

## 1N4728A THRU 1N4776A DO-41 SERIES

PLASTIC-ENCAPSULATE ZENER DIODE



VOLTAGE 3.3~350 Volts

POWER 1.0 W

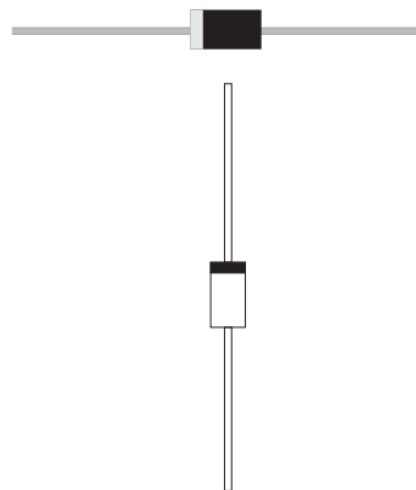
DO-41

## FEATURES

- Glass passivated chip
- Built-in strain relief
- Low inductance
- High peak reverse power dissipation
- Low reverse leakage
- For use in stabilizing and clipping with high power rating
- RoHS compliant

## MECHANICAL DATA

- **Case:** DO214AC Molded plastic
- **Lead:** Solderable per MIL-STD-750, method 2026
- **Epoxy:** UL 94V-0 rate flame retardant
- **Polarity:** Color band denotes cathode end
- **Mounting position:** Any



## Maximum Ratings &amp; Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

| Parameter                                     | Symbol         | Value       | Unit |
|-----------------------------------------------|----------------|-------------|------|
| DC Power dissipation at TL = 75 °C(1)         | $P_d$          | 1.0         | W    |
| Maximum forward voltage at $I_f=200\text{mA}$ | $V_f$          | 1.0         | V    |
| Junction temperature range                    | $T_J, T_{STG}$ | -55 to +175 | °C   |
| Storage temperature range                     | $T_J, T_{STG}$ | -55 to +175 | °C   |

**Notes:** (1) TL=Lead temperature at 3/8" (9.5mm) from body



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Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

