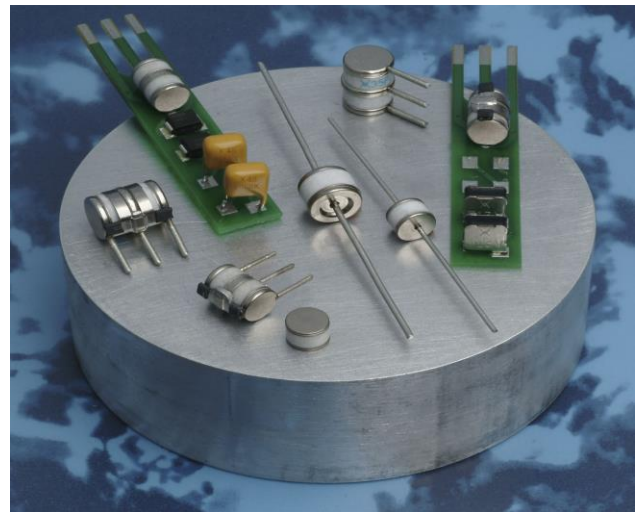


## Gas Discharge Tubes GTCX28-XXXM-R10 Series

Littelfuse Circuit Protection 8mm 2Pole 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 GDTs offer a high level of surge protection, low capacitance and a broad array of breakover voltage levels, making them suitable for applications such as MDF (Main Distribution Frame) modules, high data-rate telecom applications (e.g. ADSL, VDSL), and surge protection on power lines. Littelfuse Circuit Protection GDTs, can help equipment meet the most stringent regulatory standards.



### Benefits:

- Helps provide overvoltage fault protection against high energy surges
- Suitable for high-frequency applications

### Features:

- 2Pole, 8mm devices
- Broad voltage range from 75V-600V
- Various form factors: surface mount, axial leads, no leads
- Low capacitance and insertion loss
- UL 497B recognized
- RoHS compliant
- Devices tested per ITU K.12 recommendations
- Non-radioactive materials

### Applications:

- Telecommunications
  - MDF modules, xDSL equipment, RF system protection, antenna, base station
- Industrial and consumer electronics, such as
  - Surge protectors
  - Alarm system

# Gas Discharge Tubes

## GTCX28-XXXM-R10 Series

### Device Voltage Ratings and Part Marking

| Part Number     | DC Sparkover                     | Impulse Sparkover |                | DC Holdover Voltage             | On-State Voltage         |
|-----------------|----------------------------------|-------------------|----------------|---------------------------------|--------------------------|
|                 | @100V/s<br>±20% Tolerance<br>(V) | @100 V/μs (V)     | @1000 V/μs (V) | Per ITU K.12<br>(<150ms)<br>(V) | Nominal<br>(@ 1A)<br>(V) |
| GTCX28-750M-R10 | 75                               | 450               | 550            | <52                             | 20                       |
| GTCX28-900M-R10 | 90                               | 450               | 550            | <52                             | 20                       |
| GTCX28-141M-R10 | 140                              | 500               | 600            | <80                             | 20                       |
| GTCX28-151M-R10 | 150                              | 500               | 600            | <80                             | 20                       |
| GTCX28-201M-R10 | 200                              | 600               | 700            | <135                            | 20                       |
| GTCX28-231M-R10 | 230                              | 600               | 700            | <135                            | 20                       |
| GTCX28-251M-R10 | 250                              | 600               | 700            | <135                            | 20                       |
| GTCX28-261M-R10 | 260                              | 700               | 800            | <135                            | 20                       |
| GTCX28-301M-R10 | 300                              | 800               | 900            | <150                            | 20                       |
| GTCX28-351M-R10 | 350                              | 900               | 1000           | <150                            | 20                       |
| GTCX28-401M-R10 | 400                              | 900               | 1000           | <150                            | 20                       |
| GTCX28-421M-R10 | 420                              | 900               | 1000           | <150                            | 20                       |
| GTCX28-471M-R10 | 470                              | 1050              | 1150           | <150                            | 20                       |
| GTCX28-501M-R10 | 500                              | 1100              | 1200           | <150                            | 20                       |
| GTCX28-551M-R10 | 550                              | 1300              | 1400           | <150                            | 20                       |
| GTCX28-601M-R10 | 600                              | 1300              | 1400           | <150                            | 20                       |

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

| Part Number     | Impulse Discharge Current | Impulse Life          | AC Discharge Current<br>(1sec duration;<br>10 hits) | Capacitance | Insulation Resistance | UL Rating          |
|-----------------|---------------------------|-----------------------|-----------------------------------------------------|-------------|-----------------------|--------------------|
|                 | 8x20μs<br>10 hits         | 10x1000μs<br>300 hits | @50 Hz                                              | @1Mhz*      | @100V**               | UL497B<br>#E179610 |
| GTCX28-XXXM-R10 | 10kA                      | 100A                  | 10Arms                                              | <1pF        | 10,000 (MΩ)           | All Devices        |

