

## Gas Discharge Tube (GDT) Data Sheet

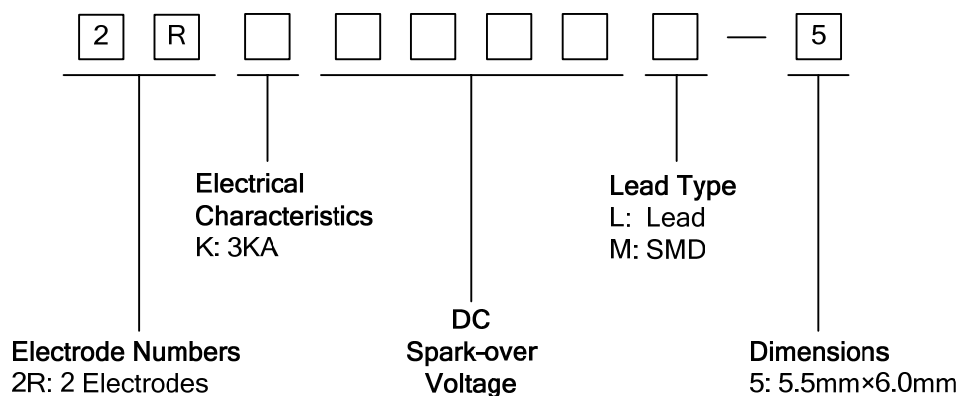
### Features

- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/ $\mu$ s.
- Stable breakdown voltage.
- High insulation resistance.
- Low capacitance ( $\leq 1.5$ pF)
- High holdover voltage
- Large absorbing transient current capability.
- Micro-Gap Design
- Size: 5.5mm\*6.0mm
- Storage and operational temperature: -40°C ~ +85°C
- Meets MSL level 1, per J-STD-020
- Safety certification: UL: E327997

### Applications

- Standard power supplies requisite by US UL1449.
- Highly reliable power supplies.
- Three or two phases industrial or civic machinery equipment power.
- Power supplies for IC or electronic circuits.

### Part Number Code



### Marking

- B** : BrightKing Logo
- 2RK3600-5 : Device Marking Code
- YXXX : Date Code

**Dimensions**

| L Type | Symbol | Dimension (mm) |            |
|--------|--------|----------------|------------|
|        |        | Spec.          | Tolerance  |
|        | D      | 5.5            | +0.3, -0.5 |
|        | T      | 6.0            | +0.3, -0.5 |
|        | d      | 0.8            | ±0.1       |
|        | L      | 30.0           | Max.       |
| M Type | D      | 5.5            | +0.3, -0.5 |
|        |        |                |            |
|        | B      | 0.5            | ±0.1       |

Recommended Pad Size

**Electrical Characteristics**

| Part Number | DC Spark-over Voltage | Maximum Impulse Spark-over Voltage | Nominal Impulse Discharge Current | Impulse Life   | Minimum Insulation Resistance |      | Maximum Capacitance | AC Withstanding Voltage | Device Marking Code |
|-------------|-----------------------|------------------------------------|-----------------------------------|----------------|-------------------------------|------|---------------------|-------------------------|---------------------|
|             | 100V/s                | 1000V/μs                           | 8/20μs<br>1time                   | 8/20μs<br>100A | Test Voltage                  | (GΩ) | 1MHz                |                         |                     |
|             | (V)                   | (V)                                | (KA)                              | (times)        | DC(V)                         |      | (pF)                |                         |                     |
| 2RK3600L-5  | 3600±20%              | 5000                               | 3.0                               | 300            | 1000                          | 1.0  | 1.5                 | AC1800, 1s              | 2RK3600-5           |
| 2RK3600M-5  | 3600±20%              | 5000                               | 3.0                               | 300            | 1000                          | 1.0  | 1.5                 | AC1800, 1s              | 2RK3600-5           |