| Device  | Zener Voltage Range |        |        |      | Maximum Zener Impedance |          |      | Maximum Reverse Current |       | Test Current IZTC |
|---------|---------------------|--------|--------|------|-------------------------|----------|------|-------------------------|-------|-------------------|
|         | Vz@Izt              |        |        | Izt  | Zzt @Izt                | Zzk @Izk | Izk  | IR                      | VR    |                   |
|         | Nom(V)              | Min(V) | Max(V) | mA   | Ω                       |          | mA   | uA                      | V     |                   |
| 1N4728A | 3.3                 | 3.14   | 3.47   | 76.0 | 10.0                    | 400.0    | 1.0  | 100.0                   | 1.0   | 274.0             |
| 1N4729A | 3.6                 | 3.42   | 3.78   | 69.0 | 10.0                    | 400.0    | 1.0  | 100.0                   | 1.0   | 251.0             |
| 1N4730A | 3.9                 | 3.71   | 4.10   | 64.0 | 9.0                     | 400.0    | 1.0  | 50.0                    | 1.0   | 232.0             |
| 1N4731A | 4.3                 | 4.09   | 4.52   | 58.0 | 9.0                     | 400.0    | 1.0  | 10.0                    | 1.0   | 210.0             |
| 1N4732A | 4.7                 | 4.47   | 4.94   | 53.0 | 8.0                     | 500.0    | 1.0  | 10.0                    | 1.0   | 192.0             |
| 1N4733A | 5.1                 | 4.85   | 5.36   | 49.0 | 7.0                     | 550.0    | 1.0  | 10.0                    | 1.0   | 177.0             |
| 1N4734A | 5.6                 | 5.32   | 5.88   | 45.0 | 5.0                     | 600.0    | 1.0  | 10.0                    | 2.0   | 161.0             |
| 1N4735A | 6.2                 | 5.89   | 6.51   | 41.0 | 2.0                     | 700.0    | 1.0  | 10.0                    | 3.0   | 146.0             |
| 1N4736A | 6.8                 | 6.46   | 7.14   | 37.0 | 3.5                     | 700.0    | 1.0  | 10.0                    | 4.0   | 133.0             |
| 1N4737A | 7.5                 | 7.13   | 7.88   | 34.0 | 4.0                     | 700.0    | 0.5  | 10.0                    | 5.0   | 121.0             |
| 1N4738A | 8.2                 | 7.79   | 8.61   | 31.0 | 4.5                     | 700.0    | 0.5  | 10.0                    | 6.0   | 110.0             |
| 1N4739A | 9.1                 | 8.65   | 9.56   | 28.0 | 5.0                     | 700.0    | 0.5  | 10.0                    | 7.0   | 100.0             |
| 1N4740A | 10.0                | 9.50   | 10.50  | 25.0 | 7.0                     | 700.0    | 0.25 | 10.0                    | 7.6   | 91.0              |
| 1N4741A | 11.0                | 10.45  | 11.55  | 23.0 | 8.0                     | 700.0    | 0.25 | 0.5                     | 8.4   | 83.0              |
| 1N4742A | 12.0                | 11.40  | 12.60  | 21.0 | 9.0                     | 700.0    | 0.25 | 0.5                     | 9.1   | 76.0              |
| 1N4743A | 13.0                | 12.35  | 13.65  | 19.0 | 10.0                    | 700.0    | 0.25 | 0.5                     | 9.9   | 69.0              |
| 1N4744A | 15.0                | 14.25  | 15.75  | 17.0 | 14.0                    | 700.0    | 0.25 | 0.5                     | 11.4  | 61.0              |
| 1N4745A | 16.0                | 15.20  | 16.80  | 15.5 | 16.0                    | 700.0    | 0.25 | 0.5                     | 12.2  | 57.0              |
| 1N4746A | 18.0                | 17.10  | 18.90  | 14.0 | 20.0                    | 750.0    | 0.25 | 0.5                     | 13.7  | 50.0              |
| 1N4747A | 20.0                | 19.00  | 21.00  | 12.5 | 22.0                    | 750.0    | 0.25 | 0.5                     | 15.2  | 45.0              |
| 1N4748A | 22.0                | 20.90  | 23.10  | 11.5 | 23.0                    | 750.0    | 0.25 | 0.5                     | 16.7  | 41.0              |
| 1N4749A | 24.0                | 22.80  | 25.20  | 10.5 | 25.0                    | 750.0    | 0.25 | 0.5                     | 18.2  | 38.0              |
| 1N4750A | 27.0                | 25.65  | 28.35  | 9.5  | 35.0                    | 750.0    | 0.25 | 0.5                     | 20.6  | 34.0              |
