

# DATA SHEET

## GAS DISCHARGE TUBES TELEPHONE INTERFACE

3R-8-S series

RoHS compliant & free



Product specification— February 02, 2021 V.1



## Gas Discharge Tube (GDT) Data Sheet

### Features

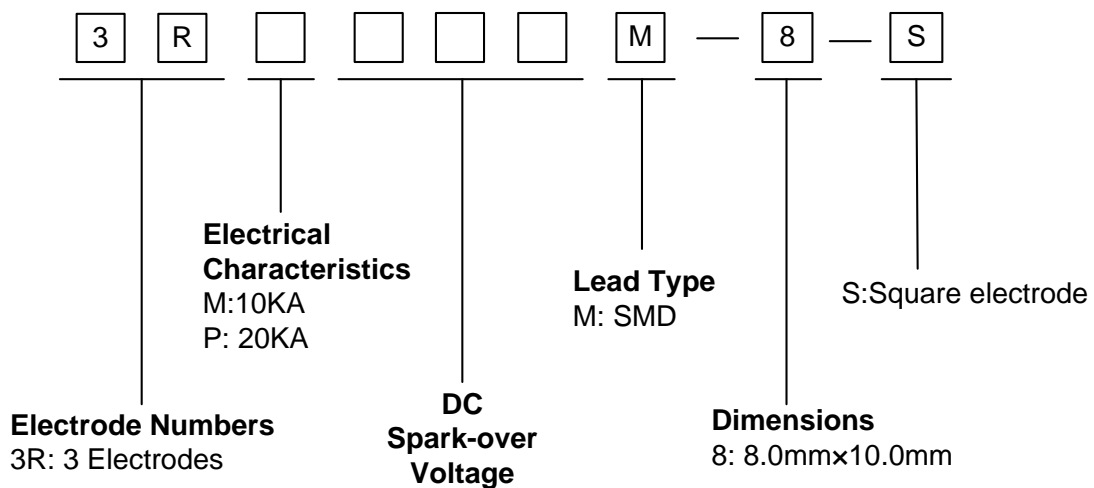
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs
- Stable breakdown voltage
- High insulation resistance
- Low capacitance (≤2pF)
- High holdover voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Size: 8.0mm\*10.0mm
- 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



### Marking

- B** : BrightKing Logo
- 3RM090-8 : Device Marking Code
- XXXX : Internal Control Code

**Dimensions**

| M Type | Symbol               | Dimension (mm) |           |
|--------|----------------------|----------------|-----------|
|        |                      | Spec.          | Tolerance |
|        | D                    | 8.0            | ±0.2      |
|        | D1                   | 7.5            | ±0.2      |
|        | D2                   | 9.0            | ±0.2      |
|        | T                    | 10.0           | ±0.3      |
|        | B                    | 0.5            | ±0.2      |
|        | B1                   | 1.5            | ±0.2      |
|        | Recommended Pad Size |                |           |

