

# 1N4728A-G~1N4764A-G

## SILICON ZENER DIODE

**VOLTAGE** 3.3 to 100 Volts **POWER** 1.0 Watts

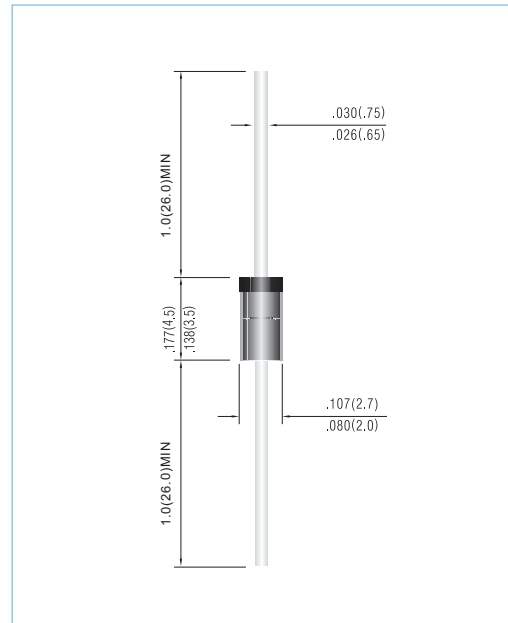
**DO-41G** Unit: inch (mm)

### FEATURES

- Low profile package
- Built-in strain relief
- Low inductance
- High temperature soldering : 260°C /10 seconds at terminals
- Glass package has Underwriters Laboratory Flammability Classification
- In compliance with EU RoHS 2002/95/EC directives

### MECHANICAL DATA

- Case: Molded Glass DO-41G
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026 guaranteed
- Polarity: Color band denotes positive end
- Mounting position: Any
- Weight: 0.012 ounce, 0.317 gram



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter                         | Symbol           | Value        | Units |
|-----------------------------------|------------------|--------------|-------|
| Power Dissipation at Tamb = 25 °C | P <sub>TOT</sub> | 1*           | W     |
| Junction Temperature              | T <sub>J</sub>   | -65 to + 200 | °C    |
| Storage Temperature Range         | T <sub>STG</sub> | -65 to + 200 | °C    |

\*Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.

| Parameter                                  | Symbol           | Min. | Typ. | Max. | Units |
|--------------------------------------------|------------------|------|------|------|-------|
| Thermal Resistance Junction to Ambient Air | R <sub>θJA</sub> | --   | --   | 170* | K/W   |
| Forward Voltage at I <sub>F</sub> = 200mA  | V <sub>F</sub>   | --   | --   | 1.2  | V     |

\*Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.

