



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Specification Status: Released

### GENERAL DESCRIPTION

#### BENEFITS

- Helps provide overvoltage fault protection against high energy surges
- Suitable for sensitive equipment due to excellent impulse sparkover response
- Suitable for high-frequency applications
- Highly reliable performance

#### FEATURES

- Crowbar device with low arc-voltage
- Low capacitance and insertion loss
- High accuracy spark-over voltages for high precision designs
- Tested per ITU K.12 recommendations
- Optional Fail-Short mechanism
- Non-radioactive materials

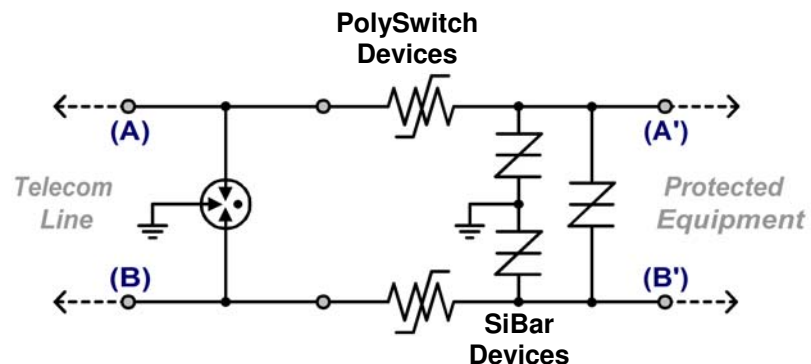
### APPLICATIONS

- Telecommunications:
  - MDF modules, xDSL equipment, RF system protection
- Industrial Electronics and Commercial Electronics, such as
  - Power Supplies, Surge Protectors, Alarm systems

