Gas discharge Tubes (GDT) are classical components for protecting the installations of the telecommunications. It is essential that IT and telecommunications systems - with their high-grade but sensitive electronic circuits - be protected by arresters. They are thus fitted at the input of the power supply system together with varistors and at the connection points to telecommunication lines. They have become equally indispensable for protecting base stations in mobile telephone systems as well as extensive cable television (CATV) networks with their repeaters and distribution systems.

These protective components are also indispensable in other sectors. In AC power transmission systems, they are often used with current-limiting varistors. In customer premises equipment such as DSL modems, WLAN routers, TV sets and cable modems. In air-conditioning equipment, the integral black-box concept offers graduated protection by combining arresters with varistors, PTC, diodes and inductor.

The high voltage (1.0- 3.5KV) gas discharge tubes are designed for surge protection and high isolation applications, and for applications for which bias voltages or signal levels of several hundred volts are normally present.

**Features**
- Non-Radioactive
- RoHS compliant
- Low insertion loss
- Excellent response to fast rising transients
- Ultra low capacitance
- 5-10KA surge capability tested with 8/20μs pulse as defined by IEC 61000-4-5

**Applications**
- Communication equipment
- CATV equipment
- Test equipment
- Data lines
- Power supplies
- Telecom SLIC protection
- Broadband equipment
- ADSL equipment, including ADSL2+
- XDSL equipment
- Satellite and CATV equipment
- Consumer electronics

**Materials**
- **Leaded Device:** Nickel-plated with tinplated wires
- **Without wire and Surface Mount:** Dull Tin-plated

**Glow to Arc Transition Current**
- < 1.0 Amps

**Storage and Operational Temperature**
- -40 to +90°C

**Glow Voltage**
- ~70 Volts

**Climatic category (IEC 60068-1)**
- 40/ 90/ 21

**Weight**
- G2R8-XXXA ~1.35g
- G2R8-XXSB ~1.5g
- G2R8-XXXS ~1.5g
G2R8 Series

Dimensions (Unit: mm)

