



ON Semiconductor®

# 1N4728A - 1N4758A Zener Diodes

Tolerance = 5%



DO-41 Glass case

COLOR BAND DENOTES CATHODE

## Absolute Maximum Ratings \* $T_a = 25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter                                                               | Value       | Units                |
|----------------|-------------------------------------------------------------------------|-------------|----------------------|
| $P_D$          | Power Dissipation<br>@ $T_L \leq 50^\circ\text{C}$ , Lead Length = 3/8" | 1.0         | W                    |
|                | Derate above $50^\circ\text{C}$                                         | 6.67        | mW/ $^\circ\text{C}$ |
| $T_J, T_{STG}$ | Operating and Storage Temperature Range                                 | -65 to +200 | $^\circ\text{C}$     |

\* These ratings are limiting values above which the serviceability of the diode may be impaired.

## Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

| Device  | $V_Z$ (V) @ $I_Z$ (Note 1) |      |       | Test Current<br>$I_Z$ (mA) | Max. Zener Impedance        |                                   |                  | Leakage Current            |              | Non-Repetitive<br>Peak Reverse<br>Current<br>$I_{ZSM}$ (mA) (Note 2) |
|---------|----------------------------|------|-------|----------------------------|-----------------------------|-----------------------------------|------------------|----------------------------|--------------|----------------------------------------------------------------------|
|         | Min.                       | Typ. | Max.  |                            | $Z_Z @ I_Z$<br>( $\Omega$ ) | $Z_{ZK} @ I_{ZK}$<br>( $\Omega$ ) | $I_{ZK}$<br>(mA) | $I_R$<br>( $\mu\text{A}$ ) | $V_R$<br>(V) |                                                                      |
| 1N4728A | 3.135                      | 3.3  | 3.465 | 76                         | 10                          | 400                               | 1                | 100                        | 1            | 1380                                                                 |
| 1N4729A | 3.42                       | 3.6  | 3.78  | 69                         | 10                          | 400                               | 1                | 100                        | 1            | 1260                                                                 |
| 1N4730A | 3.705                      | 3.9  | 4.095 | 64                         | 9                           | 400                               | 1                | 50                         | 1            | 1190                                                                 |
| 1N4731A | 4.085                      | 4.3  | 4.515 | 58                         | 9                           | 400                               | 1                | 10                         | 1            | 1070                                                                 |
| 1N4732A | 4.465                      | 4.7  | 4.935 | 53                         | 8                           | 500                               | 1                | 10                         | 1            | 970                                                                  |
| 1N4733A | 4.845                      | 5.1  | 5.355 | 49                         | 7                           | 550                               | 1                | 10                         | 1            | 890                                                                  |
| 1N4734A | 5.32                       | 5.6  | 5.88  | 45                         | 5                           | 600                               | 1                | 10                         | 2            | 810                                                                  |
| 1N4735A | 5.89                       | 6.2  | 6.51  | 41                         | 2                           | 700                               | 1                | 10                         | 3            | 730                                                                  |
| 1N4736A | 6.46                       | 6.8  | 7.14  | 37                         | 3.5                         | 700                               | 1                | 10                         | 4            | 660                                                                  |
| 1N4737A | 7.125                      | 7.5  | 7.875 | 34                         | 4                           | 700                               | 0.5              | 10                         | 5            | 605                                                                  |
| 1N4738A | 7.79                       | 8.2  | 8.61  | 31                         | 4.5                         | 700                               | 0.5              | 10                         | 6            | 550                                                                  |
| 1N4739A | 8.645                      | 9.1  | 9.555 | 28                         | 5                           | 700                               | 0.5              | 10                         | 7            | 500                                                                  |
| 1N4740A | 9.5                        | 10   | 10.5  | 25                         | 7                           | 700                               | 0.25             | 10                         | 7.6          | 454                                                                  |
| 1N4741A | 10.45                      | 11   | 11.55 | 23                         | 8                           | 700                               | 0.25             | 5                          | 8.4          | 414                                                                  |
| 1N4742A | 11.4                       | 12   | 12.6  | 21                         | 9                           | 700                               | 0.25             | 5                          | 9.1          | 380                                                                  |

