

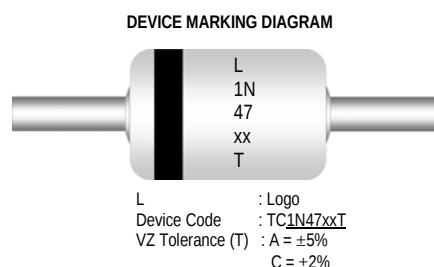
## 1 Watt DO-41 Hermetically Sealed Glass Zener Voltage Regulators



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

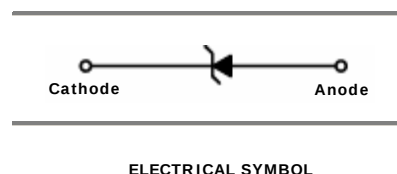
| Parameter                                         | Value       | Units                       |
|---------------------------------------------------|-------------|-----------------------------|
| Storage Temperature Range                         | -65 to +200 | $^\circ\text{C}$            |
| Maximum Junction Operating Temperature            | +200        | $^\circ\text{C}$            |
| Total Device Dissipation                          | 1.0         | Watt                        |
| Thermal Resistance Junction to Lead               | 53.5        | $^\circ\text{C} / \text{W}$ |
| Thermal Resistance Junction to Ambient            | 100         | $^\circ\text{C} / \text{W}$ |
| Lead Temperature (1/16" from case for 10 seconds) | +230        | $^\circ\text{C}$            |

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



### Specification Features:

- Zener Voltage Range 3.3 to 56 Volts
- DO-41 Package (JEDEC)
- Through-Hole Device Type Mounting
- Hermetically Sealed Glass
- Compression Bonded Construction
- All external surfaces are corrosion resistant and leads are readily solderable
- Cathode indicated by polarity band



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

| Device Type | $V_Z @ I_{ZT}$<br>(Volts)<br>Nominal | $I_{ZT}$<br>(mA) | $Z_{ZT} @ I_{ZT}$<br>( $\Omega$ )<br>Max | $I_{ZK}$<br>(mA) | $Z_{ZK} @ I_{ZK}$<br>( $\Omega$ )<br>Max | $I_R @ V_R$<br>( $\mu\text{A}$ )<br>Max | $V_R$<br>(Volts) |
|-------------|--------------------------------------|------------------|------------------------------------------|------------------|------------------------------------------|-----------------------------------------|------------------|
| TC1N4728A   | 3.3                                  | 76               | 10                                       | 1                | 400                                      | 100                                     | 1                |
| TC1N4729A   | 3.6                                  | 69               | 10                                       | 1                | 400                                      | 100                                     | 1                |
| TC1N4730A   | 3.9                                  | 64               | 9                                        | 1                | 400                                      | 50                                      | 1                |
| TC1N4731A   | 4.3                                  | 58               | 9                                        | 1                | 400                                      | 10                                      | 1                |
| TC1N4732A   | 4.7                                  | 53               | 8                                        | 1                | 500                                      | 10                                      | 1                |
| TC1N4733A   | 5.1                                  | 49               | 7                                        | 1                | 550                                      | 10                                      | 1                |
| TC1N4734A   | 5.6                                  | 45               | 5                                        | 1                | 600                                      | 10                                      | 2                |
| TC1N4735A   | 6.2                                  | 41               | 2                                        | 1                | 700                                      | 10                                      | 3                |
| TC1N4736A   | 6.8                                  | 37               | 3.5                                      | 1                | 700                                      | 10                                      | 4                |
| TC1N4737A   | 7.5                                  | 34               | 4                                        | 0.5              | 700                                      | 10                                      | 5                |
| TC1N4738A   | 8.2                                  | 31               | 4.5                                      | 0.5              | 700                                      | 10                                      | 6                |
| TC1N4739A   | 9.1                                  | 28               | 5                                        | 0.5              | 700                                      | 10                                      | 7                |
| TC1N4740A   | 10                                   | 25               | 7                                        | 0.25             | 700                                      | 10                                      | 7.6              |
| TC1N4741A   | 11                                   | 23               | 8                                        | 0.25             | 700                                      | 5                                       | 8.4              |
| TC1N4742A   | 12                                   | 21               | 9                                        | 0.25             | 700                                      | 5                                       | 9.1              |
| TC1N4743A   | 13                                   | 19               | 10                                       | 0.25             | 700                                      | 5                                       | 9.9              |
| TC1N4744A   | 15                                   | 17               | 14                                       | 0.25             | 700                                      | 5                                       | 11.4             |
| TC1N4745A   | 16                                   | 15.5             | 16                                       | 0.25             | 700                                      | 5                                       | 12.2             |
| TC1N4746A   | 18                                   | 14               | 20                                       | 0.25             | 700                                      | 5                                       | 13.7             |
| TC1N4747A   | 20                                   | 12.5             | 22                                       | 0.25             | 750                                      | 5                                       | 15.2             |
| TC1N4748A   | 22                                   | 11.5             | 23                                       | 0.25             | 750                                      | 5                                       | 16.7             |
| TC1N4749A   | 24                                   | 10.5             | 25                                       | 0.25             | 750                                      | 5                                       | 18.2             |

