

Raychem Circuit Protection Products 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.

Raychem Circuit Protection Products 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. Raychem 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

## GTCX28-XXM-R05 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-R05 | 75                               | 450               | 550            | <52                             | 20                       |
| GTCX28-900M-R05 | 90                               | 450               | 550            | <52                             | 20                       |
| GTCX28-141M-R05 | 140                              | 500               | 600            | <80                             | 20                       |
| GTCX28-151M-R05 | 150                              | 500               | 600            | <80                             | 20                       |
| GTCX28-201M-R05 | 200                              | 600               | 700            | <135                            | 20                       |
| GTCX28-231M-R05 | 230                              | 600               | 700            | <135                            | 20                       |
| GTCX28-251M-R05 | 250                              | 600               | 700            | <135                            | 20                       |
| GTCX28-261M-R05 | 260                              | 700               | 800            | <135                            | 20                       |
| GTCX28-301M-R05 | 300                              | 800               | 900            | <150                            | 20                       |
| GTCX28-351M-R05 | 350                              | 900               | 1000           | <150                            | 20                       |
| GTCX28-401M-R05 | 400                              | 900               | 1000           | <150                            | 20                       |
| GTCX28-421M-R05 | 420                              | 900               | 1000           | <150                            | 20                       |
| GTCX28-471M-R05 | 470                              | 1050              | 1150           | <150                            | 20                       |
| GTCX28-501M-R05 | 500                              | 1100              | 1200           | <150                            | 20                       |
| GTCX28-551M-R05 | 550                              | 1300              | 1400           | <150                            | 20                       |
| GTCX28-601M-R05 | 600                              | 1300              | 1400           | <150                            | 20                       |

Note: X options: S: Surface-mount; A: Axial-leaded; N: No-leaded  
 Part Marking : XX = lot code

### Device Surge Rating. Capacitance. Insulation

| 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-XXM-R05 | 5kA                       | 100A                  | 5Arms                                               | <1pF        | 10,000 (MΩ)           | All Devices        |

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

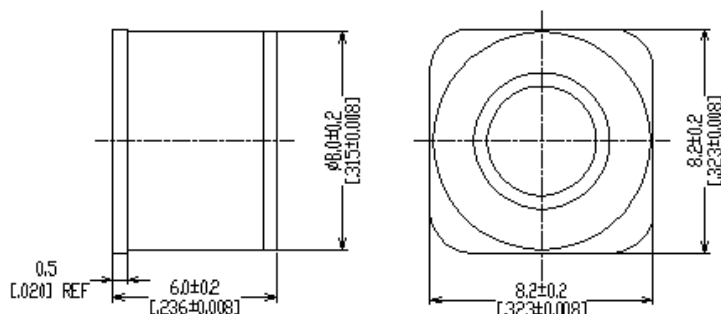
\*\* Devices <=150V measured @ 50V; Devices >=500V measured @ 250V

## GTCX28-XXXM-R05 Series

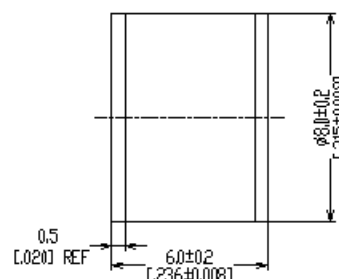
### Product Dimensions

DIMENSIONS = MILLIMETERS [INCHES]

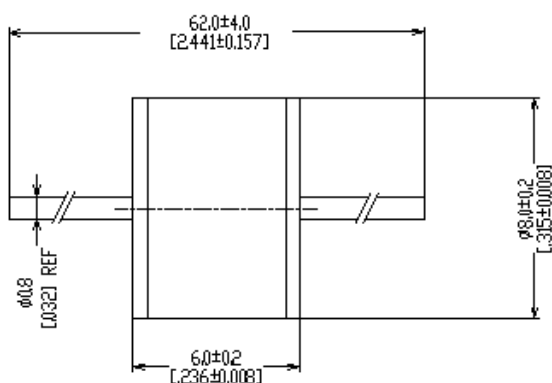
#### Surface-mount (GTCS28-XXXM-R05)



#### No Leads (GTCN28-XXXM-R05)

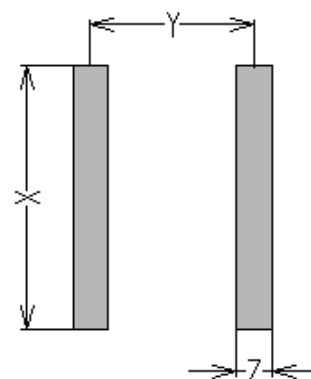


#### Axial Leads (GTCA28-XXXM-R05)



### Pad Layout – Surface-mount Devices (GTCS28-XXXM-R05)

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



## GTCX28-XXM-R05 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-XXM-R05               | 100pcs      | 2,000pcs         |
| Axial Leads: GTCA28-XXM-R05            | 100pcs      | 1,000pcs         |
| Surface-mount: GTCS28-XXM-R05          | 100pcs      | 2,000pcs         |
| Tape & Reel SMD part: GTCS28-XXM-R05-2 | 500pcs      | 2500pcs          |

### Part Numbering System

#### Example Part Number: GTCX28-351M-R05

GT = Gas Tube

C = Ceramic

X = Lead Configuration: **N**= No leads; **A**= Axial Leads; **S**= 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

05 = Surge rating: 8x20μs 5kA 10 times

## GTCX28-XXXM-R05 Series

### Part Marking Reference

**Example Part Marking:** ⚡ 35 R05 GN

|       |                                                                |
|-------|----------------------------------------------------------------|
| ⚡ =   | Manufacture Mark                                               |
| 35 =  | Voltage Designator (35 = 350V)                                 |
| R05 = | Product Family Designator + Surge Current 5kA (8x20μs 10 hits) |
| GN =  | Year and Week of Manufacture                                   |



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