## 1N4728A-G~1N4764A-G

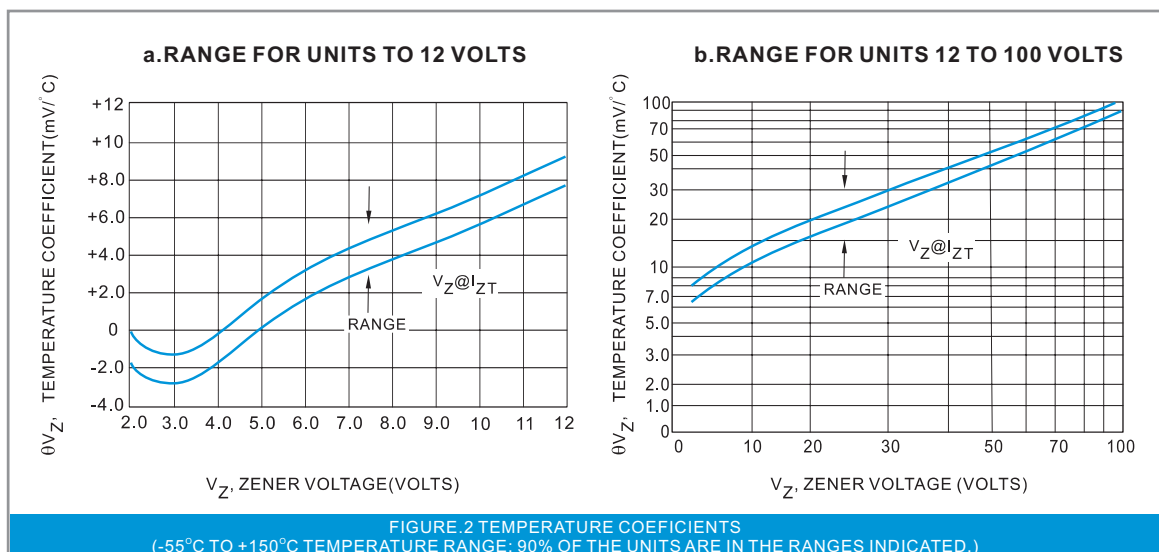
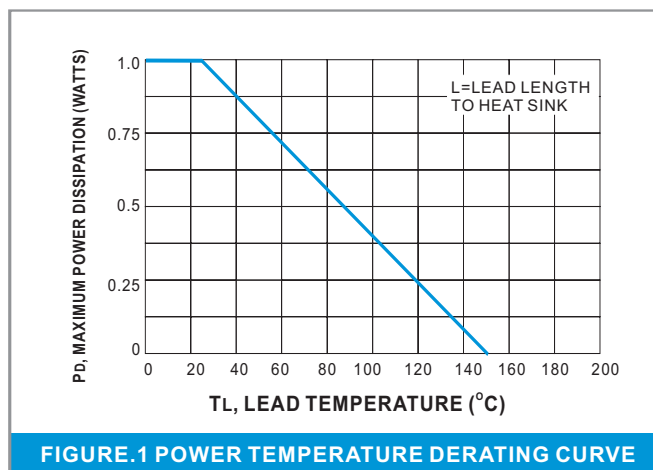
| Part Number           | Nominal Zener Voltage |        |        | Max. Zener Impedance |       |           |      | Maximum Leakage Current |      | Marking Code |
|-----------------------|-----------------------|--------|--------|----------------------|-------|-----------|------|-------------------------|------|--------------|
|                       | Vz @ IzT              |        |        | ZzT @ IzT            |       | Zzk @ Izk |      | IR @ VR                 |      |              |
|                       | Nom. V                | Min. V | Max. V | Ω                    | mA    | Ω         | mA   | μA                      | V    |              |
| 1.0 Watt Zener Diodes |                       |        |        |                      |       |           |      |                         |      |              |
| 1N4728A-G             | 3.3                   | 3.14   | 3.47   | 10.0                 | 76.00 | 400       | 1.00 | 100                     | 1    | 1N4728A      |
| 1N4729A-G             | 3.6                   | 3.42   | 3.78   | 10.0                 | 69.00 | 400       | 1.0  | 100                     | 1    | 1N4729A      |
| 1N4730A-G             | 3.9                   | 3.71   | 4.10   | 9.0                  | 64.00 | 400       | 1.0  | 50                      | 1    | 1N4730A      |
| 1N4731A-G             | 4.3                   | 4.09   | 4.52   | 9.0                  | 58.00 | 400       | 1.0  | 10                      | 1    | 1N4731A      |
| 1N4732A-G             | 4.7                   | 4.47   | 4.94   | 8.0                  | 53.00 | 500       | 1.0  | 10                      | 1    | 1N4732A      |
| 1N4733A-G             | 5.1                   | 4.85   | 5.36   | 7.0                  | 49.00 | 550       | 1.0  | 10                      | 1    | 1N4733A      |
| 1N4734A-G             | 5.6                   | 5.32   | 5.88   | 5.0                  | 45.00 | 600       | 1.0  | 10                      | 2    | 1N4734A      |
| 1N4735A-G             | 6.2                   | 5.89   | 6.51   | 2.0                  | 41.00 | 700       | 1.0  | 10                      | 3    | 1N4735A      |
| 1N4736A-G             | 6.8                   | 6.46   | 7.14   | 3.5                  | 37.00 | 700       | 1.0  | 10                      | 4    | 1N4736A      |