### SYMBOL



### TYPICAL APPLICATION SCHEMATIC



## Gas Discharge Tube Three Electrode Series Overvoltage Protection Device

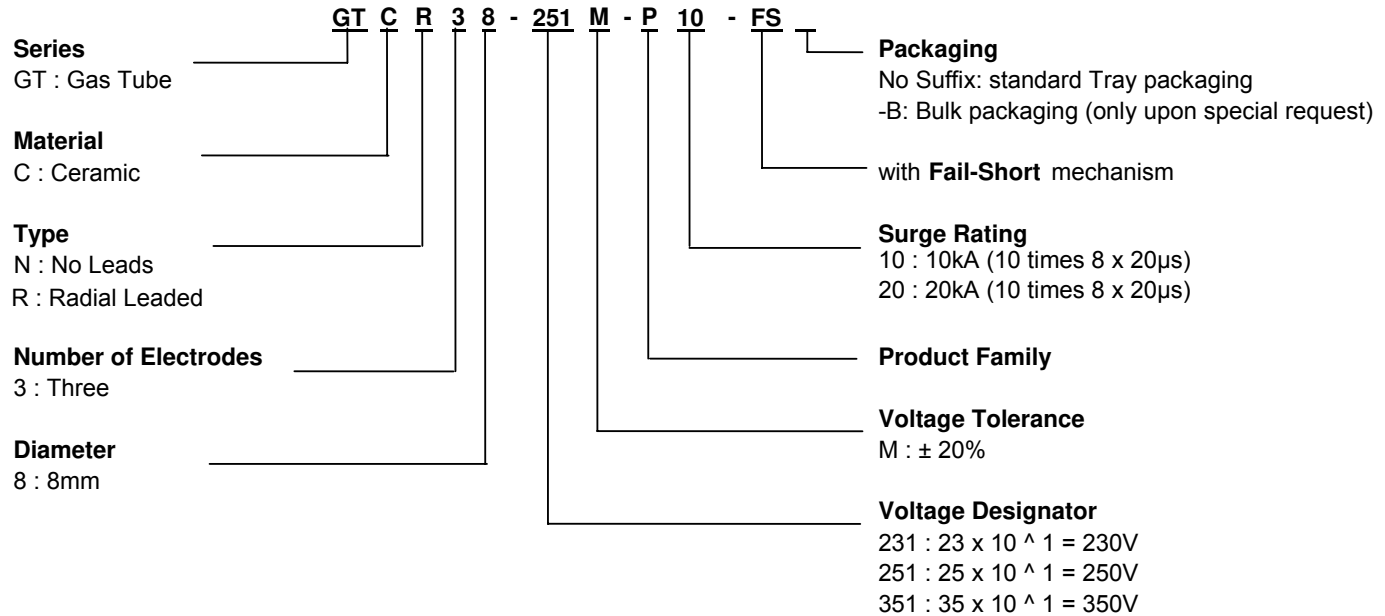
*Raychem Circuit Protection Products*

**PRODUCT: GTCx38-xxxx-Pxx**

DOCUMENT: SCD 25816  
REV LETTER: F  
REV DATE: JULY 7, 2008  
PAGE NO.: 2 OF 6

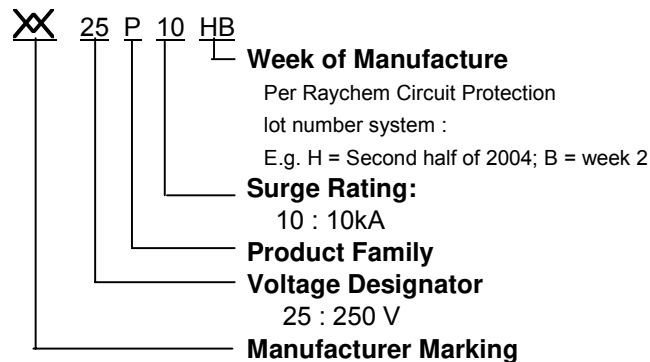
### PART NUMBERING

#### EXAMPLE:



### DEVICE MARKING

#### EXAMPLE : GTCR38-251M-P10-FS



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### GENERAL CHARACTERISTICS

No Radioactive Material

Storage temperature:

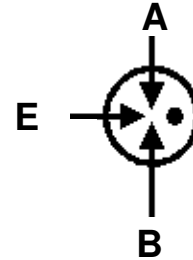
Devices without Fail-Short Mechanism: -40°C ... +90°C  
Devices with Fail-Short Mechanism: -20°C ... +65°C

Operating temperature:

Devices without Fail-Short Mechanism: -40°C ... +90°C  
Devices with Fail-Short Mechanism: -20°C ... +65°C

Body: Nickel Plated

Leads: Tin Plated



### MATERIALS INFORMATION

RoHS Compliant

ELV Compliant

Directive 2002/95/EC  
Compliant

Directive 2000/53/EC  
Compliant

### DEVICE RATINGS AND CHARACTERISTICS

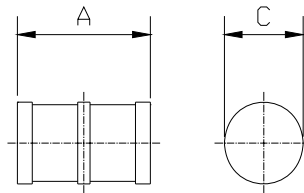
	DC Sparkover Voltage (A-E) (B-E)	Impulse Sparkover Voltage (A-E) (B-E)	Insulation Resistance	Capacitance	DC Holdover Voltage	Impulse Life (A + B - E)	Impulse Discharge Current 8/20µs (A + B - E)	AC Discharge Current, 50Hz (A + B - E)
Part Number	@ 100V/s	@ 1kV/µs	@ 100V <sub>DC</sub>	@ 1MHz	Per ITU K.12	10/1000µs, 200A	Repeat 10 times (5 times each polarity)	Repeat 5 times (1s interval)
GTCN38-231M-P10	Part has been replaced, please use GTCN38-231M-Q10							
GTCN38-231M-P10-FS	Part has been replaced, please use GTCN38-231M-Q10-FS							
GTCR38-231M-P10	Part has been replaced, please use GTCR38-231M-Q10							
GTCR38-231M-P10-FS	184 - 280V	≤ 700V	≥ 10,000MΩ	≤ 3.0pF	≤ 135V	300 times	10kA	10A
GTCN38-251M-P10	Part has been replaced, please use GTCN38-251M-Q10							
GTCN38-251M-P10-FS	Part has been replaced, please use GTCN38-251M-Q10-FS							
GTCR38-251M-P10	Part has been replaced, please use GTCR38-251M-Q10							
GTCR38-251M-P10-FS	200 - 300V	≤ 700V	≥ 10,000MΩ	≤ 3.0pF	≤ 135V	300 times	10kA	10A
GTCN38-351M-P20	Part has been replaced, please use GTCN38-351M-Q20							
GTCN38-351M-P20-FS	Part has been replaced, please use GTCN38-351M-Q20-FS							
GTCR38-351M-P20	Part has been replaced, please use GTCR38-351M-Q20							
GTCR38-351M-P20-FS	280 - 420V	≤ 900V	≥ 10,000MΩ	≤ 3.0pF	≤ 80V	300 times	20kA	20A

## Gas Discharge Tube Three Electrode Series Overvoltage Protection Device

**Raychem Circuit Protection Products**

### DIMENSIONS

No Leads, no Fail-Short mechanism  
 (GTCN38-351M-P20)

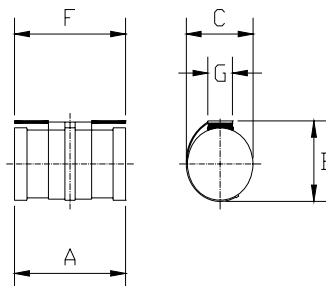


A		C	
MIN	MAX	MIN	MAX
9.7	10.3	7.8	8.2
0.38	0.41	0.31	0.32

mm:  
 in\*:

\* Rounded off approximation

No Leads, with Fail-Short mechanism  
 (GTCN38-351M-P20-FS)



A		B		C		F		G	
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
9.7	10.3	--	9.5	--	8.2	--	10.5	--	3.0
0.38	0.41	--	0.37	--	0.32	--	0.41	--	0.12

mm:  
 in\*:

