

Littelfuse Circuit Protection 8mm 3Pole 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 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. 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:**

- 3Pole, 8mm devices
- Broad voltage range from 75V-600V
- Various form factors: surface-mount, leaded, no leads
- Optional fail-short mechanism on some devices
- Low capacitance and insertion loss
- Crowbar overvoltage protection
- 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

## GTCX38-XXXM-R10 Series

### Device Voltage Ratings and Part Marking

Part Number	DC Sparkover @100V/s ±20% Tolerance (V)	Impulse Sparkover @100 V $\mu$ s (V)	Impulse Sparkover @1000 V $\mu$ s (V)	DC Holdover Voltage Per ITU K.12 (<150ms) (V)	On-State Voltage Nominal (@ 1A) (V)
GTCX38-750M-R10	75	450	550	<52	20
GTCX38-900M-R10	90	450	550	<52	20
GTCX38-141M-R10	140	500	600	<80	20
GTCX38-151M-R10	150	500	600	<80	20
GTCX38-201M-R10	200	600	700	<135	20
GTCX38-231M-R10	230	600	700	<135	20
GTCX38-251M-R10	250	600	700	<135	20
GTCX38-261M-R10	260	700	800	<135	20
GTCX38-301M-R10	300	800	900	<150	20
GTCX38-351M-R10	350	900	1000	<150	20
GTCX38-401M-R10	400	900	1000	<150	20
GTCX38-421M-R10	420	900	1000	<150	20
GTCX38-471M-R10	470	1050	1150	<150	20
GTCX38-501M-R10	500	1100	1200	<150	20
GTCX38-551M-R10	550	1300	1400	<150	20
GTCX38-601M-R10	600	1300	1400	<150	20

### 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
GTCX38-XXXM-R10	10kA	200A	10Arms	<1pF	10,000 (M $\Omega$ )	All Devices

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

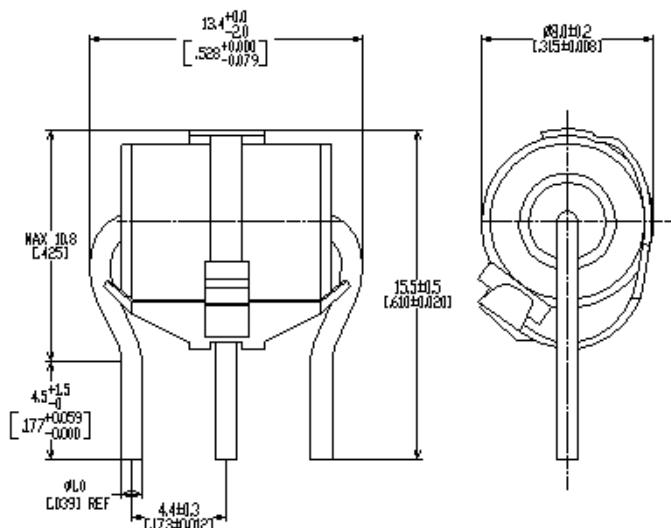
# Gas Discharge Tubes

## GTCX38-XXXM-R10 Series

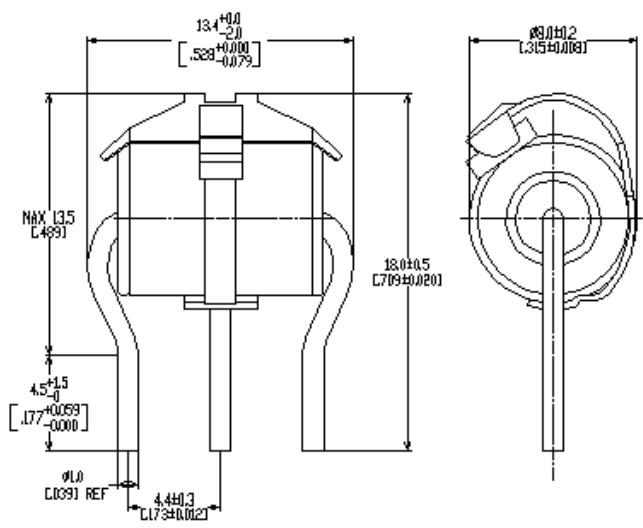
### Product Dimensions

### DIMENSIONS = MILLIMETERS [INCHES]

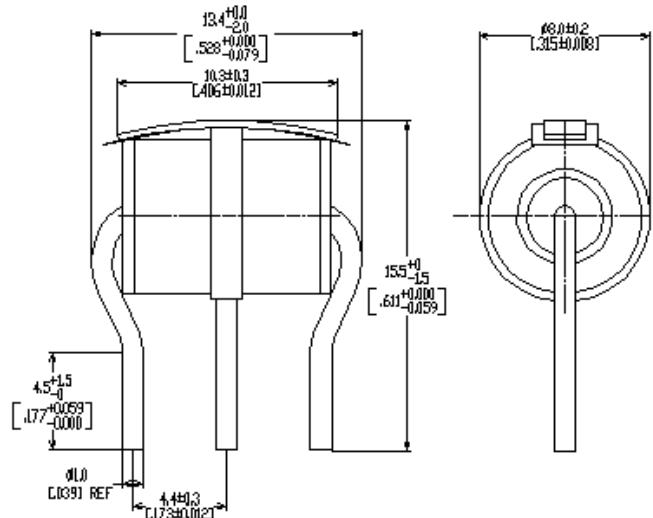
Axial Leaded with- FS (GTCA38-XXXM-R10-FS2)