| Device  | V <sub>Z</sub> (V) @ I <sub>Z</sub> (Note 1) |      |       | Test Current<br>I <sub>Z</sub> (mA) | Max. Zener Impedance                  |                                          |                         | Leakage Current        |                       | Non-Repetitive Peak Reverse Current<br>I <sub>ZSM</sub> (mA) (Note 2) |
|---------|----------------------------------------------|------|-------|-------------------------------------|---------------------------------------|------------------------------------------|-------------------------|------------------------|-----------------------|-----------------------------------------------------------------------|
|         | Min.                                         | Typ. | Max.  |                                     | Z <sub>Z</sub> @I <sub>Z</sub><br>(Ω) | Z <sub>ZK</sub> @<br>I <sub>ZK</sub> (Ω) | I <sub>ZK</sub><br>(mA) | I <sub>R</sub><br>(μA) | V <sub>R</sub><br>(V) |                                                                       |
| 1N4743A | 12.35                                        | 13   | 13.65 | 19                                  | 10                                    | 700                                      | 0.25                    | 5                      | 9.9                   | 344                                                                   |
| 1N4744A | 14.25                                        | 15   | 15.75 | 17                                  | 14                                    | 700                                      | 0.25                    | 5                      | 11.4                  | 304                                                                   |
| 1N4745A | 15.2                                         | 16   | 16.8  | 15.5                                | 16                                    | 700                                      | 0.25                    | 5                      | 12.2                  | 285                                                                   |
| 1N4746A | 17.1                                         | 18   | 18.9  | 14                                  | 20                                    | 750                                      | 0.25                    | 5                      | 13.7                  | 250                                                                   |
| 1N4747A | 19                                           | 20   | 21    | 12.5                                | 22                                    | 750                                      | 0.25                    | 5                      | 15.2                  | 225                                                                   |
| 1N4748A | 20.9                                         | 22   | 23.1  | 11.5                                | 23                                    | 750                                      | 0.25                    | 5                      | 16.7                  | 205                                                                   |
| 1N4749A | 22.8                                         | 24   | 25.2  | 10.5                                | 25                                    | 750                                      | 0.25                    | 5                      | 18.2                  | 190                                                                   |
| 1N4750A | 25.65                                        | 27   | 28.35 | 9.5                                 | 35                                    | 750                                      | 0.25                    | 5                      | 20.6                  | 170                                                                   |
| 1N4751A | 28.5                                         | 30   | 31.5  | 8.5                                 | 40                                    | 1000                                     | 0.25                    | 5                      | 22.8                  | 150                                                                   |
| 1N4752A | 31.35                                        | 33   | 34.65 | 7.5                                 | 45                                    | 1000                                     | 0.25                    | 5                      | 25.1                  | 135                                                                   |
| 1N4753A | 34.2                                         | 36   | 37.8  | 7                                   | 50                                    | 1000                                     | 0.25                    | 5                      | 27.4                  | 125                                                                   |
| 1N4754A | 37.05                                        | 39   | 40.95 | 6.5                                 | 60                                    | 1000                                     | 0.25                    | 5                      | 29.7                  | 115                                                                   |
| 1N4755A | 40.85                                        | 43   | 45.15 | 6                                   | 70                                    | 1500                                     | 0.25                    | 5                      | 32.7                  | 110                                                                   |
| 1N4756A | 44.65                                        | 47   | 49.35 | 5.5                                 | 80                                    | 1500                                     | 0.25                    | 5                      | 35.8                  | 95                                                                    |
| 1N4757A | 48.45                                        | 51   | 53.55 | 5                                   | 95                                    | 1500                                     | 0.25                    | 5                      | 38.8                  | 90                                                                    |
| 1N4758A | 53.2                                         | 56   | 58.8  | 4.5                                 | 110                                   | 2000                                     | 0.25                    | 5                      | 42.6                  | 80                                                                    |

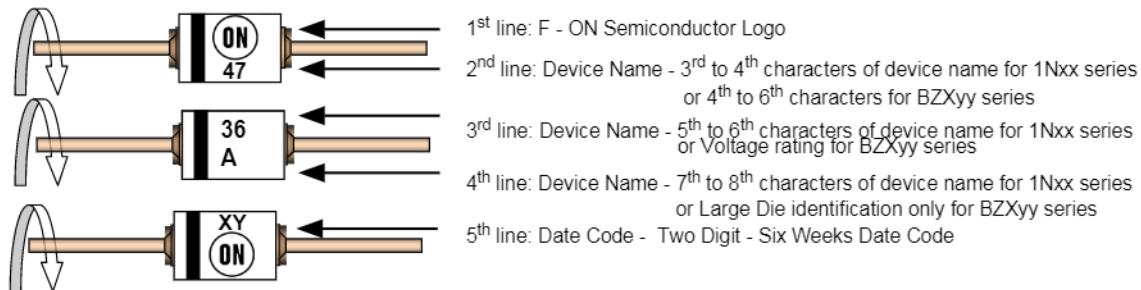
**Notes:**

1. Zener Voltage (V<sub>Z</sub>)  
The zener voltage is measured with the device junction in the thermal equilibrium at the lead temperature (T<sub>L</sub>) at 30°C ± 1°C and 3/8" lead length.
2. Square wave Reverse Surge at 8.3 msec soak time.


