                                                             |
| 3EZ160                | 160                                                             | 4.7                               | 625                               | 6500                        | 0.25           | 0.5                 | 121.6          | 17                                           | 0.12                                                                             |
| 3EZ170                | 170                                                             | 4.4                               | 650                               | 7000                        | 0.25           | 0.5                 | 130.4          | 16                                           | 0.12                                                                             |
| 3EZ180                | 180                                                             | 4.2                               | 700                               | 7000                        | 0.25           | 0.5                 | 136.8          | 15                                           | 0.11                                                                             |
| 3EZ190                | 190                                                             | 4                                 | 800                               | 8000                        | 0.25           | 0.5                 | 144.8          | 14                                           | 0.1                                                                              |
| 3EZ200                | 200                                                             | 3.7                               | 875                               | 8000                        | 0.25           | 0.5                 | 152            | 13                                           | 0.1                                                                              |

#### NOTES:

1. TOLERANCES - Suffix indicates 5% tolerance any other tolerance will be considered as a special device.
2. ZENER VOLTAGE ( $V_Z$ ) MEASUREMENT - guarantees the zener voltage when measured at 40 ms  $\pm$  10ms from the diode body, and an ambient temperature of  $25\text{ }^{\circ}\text{C}$  ( $\pm 8\text{ }^{\circ}\text{C}$ ,  $-2\text{ }^{\circ}\text{C}$ ).
3. ZENER IMPEDANCE ( $Z_Z$ ) DERIVATION - The zener impedance is derived from the 60 cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$ .
4. SURGE CURRENT ( $I_R$ ) NON-REPETITIVE - The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current,  $I_{ZT}$ , per JEDEC standards, however, actual device capability is as described in Figure 3.