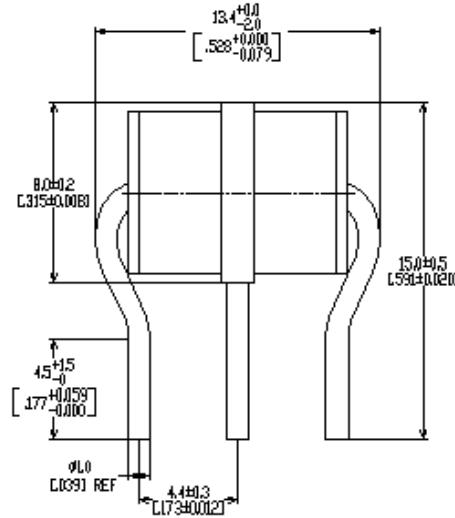
Axial Leaded with-FS (GTCA38-XXXM-R10-FS)



Axial Leaded with- FT (GTCA38-XXXM-R10-FT)

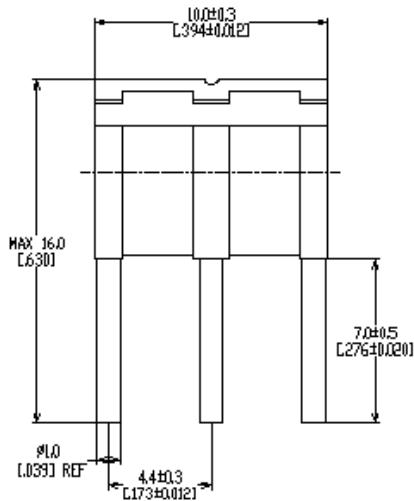
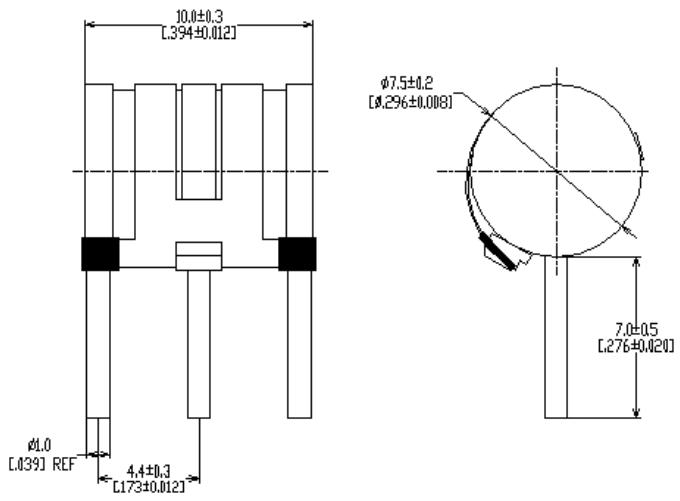
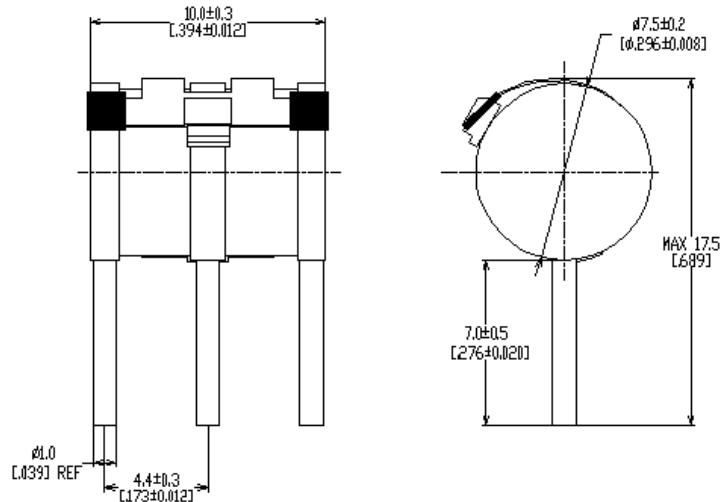
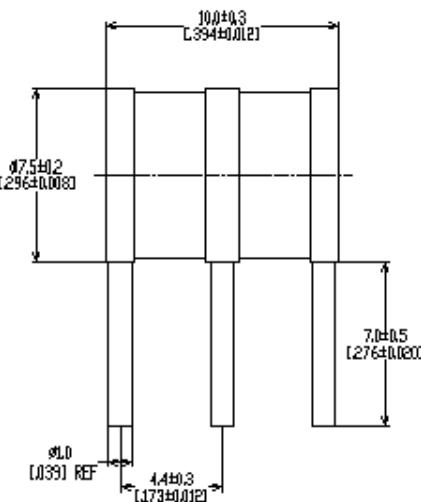