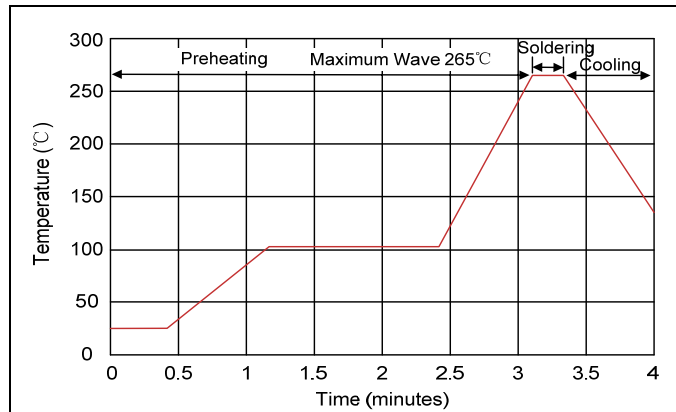
**Electrical Ratings**

| Items                              | Test Condition/Description   | Requirement                 |
|------------------------------------|--|-----------------------------|
| DC Spark-over Voltage              | The voltage is measured with voltage ramp $dv/dt=100V/s$ .   | To meet the specified value |
| Maximum Impulse Spark-over Voltage | The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ .   |                             |
| Impulse Discharge Current          | Maximum 8/20μs surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time, without causing the DC spark-over voltage to change more than 25% from its initial value.<br><br> |                             |

|                       |   |  |
|-----------------------|---|--|
| Insulation Resistance | The resistance of gas tube shall be measured between two electrodes.                          |  |
| Capacitance           | The capacitance of gas tube shall be measured between two electrodes.<br>Test frequency: 1MHz |  |

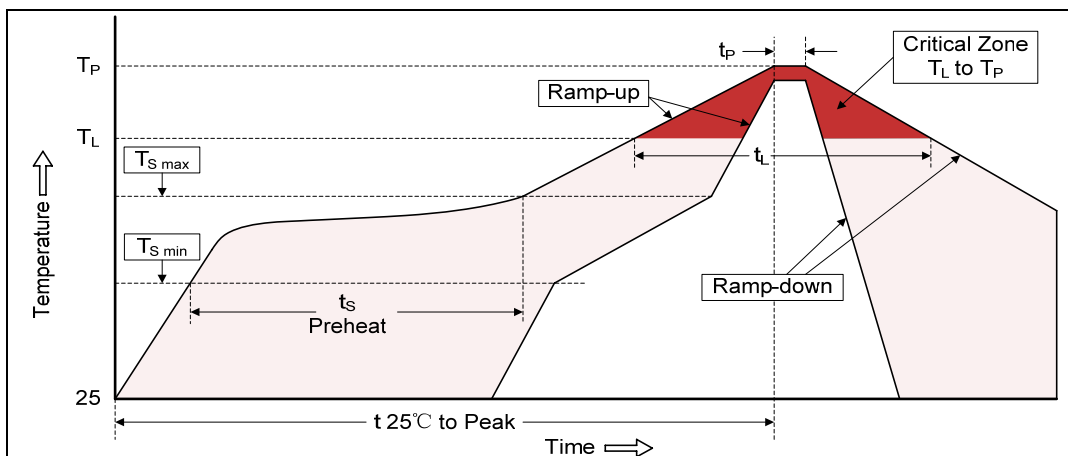
**Recommended Soldering Conditions**

Wave Soldering



| Item             | Conditions |
|------------------|------------|
| Peak Temperature | 265°C      |
| Dipping Time     | 10 seconds |
| Soldering        | 1 time     |

Reflow Soldering

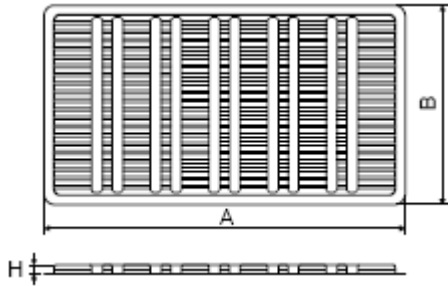


| Profile Feature  | Pb-Free Assembly |
|--|------------------|
| Average ramp-up rate (T <sub>L</sub> to T <sub>P</sub> )     | 3°C/second max.  |
| Preheat  |                  |
| -Temperature Min (T <sub>S min</sub> )                       | 150°C            |
| -Temperature Max (T <sub>S max</sub> )                       | 200°C            |
| -Time (min to max) (t <sub>S</sub> )                         | 60-180 seconds   |
| T <sub>S max</sub> to T <sub>L</sub>                         |                  |
| -Ramp-up Rate  | 3°C/second max.  |
| Time maintained above:                                       |                  |
| -Temperature (T <sub>L</sub> )                               | 217°C            |
| -Time (t <sub>L</sub> )                                      | 60-150 seconds   |
| Peak Temperature (T <sub>P</sub> )                           | 260°C            |
| Time within 5°C of actual Peak Temperature (t <sub>P</sub> ) | 20-40 seconds    |
| Ramp-down Rate   | 6°C/second max.  |
| Time 25°C to Peak Temperature                                | 8 minutes max.   |