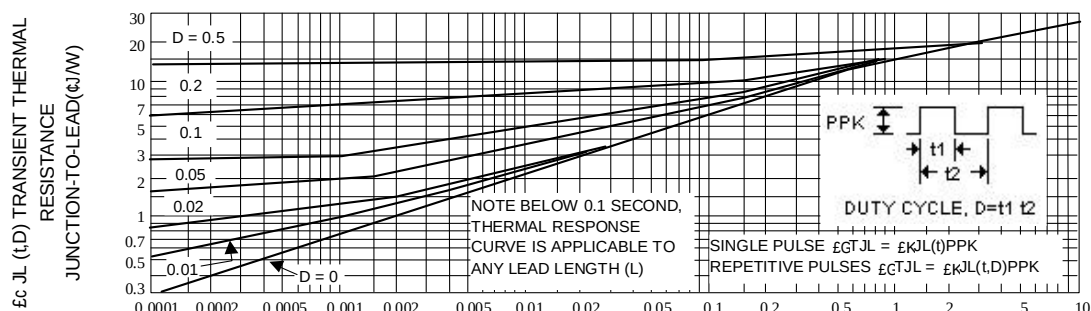


Fig. 2-TYPICAL THERMAL RESPONSE L,

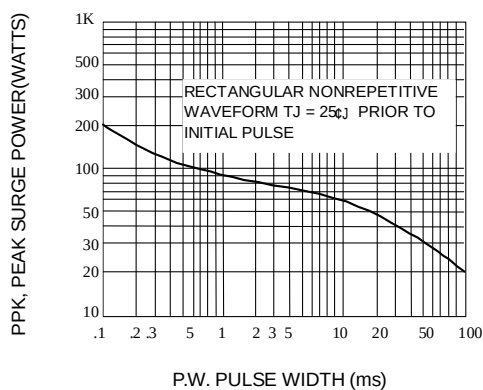


Fig. 3-MAXIMUM SURGE POWER

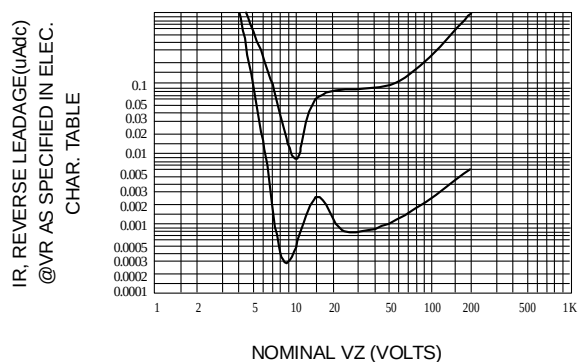


Fig. 4-TYPICAL REVERSE LEAKAGE

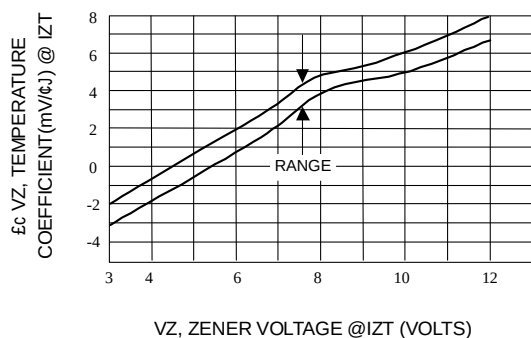


Fig. 5-UNITS TO 12 VOLTS

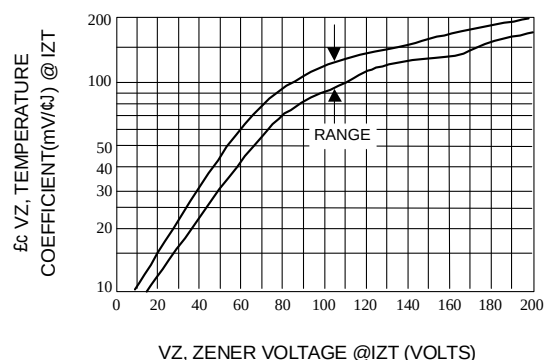


Fig. 6-UNITS 10 TO 200 VOLTS

RATING AND CHARACTERISTICS CURVES  
3EZ11 THRU 3EZ200

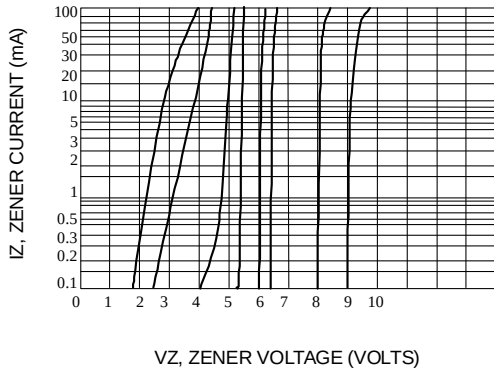


Fig. 7- $V_Z = 3.9$  THRU 10 VOLTS

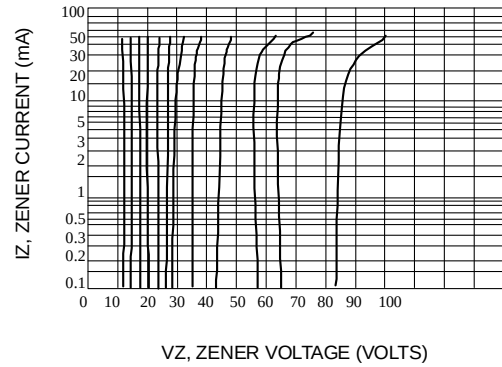


Fig. 8- $V_Z = 12$  THRU 82 VOLTS

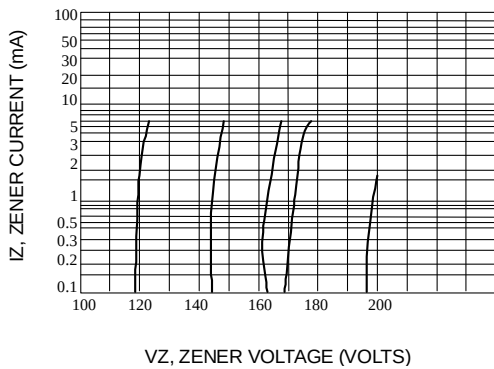


Fig. 9- $V_Z = 100$  THRU 200 VOLTS

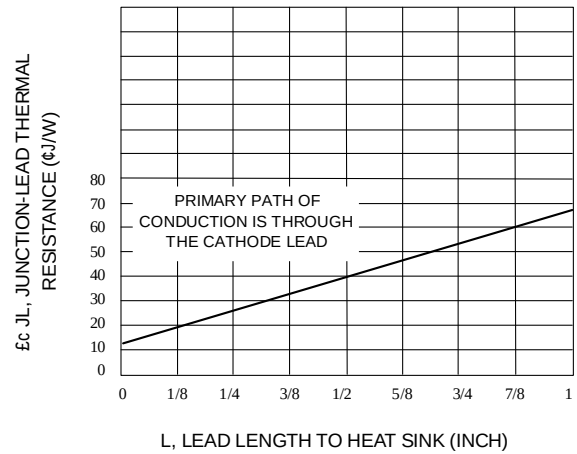


Fig. 10-TYPICAL THERMAL RESISTANCE