Axial Leaded (GTCA38-XXXM-R10)



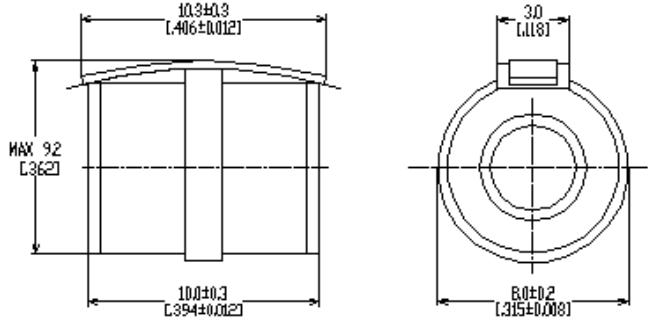
# Gas Discharge Tubes

## GTCX38-XXXM-R10 Series

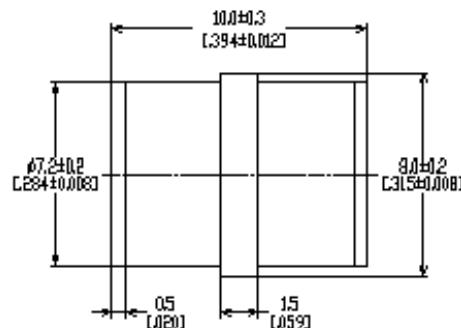
**Radial Leaded with- FT (GTCR38-XXXM-R10-FT)**

**Radial Leaded with-FS (GTCR38-XXXM-R10-FS2)**

**Radial Leaded with-FS (GTCR38-XXXM-R10-FS)**

**Radial Leaded (GTCR38-XXXM-R10)**


## GTCX38-XXXM-R10 Series

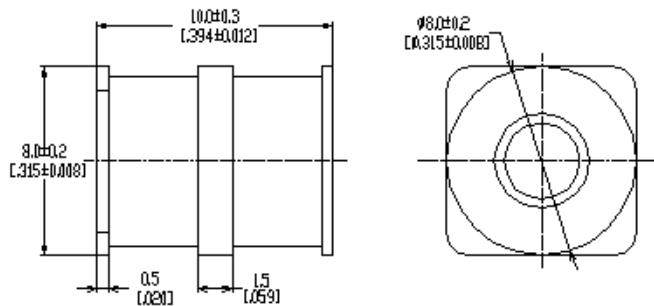
## No Leads with-FT (GTCN38-XXXM-R10-FT)



## No Leads (GTCN38-XXXM-R10)

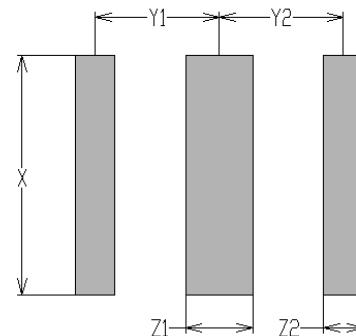


## Surface-mount (GTCS38-XXXM-R10)



## Pad Layout – Surface-mount Devices (GTCS38-XXXM-R10)

mm:	X	Y1	Y2	Z1	Z2
	NOM	NOM	NOM	NOM	NOM
9.0	4.65	4.65	2.5	1.5	
(0.354)	(0.183)	(0.183)	(0.098)	(0.059)	



## GTCX38-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, Radial and Axial Devices: Tin Plated

Devices with no leads: Nickel Plated

*Soldering Notes: Devices with no leads: non-solderable; suitable for insertion into a magazine clip*

### Materials Information

RoHS Compliant

ELV Compliant

Directive 2002/95/EC  
Compliant

Directive 2000/53/EC  
Compliant

### Packaging Information

#### Part Description

No Leaded: GTCN38-XXXM-R10(-FT)  
With Leads: GTCA38-XXXM-R10(-FT/-FS(2))  
GTCR38-XXXM-R10(-FT/-FS(2))  
Surface-mount: GTCS38-XXXM-R10(-FT)  
Surface-mount (T&R): GTCS38-XXXM-R10-2

#### Tray / Reel

100pcs (Tray)  
100pcs (Tray)  
100pcs (Tray)  
500pcs (Reel)

#### Standard Package

1,000pcs  
1,000pcs  
1,000pcs  
3,000pcs

### Part Numbering System

#### Example Part Number: GTCX38-351M-R10-FT/FS/ FS2

GT = Gas Tube  
C = Ceramic  
X = Lead Configuration: **N**= No leads; **A**= Axial Leads; **S**= Surface-mount; **T**= T Configuration Leads; **R**= Radial Leads  
3 = 3 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  
FT/FS/FS2 = With Fail-Short mechanism (FT=plastic fail short mechanism on top; FS=solder pellet fail short mechanism on top; FS2=solder pellet fail short mechanism on bottom)

**GTCX38-XXXM-R10 Series****Part Marking Reference****Example Part Marking: X 35 R10 GN**

X = 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.