| 1N4751A | 30.0                | 28.50  | 31.50  | 8.5  | 40.0                    | 1000.0   | 0.25 | 0.5                     | 22.8  | 30.0              |
| 1N4752A | 33.0                | 31.35  | 34.65  | 7.5  | 45.0                    | 1000.0   | 0.25 | 0.5                     | 25.1  | 27.0              |
| 1N4753A | 36.0                | 34.20  | 37.80  | 7.0  | 50.0                    | 1000.0   | 0.25 | 0.5                     | 27.4  | 25.0              |
| 1N4754A | 39.0                | 37.05  | 40.95  | 6.5  | 60.0                    | 1000.0   | 0.25 | 0.5                     | 29.7  | 23.0              |
| 1N4755A | 43.0                | 40.85  | 45.15  | 6.0  | 70.0                    | 1500.0   | 0.25 | 0.5                     | 32.7  | 22.0              |
| 1N4756A | 47.0                | 44.65  | 49.35  | 5.5  | 80.0                    | 1500.0   | 0.25 | 0.5                     | 35.8  | 19.0              |
| 1N4757A | 51.0                | 48.45  | 53.55  | 5.0  | 95.0                    | 1500.0   | 0.25 | 0.5                     | 38.8  | 18.0              |
| 1N4758A | 56.0                | 53.20  | 58.80  | 4.5  | 110.0                   | 2000.0   | 0.25 | 0.5                     | 42.6  | 16.0              |
| 1N4759A | 62.0                | 58.90  | 65.10  | 4.0  | 125.0                   | 2000.0   | 0.25 | 0.5                     | 47.1  | 14.0              |
| 1N4760A | 68.0                | 64.60  | 71.40  | 3.7  | 150.0                   | 2000.0   | 0.25 | 0.5                     | 51.7  | 13.0              |
| 1N4761A | 75.0                | 71.25  | 78.75  | 3.3  | 175.0                   | 2000.0   | 0.25 | 0.5                     | 56.0  | 12.0              |
| 1N4762A | 82.0                | 77.90  | 86.10  | 3.0  | 200.0                   | 3000.0   | 0.25 | 0.5                     | 62.2  | 11.0              |
| 1N4763A | 91.0                | 86.45  | 95.55  | 2.8  | 250.0                   | 3000.0   | 0.25 | 0.5                     | 69.2  | 10.0              |
| 1N4764A | 100.0               | 95.00  | 105.00 | 2.5  | 350.0                   | 3000.0   | 0.25 | 0.5                     | 76.0  | 9.0               |
| 1N4765A | 110.0               | 104.50 | 115.50 | 2.3  | 450.0                   | 4000.0   | 0.25 | 0.5                     | 83.6  | 8.6               |
| 1N4766A | 120.0               | 114.00 | 126.00 | 2.0  | 550.0                   | 4500.0   | 0.25 | 0.5                     | 91.2  | 7.8               |
| 1N4767A | 130.0               | 123.50 | 136.50 | 1.9  | 700.0                   | 5000.0   | 0.25 | 0.5                     | 98.8  | 7.0               |
| 1N4768A | 150.0               | 142.50 | 157.50 | 1.7  | 1000.0                  | 5000.0   | 0.25 | 0.5                     | 114.0 | 6.4               |
| 1N4769A | 160.0               | 152.00 | 168.00 | 1.6  | 1100.0                  | 5000.0   | 0.25 | 0.5                     | 121.6 | 5.8               |
| 1N4770A | 180.0               | 171.00 | 189.00 | 1.4  | 1200.0                  | 7000.0   | 0.25 | 0.5                     | 136.8 | 5.2               |
| 1N4771A | 200.0               | 190.00 | 210.00 | 1.2  | 1900.0                  | 8000.0   | 0.25 | 0.5                     | 152.0 | 4.7               |
| 1N4772A | 220.0               | 209.00 | 231.00 | 1.0  | 1600.0                  | 9000.0   | 0.25 | 0.5                     | 167.2 | 4.0               |
| 1N4773A | 250.0               | 237.50 | 262.50 | 0.9  | 1800.0                  | 9000.0   | 0.25 | 0.5                     | 190.0 | 3.6               |
| 1N4774A | 300.0               | 285.00 | 315.00 | 0.8  | 2000.0                  | 9500.0   | 0.25 | 0.5                     | 228.0 | 3.0               |
| 1N4775A | 330.0               | 313.50 | 346.50 | 0.75 | 2100.0                  | 9500.0   | 0.25 | 0.5                     | 245.0 | 2.7               |
| 1N4776A | 350.0               | 332.50 | 367.50 | 0.70 | 2300.0                  | 9500.0   | 0.25 | 0.5                     | 275.0 | 2.5               |

