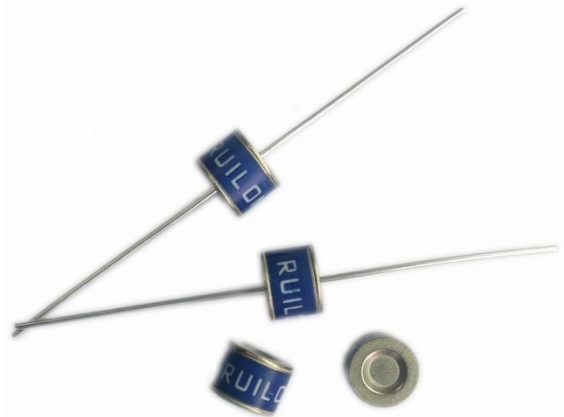


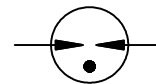
**Description**

GDT is placed in front of, and in parallel with, sensitive telecom equipment such as power lines, communication lines, signal lines and data transmission lines to help protect them from damage caused by transient surge voltages that may result from lightning strikes and equipment switching operations. These devices do not influence the signal in normal operation. However, in the event of an overvoltage surge, such as a lightning strike, the GDT switches to a low impedance state and diverts the energy away from the sensitive equipment.

Our GDT offer a high level of surge protection, a broad voltage range, low capacitance, and many form factors including new surface mount devices, which makes them suitable for applications such as Main Distribution Frame (MDF) modules, high data-rate telecom applications (e.g. ADSL, VDSL), and surge protection on power lines. Their low capacitance also results in less signal distortion. When used in a coordinated circuit protection solution with PolySwitch devices, they can help equipment manufacturers meet stringent safety regulatory standards.



**Electrical symbol**



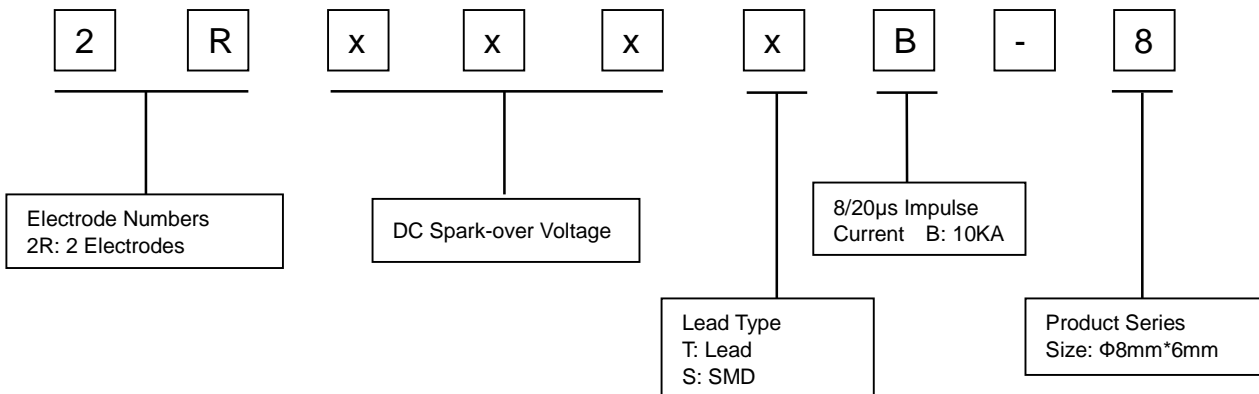
**Features**

- I Excellent response to fast rising transients
- I Stable breakdown voltage
- I GHz working frequency
- I 8/20µs Impulse current capability: 10KA
- I Non-Radioactive
- I Ultra Low capacitance (<1.5pF)
- I Lead-free compliant
- I RoHS and REACH compliant
- I UL 497B Recognized: E465335
- I Size: Φ8mm\*6mm
- I Storage and operational temperature: -40~+90°C

**Applications**

- I MDF modules
- I xDSL equipment
- I RF systems
- I Antenna
- I Base stations
- I Repeaters, Modems
- I Telephone Interface, Line cards
- I Data communication equipment
- I Line test equipment
- I Power supplies
- I Surge protectors, Alarm systems