**Top Mark Information**


| Device  | Line 1 | Line 2 | Line 3 | Line 4 | Line 5 |
|---------|--------|--------|--------|--------|--------|
| 1N4728A | LOGO   | 47     | 28     | A      | XY     |
| 1N4729A | LOGO   | 47     | 29     | A      | XY     |
| 1N4730A | LOGO   | 47     | 30     | A      | XY     |
| 1N4731A | LOGO   | 47     | 31     | A      | XY     |
| 1N4732A | LOGO   | 47     | 32     | A      | XY     |
| 1N4733A | LOGO   | 47     | 33     | A      | XY     |
| 1N4734A | LOGO   | 47     | 34     | A      | XY     |
| 1N4735A | LOGO   | 47     | 35     | A      | XY     |
| 1N4736A | LOGO   | 47     | 36     | A      | XY     |
| 1N4737A | LOGO   | 47     | 37     | A      | XY     |
| 1N4738A | LOGO   | 47     | 38     | A      | XY     |
| 1N4739A | LOGO   | 47     | 39     | A      | XY     |
| 1N4740A | LOGO   | 47     | 40     | A      | XY     |
| 1N4741A | LOGO   | 47     | 41     | A      | XY     |
| 1N4742A | LOGO   | 47     | 42     | A      | XY     |
| 1N4743A | LOGO   | 47     | 43     | A      | XY     |
| 1N4744A | LOGO   | 47     | 44     | A      | XY     |
| 1N4745A | LOGO   | 47     | 45     | A      | XY     |
| 1N4746A | LOGO   | 47     | 46     | A      | XY     |
| 1N4747A | LOGO   | 47     | 47     | A      | XY     |
| 1N4748A | LOGO   | 47     | 48     | A      | XY     |
| 1N4749A | LOGO   | 47     | 49     | A      | XY     |
| 1N4750A | LOGO   | 47     | 50     | A      | XY     |
| 1N4751A | LOGO   | 47     | 51     | A      | XY     |
| 1N4752A | LOGO   | 47     | 52     | A      | XY     |
| 1N4753A | LOGO   | 47     | 53     | A      | XY     |
| 1N4754A | LOGO   | 47     | 54     | A      | XY     |
| 1N4755A | LOGO   | 47     | 55     | A      | XY     |
| 1N4756A | LOGO   | 47     | 56     | A      | XY     |
| 1N4757A | LOGO   | 47     | 57     | A      | XY     |
| 1N4758A | LOGO   | 47     | 58     | A      | XY     |

## Top Mark Information (Continued)



### General Requirements:

- 1.0 Cathode Band
- 2.0 First Line:  - ON Semiconductor Logo
- 3.0 Second Line: Device name - For 1Nxx series: 3<sup>rd</sup> to 4<sup>th</sup> characters of the device name.  
For BZxx series: 4<sup>th</sup> to 6<sup>th</sup> characters of the device name.
- 4.0 Third Line: Device name - For 1Nxx series: 5<sup>th</sup> to 6<sup>th</sup> characters of the device name.  
For BZXyy series: Voltage rating
- 5.0 Third Line: Device name - For 1Nxx series: 7<sup>th</sup> to 8<sup>th</sup> characters of the device name.  
(the 8<sup>th</sup> character is the large die identification)  
For BZXyy series: Large Die Identification character
- 6.0 Fourth Line: Date Code - Two Digit - Six Weeks Date Code  
Where: X represents the last digit of the calendar year  
Y represents the Six weeks numeric code
- 7.0 Devices shall be marked as required in the device specification (PID or ON Semiconductor Test Spec).
- 8.0 Maximum no. of marking lines: 5
- 9.0 Maximum no. of digits per line: 3
- 10.0 ON Semiconductor logo must be 20 % taller than the alphanumeric marking and should occupy the 2 characters of the specified line.
- 11.0 Marking Font: Arial (Except ON Semiconductor Logo)
- 12.0 First character of each marking line must be aligned vertically.
- 13.0 All device markings must be based on ON Semiconductor device specification.

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