

Zener Diodes



FEATURES

- Silicon planar power Zener diodes
- For use in stabilizing and clipping circuits with high power rating
- Standard Zener voltage tolerance is $\pm 5\%$
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

APPLICATIONS

- Voltage stabilization

LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS | | |
|-------------------------|---------------------|------|
| PARAMETER | VALUE | UNIT |
| V_Z range nom. | 3.3 to 75 | V |
| Test current I_{ZT} | 3.3 to 76 | mA |
| V_Z specification | Thermal equilibrium | |
| Circuit configuration | Single | |

| ORDERING INFORMATION | | | |
|----------------------|-------------------------------|-------------------------------|------------------------|
| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY |
| 1N4728A to 1N4761A | 1N4728A to 1N4761A -series-TR | 5000 per 13" reel | 25 000/box |
| 1N4728A to 1N4761A | 1N4728A to 1N4761A-series-TAP | 5000 per ammpack (52 mm tape) | 25 000/box |

| PACKAGE | | | | |
|------------------|----------------|--------------------------------------|-----------------------------------|------------------------------|
| PACKAGE NAME | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
| DO-41 (DO-204AL) | approx. 310 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |

| ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ °C}$, unless otherwise specified) | | | | | |
|---|---|------------|-------------|------|--|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT | |
| Power dissipation | Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature $t_p = 10\text{ ms}$ | P_{tot} | 1300 | mW | |
| Zener current | | I_Z | P_V/V_Z | mA | |
| Thermal resistance junction to ambient air | Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature $t_p = 10\text{ ms}$ | R_{thJA} | 110 | K/W | |
| Junction temperature | | T_j | 175 | °C | |
| Storage temperature range | | T_{stg} | -65 to +175 | °C | |
| Forward voltage (max.) | $I_F = 200\text{ mA}$ | V_F | 1.2 | V | |



| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | | | |
|---|------------------------------------|--------------|-----------|-------------------------|------|---------------------------------------|-----------------------|------------------------------|----------------------------------|
| PART NUMBER | ZENER VOLTAGE RANGE ⁽¹⁾ | TEST CURRENT | | REVERSE LEAKAGE CURRENT | | DYNAMIC RESISTANCE $f = 1\text{ kHz}$ | | SURGE CURRENT ⁽³⁾ | REGULATOR CURRENT ⁽²⁾ |
| | V_Z at I_{ZT1} | I_{ZT1} | I_{ZT2} | I_R at V_R | | Z_{ZT} at I_{ZT1} | Z_{ZK} at I_{ZT2} | I_R | I_{ZM} |
| | V | mA | mA | μA | V | Ω | | mA | mA |
| | NOM. | | | MAX. | | TYP. | MAX. | | MAX. |
| 1N4728A | 3.3 | 76 | 1 | 100 | 1 | 10 | 400 | 1380 | 276 |
| 1N4729A | 3.6 | 69 | 1 | 100 | 1 | 10 | 400 | 1260 | 252 |
| 1N4730A | 3.9 | 64 | 1 | 50 | 1 | 9 | 400 | 1190 | 234 |
| 1N4731A | 4.3 | 58 | 1 | 10 | 1 | 9 | 400 | 1070 | 217 |
| 1N4732A | 4.7 | 53 | 1 | 10 | 1 | 8 | 500 | 970 | 193 |
| 1N4733A | 5.1 | 49 | 1 | 10 | 1 | 7 | 550 | 890 | 178 |
| 1N4734A | 5.6 | 45 | 1 | 10 | 2 | 5 | 600 | 810 | 162 |
| 1N4735A | 6.2 | 41 | 1 | 10 | 3 | 2 | 700 | 730 | 146 |
| 1N4736A | 6.8 | 37 | 1 | 10 | 4 | 3.5 | 700 | 660 | 133 |
| 1N4737A | 7.5 | 34 | 0.5 | 10 | 5 | 4 | 700 | 605 | 121 |
| 1N4738A | 8.2 | 31 | 0.5 | 10 | 6 | 4.5 | 700 | 550 | 110 |
| 1N4739A | 9.1 | 28 | 0.5 | 10 | 7 | 5 | 700 | 500 | 100 |
| 1N4740A | 10 | 25 | 0.25 | 10 | 7.6 | 7 | 700 | 454 | 91 |
| 1N4741A | 11 | 23 | 0.25 | 5 | 8.4 | 8 | 700 | 414 | 83 |
| 1N4742A | 12 | 21 | 0.25 | 5 | 9.1 | 9 | 700 | 380 | 76 |
| 1N4743A | 13 | 19 | 0.25 | 5 | 9.9 | 10 | 700 | 344 | 69 |
| 1N4744A | 15 | 17 | 0.25 | 5 | 11.4 | 14 | 700 | 304 | 61 |
| 1N4745A | 16 | 15.5 | 0.25 | 5 | 12.2 | 16 | 700 | 285 | 57 |
| 1N4746A | 18 | 14 | 0.25 | 5 | 13.7 | 20 | 750 | 250 | 50 |
| 1N4747A | 20 | 12.5 | 0.25 | 5 | 15.2 | 22 | 750 | 225 | 45 |
| 1N4748A | 22 | 11.5 | 0.25 | 5 | 16.7 | 23 | 750 | 205 | 41 |
| 1N4749A | 24 | 10.5 | 0.25 | 5 | 18.2 | 25 | 750 | 190 | 38 |
| 1N4750A | 27 | 9.5 | 0.25 | 5 | 20.6 | 35 | 750 | 170 | 34 |
| 1N4751A | 30 | 8.5 | 0.25 | 5 | 22.8 | 40 | 1000 | 150 | 30 |
| 1N4752A | 33 | 7.5 | 0.25 | 5 | 25.1 | 45 | 1000 | 135 | 27 |
| 1N4753A | 36 | 7 | 0.25 | 5 | 27.4 | 50 | 1000 | 125 | 25 |
| 1N4754A | 39 | 6.5 | 0.25 | 5 | 29.7 | 60 | 1000 | 115 | 23 |
| 1N4755A | 43 | 6 | 0.25 | 5 | 32.7 | 70 | 1500 | 110 | 22 |
| 1N4756A | 47 | 5.5 | 0.25 | 5 | 35.8 | 80 | 1500 | 95 | 19 |
| 1N4757A | 51 | 5 | 0.25 | 5 | 38.8 | 95 | 1500 | 90 | 18 |
| 1N4758A | 56 | 4.5 | 0.25 | 5 | 42.6 | 110 | 2000 | 80 | 16 |
| 1N4759A | 62 | 4 | 0.25 | 5 | 47.1 | 125 | 2000 | 70 | 14 |
| 1N4760A | 68 | 3.7 | 0.25 | 5 | 51.7 | 150 | 2000 | 65 | 13 |
| 1N4761A | 75 | 3.3 | 0.25 | 5 | 56 | 175 | 2000 | 60 | 12 |

