

Gas Discharge Tube (GDT) Data Sheet

Features

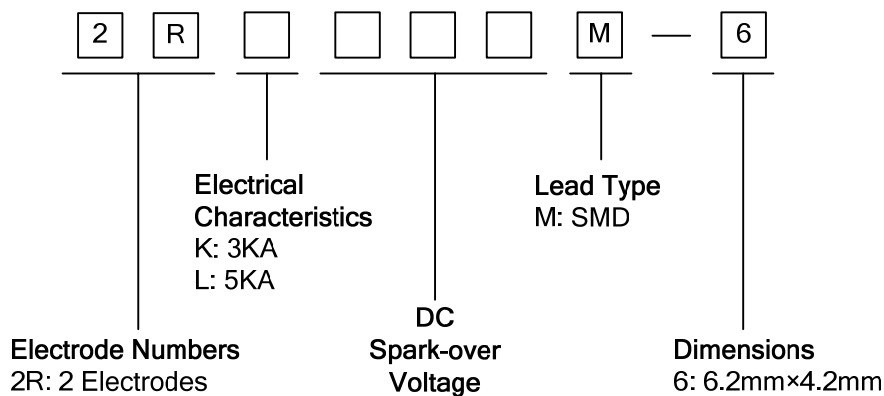
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs.
- Stable breakdown voltage.
- High insulation resistance.
- Low capacitance (≤1pF)
- High holdover voltage
- Large absorbing transient current capability.
- Micro-Gap Design
- Size: 6.2mm*4.2mm
- Storage and operational temperature: -40°C ~ +85°C
- Meets MSL level 1, per J-STD-020
- Safety certification: UL: E244458 & E327997



Applications

- Repeaters, Modems.
- Telephone Interface, Line cards.
- Data communication equipment.
- Line test equipment

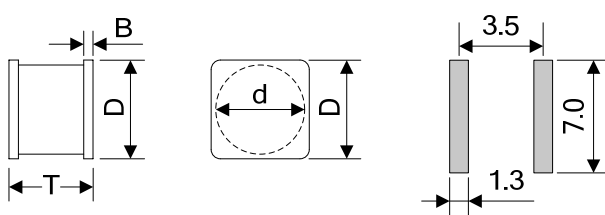
Part Number Code



Marking

B : BrightKing Logo
 2RL090-6 : Device Marking Code
 YXXX : Date Code

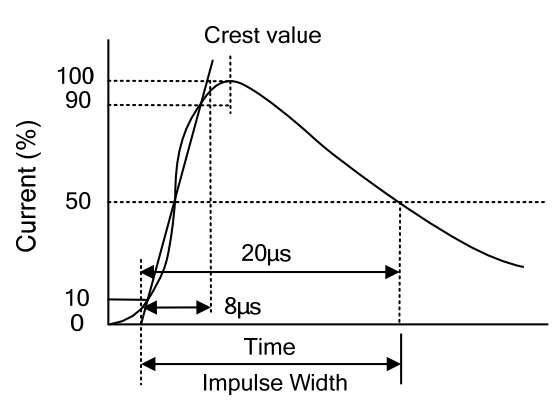
Dimensions

|  <p style="text-align: center;">Recommended Pad Size</p> | Symbol | Dimension (mm) | |
|---|--------|----------------|-----------|
| | | Spec. | Tolerance |
| | D | 6.2 | ±0.2 |
| | T | 4.2 | ±0.2 |
| | B | 0.6 | ±0.1 |
| d | 6.0 | ±0.2 | |