**Electrical Characteristics**
 $T_A = 25^\circ\text{C}$  unless otherwise noted

| Device Type | $V_Z @ I_{ZT}$<br>(Volts)<br>Nominal | $I_{ZT}$<br>(mA) | $Z_{ZT} @ I_{ZT}$<br>( $\Omega$ )<br>Max | $I_{ZK}$<br>(mA) | $Z_{ZK} @ I_{ZK}$<br>( $\Omega$ )<br>Max | $I_R @ V_R$<br>( $\mu\text{A}$ )<br>Max | $V_R$<br>(Volts) |
|-------------|--------------------------------------|------------------|------------------------------------------|------------------|------------------------------------------|-----------------------------------------|------------------|
| TC1N4750A   | 27                                   | 9.5              | 35                                       | 0.25             | 750                                      | 5                                       | 20.6             |
| TC1N4751A   | 30                                   | 8.5              | 40                                       | 0.25             | 1000                                     | 5                                       | 22.8             |
| TC1N4752A   | 33                                   | 7.5              | 45                                       | 0.25             | 1000                                     | 5                                       | 25.1             |
| TC1N4753A   | 36                                   | 7                | 50                                       | 0.25             | 1000                                     | 5                                       | 27.4             |
| TC1N4754A   | 39                                   | 6.5              | 60                                       | 0.25             | 1000                                     | 5                                       | 29.7             |
| TC1N4755A   | 43                                   | 6                | 70                                       | 0.25             | 1500                                     | 5                                       | 32.7             |
| TC1N4756A   | 47                                   | 5.5              | 80                                       | 0.25             | 1500                                     | 5                                       | 35.8             |
| TC1N4757A   | 51                                   | 5                | 95                                       | 0.25             | 1500                                     | 5                                       | 38.8             |
| TC1N4758A   | 56                                   | 4.5              | 110                                      | 0.25             | 2000                                     | 5                                       | 42.6             |

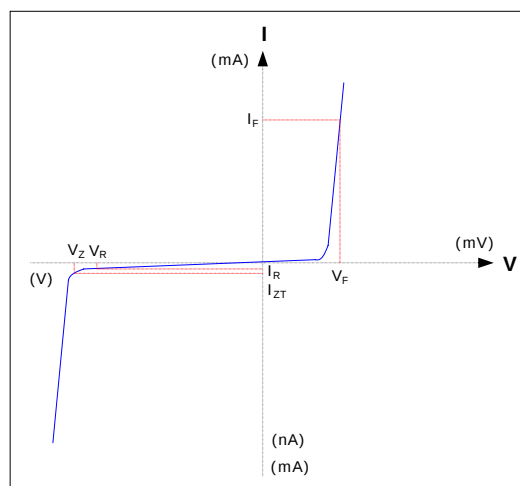
 $V_F$  Forward Voltage = 1.2 V Maximum @  $I_F = 200$  mA for all types

**Notes:**

- The device numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ . Device tolerance of  $\pm 2\%$  is indicated by a "C" instead of an "A".
- For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Tak Cheong's representative.
- 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 to  $I_{ZT}$  or  $I_{ZK}$ .