Notes

- (1) Based on DC measurement at thermal equilibrium while maintaining the lead temperature (T_L) at $30\text{ }^{\circ}\text{C} + 1\text{ }^{\circ}\text{C}$, 9.5 mm (3/8") from the diode body
- (2) Valid provided that electrodes at a distance of 4 mm from case are kept at ambient temperature, $t_p = 10\text{ ms}$
- (3) $t_p = 10\text{ ms}$.



BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

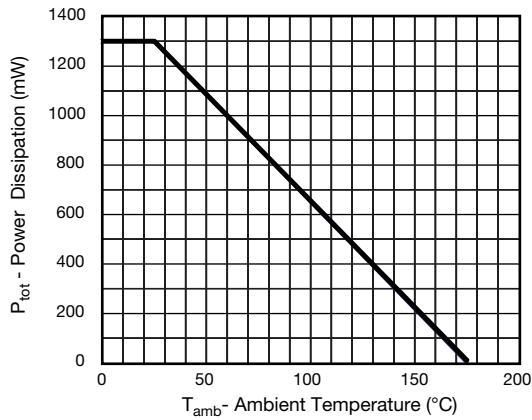


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature
 $P_{tot} = f(T_{amb})$

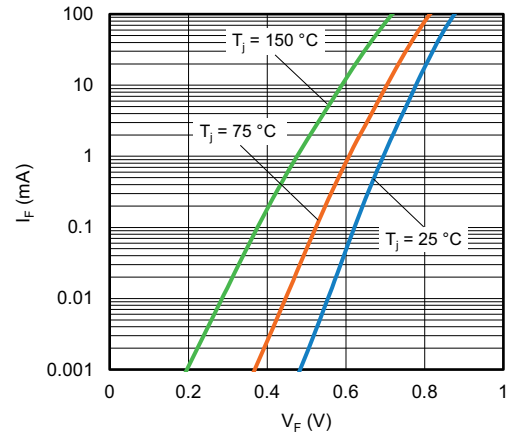
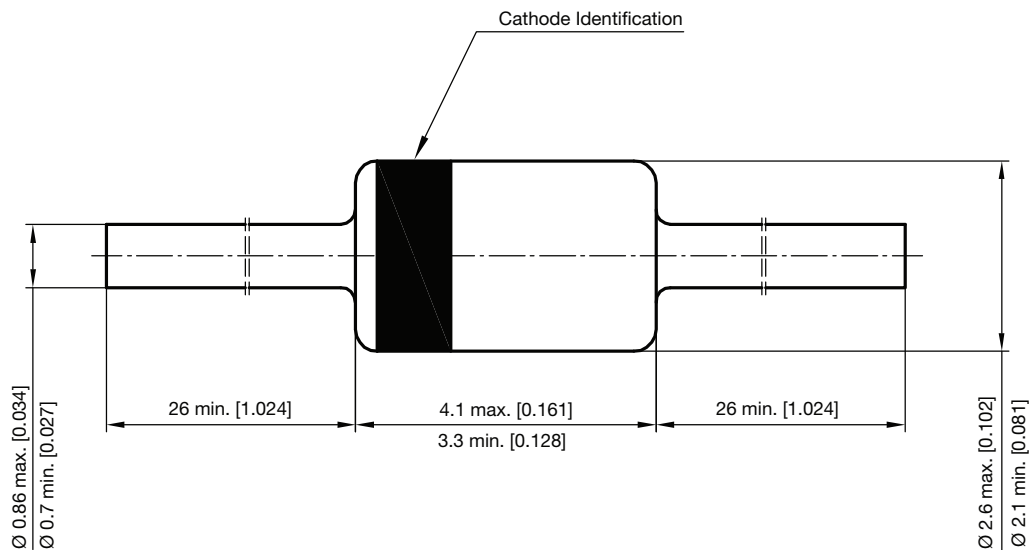


Fig. 2 - Typical Forward Current I_F vs. Forward Voltage V_F

PACKAGE DIMENSIONS in millimeters (inches): DO-41 (DO-204AL)_1N47xx



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