Electrical Characteristics

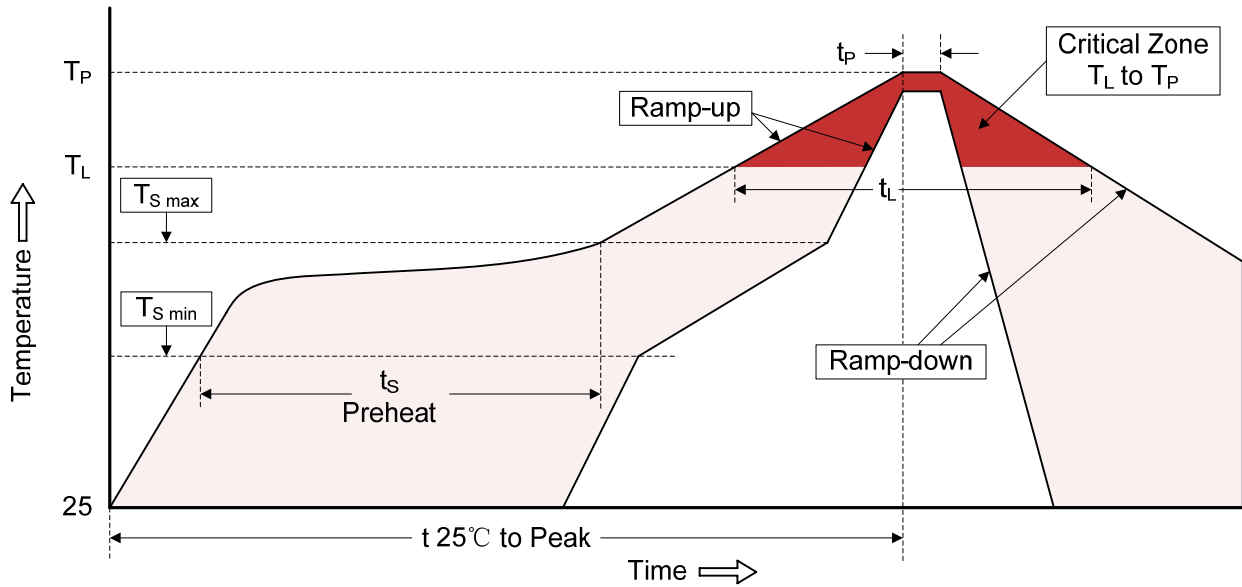
| Part Number | DC Spark-over Voltage | Maximum Impulse Spark-over Voltage | Nominal Impulse Discharge Current | Alternating Discharge Current | Impulse Life | Minimum Insulation Resistance | | Maximum Capacitance | Device Marking Code |
|-------------|-----------------------|------------------------------------|-----------------------------------|-------------------------------|-------------------|-------------------------------|------|---------------------|---------------------|
| | 100V/s | 1000V/μs | 8/20μs 10times | 50Hz, 1sec | 10/1000μs 100A | Test Voltage | (GΩ) | 1MHz | |
| | (V) | (V) | (KA) | (A) | (times) | DC(V) | | (pF) | |
| 2RL075M-6 | 75±20% | 700 | 5 | 5 | 500 | 25 | 1 | 1.0 | 2RL075-6 |
| 2RL090M-6 | 90±20% | 700 | 5 | 5 | 500 | 50 | 1 | 1.0 | 2RL090-6 |
| 2RL145M-6 | 145±20% | 700 | 5 | 5 | 500 | 100 | 1 | 1.0 | 2RL145-6 |
| 2RL150M-6 | 150±20% | 700 | 5 | 5 | 500 | 100 | 1 | 1.0 | 2RL150-6 |
| 2RL230M-6 | 230±20% | 650 | 5 | 5 | 500 | 100 | 1 | 1.0 | 2RL230-6 |
| 2RL250M-6 | 250±20% | 650 | 5 | 5 | 500 | 100 | 1 | 1.0 | 2RL250-6 |
| 2RL300M-6 | 300±20% | 700 | 5 | 5 | 500 | 100 | 1 | 1.0 | 2RL300-6 |
| 2RL350M-6 | 350±20% | 750 | 5 | 5 | 500 | 100 | 1 | 1.0 | 2RL350-6 |
| 2RL400M-6 | 400±20% | 800 | 5 | 5 | 500 | 100 | 1 | 1.0 | 2RL400-6 |
| 2RL470M-6 | 470±20% | 900 | 5 | 5 | 500 | 250 | 1 | 1.0 | 2RL470-6 |
| 2RL600M-6 | 600±20% | 1000 | 5 | 5 | 500 | 250 | 1 | 1.0 | 2RL600-6 |
| 2RL800M-6 | 800±20% | 1200 | 5 | 5 | 500 | 250 | 1 | 1.0 | 2RL800-6 |
| 2RK1000M-6 | 1000±20% | 1600 | 3 | 3 | 300 | 500 | 1 | 1.0 | 2RK1000-6 |
| 2RK1200M-6 | 1200±20% | 1800 | 3 | 3 | 300 | 500 | 1 | 1.0 | 2RK1200-6 |
| 2RK1800M-6 | 1800±20% | 2600 | 3 | 3 | 300 | 500 | 1 | 1.0 | 2RK1800-6 |
| 2RK2000M-6 | 2000±20% | 2800 | 3 | 3 | 300 | 500 | 1 | 1.0 | 2RK2000-6 |
| 2RK2500M-6 | 2500±20% | 3200 | 3 | 3 | 300 | 1000 | 1 | 1.0 | 2RK2500-6 |
| 2RK2700M-6 | 2700±20% | 3400 | 3 | 3 | 300 | 1000 | 1 | 1.0 | 2RK2700-6 |
| 2RK3000M-6 | 3000±20% | 3700 | 3 | 3 | 300 | 1000 | 1 | 1.0 | 2RK3000-6 |

