

TE 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.

TE Circuit Protection GDTs offer a high level of surge protection, low capacitance and a broad array of breakdown 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-350V
- 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-XXXM-R20 Series

### Device Voltage Ratings and Part Marking

| Part Number     | DC Sparkover                  | Impulse Sparkover |                | DC Holdover Voltage       | On-State Voltage   |
|-----------------|-------------------------------|-------------------|----------------|---------------------------|--------------------|
|                 | @100V/s<br>±20% Tolerance (V) | @100 V/μs (V)     | @1000 V/μs (V) | Per ITU K.12 (<150ms) (V) | Nominal (@ 1A) (V) |
| GTCX28-750M-R20 | 75                            | 450               | 550            | <52                       | 20                 |
| GTCX28-900M-R20 | 90                            | 450               | 550            | <52                       | 20                 |
| GTCX28-141M-R20 | 140                           | 500               | 600            | <80                       | 20                 |
| GTCX28-151M-R20 | 150                           | 500               | 600            | <80                       | 20                 |
| GTCX28-201M-R20 | 200                           | 600               | 700            | <135                      | 20                 |
| GTCX28-231M-R20 | 230                           | 600               | 700            | <135                      | 20                 |
| GTCX28-251M-R20 | 250                           | 600               | 700            | <135                      | 20                 |
| GTCX28-261M-R20 | 260                           | 700               | 800            | <135                      | 20                 |
| GTCX28-301M-R20 | 300                           | 800               | 900            | <150                      | 20                 |
| GTCX28-351M-R20 | 350                           | 900               | 1000           | <150                      | 20                 |

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

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

| Part Number     | Impulse Discharge Current | Impulse Life          | AC Discharge Current (1sec duration; 10 hits) | Capacitance | Insulation Resistance | UL Rating          |
|-----------------|---------------------------|-----------------------|---|-------------|-----------------------|--------------------|
|                 | 8x20μs<br>10 hits         | 10x1000μs<br>300 hits | @50 Hz  | @1Mhz       | @100V*                | UL497B<br>#E179610 |
| GTCX28-XXXM-R20 | 20kA                      | 100A                  | 20Arms  | <1.5pF      | 10,000 (MΩ)           | All Devices        |

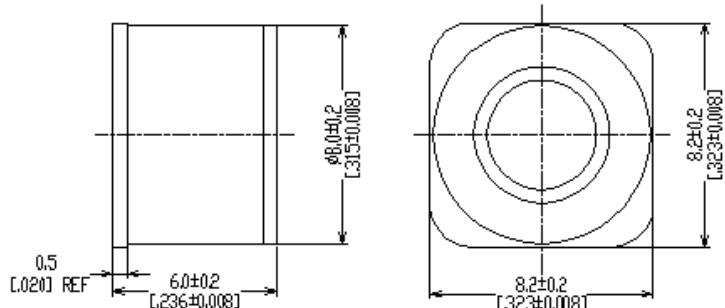
\* Devices <=150V measured @ 50V;

## GTCX28-XXXM-R20 Series

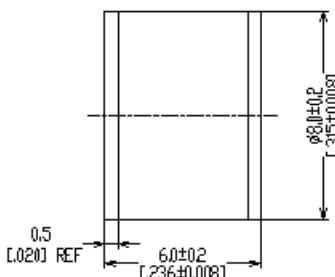
### Product Dimensions

DIMENSIONS = MILLIMETERS [INCHES]

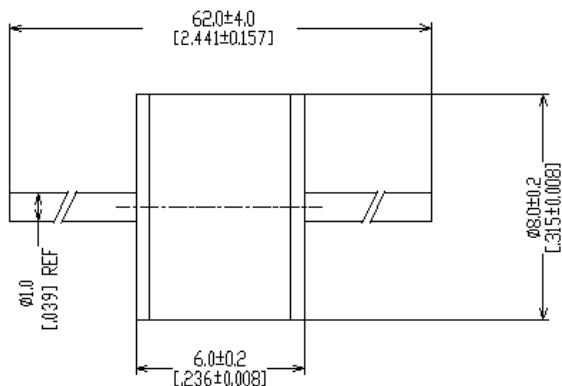
#### Surface-mount (GTCS28-XXXM-R20)



#### No Leads (GTCN28-XXXM-R20)

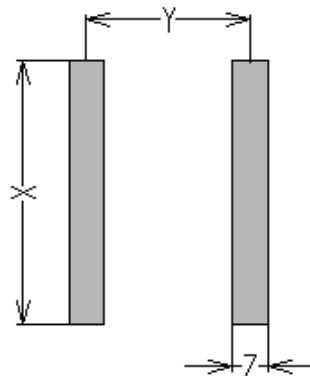


#### Axial Leads (GTCA28-XXXM-R20)



### Pad Layout – Surface- mount Devices (GTCS28-XXXM-R20)

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



## GTCX28-XXXM-R20 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   |
| <i>Soldering Note: Devices with no leads are non-solderable; meant for insertion into magazine clips</i> |

### Packaging Information

| Part Description                        | Tray / Reel | Standard Package |
|---|-------------|------------------|
| No Leads: GTCN28-XXXM-R20               | 100pcs      | 2,000pcs         |
| Axial Leads: GTCA28-XXXM-R20            | 100pcs      | 1,000pcs         |
| Surface-mount: GTCS28-XXXM-R20          | 100pcs      | 2,000pcs         |
| Tape & Reel SMD part: GTCS28-XXXM-R20-2 | 500pcs      | 2500pcs          |

### Part Numbering System

| Example Part Number: GTCX28-231M-R20 |   |
|--------------------------------------|---|
| 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  |
| 231 =                                | DC Spark Over Voltage of 230V (at 100V/s)   |
| M =                                  | Tolerance of 20% on DC Spark Over Voltage   |
| R =                                  | Product Family Designator   |
| 20 =                                 | Surge rating: 8x20μs 20kA 10 times  |

## GTCX28-XXXM-R20 Series

### Part Marking Reference

#### Example Part Marking: XX 23 R20 GN

|       |   |
|-------|---|
| XX =  | Manufacture Mark  |
| 23 =  | Voltage Designator (23 = 230V)                                  |
| R20 = | Product Family Designator + Surge Current 20kA (8x20μs 10 hits) |
| GN =  | Year and Week of Manufacture                                    |

# Mouser Electronics

Authorized Distributor

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[GTCA28-141M-R20](#) [GTCA28-351M-R20](#)