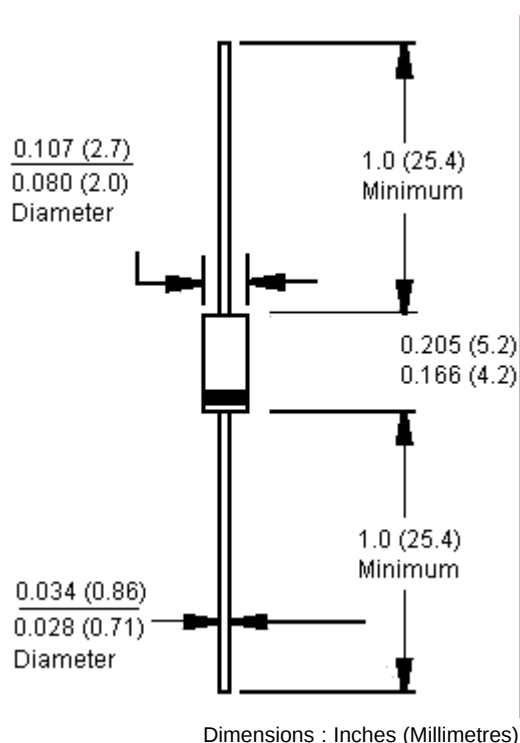


## Features:

- Low profile package.
- Built-in strain relief.
- Glass passivated junction.
- Low inductance.
- Typical  $I_R$  less than 5.0 $\mu$ A above 11V.
- High temperature soldering guaranteed: 260°C/10 seconds at terminals
- Plastic package has underwriters laboratory flammability classification 94V-0

## DO-41



## Mechanical Data

|                   |                                                                       |
|-------------------|-----------------------------------------------------------------------|
| Case              | : Moulded plastic DO-41.                                              |
| Lead              | : Pure tin plated lead free, solderable per MIL-STD-202, Method 2025. |
| Polarity          | : Color band denotes cathode end.                                     |
| Mounting position | : Any.                                                                |
| Weight            | : 0.012 ounces, 0.3 gram.                                             |

# 1N47- Series



## Maximum Ratings and Electrical Characteristics

Rating at 25°C Ambient Temperature Unless Otherwise Specified.

| Type Number                                                                                                      | Symbol         | Value       | Units          |
|------------------------------------------------------------------------------------------------------------------|----------------|-------------|----------------|
| Peak Power Dissipation at $T_A = 50^\circ\text{C}$ ,<br>Derate above $50^\circ\text{C}$ (Note 1)                 | $P_D$          | 1.0<br>6.67 | Watts<br>mW/°C |
| Peak Forward Surge Current, 8.3ms Single Half<br>Sine-wave Superimposed on Rated Load (JEDEC<br>method) (Note 2) | $I_{FSM}$      | 10.0        | Amps           |
| Operating and Storage Temperature Range                                                                          | $T_J, T_{STG}$ | -55 to +150 | °C             |

Notes : 1. Mounted on 5.0mm<sup>2</sup> (0.013mm thick) land areas.  
2. Measured on 8.3ms single half sine-wave or equivalent square wave,  
duty cycle = 4 pulses per minute maximum.

## Electrical Characteristics ( $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

$V_F = 1.2\text{V}$  maximum,  $I_F = 200\text{mA}$  for all types.

