

# 1N4741A THRU 1M200Z

## GLASS PASSIVATED JUNCTION SILICON ZENER DIODE

VOLTAGE - 11 TO 200 Volts Power - 1.0 Watt

### FEATURES

- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Typical  $I_R$  less than 5.0 A above 11V
- High temperature soldering :  
260 /10 seconds at terminals
- Plastic package has Underwriters Laboratory  
Flammability Classification 94V-O

### MECHANICAL DATA

Case: Molded plastic, DO-41

Epoxy: UL 94V-O rate flame retardant

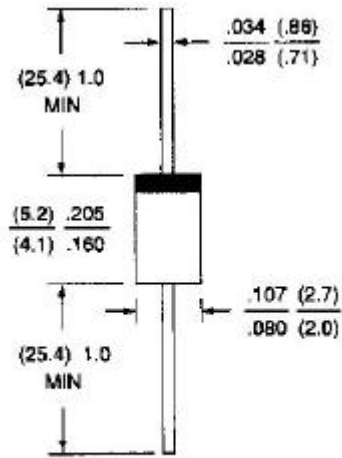
Lead: Axial leads, solderable per MIL-STD-202,  
method 208 guaranteed

Polarity: Color band denotes cathode end

Mounting position: Any

Weight: 0.012 ounce, 0.3 gram

### DO-41



Dimensions in inches and (millimeters)

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 ambient temperature unless otherwise specified.

|   | SYMBOL         | VALUE       | UNITS        |
|---|----------------|-------------|--------------|
| Peak Pulse Power Dissipation on $T_A=50$ (Note A)<br>Derate above 50  | $P_D$          | 1.0<br>6.67 | Watts<br>mW/ |
| Peak forward Surge Current 8.3ms single half sine-wave<br>superimposed on rated load(JEDEC Method) (Note B) | $I_{FSM}$      | 10          | Amps         |
| Operating Junction and Storage Temperature Range  | $T_J, T_{STG}$ | -55 to +150 |              |

#### NOTES:

A. Mounted on  $5.0\text{mm}^2$  (.013mm thick) land areas.

B. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

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\*ELECTRICAL CHARACTERISTICS ( $T_A=25$  unless otherwise noted)  $V_F=1.2V$  max,  $I_F=200mA$  for all types.