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Ratings and Characteristics Curves (TA=25°C unless otherwise noted)

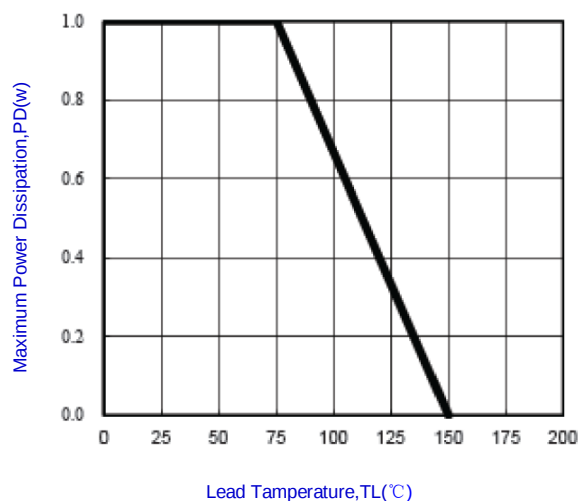


Fig.1-Power Temperature Derating Curve

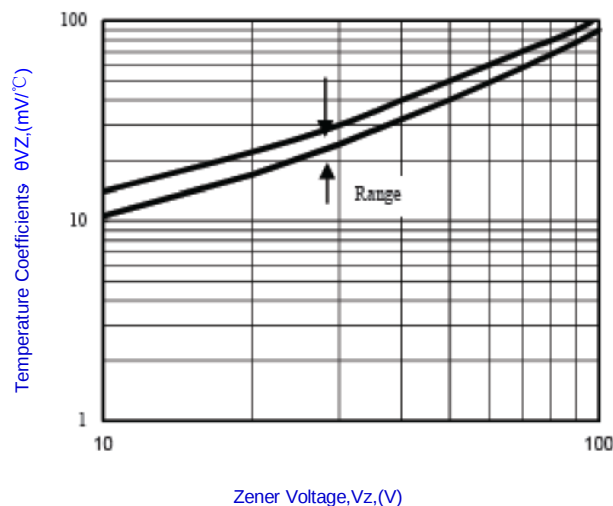


Fig.2- Temperature Coefficients v.s. Zener Voltage

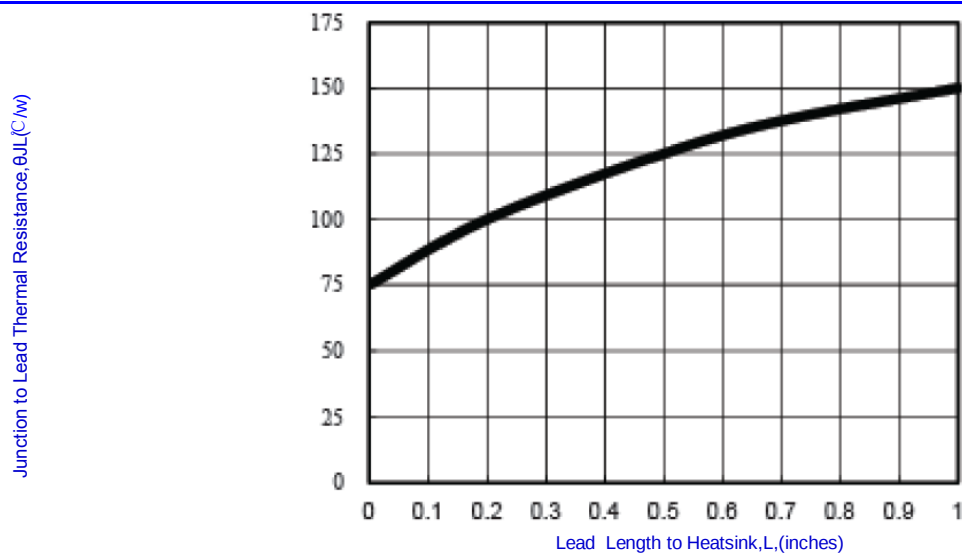


Fig.3- Typical Thermal Resistance V.S. Lead Length

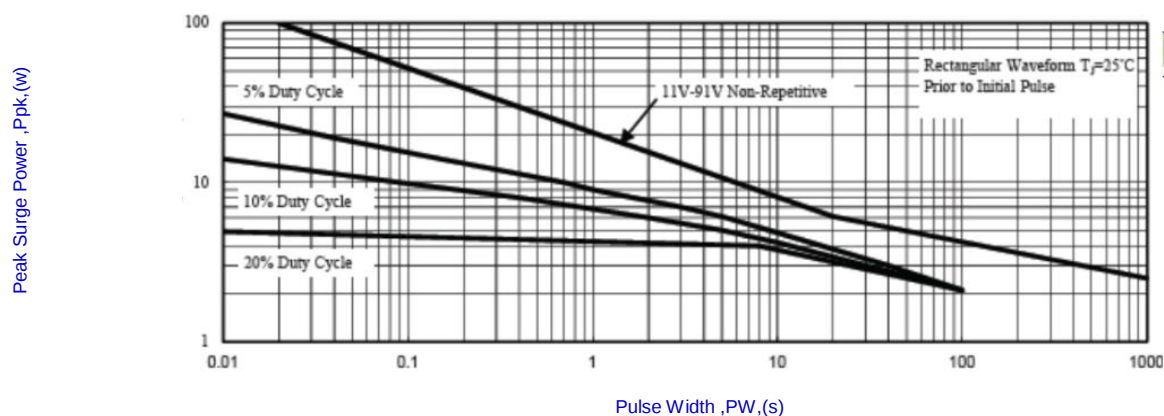


Fig.4-Maximum Surge Power