Without wire Devices: G2R8-XXXXA

Axial Leaded Devices: G2R8-XXXB

Surface Mount Devices: G2R8-XXXS

Electrical Characteristics

<table>
<thead>
<tr>
<th>Part Number</th>
<th>DC Spark-over Voltage</th>
<th>Maximum Impulse Spark-over Voltage</th>
<th>Insulation Resistance</th>
<th>Maximum Capacitance</th>
<th>Arc Voltage</th>
<th>Service Life</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>@100V/S (V)</td>
<td>@100V/μs (V)</td>
<td>Min (GΩ)</td>
<td>Test Voltage (V)</td>
<td>@1MHz (pF)</td>
<td>Nominal Impulse Discharge Current</td>
</tr>
<tr>
<td>G2R8-075</td>
<td>75±20%</td>
<td>500</td>
<td>10</td>
<td>25</td>
<td>1.5</td>
<td>~10</td>
</tr>
<tr>
<td>G2R8-090</td>
<td>90±20%</td>
<td>500</td>
<td>10</td>
<td>50</td>
<td>1.5</td>
<td>~10</td>
</tr>
<tr>
<td>G2R8-150</td>
<td>150±20%</td>
<td>500</td>
<td>10</td>
<td>50</td>
<td>1.5</td>
<td>~15</td>
</tr>
<tr>
<td>G2R8-230</td>
<td>230±20%</td>
<td>600</td>
<td>10</td>
<td>100</td>
<td>1.5</td>
<td>~15</td>
</tr>
<tr>
<td>G2R8-250</td>
<td>250±20%</td>
<td>700</td>
<td>10</td>
<td>100</td>
<td>1.5</td>
<td>~15</td>
</tr>
<tr>
<td>G2R8-300</td>
<td>300±20%</td>
<td>800</td>
<td>10</td>
<td>100</td>
<td>1.5</td>
<td>~15</td>
</tr>
<tr>
<td>G2R8-350</td>
<td>350±20%</td>
<td>800</td>
<td>10</td>
<td>100</td>
<td>1.5</td>
<td>~15</td>
</tr>
<tr>
<td>G2R8-420</td>
<td>420±20%</td>
<td>900</td>
<td>10</td>
<td>100</td>
<td>1.5</td>
<td>~15</td>
</tr>
<tr>
<td>G2R8-470</td>
<td>470±20%</td>
<td>900</td>
<td>10</td>
<td>250</td>
<td>1.5</td>
<td>~15</td>
</tr>
<tr>
<td>G2R8-600</td>
<td>600±20%</td>
<td>1100</td>
<td>10</td>
<td>250</td>
<td>1.5</td>
<td>~15</td>
</tr>
<tr>
<td>G2R8-800</td>
<td>800±20%</td>
<td>1200</td>
<td>10</td>
<td>250</td>
<td>1.5</td>
<td>~15</td>
</tr>
<tr>
<td>G2R8-100</td>
<td>1000±20%</td>
<td>1500</td>
<td>10</td>
<td>250</td>
<td>1.5</td>
<td>~15</td>
</tr>
<tr>
<td>G2R8-1600</td>
<td>1600±20%</td>
<td>2200</td>
<td>10</td>
<td>250</td>
<td>1.5</td>
<td>~25</td>
</tr>
<tr>
<td>G2R8-2000</td>
<td>2000±20%</td>
<td>3000</td>
<td>10</td>
<td>250</td>
<td>1.5</td>
<td>~25</td>
</tr>
<tr>
<td>G2R8-2700</td>
<td>2700±20%</td>
<td>3800</td>
<td>10</td>
<td>250</td>
<td>1.5</td>
<td>~25</td>
</tr>
<tr>
<td>G2R8-3500</td>
<td>3500±20%</td>
<td>4800</td>
<td>10</td>
<td>250</td>
<td>1.5</td>
<td>~25</td>
</tr>
</tbody>
</table>

Notes:
1. Terms in accordance with ITU-T K.12 and GB/T 9043-2008
2. At delivery AQL 0.65 level II, DIN ISO 2859
# Electrical Rating

<table>
<thead>
<tr>
<th>Item</th>
<th>Test Condition / Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Spark-over Voltage</td>
<td>The voltage is measured with a slowly rate of rise dv / dt=100V/s</td>
<td></td>
</tr>
<tr>
<td>Impulse Spark-over Voltage</td>
<td>The maximum impulse spark-over voltage is measured with a rise time of dv / dt=100V//μs or 1KV/μs</td>
<td></td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>The resistance of gas tube shall be measured each terminal each other terminal, please see above spec.</td>
<td></td>
</tr>
<tr>
<td>Capacitance</td>
<td>The capacitance of gas tube shall be measured each terminal to each other</td>
<td>To meet the specified value</td>
</tr>
<tr>
<td></td>
<td>terminal. Test frequency :1MHz</td>
<td></td>
</tr>
</tbody>
</table>

**Nominal Impulse Discharge Current**

The maximum current applying a waveform of 8/20μs that can be applied across the terminals of the gas tube. One hour after the test is completed, re-testing of the DC spark-over voltage does not exceed ±30% of the nominal DC spark-over voltage. Dwell time between pulses is 3 minutes.

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**Recommended soldering profile**

Reflow Condition
- Temperature Min ($T_{s(min)}$) 150°C
- Temperature Max ($T_{s(max)}$) 200°C
- Time (min to max) ($t_s$) 60 - 180 Seconds

Average ramp up rate (Liquidus Temp $T_L$) to peak 3°C/second max

$T_{s(max)}$ to TL - Ramp-up Rate 5°C/second max

Reflow
- Temperature ($T_L$) (Liquidus) 217°C
- Time (min to max) ($t_L$) 60 - 150 Seconds

Peak Temperature ($T_p$) 260 ±0/-5°C

Time within 5°C of actual peak Temperature ($t_p$) 10 - 30 Seconds

Ramp-down Rate 6°C/second max

Time 25°C to peak Temperature ($T_p$) 8 minutes Max

Do not exceed 260°C