Innovative Service Around the Globe YAGEO

# DATA SHEET

## GAS DISCHARGE TUBES
## TELEPHONE INTERFACE
2R-8x6 series

**RoHS compliant & free**

Product specification– July 12, 2023 V.1

# Gas Discharge Tube (GDT) Data Sheet

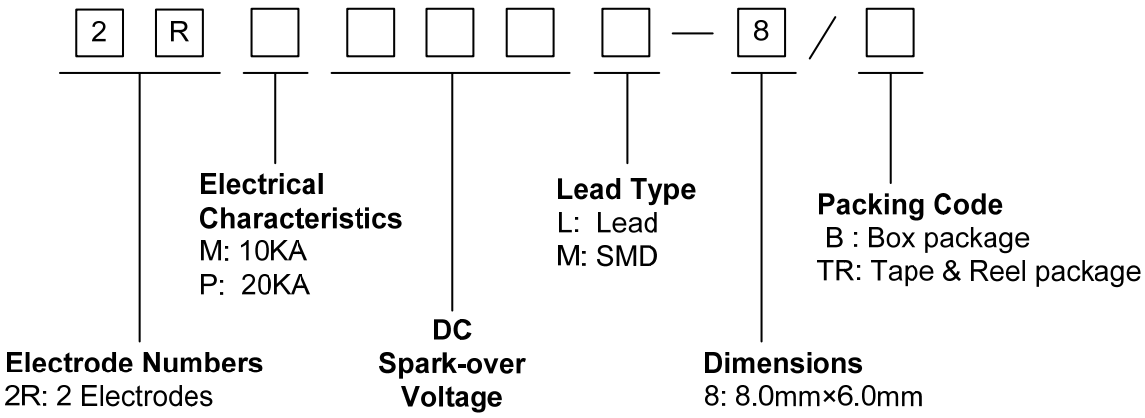
## Features

- 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*6.0mm
- Storage and operating temperature: -40℃ ~ +85℃
- 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



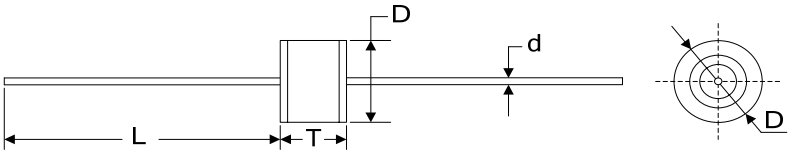

| Ordering Code | Lead type | Packing |
|---|---|---|
| 2RMXXXL-8/B<br>2RPXXXL-8/B | Lead | Box (Tray) |
| 2RMXXXL-8/TR<br>2RPXXXL-8/TR | Lead | Tape & Reel |
| 2RMXXXM-8<br>2RPXXXM-8 | SMD | Tape & Reel |

## Marking

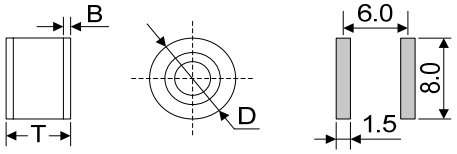
: BritghtKing Logo
2RM090-8 : Device Marking Code
XXXX : Internal Control Code

## Dimensions

L Type




M Type



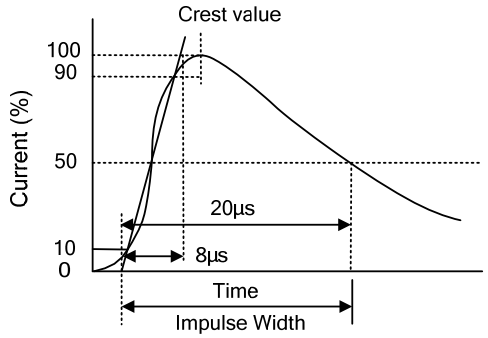

Recommended Pad Size

| Symbol | Dimension (mm) | |
|---|---|---|
| | Spec. | Tolerance |
| D | 8.0 | +0.3, -0.5 |
| T | 6.0 | +0.3, -0.5 |
| d | 0.8 | ±0.1 |
| L | 30.0 | Max. |
| D | 8.0 | +0.3, -0.5 |
| T | 6.0 | +0.3, -0.5 |
| B | 0.5 | ±0.1 |

