

**Specification Status: Released**

**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

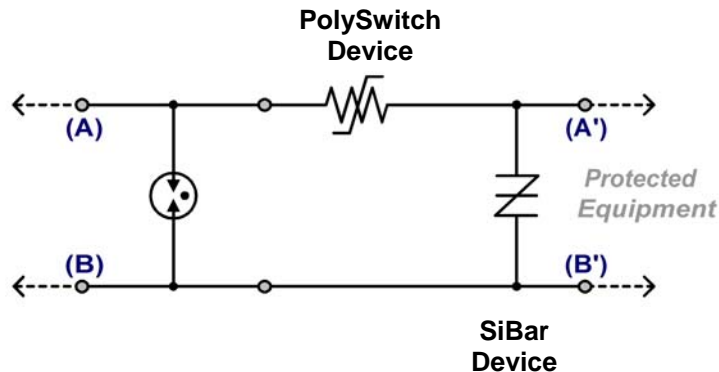
**APPLICATIONS**

- 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 High Surge Two Electrode Series Overvoltage Protection Device

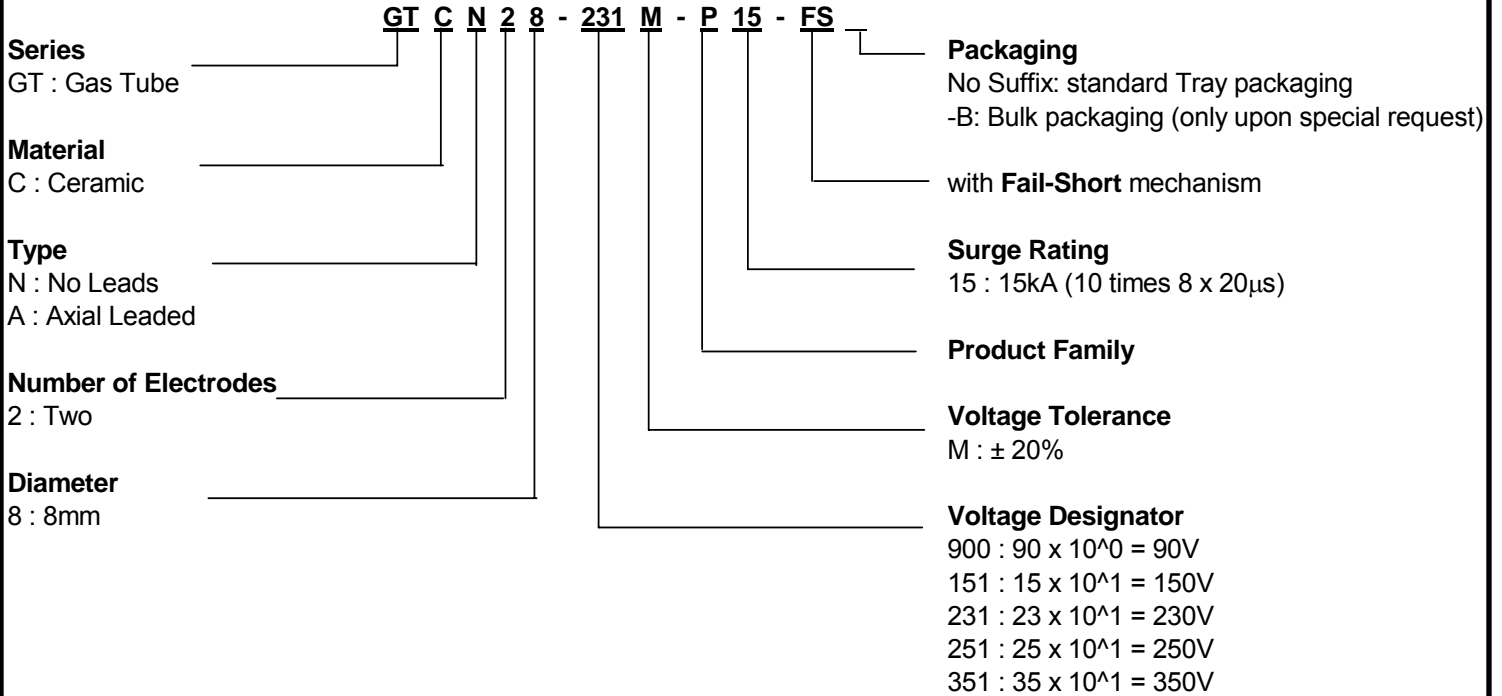
*Raychem Circuit Protection Products*

**PRODUCT: GTCx28-xxxx-P15**

DOCUMENT: SCD 25820  
REV LETTER: C  
REV DATE: MAY 25, 2007  
PAGE NO.: 2 OF 5

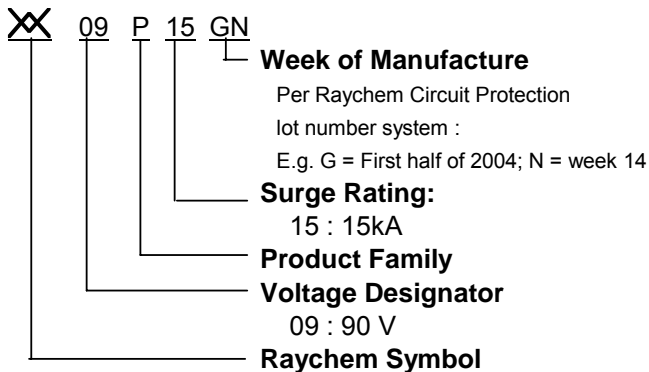
### PART NUMBERING

**EXAMPLE:**



### DEVICE MARKING

**EXAMPLE : GTCN28-900M-P15**



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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