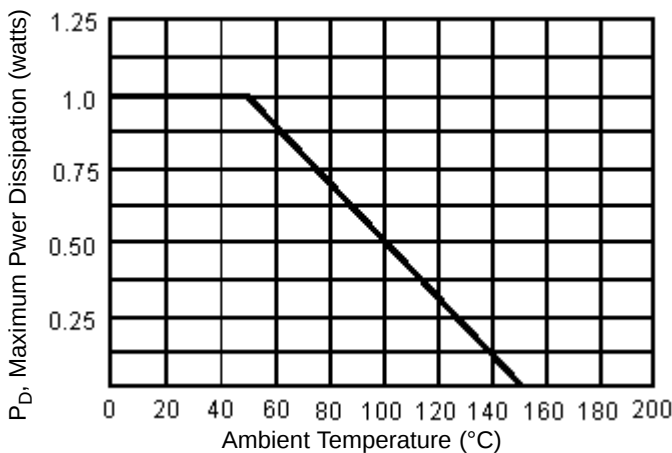
| Power<br>(Watt) | Zener Voltage<br>V <sub>Z</sub> at I <sub>ZT</sub><br>Voltage |         |         | Test<br>Current<br>I <sub>ZT</sub><br>mA | Maximum Zener<br>Impedance (Note 4)           |                                    | Leakage Current |                                 | Surge Current<br>at<br>T <sub>A</sub> = 25°C<br>I <sub>r</sub> = mA<br>(Note 5) | Part Number |         |
|-----------------|---------------------------------------------------------------|---------|---------|------------------------------------------|-----------------------------------------------|------------------------------------|-----------------|---------------------------------|---------------------------------------------------------------------------------|-------------|---------|
|                 | Nom.                                                          |         |         |                                          | Z <sub>ZT</sub> at<br>I <sub>ZT</sub><br>Ohms | Z <sub>ZK</sub> at I <sub>ZK</sub> |                 | I <sub>R</sub> @ V <sub>R</sub> |                                                                                 |             |         |
|                 | (Notes<br>2 & 3)                                              | Minimum | Maximum |                                          |                                               | Ohms                               | mA              | uA<br>Maximum                   |                                                                                 |             | Volts   |
| 1               | 12                                                            | 11.40   | 12.60   | 21                                       | 9                                             | 700                                | 0.25            | 5.0                             | 9.1                                                                             | 380         | 1N4742A |
|                 | 13                                                            | 12.35   | 13.65   | 19                                       | 10                                            |                                    |                 |                                 | 9.9                                                                             | 344         | 1N4743A |
|                 | 15                                                            | 14.25   | 15.75   | 17                                       | 14                                            |                                    |                 |                                 | 11.4                                                                            | 3.4         | 1N4744A |
|                 | 16                                                            | 15.20   | 16.80   | 15.5                                     | 16                                            |                                    |                 |                                 | 12.2                                                                            | 285         | 1N4745A |
|                 | 18                                                            | 17.10   | 18.90   | 14.0                                     | 20                                            | 750                                |                 |                                 | 13.7                                                                            | 250         | 1N4746A |
|                 | 20                                                            | 19.00   | 21.00   | 12.5                                     | 22                                            |                                    |                 |                                 | 15.2                                                                            | 225         | 1N4747A |
|                 | 22                                                            | 20.90   | 23.10   | 11.5                                     | 23                                            |                                    |                 |                                 | 16.7                                                                            | 205         | 1N4748A |
|                 | 24                                                            | 22.80   | 25.20   | 10.5                                     | 25                                            |                                    |                 |                                 | 18.2                                                                            | 190         | 1N4749A |
|                 | 27                                                            | 25.65   | 28.35   | 9.5                                      | 35                                            | 1000                               |                 |                                 | 20.6                                                                            | 170         | 1N4750A |
|                 | 30                                                            | 28.50   | 31.50   | 8.5                                      | 40                                            |                                    |                 |                                 | 22.8                                                                            | 150         | 1N4751A |
|                 | 33                                                            | 31.35   | 34.65   | 7.5                                      | 45                                            |                                    |                 |                                 | 25.1                                                                            | 135         | 1N4752A |
|                 | 36                                                            | 34.20   | 37.80   | 7.0                                      | 50                                            |                                    |                 |                                 | 27.4                                                                            | 125         | 1N4753A |
|                 | 47                                                            | 44.65   | 49.35   | 5.5                                      | 80                                            | 1500                               |                 |                                 | 35.8                                                                            | 95          | 1N4756A |
|                 | 51                                                            | 48.45   | 53.55   | 5.0                                      | 95                                            |                                    |                 |                                 | 38.8                                                                            | 90          | 1N4757A |
|                 | 56                                                            | 53.20   | 58.80   | 4.5                                      | 110                                           | 2000                               |                 |                                 | 42.6                                                                            | 80          | 1N4758A |
|                 | 68                                                            | 64.60   | 71.40   | 3.7                                      | 150                                           |                                    |                 |                                 | 51.7                                                                            | 65          | 1N4760A |
|                 | 75                                                            | 71.25   | 78.75   | 3.3                                      | 175                                           |                                    |                 |                                 | 56.0                                                                            | 60          | 1N4761A |
|                 | 100                                                           | 95.00   | 105.0   | 2.5                                      | 350                                           |                                    |                 |                                 | 3000                                                                            | 76.0        | 45      |



