

DATA SHEET

GAS DISCHARGE TUBES TELEPHONE INTERFACE

2R-8x8 series

RoHS compliant & free



Product specification—April 26, 2021 V.1



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 (≤1.5pF)
- High holdover voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Size: 8.0mm*8.0mm
- Storage and operating temperature: -40°C ~ +85°C
- Meets MSL level 1, per J-STD-020
- Safety certification: UL



Applications

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

Part Number Code



| Ordering Code | Lead type | Packing |
|---|-----------|-------------|
| 2RHXXX-L-8/B 2RKXXX-L-8/B 2RLXXX-L-8/B | Lead | Box (tray) |
| 2RHXXX-L-8/TR 2RKXXX-L-8/TR 2RLXXX-L-8/TR | Lead | Tape & Reel |
| 2RHXXX-L-8/TR 2RKXXX-L-8/TR 2RLXXX-L-8/TR | SMD | Tape & Reel |

Marking

B : BrightKing Logo
 2RL1000-8 : Device Marking Code
 XXXX : Internal Control Code

Dimensions

| L Type | Symbol | Dimension (mm) | | |
|--------|--------|----------------|------------|------------|
| | | Spec. | Tolerance | |
| | D | 8.0 | +0.3, -0.5 | |
| | T | 8.0 | +0.6, -0.1 | |
| | d | 0.8 | ±0.1 | |
| | L | 30.0 | Max. | |
| M Type | | D | 8.0 | +0.3, -0.5 |
| | | T | 8.0 | +0.6, -0.1 |
| | | B | 0.5 | ±0.4 |

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 | AC Withstanding Voltage | 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) | | |
| 2RH1400X-8 | 1400±20% | 2200 | 2.5 | 2.5 | 100 | 500 | 1.0 | 1.5 | - | 2RH1400-8 |
| 2RH1600X-8 | 1600±20% | 2400 | 2.5 | 2.5 | 100 | 500 | 1.0 | 1.5 | - | 2RH1600-8 |
| 2RH2000X-8 | 2000±20% | 3000 | 2.5 | 2.5 | 100 | 500 | 1.0 | 1.5 | - | 2RH2000-8 |
| 2RH2500X-8 | 2500±20% | 3600 | 2.5 | 2.5 | 100 | 500 | 1.0 | 1.5 | AC1250V,1min | 2RH2500-8 |
| 2RH2700X-8 | 2700±20% | 4000 | 2.5 | 2.5 | 300* | 1000 | 1.0 | 1.5 | AC1250V,1min | 2RH2700-8 |
| 2RH3000X-8 | 3000±20% | 4200 | 2.5 | 2.5 | 100 | 1000 | 1.0 | 1.5 | AC1500V,1min | 2RH3000-8 |
| 2RH3500X-8 | 3500±20% | 5000 | 2.5 | 2.5 | 100 | 1000 | 1.0 | 1.5 | AC1800V,1min | 2RH3500-8 |
| 2RH3600X-8 | 3600±20% | 5200 | 2.5 | 2.5 | 100 | 1000 | 1.0 | 1.5 | AC1800V,1min | 2RH3600-8 |
| 2RK2700X-8 | 2700±20% | 4000 | 3.0 | 3.0 | 300* | 1000 | 1.0 | 1.5 | AC1250V,1min | 2RK2700-8 |
| 2RK3000X-8 | 3000±20% | 4200 | 3.0 | 3.0 | 300* | 1000 | 1.0 | 1.5 | AC1500V,1min | 2RK3000-8 |
| 2RK3500X-8 | 3500±20% | 5000 | 3.0 | 3.0 | 100 | 1000 | 1.0 | 1.5 | AC1800V,1min | 2RK3500-8 |
| 2RK3600X-8 | 3600±20% | 5200 | 3.0 | 3.0 | 100 | 1000 | 1.0 | 1.5 | AC1800V,1min | 2RK3600-8 |
| 2RK4000X-8 | 4000±20% | 5500 | 3.0 | 3.0 | 100 | 1000 | 1.0 | 1.5 | AC2000V,1min | 2RK4000-8 |
| 2RL1000X-8 | 1000±20% | 1400 | 5.0 | 5.0 | 100 | 500 | 1.0 | 1.5 | - | 2RL1000-8 |
| 2RL1400X-8 | 1400±20% | 2200 | 5.0 | 5.0 | 100 | 500 | 1.0 | 1.5 | - | 2RL1400-8 |
| 2RL1600X-8 | 1600±20% | 2400 | 5.0 | 5.0 | 100 | 500 | 1.0 | 1.5 | - | 2RL1600-8 |
| 2RL2000X-8 | 2000±20% | 3000 | 5.0 | 5.0 | 100 | 500 | 1.0 | 1.5 | - | 2RL2000-8 |
| 2RL2500X-8 | 2500±20% | 3600 | 5.0 | 5.0 | 100 | 1000 | 1.0 | 1.5 | AC1250V,1min | 2RL2500-8 |

