



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**

**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

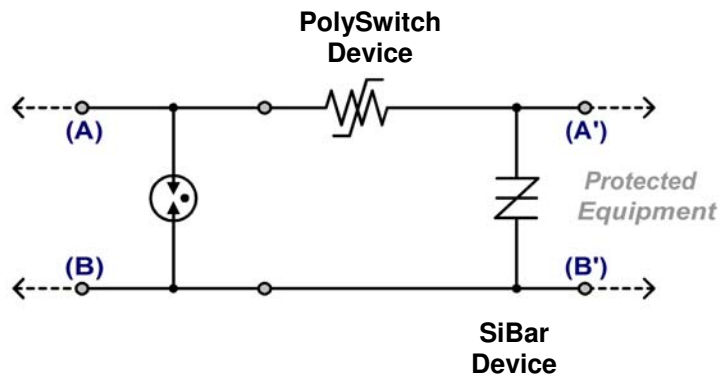
**APPLICATIONS**

- 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

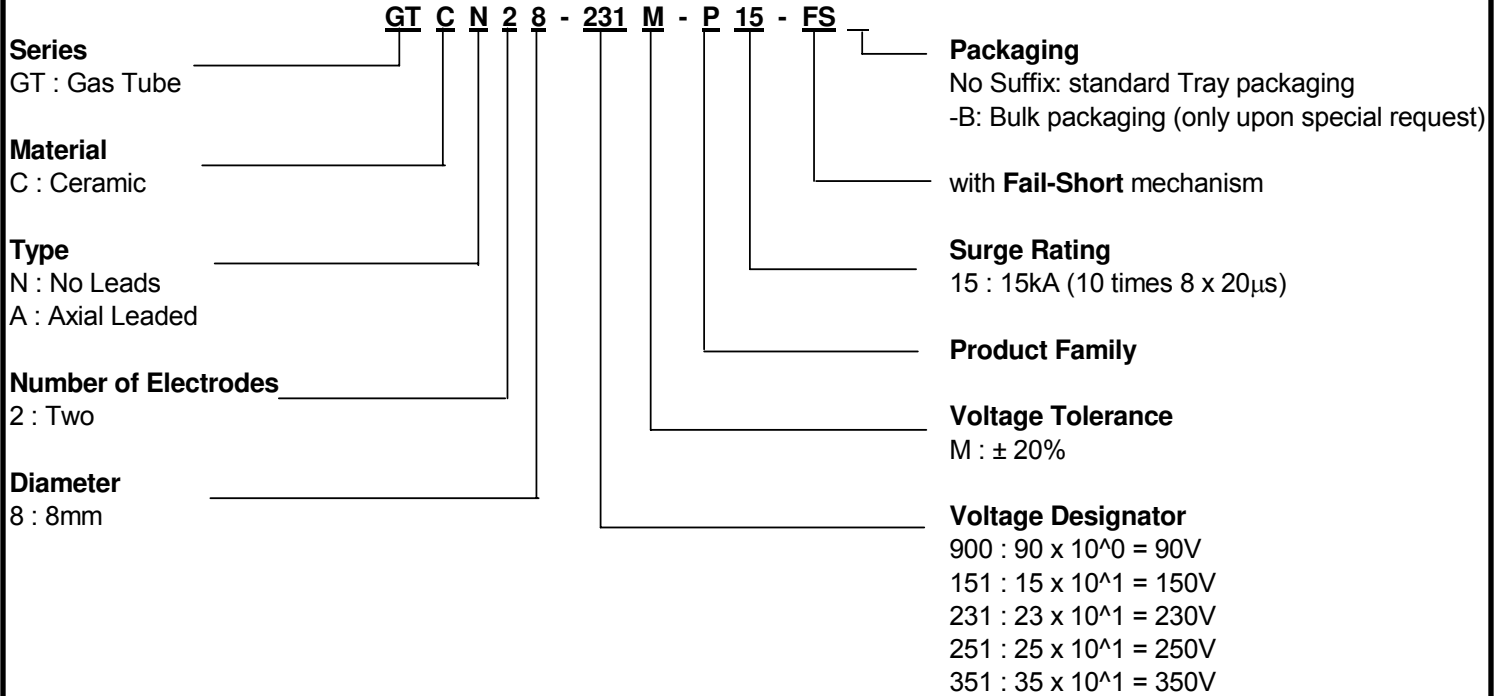
*Raychem Circuit Protection Products*

**PRODUCT: GTCx28-xxxx-P15**

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

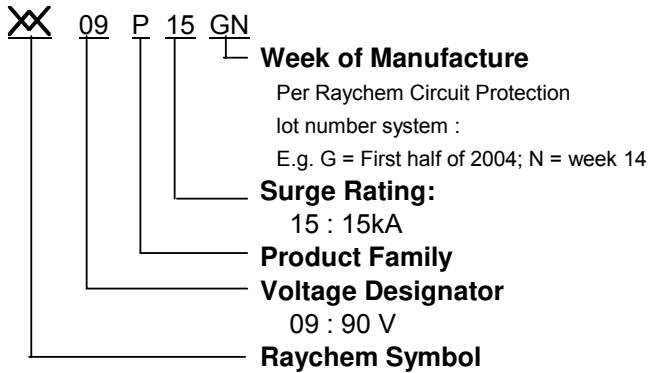
### PART NUMBERING

**EXAMPLE:**



### DEVICE MARKING

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



## 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.: 3 OF 5

### 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

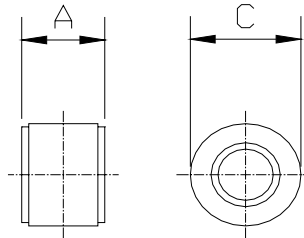
Note 1. Insulation Resistance measured at 50 V<sub>DC</sub>.

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

**Raychem Circuit Protection Products**

### DIMENSIONS

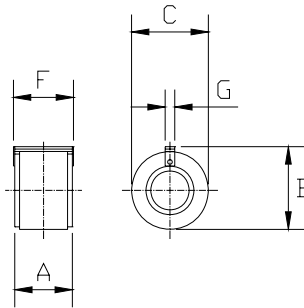
No Leads, no Fail-Short mechanism  
(GTCN28-xxxx-P15)



	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)

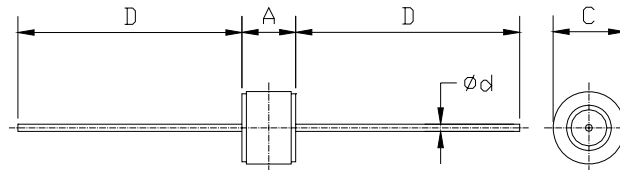


Fail-Short Operation Time  
50Hz 0.7A : 210s  
2.0A : 60s  
7.0A: <1s

	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		ød
	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



308 Constitution Drive  
Menlo Park, CA 94025-1164  
Phone: 800-227-4856  
www.circuitprotection.com

## 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.: 5 OF 5

### 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

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of each product for their applications. Tyco Electronics Corporation assumes no responsibility for the use of its product or for any infringement of patents or other rights of third parties resulting from the use of its product. No license is granted by implication or otherwise under any patent or proprietary right of Tyco Electronics except the right to use such product for the purpose for which it is sold. 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' 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.