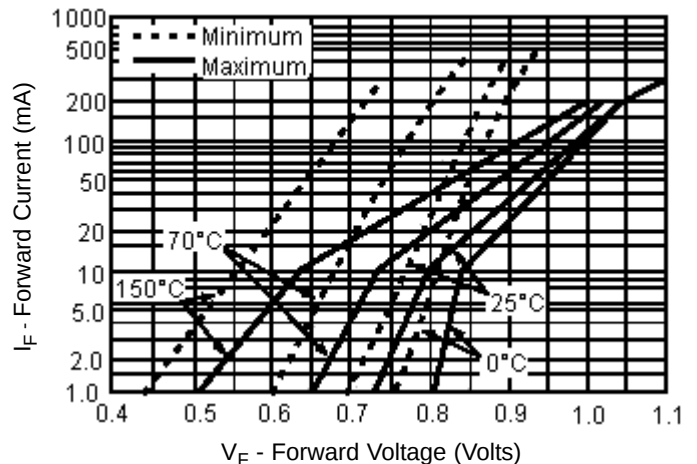
- Notes
- 1: Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .
  - 2: Specials Available Include:
    - A. Nominal zener voltages between the voltages shown and tighter voltage tolerances.
    - B. Matched sets.
  - 3: Zener Voltage (VZ) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature (TL) at  $30\text{C} \pm 1\text{C}$ , from the diode body.
  - 4: Zener Impedance (ZZ) Derivation. The zener impedance is derived from the 60 cycle ac voltage, which results when an accurate having and rms value equal to 10% of the dc zener current (IZT or IZK) is superimposed on IZT or IZK.
  - 5: Surge Current (Ir) 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, IZT, per JEDEC registration; however, actual device capability is as described.