## Electrical Characteristics

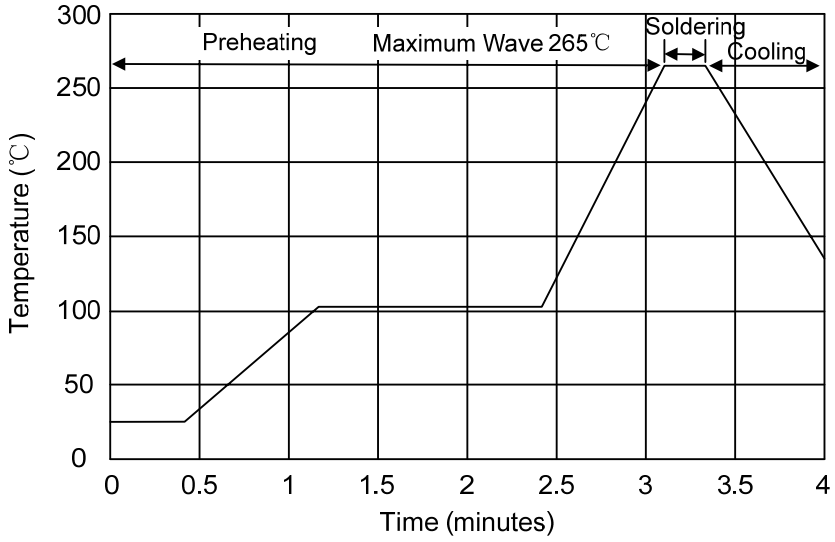
| Part Number | | DC Spark-over Voltage | Maximum Impulse Spark-over Voltage | Nominal Impulse Discharge Current | Alternating Discharge Current | Impulse Life | Minimum Insulation Resistance | | Maximum Capacitance | Device Marking Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 100V/s | 1000V/μs | 8/20μs 10times | 50Hz, 1sec | 10/1000μs 100A | Test Voltage | (GΩ) | 1MHz | |
| | | (V) | (V) | (KA) | (A) | (times) | DC(V) | | (pF) | |
| 2RM075L-8 | 2RM075M-8 | 75±20% | 600 | 10 | 10 | 500 | 25 | 1.0 | 1.5 | 2RM075-8 |
| 2RM090L-8 | 2RM090M-8 | 90±20% | 600 | 10 | 10 | 500 | 50 | 1.0 | 1.5 | 2RM090-8 |
| 2RM120L-8 | 2RM120M-8 | 120±20% | 600 | 10 | 10 | 500 | 50 | 1.0 | 1.5 | 2RM120-8 |
| 2RM145L-8 | 2RM145M-8 | 145±20% | 700 | 10 | 10 | 500 | 100 | 1.0 | 1.5 | 2RM145-8 |
| 2RM150L-8 | 2RM150M-8 | 150±20% | 700 | 10 | 10 | 500 | 100 | 1.0 | 1.5 | 2RM150-8 |
| 2RM230L-8 | 2RM230M-8 | 230±20% | 700 | 10 | 10 | 500 | 100 | 1.0 | 1.5 | 2RM230-8 |
| 2RM250L-8 | 2RM250M-8 | 250±20% | 800 | 10 | 10 | 500 | 100 | 1.0 | 1.5 | 2RM250-8 |
| 2RM300L-8 | 2RM300M-8 | 300±20% | 900 | 10 | 10 | 500 | 100 | 1.0 | 1.5 | 2RM300-8 |
| 2RM350L-8 | 2RM350M-8 | 350±20% | 900 | 10 | 10 | 500 | 100 | 1.0 | 1.5 | 2RM350-8 |
| 2RM400L-8 | 2RM400M-8 | 400±20% | 1000 | 10 | 10 | 500 | 100 | 1.0 | 1.5 | 2RM400-8 |
| 2RM470L-8 | 2RM470M-8 | 470±20% | 1100 | 10 | 10 | 500 | 250 | 1.0 | 1.5 | 2RM470-8 |
| 2RM600L-8 | 2RM600M-8 | 600±20% | 1300 | 10 | 10 | 500 | 250 | 1.0 | 1.5 | 2RM600-8 |
| 2RM800L-8 | 2RM800M-8 | 800±20% | 1500 | 10 | 10 | 500 | 250 | 1.0 | 1.5 | 2RM800-8 |
| 2RP075L-8 | 2RP075M-8 | 75±20% | 600 | 20 | 20 | 500 | 25 | 1.0 | 1.5 | 2RP075-8 |
| 2RP090L-8 | 2RP090M-8 | 90±20% | 600 | 20 | 20 | 500 | 50 | 1.0 | 1.5 | 2RP090-8 |
| 2RP120L-8 | 2RP120M-8 | 120±20% | 600 | 20 | 20 | 500 | 50 | 1.0 | 1.5 | 2RP120-8 |
| 2RP145L-8 | 2RP145M-8 | 145±20% | 700 | 20 | 20 | 500 | 100 | 1.0 | 1.5 | 2RP145-8 |
| 2RP150L-8 | 2RP150M-8 | 150±20% | 700 | 20 | 20 | 500 | 100 | 1.0 | 1.5 | 2RP150-8 |
| 2RP230L-8 | 2RP230M-8 | 230±20% | 700 | 20 | 20 | 500 | 100 | 1.0 | 1.5 | 2RP230-8 |
| 2RP250L-8 | 2RP250M-8 | 250±20% | 800 | 20 | 20 | 500 | 100 | 1.0 | 1.5 | 2RP250-8 |
| 2RP300L-8 | 2RP300M-8 | 300±20% | 900 | 20 | 20 | 500 | 100 | 1.0 | 1.5 | 2RP300-8 |
| 2RP350L-8 | 2RP350M-8 | 350±20% | 900 | 20 | 20 | 500 | 100 | 1.0 | 1.5 | 2RP350-8 |
| 2RP400L-8 | 2RP400M-8 | 400±20% | 1000 | 20 | 20 | 500 | 100 | 1.0 | 1.5 | 2RP400-8 |
| 2RP470L-8 | 2RP470M-8 | 470±20% | 1100 | 20 | 20 | 500 | 250 | 1.0 | 1.5 | 2RP470-8 |
| 2RP600L-8 | 2RP600M-8 | 600±20% | 1300 | 20 | 20 | 500 | 250 | 1.0 | 1.5 | 2RP600-8 |
| 2RP800L-8 | 2RP800M-8 | 800±20% | 1500 | 20 | 20 | 500 | 250 | 1.0 | 1.5 | 2RP800-8 |