| Type No.<br>(Note 1.) | Nominal Zener<br>Voltage $V_Z$ @ $I_{ZT}$<br>volts<br>(Notes 2. And<br>3.) | Test current<br>$I_{ZT}$<br>mA | Maximum Zener Impedance (Note 4.) |                             |                | Leakage Current |                | Surge Current<br>@ $T_A=25$<br>$I_r$ - mA<br>(Note 5.) |
|-----------------------|--|--------------------------------|-----------------------------------|-----------------------------|----------------|-----------------|----------------|--|
|                       |  |                                | $Z_{ZT}$ @ $I_{ZT}$<br>Ohms       | $Z_{ZK}$ @ $I_{ZK}$<br>Ohms | $I_{ZK}$<br>mA | $I_R$<br>A Max  | $V_R$<br>Volts |  |
| 1N4741A               | 11   | 23                             | 8.0                               | 700                         | 0.25           | 5.0             | 8.4            | 414  |
| 1N4742A               | 12   | 21                             | 9.0                               | 700                         | 0.25           | 5.0             | 9.1            | 380  |
| 1N4743A               | 13   | 19                             | 10                                | 700                         | 0.25           | 5.0             | 9.9            | 344  |
| 1N4744A               | 15   | 17                             | 14                                | 700                         | 0.25           | 5.0             | 11.4           | 304  |
| 1N4745A               | 16   | 15.5                           | 16                                | 700                         | 0.25           | 5.0             | 12.2           | 285  |
| 1N4746A               | 18   | 14                             | 20                                | 750                         | 0.25           | 5.0             | 13.7           | 250  |
| 1N4747A               | 20   | 12.5                           | 22                                | 750                         | 0.25           | 5.0             | 15.2           | 225  |
| 1N4748A               | 22   | 11.5                           | 23                                | 750                         | 0.25           | 5.0             | 16.7           | 205  |
| 1N4749A               | 24   | 10.5                           | 25                                | 750                         | 0.25           | 5.0             | 18.2           | 190  |
| 1N4750A               | 27   | 9.5                            | 35                                | 750                         | 0.25           | 5.0             | 20.6           | 170  |
| 1N4751A               | 30   | 8.5                            | 40                                | 1000                        | 0.25           | 5.0             | 22.8           | 150  |
| 1N4752A               | 33   | 7.5                            | 45                                | 1000                        | 0.25           | 5.0             | 25.1           | 135  |
| 1N4753A               | 36   | 7.0                            | 50                                | 1000                        | 0.25           | 5.0             | 27.4           | 125  |
| 1N4754A               | 39   | 6.5                            | 60                                | 1000                        | 0.25           | 5.0             | 29.7           | 115  |
| 1N4755A               | 43   | 6.0                            | 70                                | 1500                        | 0.25           | 5.0             | 32.7           | 110  |
| 1N4756A               | 47   | 5.5                            | 80                                | 1500                        | 0.25           | 5.0             | 35.8           | 95   |
| 1N4757A               | 51   | 5.0                            | 95                                | 1500                        | 0.25           | 5.0             | 38.8           | 90   |
| 1N4758A               | 56   | 4.5                            | 110                               | 2000                        | 0.25           | 5.0             | 42.6           | 80   |
| 1N4759A               | 62   | 4.0                            | 125                               | 2000                        | 0.25           | 5.0             | 47.1           | 70   |
| 1N4760A               | 68   | 3.7                            | 150                               | 2000                        | 0.25           | 5.0             | 51.7           | 65   |
| 1N4761A               | 75   | 3.3                            | 175                               | 2000                        | 0.25           | 5.0             | 56.0           | 60   |
| 1N4762A               | 82   | 3.0                            | 200                               | 3000                        | 0.25           | 5.0             | 62.2           | 55   |
| 1N4763A               | 91   | 2.8                            | 250                               | 3000                        | 0.25           | 5.0             | 69.2           | 50   |
| 1N4764A               | 100  | 2.5                            | 350                               | 3000                        | 0.25           | 5.0             | 76.0           | 45   |
| 1M110Z                | 110  | 2.3                            | 450                               | 4000                        | 0.25           | 5.0             | 83.6           | -  |
| 1M120Z                | 120  | 2                              | 550                               | 4500                        | 0.25           | 5.0             | 91.2           | -  |
| 1M130Z                | 130  | 1.9                            | 700                               | 5000                        | 0.25           | 5.0             | 98.8           | -  |
| 1M150Z                | 150  | 1.7                            | 1000                              | 6000                        | 0.25           | 5.0             | 114.0          | -  |
| 1M160Z                | 160  | 1.6                            | 1100                              | 6500                        | 0.25           | 5.0             | 121.6          | -  |
| 1M180Z                | 180  | 1.4                            | 1200                              | 7000                        | 0.25           | 5.0             | 136.8          | -  |
| 1M200Z                | 200  | 1.2                            | 1500                              | 8000                        | 0.25           | 5.0             | 152.0          | -  |

## NOTE:

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 ( $V_Z$ ) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature ( $T_L$ ) at  $30 \pm 1$ , from the diode body.
4. 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  $I_{ZK}$ .
5. Surge Current ( $I_r$ ) Non-Replicative. 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 registration; however, actual device capability is as described in Figure 5.