| 1N4737A-G             | 7.5                   | 7.13   | 7.88   | 4.0                  | 34.00 | 700       | 0.5  | 10                      | 5    | 1N4737A      |
| 1N4738A-G             | 8.2                   | 7.79   | 8.61   | 4.5                  | 31.00 | 700       | 0.5  | 10                      | 6    | 1N4738A      |
| 1N4739A-G             | 9.1                   | 8.65   | 9.56   | 5.0                  | 28.00 | 700       | 0.5  | 10                      | 7    | 1N4739A      |
| 1N4740A-G             | 10.0                  | 9.50   | 10.50  | 7.0                  | 25.00 | 700       | 0.25 | 10                      | 7.6  | 1N4740A      |
| 1N4741A-G             | 11.0                  | 10.45  | 11.55  | 8.0                  | 23.00 | 700       | 0.25 | 5                       | 8.4  | 1N4741A      |
| 1N4742A-G             | 12.0                  | 11.40  | 12.60  | 9.0                  | 21.00 | 700       | 0.25 | 5                       | 9.1  | 1N4742A      |
| 1N4743A-G             | 13.0                  | 12.35  | 13.65  | 10                   | 19.00 | 700       | 0.25 | 5                       | 9.9  | 1N4743A      |
| 1N4744A-G             | 15.0                  | 14.25  | 15.75  | 14                   | 17.00 | 700       | 0.25 | 5                       | 11.4 | 1N4744A      |
| 1N4745A-G             | 16.0                  | 15.20  | 16.80  | 16                   | 15.50 | 700       | 0.25 | 5                       | 12.2 | 1N4745A      |
| 1N4746A-G             | 18.0                  | 17.10  | 18.90  | 20                   | 14.00 | 750       | 0.25 | 5                       | 13.7 | 1N4746A      |
| 1N4747A-G             | 20.0                  | 19.00  | 21.00  | 22                   | 12.50 | 750       | 0.25 | 5                       | 15.2 | 1N4747A      |
| 1N4748A-G             | 22.0                  | 20.90  | 23.10  | 23                   | 11.50 | 750       | 0.25 | 5                       | 16.7 | 1N4748A      |
| 1N4749A-G             | 24.0                  | 22.80  | 25.20  | 25                   | 10.50 | 750       | 0.25 | 5                       | 18.2 | 1N4749A      |
| 1N4750A-G             | 27.0                  | 25.65  | 28.35  | 35                   | 9.50  | 750       | 0.25 | 5                       | 20.6 | 1N4750A      |
