

# Gas Discharge Tube

## GSM\*\*\*Q Series

### Features

- Electronic stability
- Small volume, easy to placement machine operation
- Large flow capacity, impact resistant ability
- Static electricity capacity, good insulation
- Reaction speed is 50 ns - 150 ns
- Storage and operating temperature -40~125°C
- High energy discharge



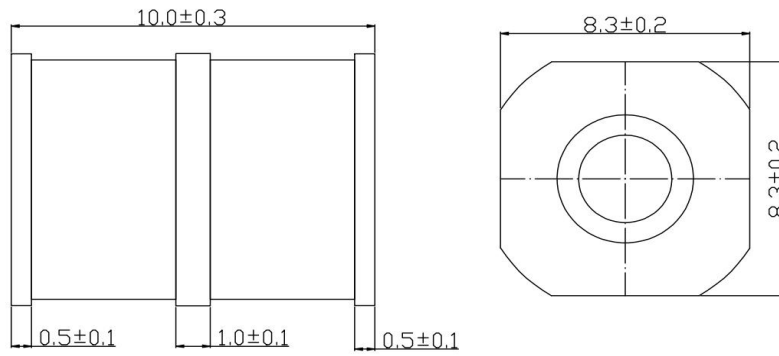
### Applications

- ADSL MODEM、FAX、TELEPHONE
- RS485、RS232、CAN level of protection
- CATV
- Power supply prevents thunder common-mode protection
- Line cards

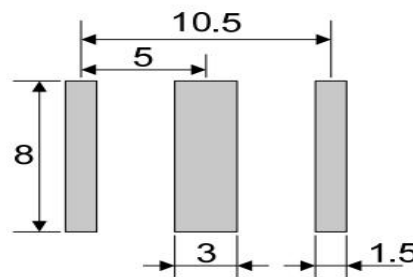
### Electrical Characteristics

| Part Number | DC Spark-over Voltage (@100V/s) (V) | Impulse Spark-over Voltage (@1KV/μs) (V) | Discharge Current 10hits (@8/20μs) (KA) | AC Discharge Current (@50Hz) (A) | Min. Insulation Resistance (@DC) |                  | Max. Capacitance (@1MHz) (pF) |
|-------------|-------------------------------------|--|---|----------------------------------|----------------------------------|------------------|-------------------------------|
|             |                                     |  |   |                                  | (GΩ)                             | Test Voltage (V) |                               |
| GSM075Q     | 75±30%                              | 600                                      | 20                                      | 20                               | 1                                | 50               | 1                             |
| GSM090Q     | 90±30%                              | 600                                      | 20                                      | 20                               | 1                                | 50               | 1                             |
| GSM150Q     | 150±20%                             | 650                                      | 20                                      | 20                               | 1                                | 100              | 1                             |
| GSM230Q     | 230±20%                             | 700                                      | 20                                      | 20                               | 1                                | 100              | 1                             |
| GSM350Q     | 350±20%                             | 900                                      | 20                                      | 20                               | 1                                | 100              | 1                             |
| GSM470Q     | 470±20%                             | 1000                                     | 20                                      | 20                               | 1                                | 100              | 1                             |
| GSM600Q     | 600±20%                             | 1300                                     | 20                                      | 20                               | 1                                | 100              | 1                             |