RATING AND CHARACTERISTICS CURVES

1N4741A THRU 1M200Z

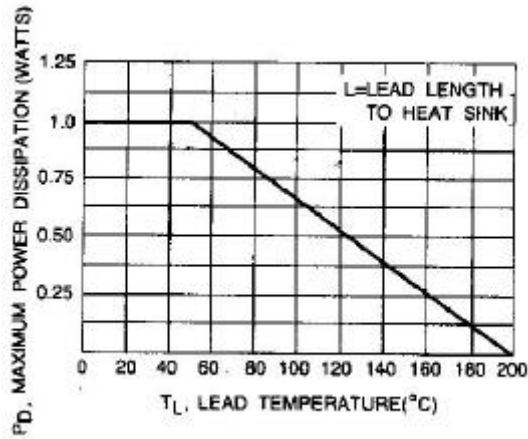


Fig. 1-POWER TEMPERATURE DERATING CURVE

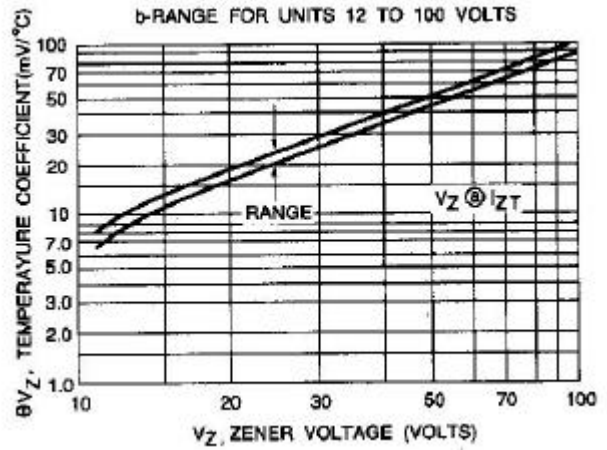
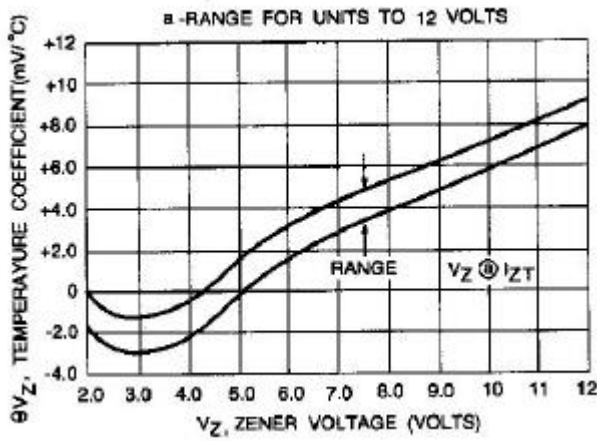


Fig. 2-TEMPERATURE COEFFICIENTS

(-55 to +150 temperature range; 90% of the units are in the ranges indicated.)