### DEVICE RATINGS AND CHARACTERISTICS

Part Number	DC Sparkover Voltage	Impulse Sparkover Voltage		Insulation Resistance	Capacitance	DC Holdover Voltage	Impulse Life	Impulse Discharge Current 8/20µs		AC Discharge Current, 50Hz	
	@ 100V/s	@ 100V/µs	@ 1kV/µs	@ 100V <sub>DC</sub>	@ 1MHz	Per ITUK.12	10/1000µs, 100A	Single Hit	Repeat 10 times (5 times each polarity)	Single Hit, 9 Cycles	Repeat 10 times (1s interval)
GTCN28-900M-P15 GTCA28-900M-P15	72 - 108V	≤ 450V	≤ 500V	≥ 10,000MΩ <sup>1</sup>	≤ 1.5pF	≤ 52V	300 times	20kA	15kA	90A	20A
GTCN28-151M-P15 GTCA28-151M-P15	120 - 180V	≤ 500V	≤ 600V	≥ 10,000MΩ <sup>1</sup>	≤ 1.5pF	≤ 52V	300 times	20kA	15kA	90A	20A
GTCN28-231M-P15 GTCN28-231M-P15-FS GTCA28-231M-P15	184 - 280V	≤ 600V	≤ 700V	≥ 10,000MΩ	≤ 1.5pF ≤ 3.5pF ≤ 1.5pF	≤ 52V	300 times	20kA	15kA	90A	20A
GTCN28-251M-P15 GTCA28-251M-P15	200 - 300V	≤ 600V	≤ 700V	≥ 10,000MΩ	≤ 1.5pF	≤ 52V	300 times	20kA	15kA	90A	20A
GTCN28-351M-P15 GTCA28-351M-P15	280 - 420V	≤ 700V	≤ 800V	≥ 10,000MΩ	≤ 1.5pF	≤ 52V	300 times	20kA	15kA	90A	20A

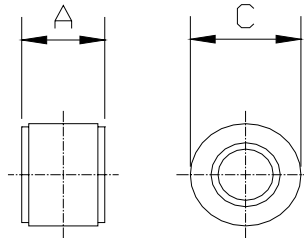
Note 1. Insulation Resistance measured at 50 V<sub>DC</sub>.

**Gas Discharge Tube  
High Surge Two Electrode Series  
Overvoltage Protection Device**

**Raychem Circuit Protection Products**

**DIMENSIONS**

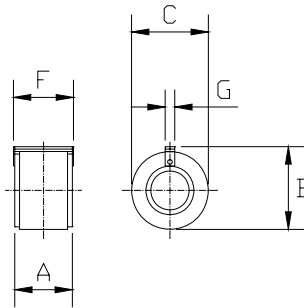
No Leads, no Fail-Short mechanism  
(GTCN28-xxxx-P15)



	A		C	
	MIN	MAX	MIN	MAX
mm:	5.8	6.2	7.8	8.2
in*:	0.23	0.24	0.31	0.32

\*Rounded off approximation

No Leads, with Fail-Short mechanism  
(GTCN28-231M-P15-FS)

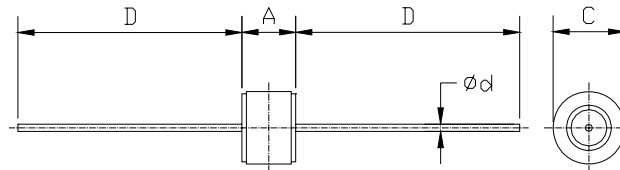


Fail-Short Operation Time  
50Hz 0.7A : 210s  
2.0A : 60s  
7.0A: <1s

	A		B		C		F		G	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
mm:	5.8	6.2	--	9.5	7.8	8.2	--	7.0	--	3.0
in*:	0.23	0.24	--	0.37	0.31	0.32	--	0.28	--	0.12

\*Rounded off approximation

Axial Leads, no Fail-Short mechanism  
(GTCA28-xxxx-P15)



	A		C		D		$\varnothing d$
	MIN	MAX	MIN	MAX	MIN	MAX	NOM
mm:	5.8	6.2	7.8	8.2	28.0	32.0	1.0
in*:	0.23	0.24	0.31	0.32	1.10	1.26	0.04

\*Rounded off approximation



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**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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