



# 1N4728 thru 1N4756

Zener Diodes

$V_z$  Range: 3.3 to 47 Volts Power Dissipation: 1.0W

## Features

- ◆ Silicon Planar Power Zener Diodes.
- ◆ For use in stabilizing and clipping circuits with high power rating.
- ◆ Standard Zener voltage tolerance is  $\pm 10\%$ . Add suffix "A" for  $\pm 5\%$  tolerance. Other Zener voltages and tolerances are available upon request.
- ◆ These diodes are also available in the MELF case with type designation ZM4728 thru ZM4764
- ◆ For bidirectional product, contact local Technical Sales office.

## Mechanical Data

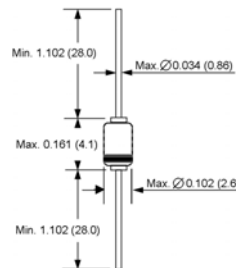
- ◆ Case: DO-41 Glass or DO-41 Plastic Case
- ◆ Weight: approx. 0.35g



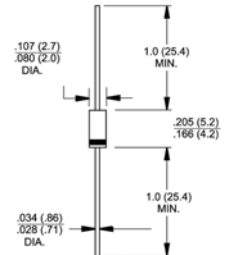
DO-204AL (DO-41 Glass)



DO-204AL (DO-41)



Dimensions in inches and (millimeters)



Dimensions in inches and (millimeters)

Note: Suffix: "-P" to order Molded Plastic Package  
Suffix: "-G" to order Molded Glass Package

## Maximum Ratings and Thermal Characteristics

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

| Parameter                                       | Symbol          | Value              | Unit               |
|---|-----------------|--------------------|--------------------|
| Zener current                                   |                 | See Next Page      |                    |
| Power dissipation at $T_{amb}=50^\circ\text{C}$ | $P_{tot}$       | 1.0 <sup>(1)</sup> | W                  |
| Thermal resistance junction to ambient air      | $R_{\theta JA}$ | 170 <sup>(1)</sup> | $^\circ\text{C/W}$ |
| Junction temperature                            | $T_j$           | 175                | $^\circ\text{C}$   |
| Storage temperature range                       | $T_s$           | -65 to +175        | $^\circ\text{C}$   |

Notes: 1. Valid provided that electrodes at a distance of 10mm from case are kept at ambient temperature.

## Electrical Characteristics

( $T_A=25^\circ\text{C}$  unless otherwise noted) Maximum  $V_Z=1.2V$  at  $I_Z=200\text{mA}$