## Ratings and Characteristics Curves ( 1N4742A thru 1N4753A, 1N4756A thru 1N4758A, 1N4760A, 1N4761A and 1N4764A

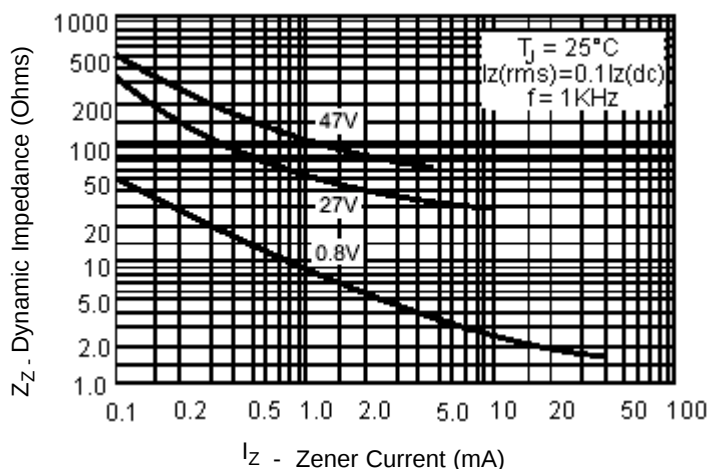
Power Temperature Derating Curve



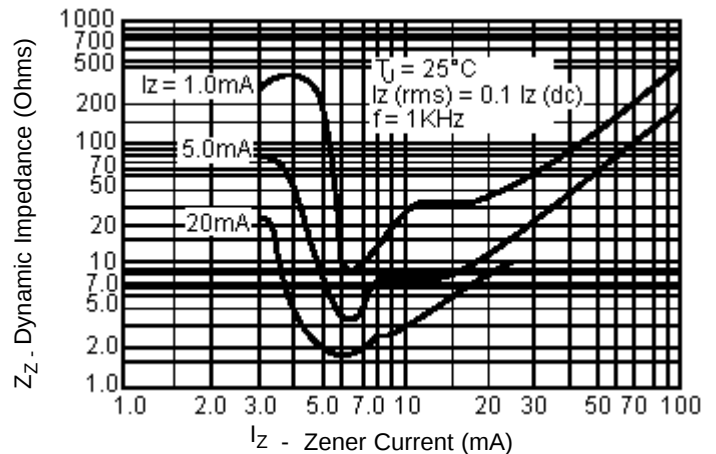
Typical Forward Characteristics



Effect of Zener Current on Zener Impedance



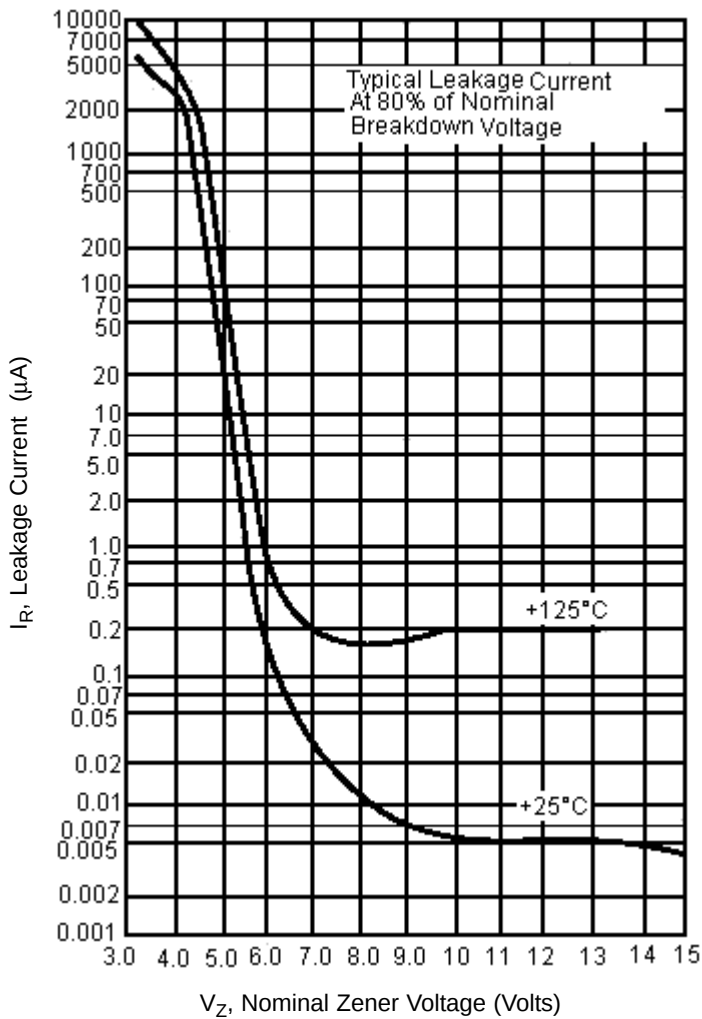
Effect of Zener Voltage on Zener Impedance