**Electrical Symbol Definition**

| Symbol   | Parameter                          |
|----------|------------------------------------|
| $V_Z$    | Reverse Zener Voltage @ $I_{ZT}$   |
| $I_{ZT}$ | Reverse Current                    |
| $Z_{ZT}$ | Maximum Zener Impedance @ $I_{ZT}$ |
| $I_{ZK}$ | Reverse Current                    |
| $Z_{ZK}$ | Maximum Zener Impedance @ $I_{ZK}$ |
| $I_R$    | Reverse Leakage Current @ $V_R$    |
| $V_R$    | Breakdown Voltage                  |
| $I_F$    | Forward Current                    |
| $V_F$    | Forward Voltage @ $I_F$            |

**Typical Characteristics**

**Ordering Information**

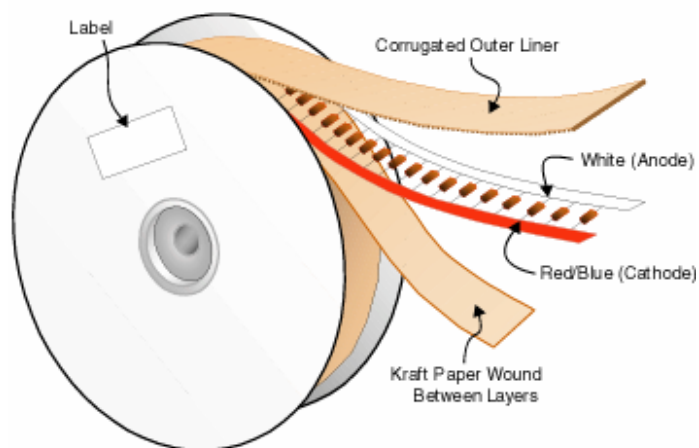
| Device       | Package                                              | Quantity |
|--------------|------------------------------------------------------|----------|
| TC1N47xxA    | Bulk                                                 | 5,000    |
| TC1N47xxA.TB | Tape and Ammo                                        | 3,000    |
| TC1N47xxA.TR | Tape and Reel                                        | 5,000    |
| TC1N47xxA    | Others (...contact Tak Cheong sales representatives) |          |

**Axial-Lead Tape Packaging Standards**

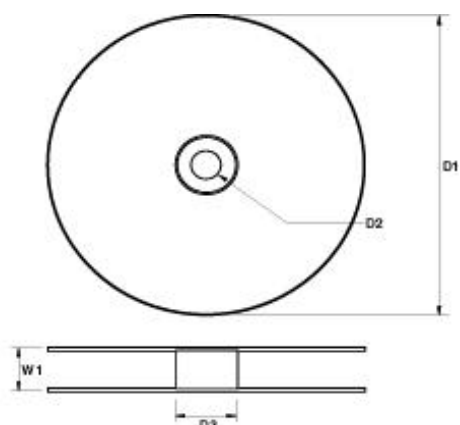
This axial-lead component's packaging requirements use in automatic testing and assembly equipment. And this standard practices for lead-tape packaging of axial-lead components meets the requirements of EIA Standard RS-296-D "Lead-taping of Components on Axial Lead Configuration for Automatic Insertion".

**Tape & Reel Packaging Information**

**Tape & Reel Outline**



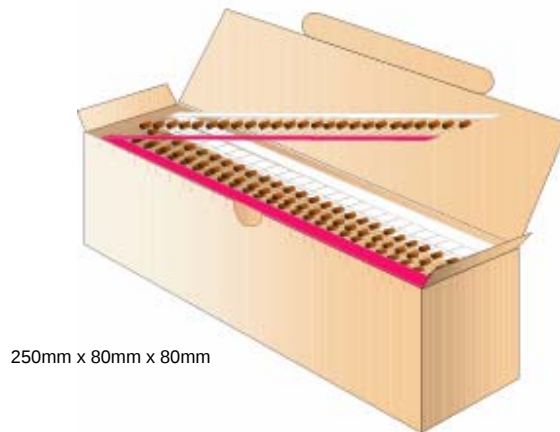
**Reel Dimensions**



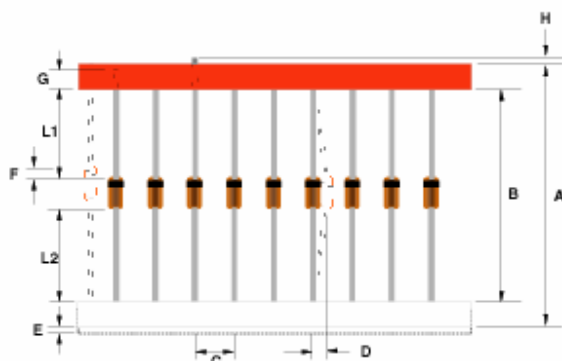
| DIM | Millimeters |
|-----|-------------|
| D1  | 356         |
| D2  | 30          |
| D3  | 84          |
| W1  | 77.5        |