**Packaging**

Axial Packing (Bulk)

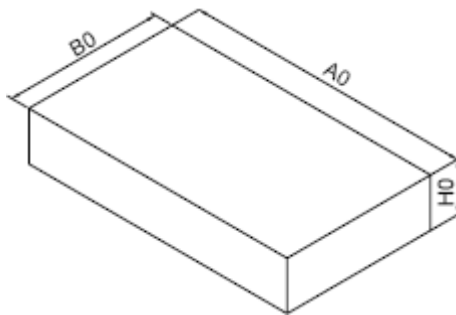
Skin packing



| Symbol | Dimension (mm) |           |
|--------|----------------|-----------|
|        | Spec.          | Tolerance |
| A      | 264.0          | ±1.0      |
| B      | 145.0          | ±1.0      |
| H      | 6.5            | ±0.5      |

Quantity: 100pcs

Inner box



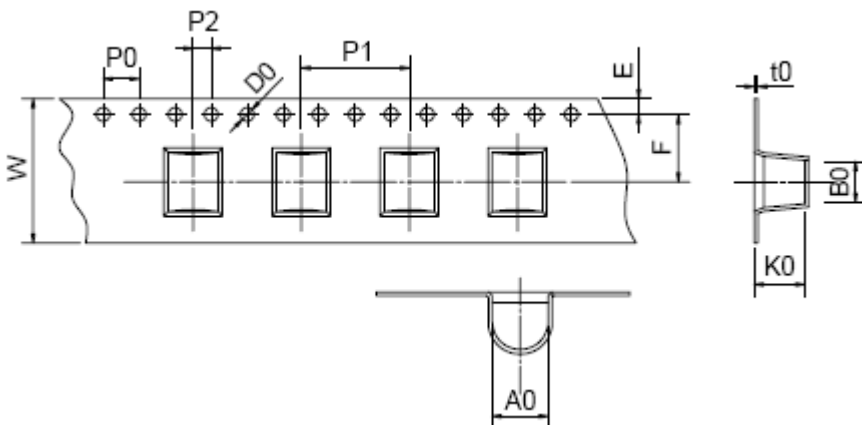
|    |       |      |
|----|-------|------|
| A0 | 270.0 | ±2.0 |
| B0 | 150.0 | ±1.0 |
| H0 | 50.0  | ±1.0 |

Quantity: 500pcs

**Packaging**

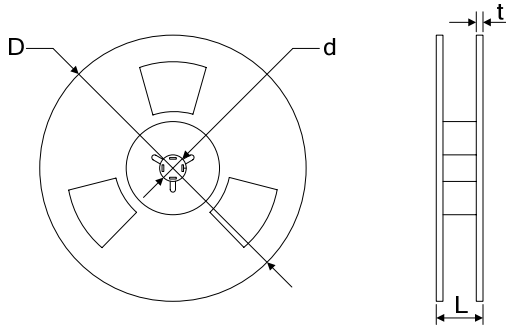
SMD Packing (Tape & Reel)

Tape



| Symbol | Dimension (mm) |           |
|--------|----------------|-----------|
|        | Spec.          | Tolerance |
| W      | 16.00          | ±0.20     |
| P0     | 4.00           | ±0.10     |
| P1     | 12.00          | ±0.20     |
| P2     | 2.00           | ±0.10     |
| D0     | 1.55           | ±0.05     |
| E      | 1.75           | ±0.10     |
| F      | 7.50           | ±0.10     |
| A0     | 5.85           | ±0.10     |
| K0     | 6.20           | ±0.10     |
| B0     | 7.00           | ±0.10     |
| t0     | 0.50           | ±0.10     |

Reel



|                  |        |       |
|------------------|--------|-------|
| D                | 330.00 | ±1.00 |
| d                | 13.00  | ±0.50 |
| L                | 20.00  | ±0.50 |
| t                | 2.00   | ±0.20 |
| Quantity: 800pcs |        |       |

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