\* Rounded off approximation

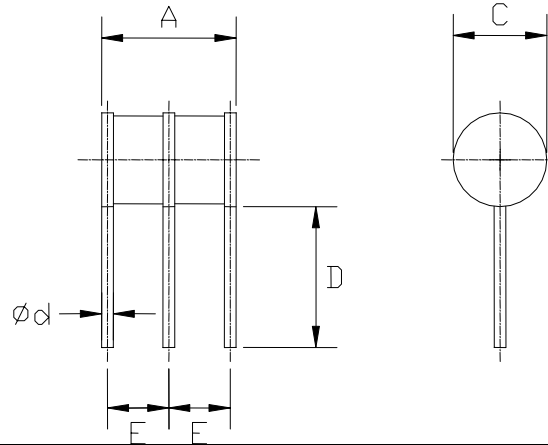
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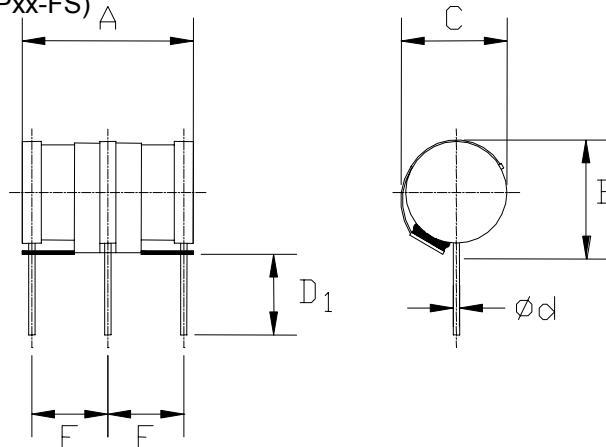
### Radial Leads, no Fail-Short mechanism (GTCR38-351M-P20)



A		C		D		E		Ød	
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	NOM	
mm:	9.7	10.3	7.8	8.2	6.5	7.5	4.1	4.7	1.0
in*:	0.38	0.41	0.31	0.32	0.26	0.30	0.16	0.19	0.04

\* Rounded off approximation

### Radial Leads, with Fail-Short mechanism (GTCR38-xxxx-Pxx-FS)



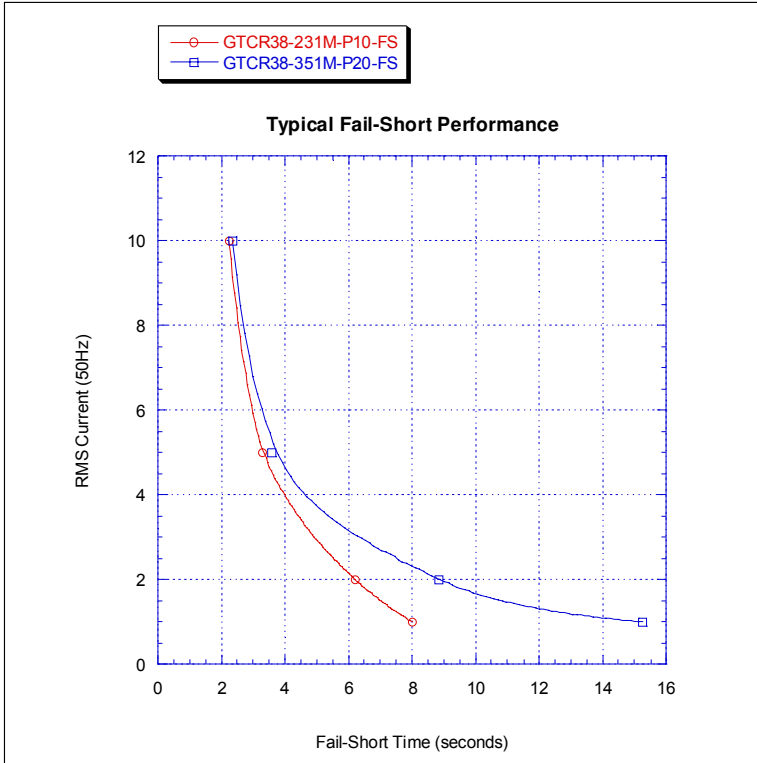
A		B		C		D1		E		Ød	
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	NOM	
mm:	9.7	10.3	--	9.5	--	8.2	6.0	--	4.1	4.7	1.0
in*:	0.38	0.41	--	0.37	--	0.32	0.24	--	0.16	0.19	0.04

• Rounded off approximation

**Gas Discharge Tube  
 Three Electrode Series  
 Overvoltage Protection Device**

*Raychem Circuit Protection Products*

**FAIL-SHORT MECHANISM RESPONSE TIME** (Graph represents typical values)



**Note: Both electrodes simultaneously powered, each with the AC current value in the graph**

**PACKAGING**

Packaging	Bulk* ( vacuum bags)	Tray	Standard Box
Quantity	200	100	1,000**

\* Standard packaging is in trays.  
 Bulk packaging is only available upon request.

\*\* 5 bags or 10 trays

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