**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/μs. | |
| 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.   | |
| 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 | |

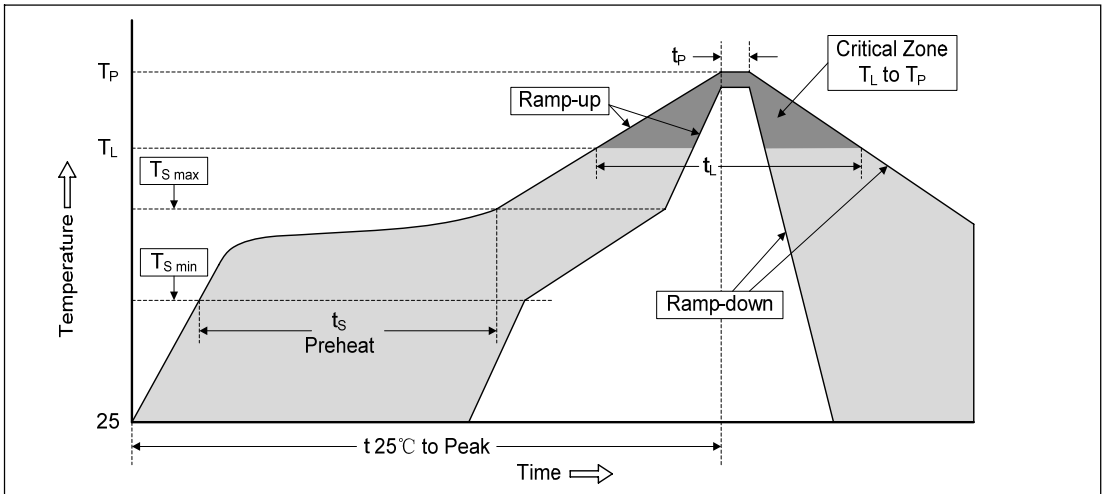
**Recommended Soldering Conditions**

Wave Soldering




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

Reflow Soldering

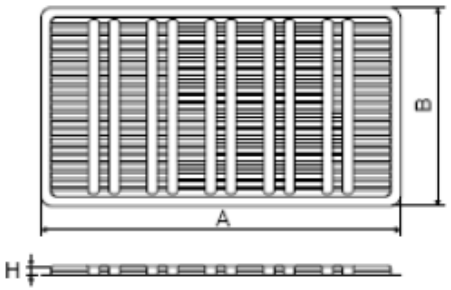



| Profile Feature | Pb-Free Assembly |
|---|---|
| Average ramp-up rate ($T_L$ to $T_P$) | 3℃/second max. |
| Preheat<br>-Temperature Min ($T_{S\,min}$)<br>-Temperature Max ($T_{S\,max}$)<br>-Time (min to max) (ts) | <br>150℃<br>200℃<br>60-180 seconds |
| $T_{S\,max}$ to $T_L$<br>-Ramp-up Rate | <br>3℃/second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

**Packaging**

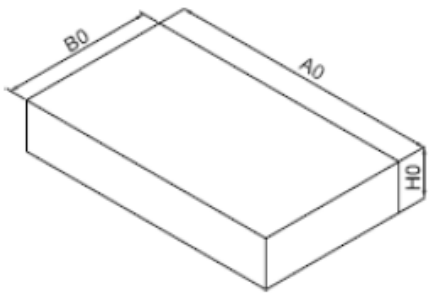
Axial Packing (Box)

Skin packing




| Symbol | Dimension (mm) | |
|---|---|---|
| | Spec. | Tolerance |
| A | 267.0 | ±2.0 |
| B | 146.0 | ±2.0 |
| H | 8.5 | ±1.0 |
| Quantity: 100pcs | | |