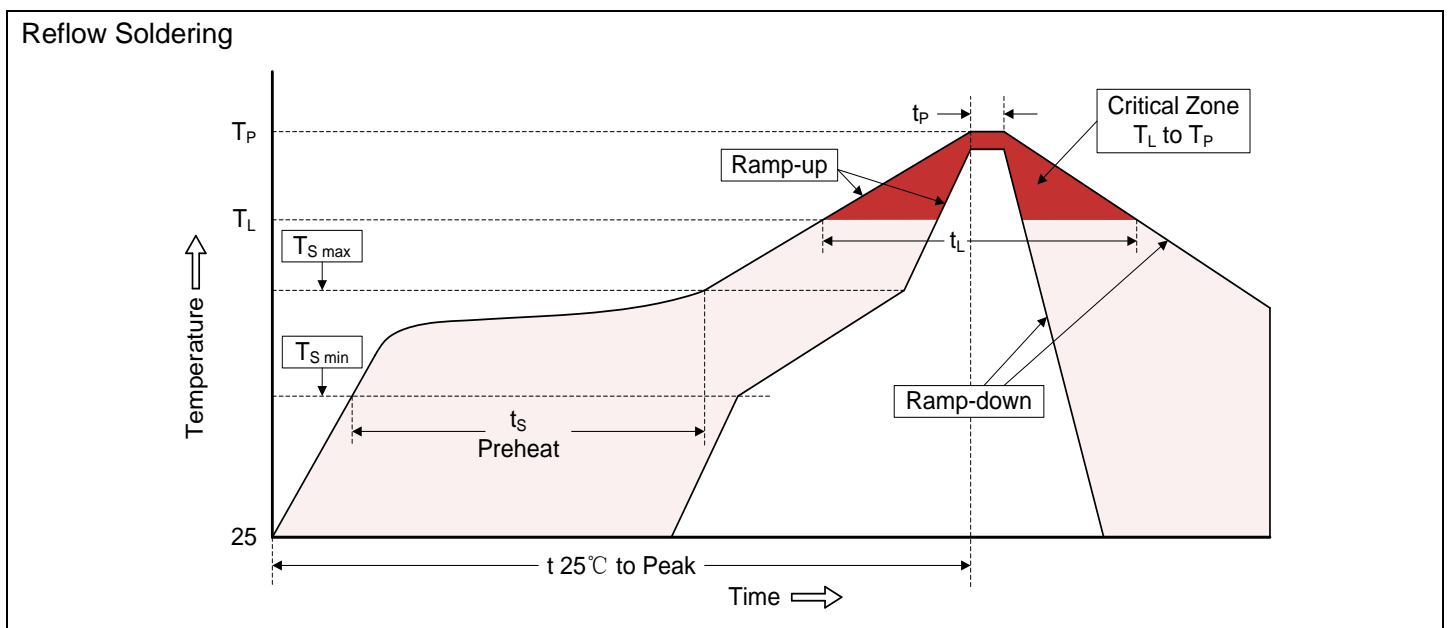
**Electrical Characteristics**

| 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<br>10times                 | 50Hz, 1sec                    | 10/1000μs<br>100A | Test Voltage                  | (GΩ) | 1MHz                |                     |
|             | (V)                   | (V)                                | (KA)                              | (A)                           | (times)           | DC(V)                         |      | (pF)                |                     |
| 3RM075M-8-S | 75±20%                | 700                                | 10                                | 10                            | 300               | 25                            | 1.0  | 2.0                 | 3RM075-8            |
| 3RM090M-8-S | 90±20%                | 700                                | 10                                | 10                            | 300               | 50                            | 1.0  | 2.0                 | 3RM090-8            |
| 3RM150M-8-S | 150±20%               | 700                                | 10                                | 10                            | 300               | 100                           | 1.0  | 2.0                 | 3RM150-8            |
| 3RM200M-8-S | 200±20%               | 700                                | 10                                | 10                            | 300               | 100                           | 1.0  | 2.0                 | 3RM200-8            |
| 3RM230M-8-S | 230±20%               | 800                                | 10                                | 10                            | 300               | 100                           | 1.0  | 2.0                 | 3RM230-8            |
| 3RM350M-8-S | 350±20%               | 900                                | 10                                | 10                            | 300               | 100                           | 1.0  | 2.0                 | 3RM350-8            |
| 3RM400M-8-S | 400±20%               | 1000                               | 10                                | 10                            | 300               | 100                           | 1.0  | 2.0                 | 3RM400-8            |
| 3RM470M-8-S | 470±20%               | 1100                               | 10                                | 10                            | 300               | 250                           | 1.0  | 2.0                 | 3RM470-8            |
| 3RM600M-8-S | 600±20%               | 1300                               | 10                                | 10                            | 300               | 250                           | 1.0  | 2.0                 | 3RM600-8            |
| 3RP075M-8-S | 75±20%                | 700                                | 20                                | 20                            | 300               | 25                            | 1.0  | 2.0                 | 3RP075-8            |
| 3RP090M-8-S | 90±20%                | 700                                | 20                                | 20                            | 300               | 50                            | 1.0  | 2.0                 | 3RP090-8            |
| 3RP150M-8-S | 150±20%               | 700                                | 20                                | 20                            | 300               | 100                           | 1.0  | 2.0                 | 3RP150-8            |
| 3RP200M-8-S | 200±20%               | 700                                | 20                                | 20                            | 300               | 100                           | 1.0  | 2.0                 | 3RP200-8            |
| 3RP230M-8-S | 230±20%               | 800                                | 20                                | 20                            | 300               | 100                           | 1.0  | 2.0                 | 3RP230-8            |
| 3RP350M-8-S | 350±20%               | 900                                | 20                                | 20                            | 300               | 100                           | 1.0  | 2.0                 | 3RP350-8            |
| 3RP400M-8-S | 400±20%               | 1000                               | 20                                | 20                            | 300               | 100                           | 1.0  | 2.0                 | 3RP400-8            |
| 3RP470M-8-S | 470±20%               | 1100                               | 20                                | 20                            | 300               | 250                           | 1.0  | 2.0                 | 3RP470-8            |
| 3RP600M-8-S | 600±20%               | 1300                               | 20                                | 20                            | 300               | 250                           | 1.0  | 2.0                 | 3RP600-8            |