**Part Number Code**



## Electrical Characteristics

| Part Number                            |           | DC Spark-over Voltage <sup>1) 2)</sup><br>@100V/S | Impulse Spark-over Voltage |              | Insulation Resistance <sup>3)</sup>                           | Capacitance @1MHz | Life Ratings                            |     |                               |                                    |                 |
|--|-----------|---|----------------------------|--------------|---|-------------------|---|-----|-------------------------------|------------------------------------|-----------------|
|  |           |   | 100V/ $\mu$ S              | 1KV/ $\mu$ S |   |                   | Impulse Discharge Current @8/20 $\mu$ S |     | AC Discharge Current @50Hz 1S | Impulse Life @10/1000 $\mu$ S 100A |                 |
|  |           |   | Max                        | Max          |   |                   | Min                                     | Max | Nominal $\pm$ 5 times         | Max 1 time                         | Nominal 5 times |
| DIP                                    | SMD       | V   | V                          | V            | G $\Omega$  | pF                | KA                                      | KA  | A                             | Times                              |                 |
| 2R075TB-8                              | 2R075SB-8 | 75 $\pm$ 20%                                      | 500                        | 600          | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R090TB-8                              | 2R090SB-8 | 90 $\pm$ 20%                                      | 500                        | 600          | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R150TB-8                              | 2R150SB-8 | 150 $\pm$ 20%                                     | 500                        | 600          | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R230TB-8                              | 2R230SB-8 | 230 $\pm$ 20%                                     | 600                        | 700          | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R250TB-8                              | 2R250SB-8 | 250 $\pm$ 20%                                     | 600                        | 700          | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R300TB-8                              | 2R300SB-8 | 300 $\pm$ 20%                                     | 750                        | 850          | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R350TB-8                              | 2R350SB-8 | 350 $\pm$ 20%                                     | 800                        | 900          | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R400TB-8                              | 2R400SB-8 | 400 $\pm$ 20%                                     | 850                        | 950          | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R420TB-8                              | 2R420SB-8 | 420 $\pm$ 20%                                     | 900                        | 1000         | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R470TB-8                              | 2R470SB-8 | 470 $\pm$ 20%                                     | 1000                       | 1100         | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R600TB-8                              | 2R600SB-8 | 600 $\pm$ 20%                                     | 1000                       | 1200         | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| 2R800TB-8                              | 2R800SB-8 | 800 $\pm$ 20%                                     | 1400                       | 1600         | 1   | 1.5               | 10                                      | 20  | 10                            | 300                                |                 |
| Glow Voltage at 10mA.....              |           |   |                            |              | ~60V  |                   |   |     |                               |                                    |                 |
| Arc Voltage at 1A.....                 |           |   |                            |              | ~10V  |                   |   |     |                               |                                    |                 |
| Glow to Arc transition Current.....    |           |   |                            |              | ~0.5A   |                   |   |     |                               |                                    |                 |
| Weight.....                            |           |   |                            |              | DIP ~1.5g<br>SMD ~1.25g                                       |                   |   |     |                               |                                    |                 |
| Operation and storage temperature..... |           |   |                            |              | -40~+90°C   |                   |   |     |                               |                                    |                 |
| Climatic category (IEC 60068-1).....   |           |   |                            |              | 40/90/21  |                   |   |     |                               |                                    |                 |
| Marking, blue negative.....            |           |   |                            |              | <b>XXX Y</b><br>XXX -Nominal voltage<br>Y -Year of production |                   |   |     |                               |                                    |                 |
| Surface treatment.....                 |           |   |                            |              | DIP -Nickel Plated<br>SMD -Matte-tin plated                   |                   |   |     |                               |                                    |                 |

<sup>1)</sup> At delivery AQL 0.65 level II, DIN ISO 2859

<sup>2)</sup> In ionized mode

<sup>3)</sup> Insulation Resistance Measuring Voltage:

75V at DC 25V

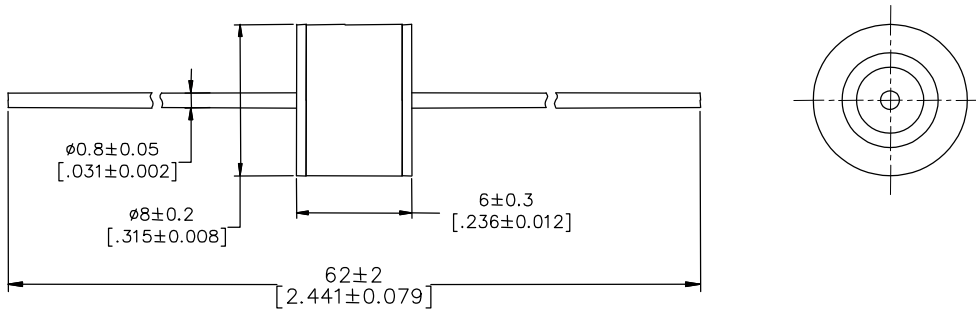
90V~150V at DC 50V

Other at DC 100V

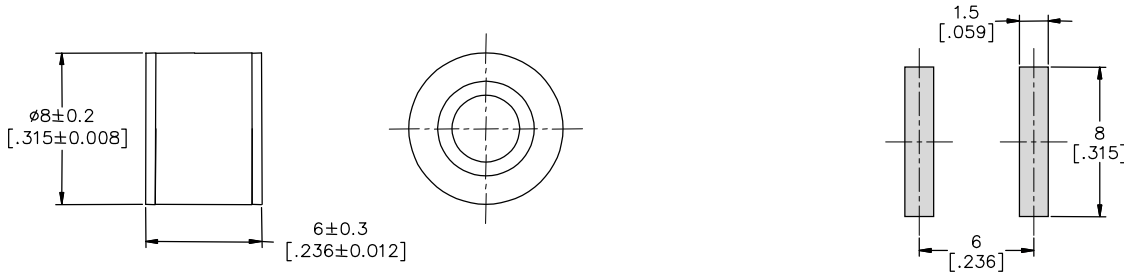
Terms in accordance with ITU-T Rec. K.12, IEC 61643-311, GB/T 9043.

**Dimensions (Unit: mm/inch)**

**DIP Series (2RxxxTB-8)**



**SMD Series (2RxxxSB-8)**

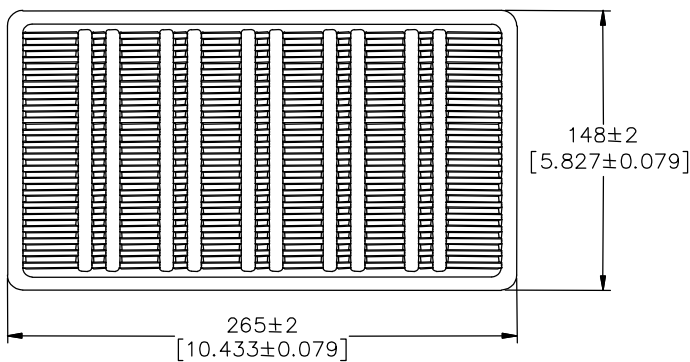


**Recommended Soldering Pad Layout**

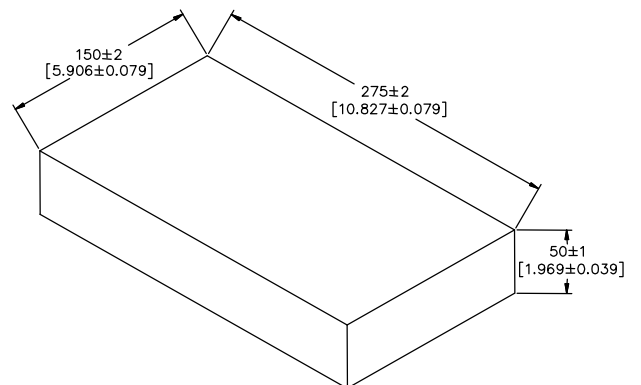
**Packaging Information (Unit: mm/inch)**