\* <1.2pF for 75V and 90V devices

\*\* Devices <=90V measured @ 50V: Devices >=500V measured @ 250V

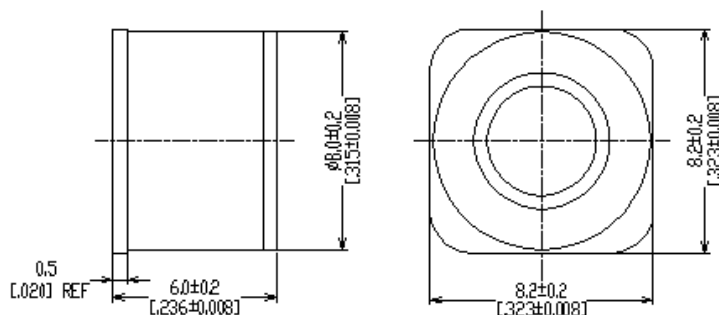
# Gas Discharge Tubes

## GTCX28-XXXM-R10 Series

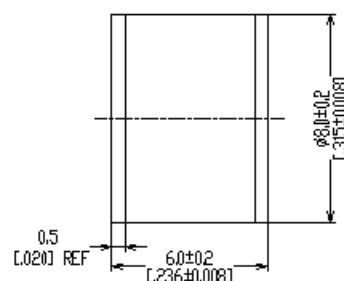
### Product Dimensions

**DIMENSIONS = MILLIMETERS [INCHES]**

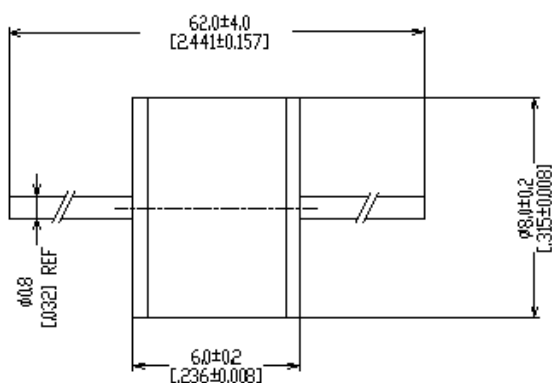
#### Surface-mount (GTCS28-XXXM-R10)



#### No Leads (GTCN28-XXXM-R10)

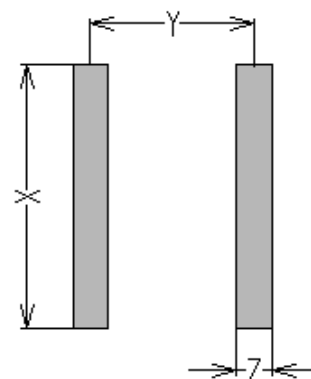


#### Axial Leads (GTCA28-XXXM-R10)



### Pad Layout – Surface-mount Devices (GTCS28-XXXM-R10)

|      | X       | Y       | Z       |
|------|---------|---------|---------|
|      | NOM     | NOM     | NOM     |
| mm:  | 9.0     | 5.6     | 1.2     |
| in*: | (0.354) | (0.220) | (0.047) |



## GTCX28-XXXM-R10 Series

### General Characteristics

No Radioactive Material

Storage Temperature: -40°C to +90°C

Operating Temperature: -40°C to +90°C

Body: Nickel Plated

Leads: Surface-mount, Axial Devices: Tin Plated

Devices with No Leads: Nickel Plated

*Soldering Note: Devices with no leads are non-solderable; meant for insertion into magazine clips*

### Packaging Information

| Part Description                        | Tray / Reel | Standard Package |
|-----------------------------------------|-------------|------------------|
| No Leads: GTCN28-XXXM-R10               | 100pcs      | 2,000pcs         |
| Axial Leads: GTCA28-XXXM-R10            | 100pcs      | 1,000pcs         |
| Surface-mount: GTCS28-XXXM-R10          | 100pcs      | 2,000pcs         |
| Tape & Reel SMD part: GTCS28-XXXM-R10-2 | 500pcs      | 4,000pcs         |

### Part Numbering System

#### Example Part Number: GTCX28-351M-R10

|       |                                                                                           |
|-------|-------------------------------------------------------------------------------------------|
| GT =  | Gas Tube                                                                                  |
| C =   | Ceramic                                                                                   |
| X =   | Lead Configuration: <b>N</b> = No leads; <b>A</b> = Axial Leads; <b>S</b> = Surface-mount |
| 2 =   | 2 Electrode device                                                                        |
| 8 =   | 8mm Diameter                                                                              |
| 351 = | DC Spark Over Voltage of 350V (at 100V/s)                                                 |
| M =   | Tolerance of 20% on DC Spark Over Voltage                                                 |
| R =   | Product Family Designator                                                                 |
| 10 =  | Surge rating: 8x20μs 10kA 10 times                                                        |

**GTCX28-XXXM-R10 Series****Part Marking Reference****Example Part Marking: ⚡ 35 R10 GN**

|       |                                                                 |
|-------|-----------------------------------------------------------------|
| ⚡ =   | Manufacture Mark                                                |
| 35 =  | Voltage Designator (35 = 350V)                                  |
| R10 = | Product Family Designator + Surge Current 10kA (8x20μs 10 hits) |
| GN =  | Year and Week of Manufacture                                    |

Littelfuse products are not designed for, and shall not be used for, any purpose (including, without limitation, automotive, military, aerospace, medical, life-saving, life-sustaining or nuclear facility applications, devices intended for surgical implant into the body, or any other application in which the failure or lack of desired operation of the product may result in personal injury, death, or property damage) other than those expressly set forth in applicable Littelfuse product documentation. Warranties granted by Littelfuse shall be deemed void for products used for any purpose not expressly set forth in applicable Littelfuse documentation. Littelfuse shall not be liable for any claims or damages arising out of products used in applications not expressly intended by Littelfuse as set forth in applicable Littelfuse documentation. The sale and use of Littelfuse products is subject to Littelfuse Terms and Conditions of Sale, unless otherwise agreed by Littelfuse.