**Quantity Per Reel**

| PKG Type | Quantity Per Reel |
|----------|-------------------|
| DO-41    | 5,000             |

**Tape & Ammo Packaging Information**
**Tape & Ammo Outline**

**Quantity Per Ammo Box**

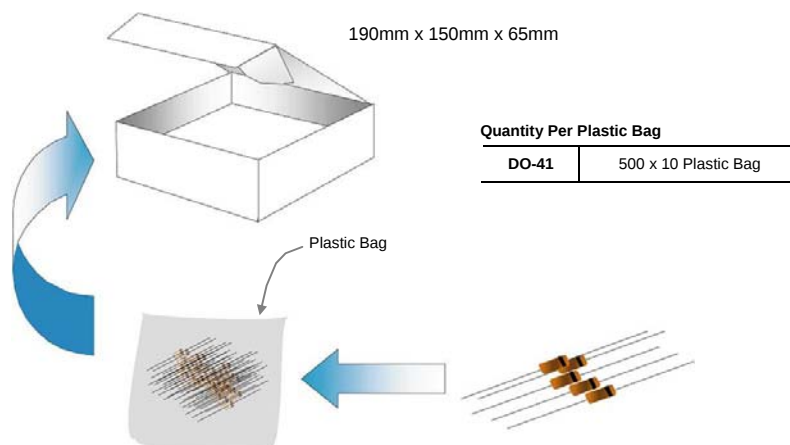
| PKG Type | Quantity Per Box |
|----------|------------------|
| DO-41    | 3,000            |

**Taping Dimensions**


| Description            | Millimeters       |                   |
|------------------------|-------------------|-------------------|
| Standard Width         | 52                | 26                |
| Tape Spacing (B)       | $52 \pm 0.69$     | $26 +0.5 / -0$    |
| Component Pitch (C)    | $5.08 \pm 0.4$    | $5.08 \pm 0.4$    |
| Untaped Lead (L1 – L2) | $\pm 0.69$        | $\pm 0.69$        |
| Glass Offset (F)       | $\pm 0.69$        | $\pm 0.69$        |
| Bent (D)               | 1.2 Max           | 1.2 Max           |
| Tape Width (G)         | $6.138 \pm 0.576$ | $6.138 \pm 0.576$ |
| Tape Mismatch (E)      | 0.55 Max          | 0.55 Max          |
| Taped Lead (G)         | 3.2 Min           | 3.2 Min           |
| Lead Beyond Tape (H)   | 0                 | 0                 |

**Bulk Packaging Information**

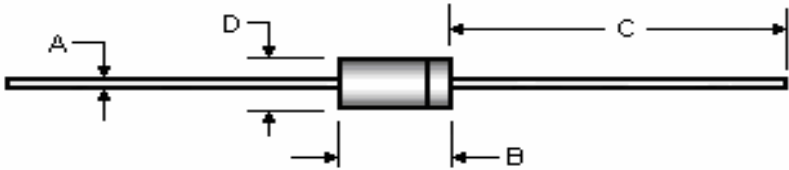
**Bulk Outline**



**Quantity Per Box**

| PKG Type | Quantity Per Box |
|----------|------------------|
| DO-41    | 5,000            |

**Package Outline**

| Package | Case Outline                                                                       |                    |      |                  |
|---------|------------------------------------------------------------------------------------|--------------------|------|------------------|
| DO-41   |  |                    |      |                  |
|         | <b>DIM</b>                                                                         | <b>D0-41</b>       |      |                  |
|         |                                                                                    | <b>Millimeters</b> |      | <b>Inches</b>    |
|         |                                                                                    | Min                | Max  | Min      Max     |
|         | <b>A</b>                                                                           | 0.72               | 0.86 | 0.028      0.034 |
|         | <b>B</b>                                                                           | 4.07               | 5.20 | 0.160      0.205 |
|         | <b>C</b>                                                                           | 25.40              | ---  | 1.000      ---   |
|         | <b>D</b>                                                                           | 2.04               | 2.71 | 0.080      0.107 |

**Notes:**

1. All dimensions are within JEDEC standard.
2. DO41 polarity denoted by cathode band.