Gas Discharge Tubes
GTCS23-XXXM-R01-2 Series

Littelfuse Circuit Protection 3mm 2Pole SMD type GDTs (ceramic gas discharge tubes), are commonly used to help protect sensitive telecom equipment such as communication lines, signal lines and data transmission lines from damage caused by transient surge voltages that typically result from lightning strikes and equipment switching operations.

Littelfuse Circuit Protection 3mm SMD type GDTs offer excellent surge protection characteristics, low capacitance and a broad array of breakover voltage levels, making them suitable for applications such as high data-rate telecom communication network protection (e.g. ADSL, VDSL).

### Benefits:
- Compact, small form factor suitable for efficient assembly
- Suitable for high-frequency applications

### Features:
- 2Poles, 3mm devices
- Broad voltage range from 75V-400V
- Form factor: surface mount
- Low capacitance and insertion loss
- Referring to ITUT K.20 and ITUT K.21
- UL 497B recognized
- RoHS compliant
- Devices tested per ITU K.12 recommendations
- Non-radioactive materials

### Applications:
- Telecommunications, RF system protection, CATV Modem, Hub protection, Security Systems, Data acquisition
## Device Voltage Ratings

<table>
<thead>
<tr>
<th>Part Number</th>
<th>DC Sparkover</th>
<th>Impulse Sparkover Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>@100V/s ±20% Tolerance (V)</td>
<td>@1000 V/µs (V)</td>
</tr>
<tr>
<td>GTCS23-750M-R01-2*</td>
<td>75</td>
<td>600</td>
</tr>
<tr>
<td>GTCS23-900M-R01-2</td>
<td>90</td>
<td>600</td>
</tr>
<tr>
<td>GTCS23-141M-R01-2</td>
<td>140</td>
<td>600</td>
</tr>
<tr>
<td>GTCS23-151M-R01-2</td>
<td>150</td>
<td>600</td>
</tr>
<tr>
<td>GTCS23-201M-R01-2</td>
<td>200</td>
<td>700</td>
</tr>
<tr>
<td>GTCS23-231M-R01-2</td>
<td>230</td>
<td>700</td>
</tr>
<tr>
<td>GTCS23-301M-R01-2</td>
<td>300</td>
<td>900</td>
</tr>
<tr>
<td>GTCS23-351M-R01-2</td>
<td>350</td>
<td>1000</td>
</tr>
<tr>
<td>GTCS23-401M-R01-2</td>
<td>400</td>
<td>1000</td>
</tr>
</tbody>
</table>

*DCSO 60~105

Part Marking: Not Applicable

## Device Surge Rating, Capacitance, Insulation Resistance, UL

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Insulation Resistance</th>
<th>Capacitance</th>
<th>Impulse Discharge Current 8/20µs</th>
<th>Impulse Withstanding Voltage 10/700µs</th>
<th>UL Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>@100Vdc*</td>
<td>@1Mhz</td>
<td>10 hits (5 hits each polarity)</td>
<td>300 hits (150 hits each polarity)</td>
<td>10 hits (5 times each polarity) UL497B #E179610</td>
</tr>
<tr>
<td>GTCS23-xxxM-R01-2</td>
<td>≥ 1,000 (MΩ)</td>
<td>&lt;0.5pF</td>
<td>1kA</td>
<td>100A</td>
<td>4kV</td>
</tr>
</tbody>
</table>

* Devices <=150V measured @ 50Vdc
GTCS23-XXXM-R01-2 Series

**Product Dimensions**

DIMENSIONS = MILLIMETERS [INCHES]

**Surface-mount (GTCS23-XXXM-R01-2)**

**Pad Layout – Surface-mount Devices (GTCS23-XXXM-R01-2)**

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
<th>Z1</th>
<th>Z2</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOM</td>
<td>NOM</td>
<td>Nom</td>
<td>Nom</td>
</tr>
<tr>
<td>mm:</td>
<td>3.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>in*:</td>
<td>(0.118)</td>
<td>(0.079)</td>
<td>(0.079)</td>
</tr>
</tbody>
</table>

**General Characteristics**

No Radioactive Material
Storage Temperature: -40°C to +90°C
Operating Temperature: -40°C to +90°C
Electrode: Tin Plated

**Materials Information**

ROHS Compliant  
ELV Compliant  
Pb-Free  
Halogen Free

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Revised July 26, 2016
Gas Discharge Tubes

GTCS23-XXXM-R01-2 Series

Packaging Information

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Reel</th>
<th>Standard Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface-mount: GTCS23-XXXM-R01-2</td>
<td>2,000pcs (Reel)</td>
<td>16,000pcs</td>
</tr>
</tbody>
</table>

Part Numbering System

Example Part Number: GTCS23-351M-R01-2

- GT = Gas Tube
- C = Ceramic
- S = Lead Configuration: S= Surface-mount
- 2 = 2 Electrode device
- 3 = 3mm Diameter
- 351 = DC Spark Over Voltage of 350V (at 100V/s)
- M = Tolerance of 20% on DC Spark Over Voltage
- R = Product Family Designator
- 01 = Surge rating: 8x20µs 1kA 10 times
- -2 = Tape and Reel Packaging

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