| 1N4751A-G             | 30.0                  | 28.50  | 31.50  | 40                   | 8.50  | 1000      | 0.25 | 5                       | 22.8 | 1N4751A      |
| 1N4752A-G             | 33.0                  | 31.35  | 34.65  | 45                   | 7.50  | 1000      | 0.25 | 5                       | 25.1 | 1N4752A      |
| 1N4753A-G             | 36.0                  | 34.20  | 37.80  | 50                   | 7.00  | 1000      | 0.25 | 5                       | 27.4 | 1N4753A      |
| 1N4754A-G             | 39.0                  | 37.05  | 40.95  | 60                   | 6.50  | 1000      | 0.25 | 5                       | 29.7 | 1N4754A      |
| 1N4755A-G             | 43.0                  | 40.85  | 45.15  | 70                   | 6.00  | 1500      | 0.25 | 0.1                     | 32.7 | 1N4755A      |
| 1N4756A-G             | 47.0                  | 44.65  | 49.35  | 80                   | 5.50  | 1500      | 0.25 | 0.1                     | 35.8 | 1N4756A      |
| 1N4757A-G             | 51.0                  | 48.45  | 53.55  | 95                   | 5.00  | 1500      | 0.25 | 0.1                     | 38.8 | 1N4757A      |
| 1N4758A-G             | 56.0                  | 53.20  | 58.80  | 110                  | 4.50  | 2000      | 0.25 | 0.1                     | 42.6 | 1N4758A      |
| 1N4759A-G             | 62.0                  | 58.90  | 65.10  | 125                  | 4.00  | 2000      | 0.25 | 0.1                     | 47.1 | 1N4759A      |
| 1N4760A-G             | 68.0                  | 64.60  | 71.40  | 150                  | 3.70  | 2000      | 0.25 | 0.1                     | 51.7 | 1N4760A      |
| 1N4761A-G             | 75.0                  | 71.25  | 78.75  | 175                  | 3.30  | 2000      | 0.25 | 0.1                     | 56   | 1N4761A      |
| 1N4762A-G             | 82.0                  | 77.90  | 86.10  | 200                  | 3.00  | 3000      | 0.25 | 0.1                     | 62.2 | 1N4762A      |
| 1N4763A-G             | 91.0                  | 86.45  | 95.55  | 250                  | 2.80  | 3000      | 0.25 | 0.1                     | 69.2 | 1N4763A      |
| 1N4764A-G             | 100                   | 95.00  | 105.00 | 350                  | 2.50  | 3000      | 0.25 | 0.1                     | 76   | 1N4764A      |