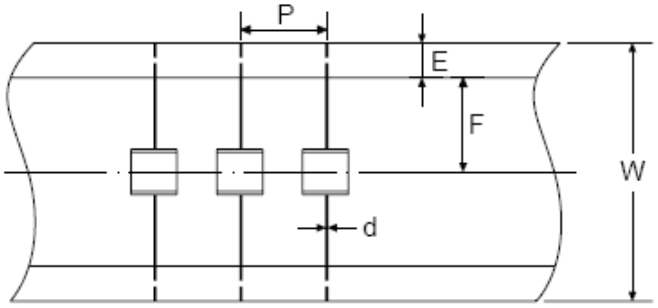
Inner box




| | | |
|---|---|---|
| A0 | 270.0 | ±2.0 |
| B0 | 150.0 | ±2.0 |
| H0 | 50.0 | ±2.0 |
| Quantity: 500pcs | | |

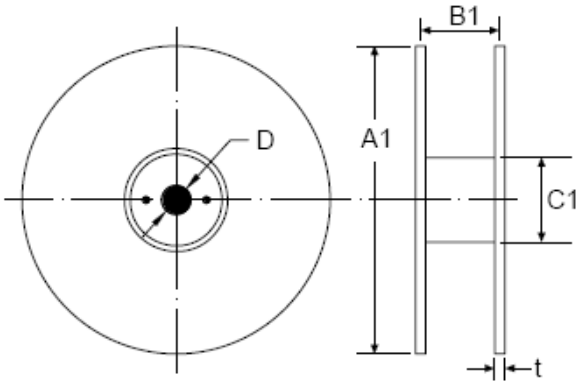
Axial Packing (Tape & Reel)

Tape




| Symbol | Dimension (mm) | |
|---|---|---|
| | Spec. | Tolerance |
| P | 10.0 | ±0.5 |
| W | 65.0 | ±1.0 |
| E | 6.0 | ±0.5 |
| F | 26.5 | ±0.5 |
| d | 0.8 | ±0.1 |

Reel

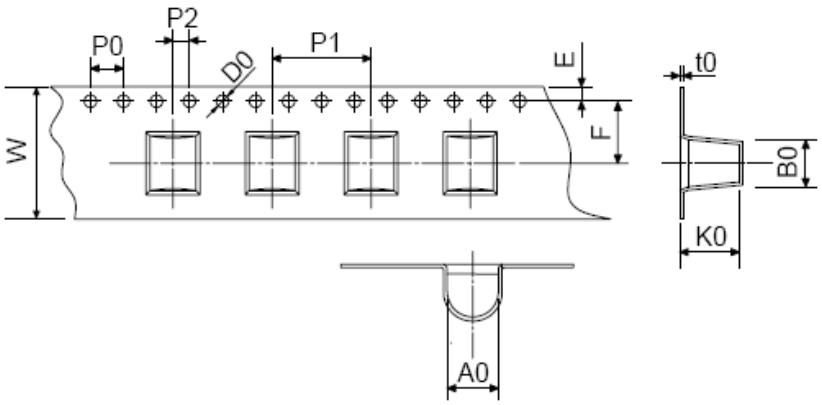



| | | |
|---|---|---|
| A1 | 330.0 | ±2.0 |
| B1 | 70.0 | ±2.0 |
| C1 | 82.0 | ±2.0 |
| D | 25.0 | ±0.5 |
| t | 2.0 | ±0.2 |

Quantity: 500pcs

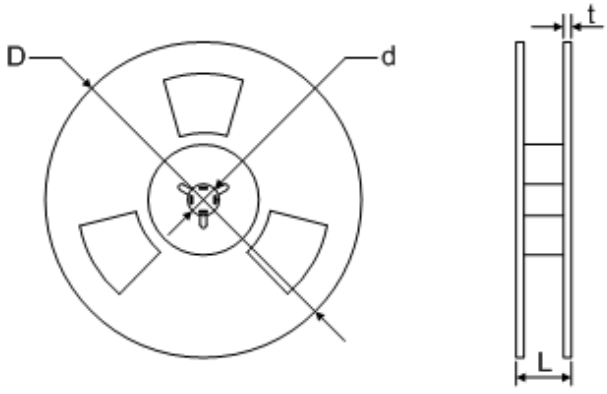
SMD Packing (Tape & Reel)

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 | 8.20 | ±0.10 |
| K0 | 8.50 | ±0.10 |
| B0 | 7.50 | ±0.10 |
| t0 | 0.50 | ±0.10 |

Reel




| | | |
|---|---|---|
| D | 330.00 | ±2.00 |
| d | 13.00 | ±0.50 |
| L | 20.00 | ±2.00 |
| t | 2.00 | ±0.20 |

Quantity: 500pcs