**Axial Packaging (Bulk)**

**Plastic Tray**



**Inner box**



**Packaging Quantity:**

100 PCS per Plastic Tray

5 Plastic Trays per inner box

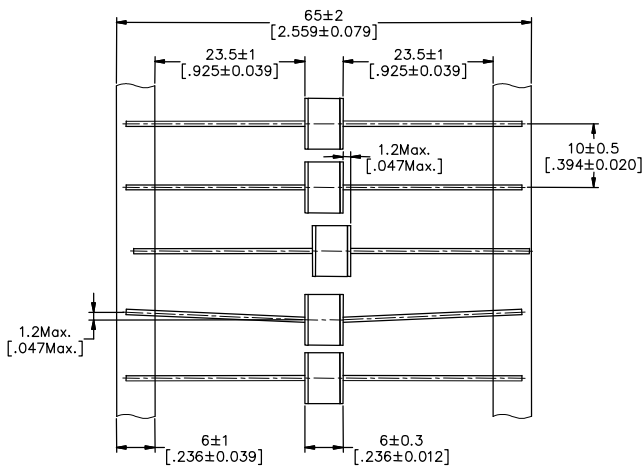
500 PCS per inner box

# Gas Discharge Tubes(GDT)

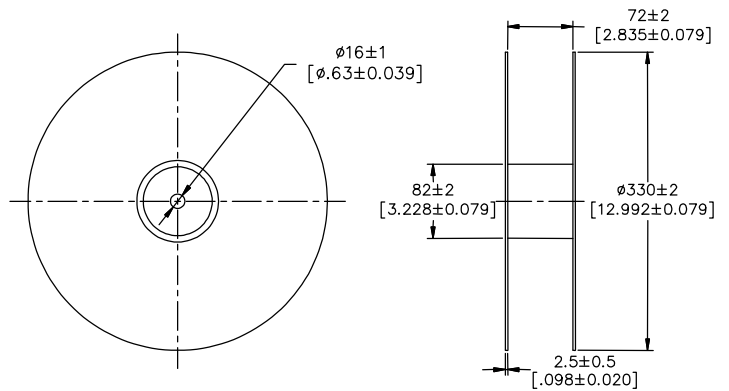
# 2RB-8 Series

## Axial Packaging (Tape & Reel)

**Tape**



**Reel**

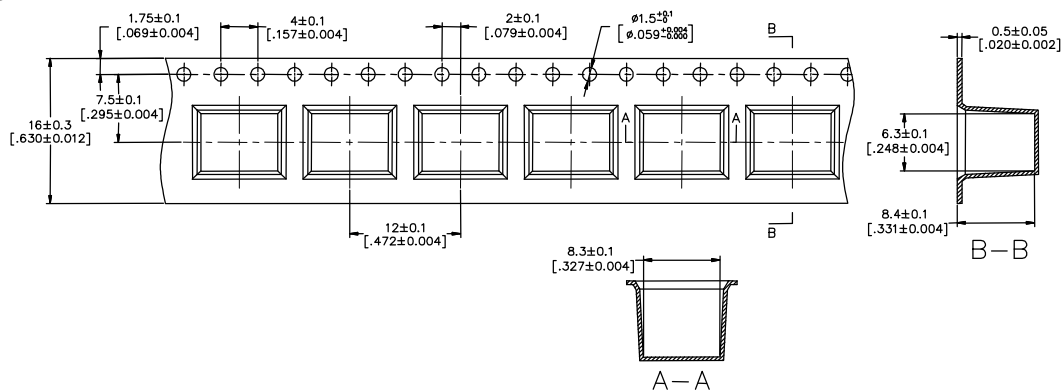


## Packaging Quantity:

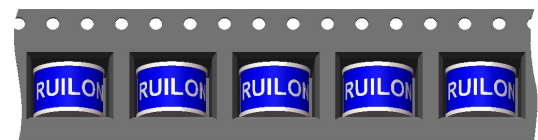
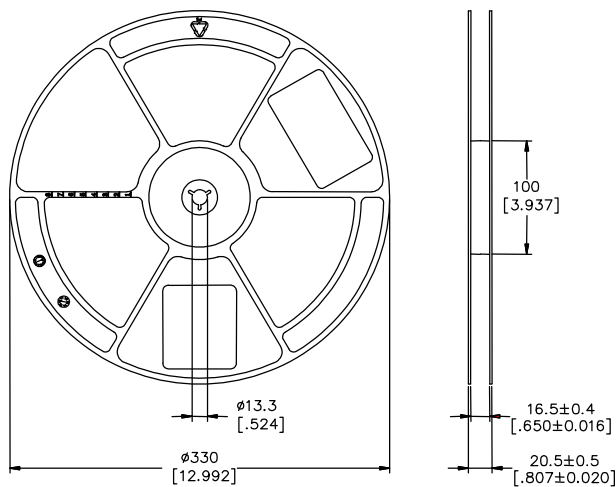
800 PCS per reel