| Type number | Nominal zener voltage <sup>(3)</sup><br>at $I_{ZT}$<br>$V_Z$ (Volts) | Test current<br>$I_{ZT}$ (mA) | Maximum zener impedance <sup>(1)</sup>  |                          |                        | Maximum reverse leakage current |                     | Surge current<br>at<br>$T_A=25^\circ\text{C}$<br>$I_R$ (mA) | Maximum regulator current <sup>(2)</sup><br>at<br>$T_A=50^\circ\text{C}$<br>$I_{ZM}$ (mA) |
|-------------|--|-------------------------------|---|--------------------------|------------------------|---------------------------------|---------------------|---|---|
|             |  |                               | $Z_{ZT}$<br>at $I_{ZT}$<br>( $\Omega$ ) | $Z_{ZK}$<br>( $\Omega$ ) | at<br>$I_{ZK}$<br>(mA) | $I_R$ ( $\mu\text{A}$ )         | at $V_R$<br>(Volts) |   |   |
| 1N4728      | 3.3  | 76                            | 10                                      | 400                      | 1.0                    | 100                             | 1                   | 1380  | 276   |
| 1N4729      | 3.6  | 69                            | 10                                      | 400                      | 1.0                    | 100                             | 1                   | 1260  | 252   |
| 1N4730      | 3.9  | 64                            | 9                                       | 400                      | 1.0                    | 50                              | 1                   | 1190  | 234   |
| 1N4731      | 4.3  | 58                            | 9                                       | 400                      | 1.0                    | 10                              | 1                   | 1070  | 217   |
| 1N4732      | 4.7  | 53                            | 8                                       | 500                      | 1.0                    | 10                              | 1                   | 970   | 193   |
| 1N4733      | 5.1  | 49                            | 7                                       | 550                      | 1.0                    | 10                              | 1                   | 890   | 178   |
| 1N4734      | 5.6  | 45                            | 5                                       | 600                      | 1.0                    | 10                              | 2                   | 810   | 162   |
| 1N4735      | 6.2  | 41                            | 2                                       | 700                      | 1.0                    | 10                              | 3                   | 730   | 146   |
| 1N4736      | 6.8  | 37                            | 3.5                                     | 700                      | 1.0                    | 10                              | 4                   | 660   | 133   |
| 1N4737      | 7.5  | 34                            | 4.0                                     | 700                      | 0.5                    | 10                              | 5                   | 605   | 121   |
| 1N4738      | 8.2  | 31                            | 4.5                                     | 700                      | 0.5                    | 10                              | 6                   | 550   | 110   |
| 1N4739      | 9.1  | 28                            | 5.0                                     | 700                      | 0.5                    | 10                              | 7                   | 500   | 100   |
| 1N4740      | 10   | 25                            | 7                                       | 700                      | 0.25                   | 10                              | 7.6                 | 454   | 91  |
| 1N4741      | 11   | 23                            | 8                                       | 700                      | 0.25                   | 5                               | 8.4                 | 414   | 83  |
| 1N4742      | 12   | 21                            | 9                                       | 700                      | 0.25                   | 5                               | 9.1                 | 380   | 76  |
| 1N4743      | 13   | 19                            | 10                                      | 700                      | 0.25                   | 5                               | 9.9                 | 344   | 69  |
| 1N4744      | 15   | 17                            | 14                                      | 700                      | 0.25                   | 5                               | 11.                 | 304   | 61  |
| 1N4745      | 16   | 15.5                          | 16                                      | 700                      | 0.25                   | 5                               | 12.2                | 285   | 57  |
| 1N4746      | 18   | 14                            | 20                                      | 750                      | 0.25                   | 5                               | 13.7                | 250   | 50  |
| 1N4747      | 20   | 12.5                          | 22                                      | 750                      | 0.25                   | 5                               | 15.2                | 225   | 45  |
| 1N4748      | 22   | 11.5                          | 23                                      | 750                      | 0.25                   | 5                               | 16.7                | 205   | 41  |
| 1N4749      | 24   | 10.5                          | 25                                      | 750                      | 0.25                   | 5                               | 18.2                | 190   | 38  |
| 1N4750      | 27   | 9.5                           | 35                                      | 750                      | 0.25                   | 5                               | 20.                 | 170   | 34  |
| 1N4751      | 30   | 8.5                           | 40                                      | 1000                     | 0.25                   | 5                               | 22.                 | 150   | 30  |
| 1N4752      | 33   | 7.5                           | 45                                      | 1000                     | 0.25                   | 5                               | 25.1                | 135   | 27  |
| 1N4753      | 36   | 7.0                           | 50                                      | 1000                     | 0.25                   | 5                               | 27.                 | 125   | 25  |
| 1N4754      | 39   | 6.5                           | 60                                      | 1000                     | 0.25                   | 5                               | 29.                 | 115   | 23  |
| 1N4755      | 43   | 6.0                           | 70                                      | 1500                     | 0.25                   | 5                               | 32.                 | 110   | 22  |
| 1N4756      | 47   | 5.5                           | 80                                      | 1500                     | 0.25                   | 5                               | 35.                 | 95  | 19  |

- Notes:**
1. The Zener impedance is derived from the 1KHZ AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$ . Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units
  2. Valid provided that electrodes at a distance of 10 mm from case are kept at ambient temperature
  3. Measured under thermal equilibrium and DC test conditions

## RATINGS AND CHARACTERISTIC CURVES

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

### Admissible power dissipation versus ambient temperature

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