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**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  $30^\circ\text{C} \pm 1^\circ\text{C}$ , 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-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2

### RATING AND CHARACTERISTICS CURVES



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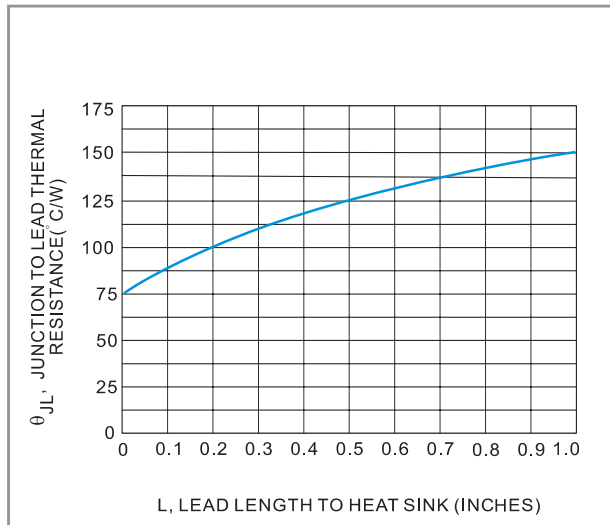


FIGURE.3 TYPICAL THERMAL RESISTANCE versus LEAD LENGTH

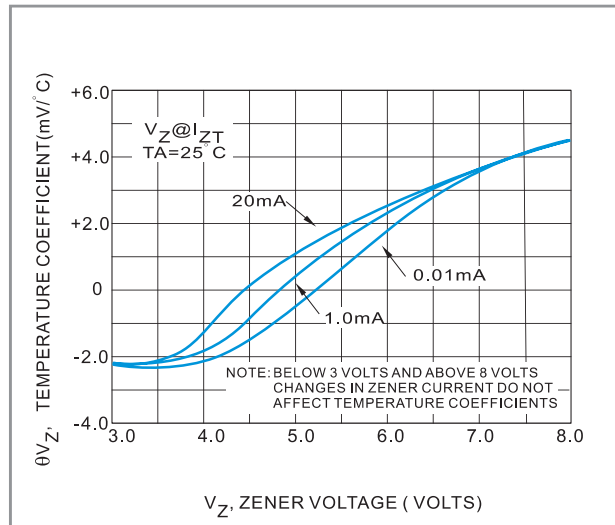
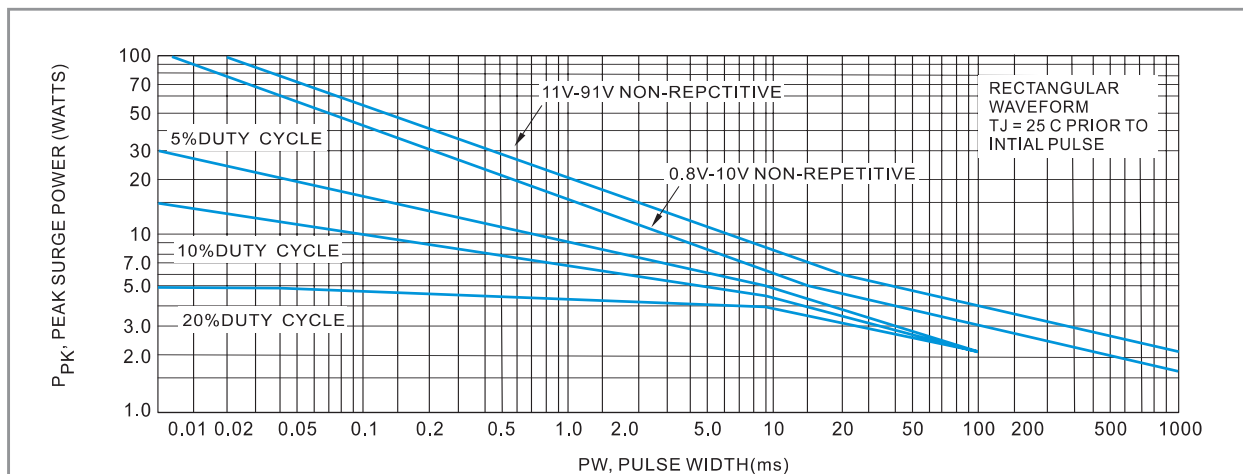


FIGURE.4 EFFECT OF ZENER CURRENT



This graph represents 90 percentile data points.  
FOR worst-case design characteristics, multiply surge power by 2/3