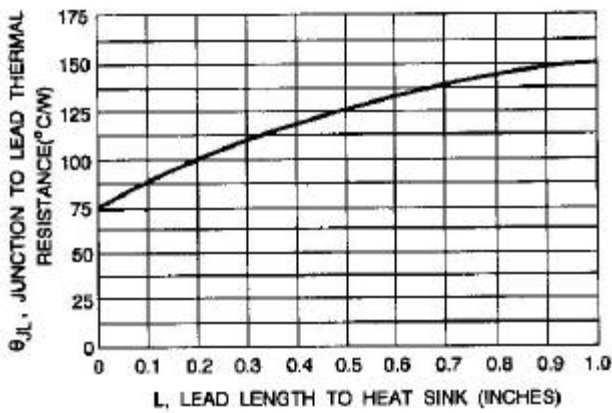


Fig. 3-TYPICAL THERMAL RESISTANCE  
versus LEAD LENGTH

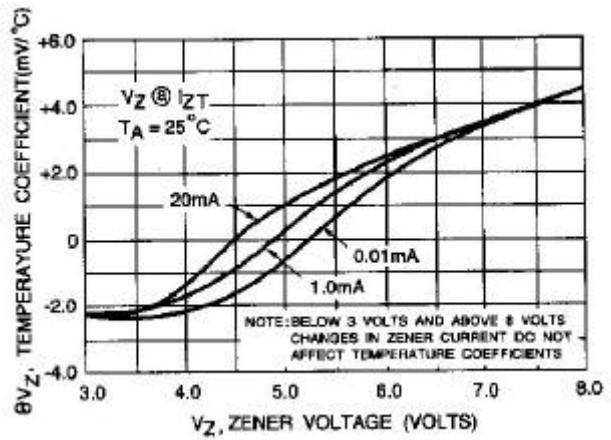


Fig. 4-EFFECT OF ZENER CURRENT

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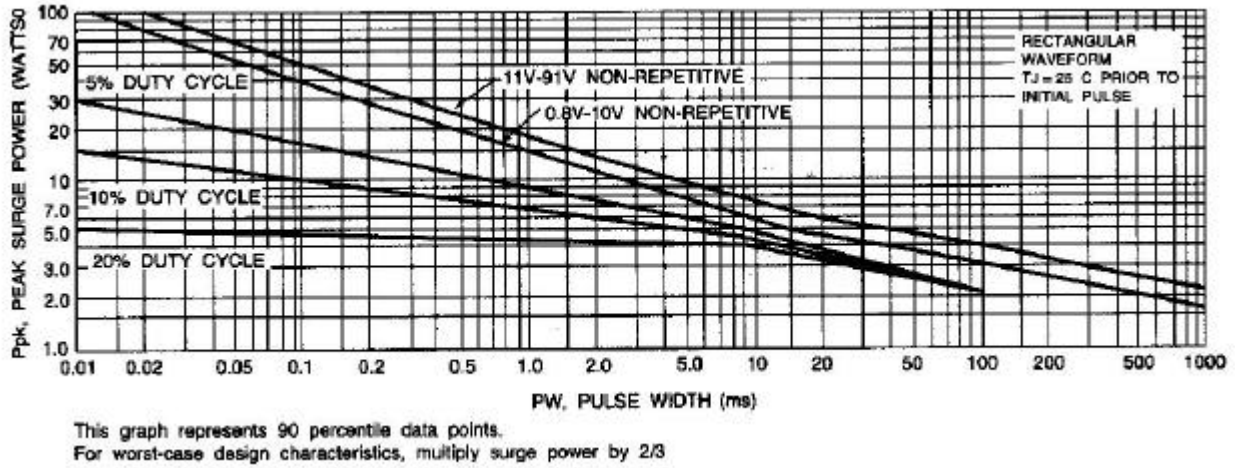