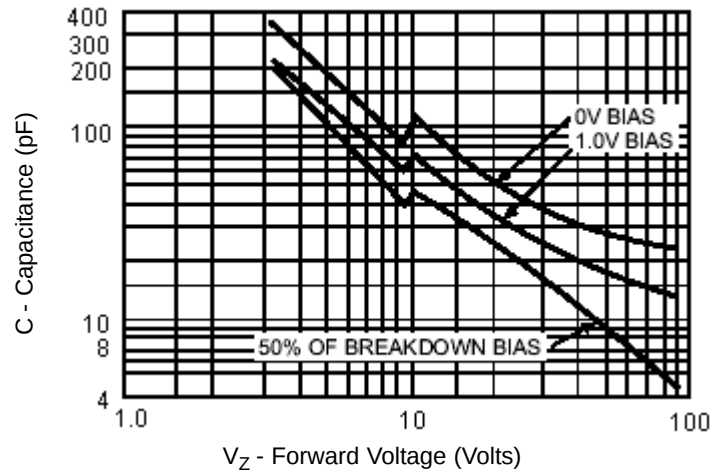
# 1N47- Series



Typical Leakage Current

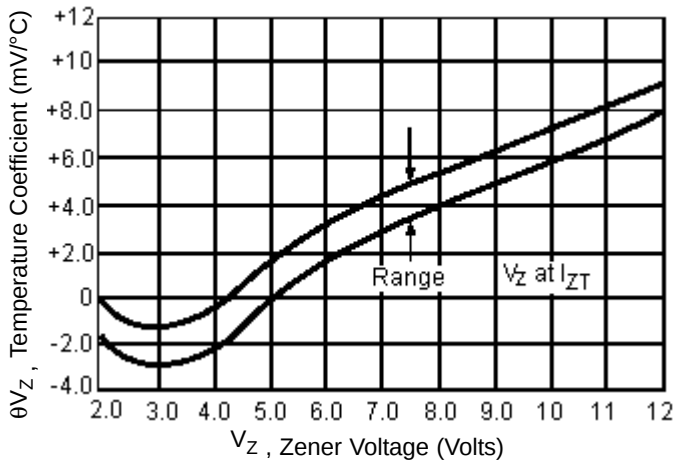


Typical Capacitance versus  $V_Z$



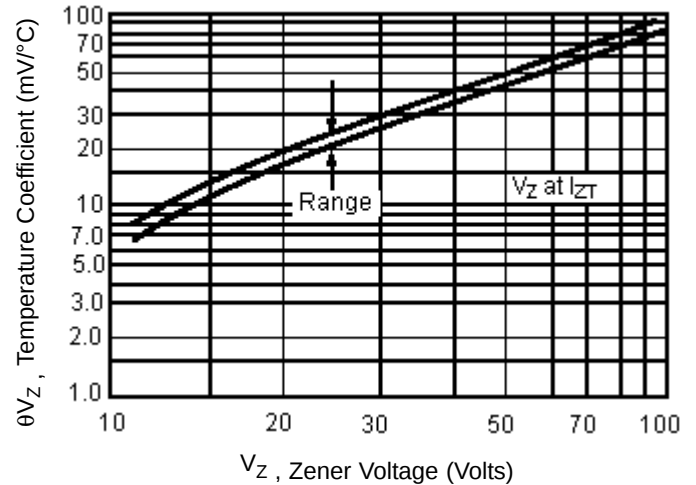
Temperature Coefficients

a - Range for Units to 12 Volts

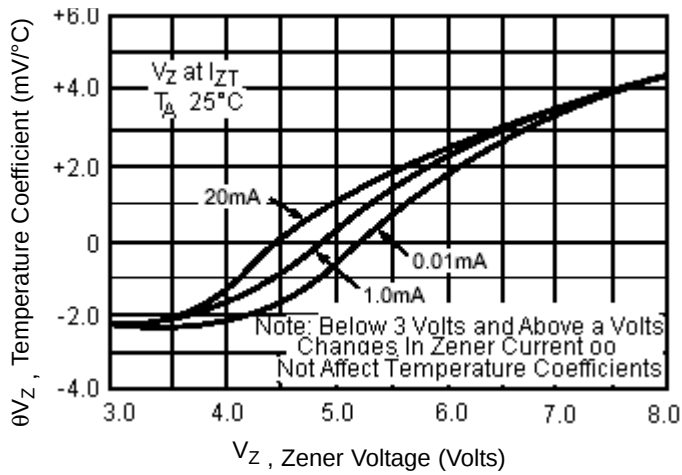


Temperature Coefficients

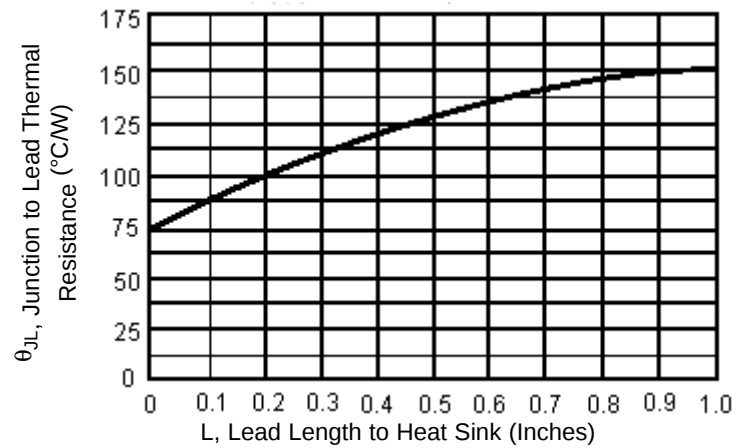
b - Range for Units to 12 to 100 Volts



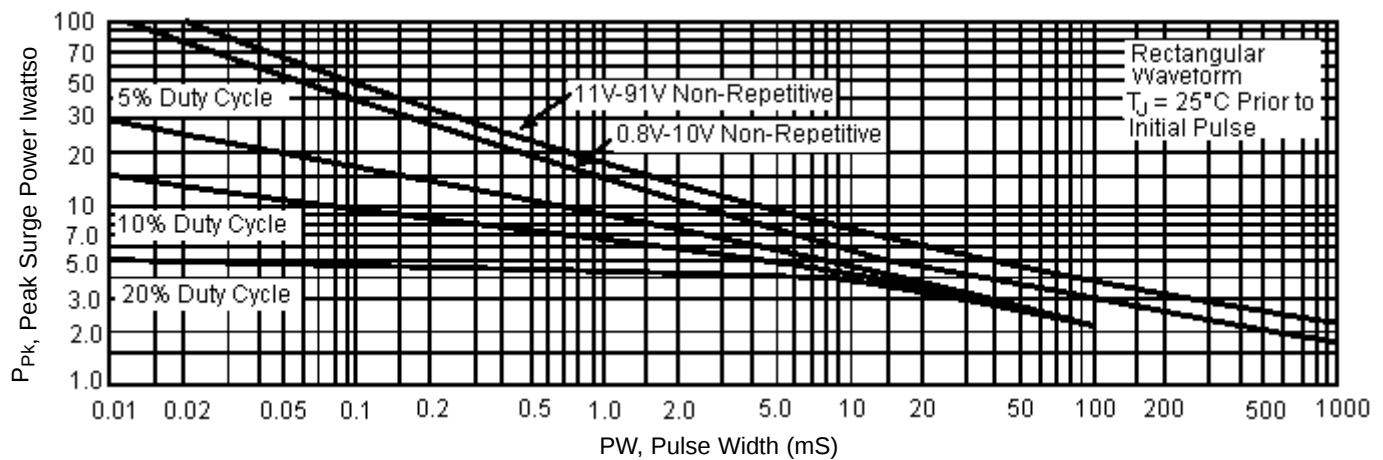
Effect of Zener Current



Typical Thermal Resistance versus Lead Length



Maximum Surge Power



## Notes:

## International Sales Offices:

|                                                                                    |                                                                                             |                                                                                     |                                                                                           |                                                                                     |                                                                                            |                                                                                                                                                                                                                                                                 |                                                                                    |
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