* Measured with an 8/20μs waveform, 100A.

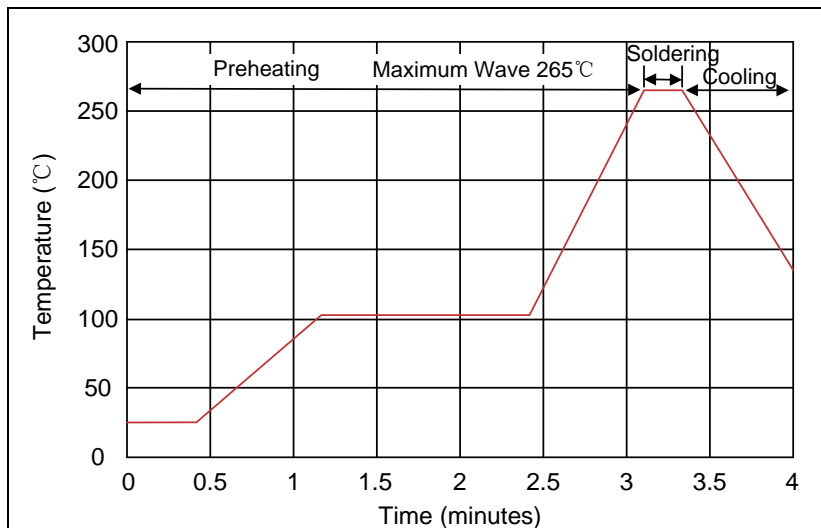
☆X may be L(Lead type) or M(SMD type).

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 | <p>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.</p>  | |
| Alternating Discharge Current | Rated RMS value of AC current at 50Hz, 1 sec. for 10 times with interval time 3 min. | |
| 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

Wave Soldering



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

Reflow Soldering

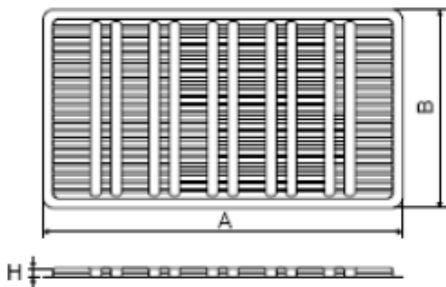


| Profile Feature | Pb-Free Assembly |
|---|----------------------------------|
| Average ramp-up rate (T_L to T_P) | 3°C/second max. |
| Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s) | 150°C 200°C 60-180 seconds |
| $T_{S\ max}$ to T_L -Ramp-up Rate | 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

Axial Packing (Box)

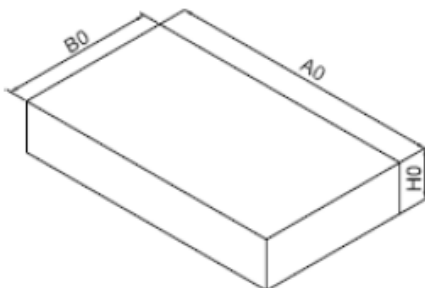
Skin packing



| Symbol | Dimension (mm) | |
|--------|----------------|-----------|
| | Spec. | Tolerance |
| A | 265.0 | ±5.0 |
| B | 146.0 | ±5.0 |
| H | 9.5 | ±0.5 |

Quantity: 100pcs

Inner box



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

Quantity: 500pcs