Dimensions



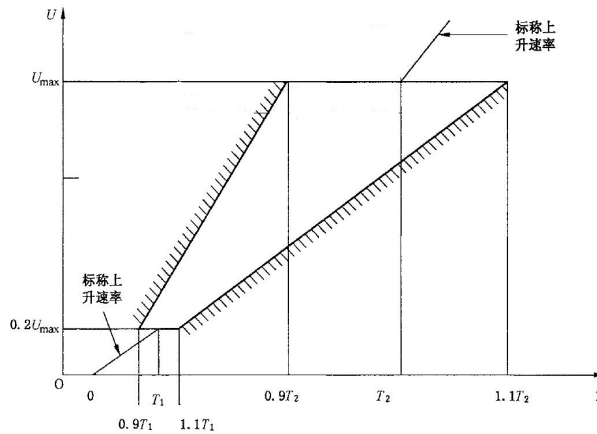
Dimension in mm



Recommended Pad Size

Surge arrester

DC breakdown voltage



8/20us, Test wave

$T_1 = 1.25T = 8\mu s \pm 20\%$

$T_2 = 20\mu s \pm 20\%$

10/700us, Test Wave

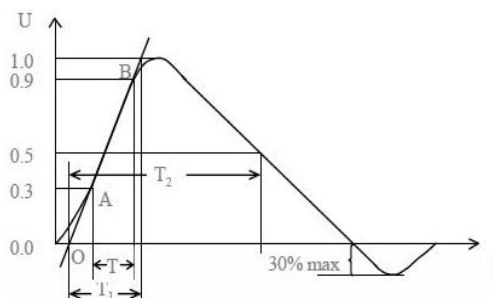
$T_1 = 1.67T = 10\mu s \pm 20\%$

$T_2 = 700\mu s \pm 20\%$

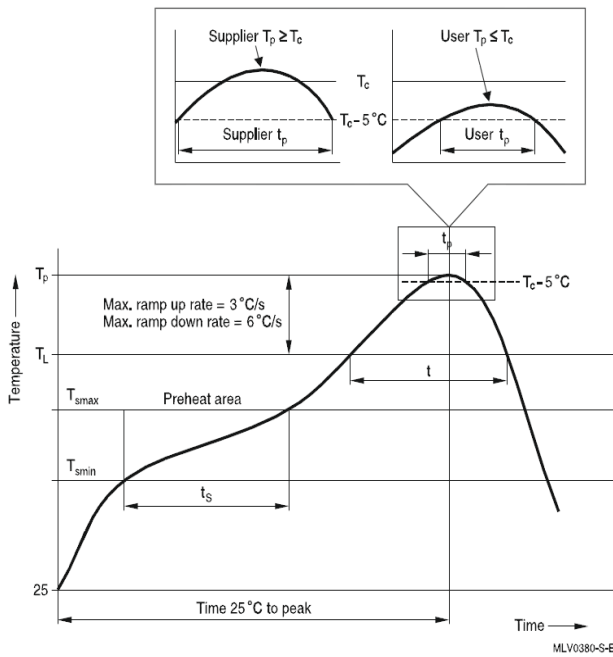
10/1000us, Test Wave

$T_1 = 1.67T = 10\mu s \pm 20\%$

$T_2 = 1000\mu s \pm 20\%$

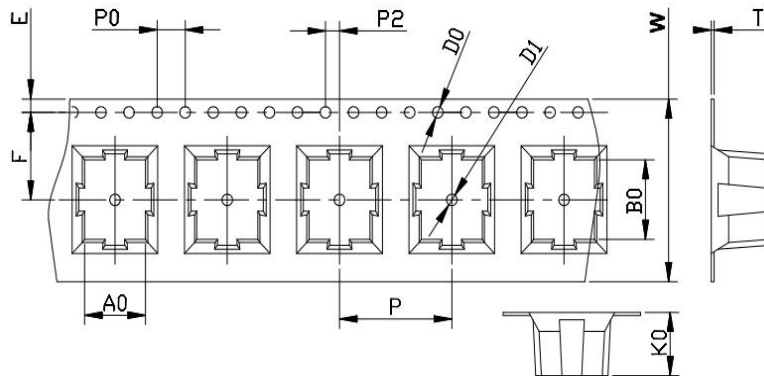


Recommended wave soldering profile



| Reflow profile features  |                          | Sn- Pb eutectic assembly | Pb-free assembly  |
|--|--------------------------|--------------------------|-------------------|
| Preheat and soak   |                          |                          |                   |
| - Temperature min  | $T_{smin}$               | 100 °C                   | 150 °C            |
| - Temperature max  | $T_{smax}$               | 150 °C                   | 200 °C            |
| - Time   | $t_{smin}$ to $t_{smax}$ | 60 ... 120 s             | 60 ... 180 s      |
| Average ramp-up rate   | $T_{smax}$ to $T_p$      | max. 3 °C/ s             | max. 3 °C/ s      |
| Liquidous temperature  | $T_L$                    | 183 °C                   | 217 °C            |
| Time at liquidous  | $t_L$                    | 60 ... 150 s             | 60 ... 150 s      |
| Peak package body temperature *, Classification temperature **   | $T_p, T_c$               | 220 ... 235 °C **        | 245 ... 260 °C ** |
| Time ( $t_p$ ) ** within 5 °C of the specified classification temperature ( $T_c$ )  |                          | 20 s ***                 | 30 s ***          |
| Average ramp-down rate   | $T_p$ to $T_{smax}$      | max. 6 °C/ s             | max. 6 °C/ s      |
| Time 25 °C to peak temperature   |                          | max. 6 min               | max. 8 min        |
| * = Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.<br>** = For details please refer to JEDEC J-STD-020D.<br>*** = Tolerance for time at peak profile temperature ( $t_p$ ) is defined as a supplier minimum and a user maximum. |                          |                          |                   |

Packaging 300pcs/reel



|          |              |             |              |             |             |             |              |              |             |             |             |             |             |
|----------|--------------|-------------|--------------|-------------|-------------|-------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|
| <b>D</b> | <b>24.00</b> | <b>8.70</b> | <b>10.45</b> | <b>8.60</b> | <b>0.00</b> | <b>1.75</b> | <b>11.50</b> | <b>16.00</b> | <b>4.00</b> | <b>2.00</b> | <b>1.50</b> | <b>0.00</b> | <b>0.40</b> |
| <b>A</b> | +0.30        | +0.10       | +0.10        | +0.10       | +0.10       | +0.10       | +0.10        | +0.10        | +0.10       | +0.10       | +0.10       | +0.10       | +0.05       |
| <b>T</b> | -0.10        | -0.10       | -0.10        | -0.10       | -0.10       | -0.10       | -0.10        | -0.10        | -0.10       | -0.10       | -0.00       | -0.00       | -0.05       |
| <b>A</b> | <b>W</b>     | <b>A0</b>   | <b>B0</b>    | <b>K0</b>   | <b>K1</b>   | <b>E</b>    | <b>F</b>     | <b>P</b>     | <b>P0</b>   | <b>P2</b>   | <b>D0</b>   | <b>D1</b>   | <b>T</b>    |

Cautions and warnings

- Surge arresters must not be operated directly in power supply networks
- Surge arresters may become hot in case of longer periods of current stress (danger of burning).
- If the contacts of the surge arrester are defective, current stress can lead to the formation of sparks and loud noises.
- Surge arresters may be used only within their specified values. In case of overload, the head contacts may fail or the component may be destroyed.
- Damaged surge arresters must not be re-used.