FIGURE.5 MAXIMUM SURGE POWER

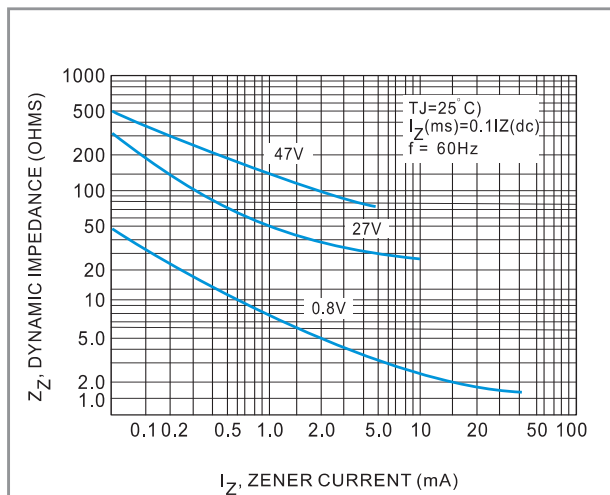


FIGURE.6 EFFECT OF ZENER CURRENT ON ZENER IMPEDANCE

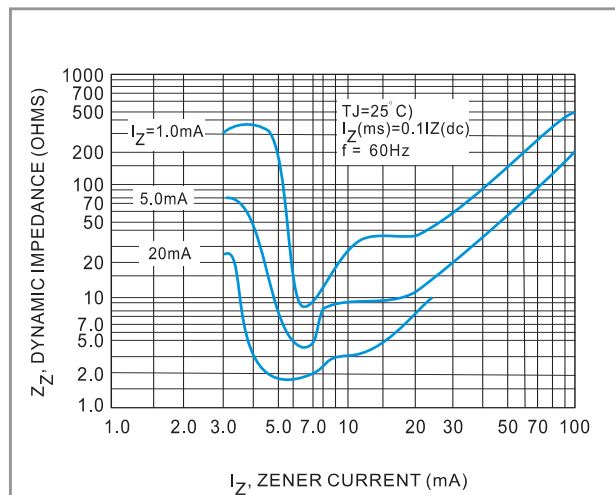
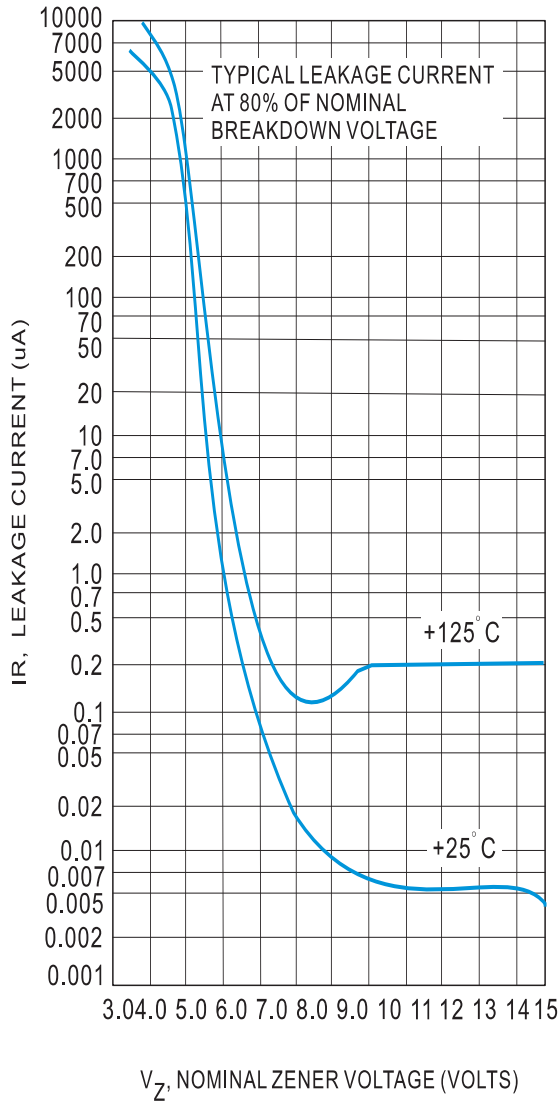
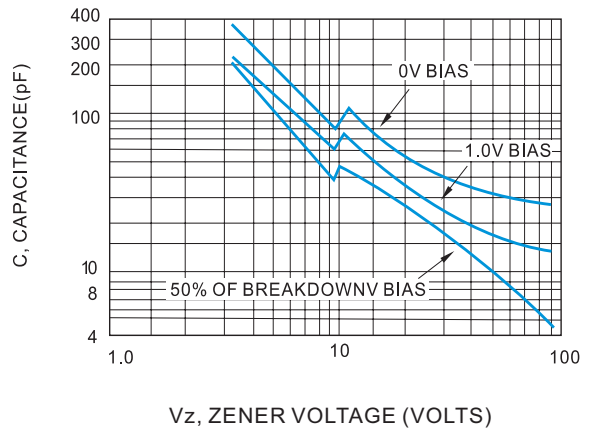


FIGURE.7 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

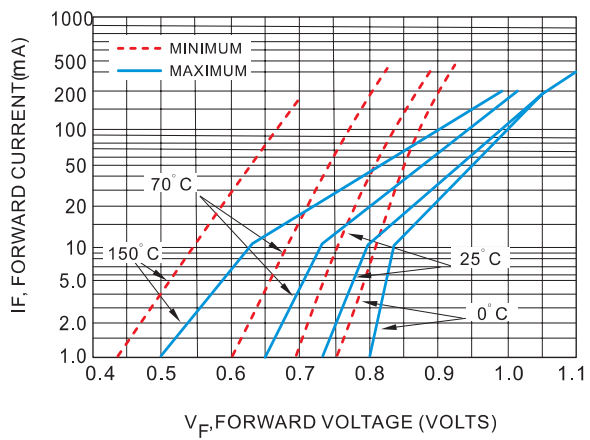
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**FIGURE.8 TYPICAL LEAKAGE CURRENT**



**FIGURE.9 TYPICAL CAPACITANCE versus  $V_Z$**



**FIGURE.10 TYPICAL FORWARD CHARACTERISTICS**