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 $8/20\mu s$ 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. <div style="text-align: center;">  <p>The graph shows an impulse current waveform. The vertical axis is labeled 'Current (%)' with values 0, 10, 50, 90, and 100. The horizontal axis is labeled 'Time' and 'Impulse Width'. The curve starts at 0, rises to a peak labeled 'Crest value' at 100%. A horizontal dashed line at 10% current intersects the rising part of the curve at a time of 8μs. Another horizontal dashed line at 50% current intersects the falling part of the curve at a time of 20μs. The 'Impulse Width' is indicated as the time interval from the 10% current point to the 50% current point.</p> </div> | |
| Alternating Discharge Current | Rated RMS value of AC current at 50Hz, 1 sec. for 10 times with interval time 3 min. DC spark-over voltage shall not change more than $\pm 25\%$ from its initial value. $IR > 10^8$ ohms (-20%, +30% for 70~90V). | |
| 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. Test frequency: 1MHz | |

Recommended Soldering Conditions

Reflow Soldering



Recommended Conditions

| Profile Feature | Pb-Free Assembly |
|---|----------------------------------|
| Average ramp-up rate (T_L to T_P) | 3°C/second max. |
| Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s) | 150°C 200°C 60-180 seconds |
| $T_{S\ max}$ to T_L -Ramp-up Rate | 3°C/second max. |
| Time maintained above: -Temperature (T_L) -Time (t_L) | 217°C 60-150 seconds |
| Peak Temperature (T_P) | 260°C |
| Time within 5°C of actual Peak Temperature (t_P) | 20-40 seconds |
| Ramp-down Rate | 6°C/second max. |
| Time 25°C to Peak Temperature | 8 minutes max. |

Packaging

| Tape | Symbol | Dimension (mm) | | |
|---|---|----------------|-----------|-------|
| | | Spec. | Tolerance | |
| <p>Technical drawing of a carrier tape showing dimensions: W (width), P0 (pitch), P2 (pitch), D0 (hole diameter), P1 (pitch), E (height), F (height), A0 (width), t0 (thickness), K0 (width), B0 (width).</p> | 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 | 4.44 | ±0.10 | |
| | K0 | 6.37 | ±0.10 | |
| | B0 | 6.48 | ±0.10 | |
| | t0 | 0.50 | ±0.10 | |
| | Reel | D | 330.00 | ±1.00 |
| | <p>Technical drawing of a reel showing dimensions: D (outer diameter), d (inner diameter), L (length), t (thickness).</p> | d | 13.00 | ±0.50 |
| | | L | 20.00 | ±0.50 |
| t | | 2.00 | ±0.20 | |
| Quantity: 800pcs | | | | |