**Electrical Ratings**

| Items                              | Test Condition/Description   | Requirement                 |
|------------------------------------|--|-----------------------------|
| DC Spark-over Voltage              | The voltage is measured with voltage ramp $dv/dt=100V/s$ . Test is between each side electrode and center electrode.   | To meet the specified value |
| Maximum Impulse Spark-over Voltage | The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ . Test is between each side electrode and center electrode.   |                             |
| Impulse Discharge Current          | Maximum surge current that can be applied through center electrode with $8/20\mu s$ waveform, for 10 times with 3min interval time, which will be equally divided between each side electrode to center electrode. |                             |
|                                    |  |                             |
| Alternating Discharge Current      | Rated RMS value of AC current at 50Hz, 1 sec. for 10 times with interval time 3 min. Test is between each side electrode and center electrode.   |                             |
| Insulation Resistance              | The resistance of gas tube shall be measured between each side electrodes and center electrode.  |                             |
| Capacitance                        | The capacitance of gas tube shall be measured between each side electrodes and center electrode. Test frequency: 1MHz  |                             |

**Recommended Soldering Conditions**



**Recommended Conditions**

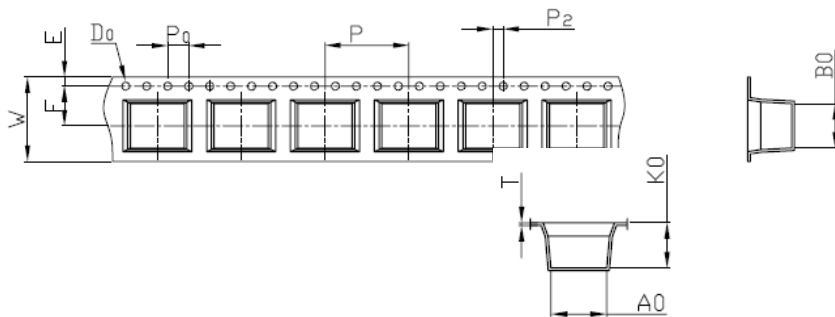
| Profile Feature  | Pb-Free Assembly                 |
|--|----------------------------------|
| Average ramp-up rate ( $T_L$ to $T_P$ )  | 3°C/second max.                  |
| Preheat<br>-Temperature Min ( $T_{S\ min}$ )<br>-Temperature Max ( $T_{S\ max}$ )<br>-Time (min to max) (ts) | 150°C<br>200°C<br>60-180 seconds |
| $T_{S\ max}$ to $T_L$<br>-Ramp-up Rate   | 3°C/second max.                  |
| Time maintained above:<br>-Temperature ( $T_L$ )<br>-Time (t <sub>L</sub> )                                  | 217°C<br>60-150 seconds          |
| Peak Temperature ( $T_P$ )   | 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**

SMD Packing (Tape & Reel)

| Symbol           | Dimension (mm) |           |
|------------------|----------------|-----------|
|                  | Spec.          | Tolerance |
| W                | 16.00          | ±0.20     |
| P0               | 4.00           | ±0.10     |
| P                | 16.00          | ±0.10     |
| P2               | 2.00           | ±0.10     |
| D0               | 1.55           | ±0.10     |
| E                | 1.75           | ±0.10     |
| F                | 7.50           | ±0.10     |
| A0               | 10.30          | ±0.10     |
| K0               | 8.40           | ±0.10     |
| B0               | 8.40           | ±0.10     |
| T                | 0.50           | ±0.05     |
| D                | 330.00         | ±2.00     |
| d                | 13.00          | ±0.50     |
| L                | 20.00          | ±2.00     |
| t                | 2.00           | ±0.20     |
| Quantity: 300pcs |                |           |

Tape



Reel

