

Raychem 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.

Raychem 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. 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
		@100 V/ $\mu$ s (V)	@1000 V/ $\mu$ s (V)		
	@100V/s $\pm$ 20% Tolerance (V)	@100 V/ $\mu$ s (V)	@1000 V/ $\mu$ s (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
	8x20 $\mu$ s 10 hits	10x1000 $\mu$ s 300 hits	@50 Hz	@1Mhz	@100V*	UL497B #E179610
GTCX28-XXXM-R20	20kA	100A	20Arms	<1.5pF	10,000 (M $\Omega$ )	All Devices

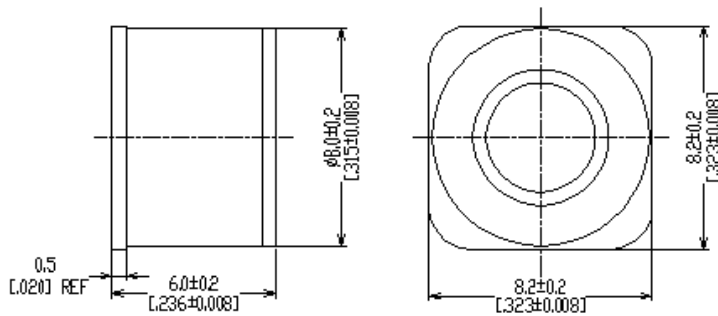
\* Devices  $\leq$ 150V measured @ 50V;

## GTCX28-XXXM-R20 Series

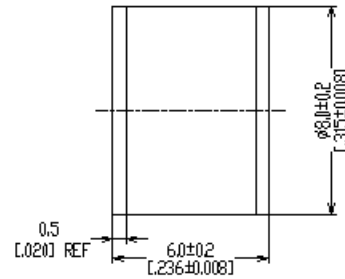
### Product Dimensions

DIMENSIONS = MILLIMETERS [INCHES]

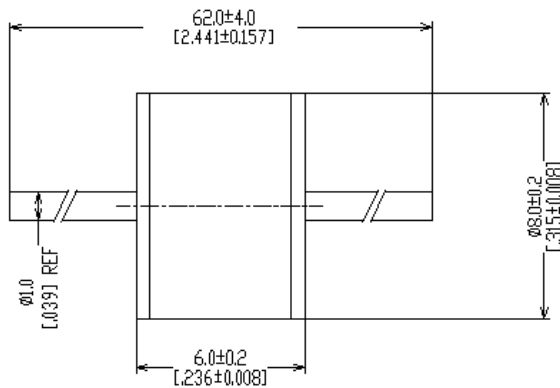
#### Surface-mount (GTCS28-XXXM-R20)



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

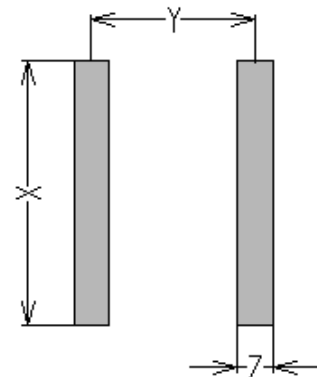


#### Axial Leads (GTCA28-XXXM-R20)



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

	X	Y	Z
	NOM	NOM	NOM
mm:	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:  $\times$  23 R20 GN**

$\times$ =	Manufacture Mark
23 =	Voltage Designator (23 = 230V)
R20 =	Product Family Designator + Surge Current 20kA (8x20 $\mu$ s 10 hits)
GN =	Year and Week of Manufacture



308 Constitution Drive, MS R21/2A  
Menlo Park, CA USA 94025-1164

Tel (800) 227-7040  
(650) 361-6900  
Fax (650) 361-2508

www.circuitprotection.com  
www.circuitprotection.com.hk (Chinese)  
www.circuitprotection.jp (Japanese)

Raychem, TE Logo and Tyco Electronics are trademarks.

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Tyco Electronics reserves the right to change or update, without notice, any information contained in this publication; to change, without notice, the design, construction, processing, or specification of any product; and to discontinue or limit production or distribution of any product. This publication supersedes and replaces all information previously supplied. Without expressed or written consent by an officer of Tyco Electronics, Tyco Electronics does not authorize the use of any of its products as components in nuclear facility applications, aerospace, or in critical life support devices or systems. Tyco Electronics expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. Tyco Electronics' only obligations are those in the Tyco Electronics Standard Terms and Conditions of Sale and in no case will Tyco Electronics be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of its products.