## SMD Packaging (Tape & Reel)

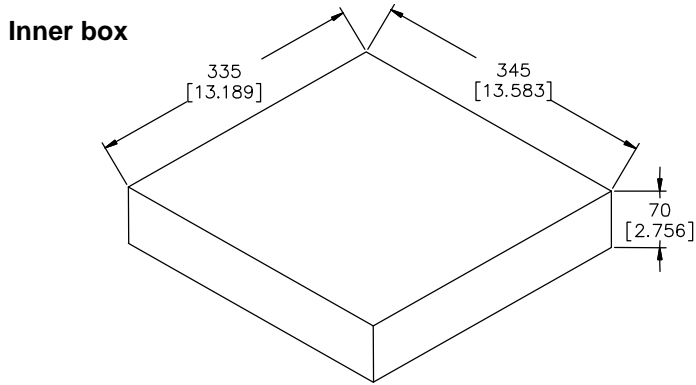
**Tape**



**Reel**



Direction of Unreeing



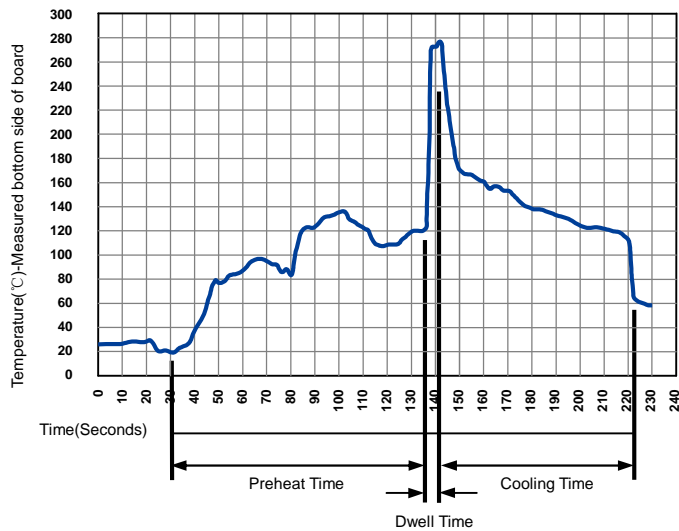
**Packaging Quantity:**

500 PCS per reel (13")

3 reels per inner box

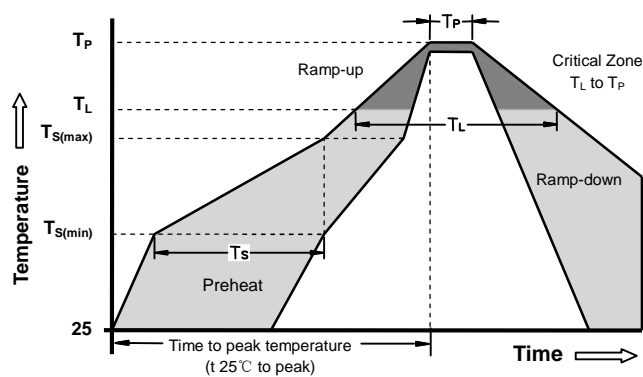
1,500 PCS per inner box

**Soldering Parameters - Wave soldering (Thru-Hole Devices)**



| Wave Soldering Condition |                   | Pb-Free assembly |
|--------------------------|-------------------|------------------|
| Preheat                  | Temperature Min   | 100°C            |
|                          | Temperature Max   | 150°C            |
|                          | Time (Min to Max) | 60-180 Seconds   |
| Solder Pot Temperature   |                   | 280°C Max        |
| Solder Dwell Time        |                   | 2-5 Seconds      |

**Soldering Parameters - Reflow Soldering (Surface Mount Devices)**



| Reflow Condition                                     |                                   | Pb - Free assembly |
|--|-----------------------------------|--------------------|
| Preheat  | -Temperature Min ( $T_{s(min)}$ ) | 150°C              |
|  | -Temperature Max ( $T_{s(max)}$ ) | 200°C              |
|  | - Time (min to max) ( $t_s$ )     | 60 -180 Seconds    |
| Average ramp up rate ( Liquids Temp $T_L$ to peak)   |                                   | 3°C/second max     |
| $T_{S(max)}$ to $T_L$ - Ramp-up Rate                 |                                   | 5°C/second max     |
| Reflow   | - Temperature ( $T_L$ ) (Liquids) | 217°C              |
|  | - Time (min to max) ( $t_s$ )     | 60 -150 Seconds    |
| Peak Temperature ( $T_P$ )                           |                                   | 260 +0/-5°C        |
| Time within 5°C of actual peak Temperature ( $t_p$ ) |                                   | 10 - 30 Seconds    |
| Ramp-down Rate                                       |                                   | 6°C/second max     |
| Time 25°C to peak Temperature ( $T_P$ )              |                                   | 8 minutes Max      |
| Do not exceed  |                                   | 260°C              |