Fig. 5-MAXIMUM SURGE POWER

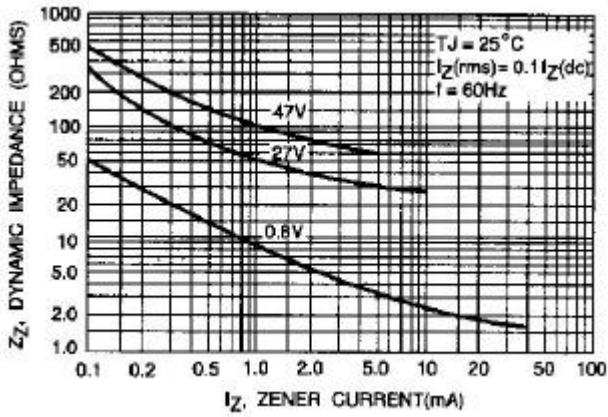


Fig. 6-EFFECT OF ZENER CURRENT ON ZENER IMPEDANCE

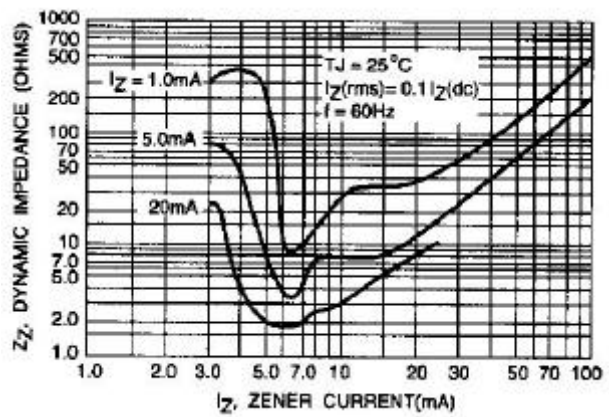


Fig. 7-EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

RATING AND CHARACTERISTICS CURVES

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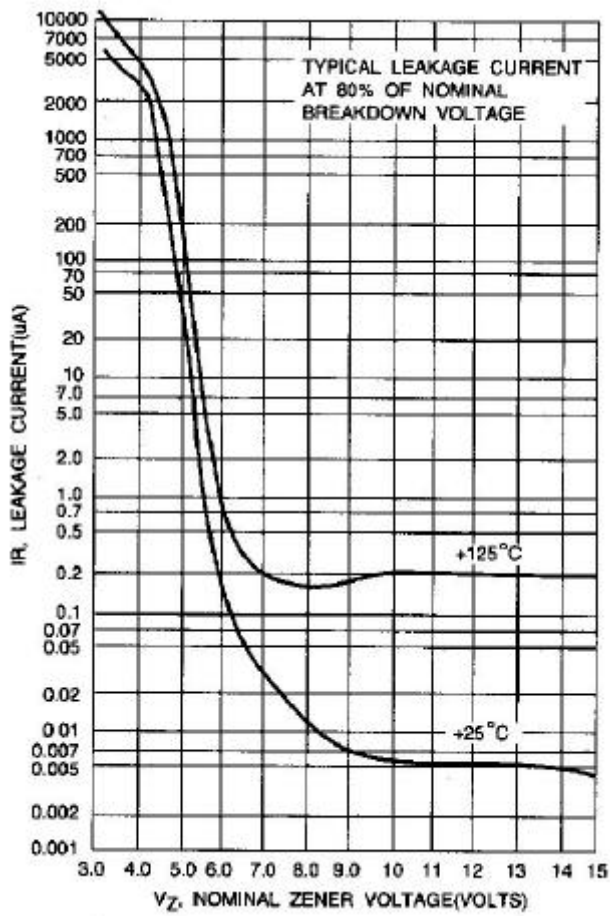


Fig. 8-TYPICAL LEAKAGE CURRENT

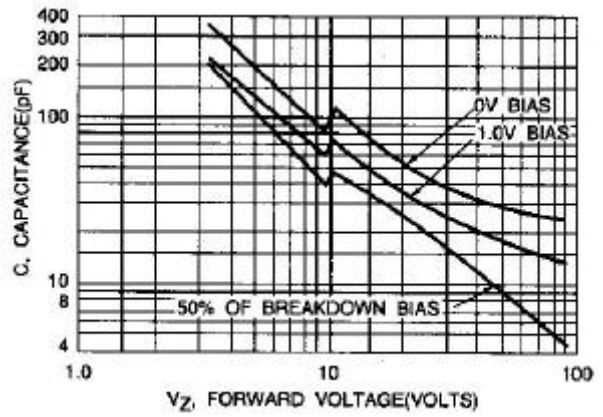


Fig. 9-TYPICAL CAPACITANCE versus  $V_Z$

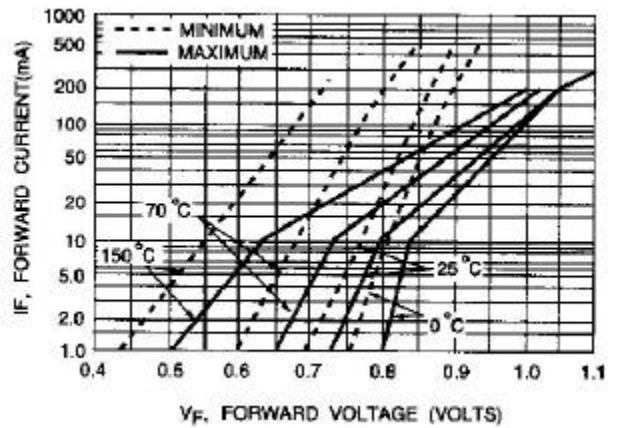


Fig. 10-TYPICAL FORWARD CHARACTERISTICS