

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

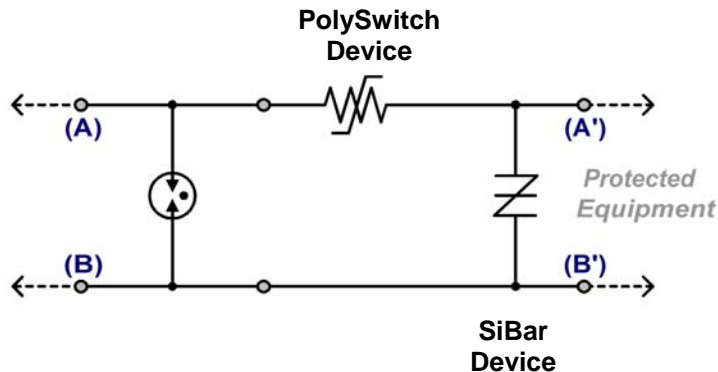
APPLICATIONS

- 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

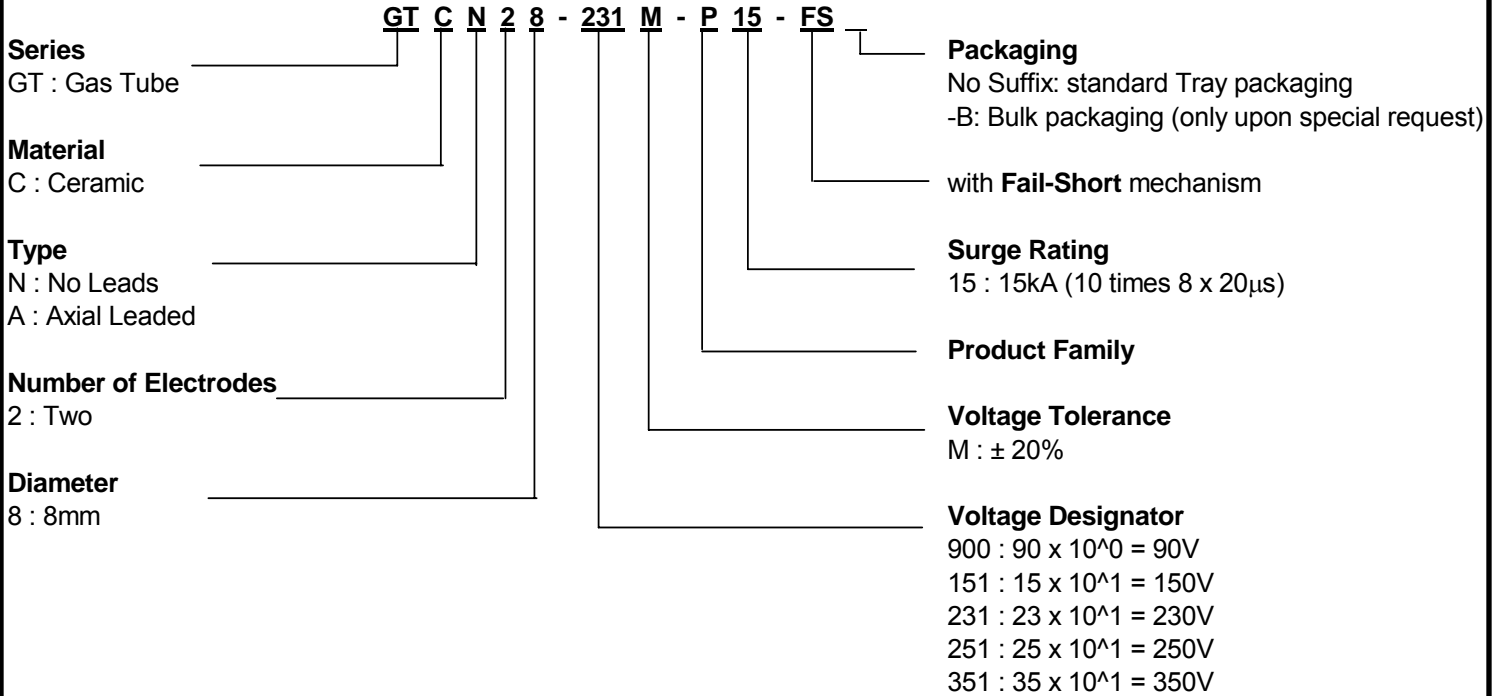
Raychem Circuit Protection Products

PRODUCT: GTCx28-xxxx-P15

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

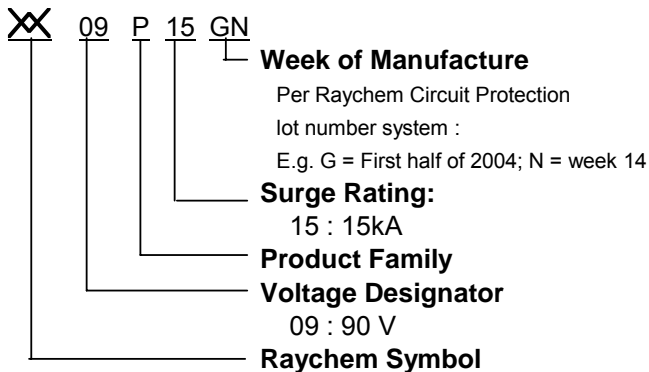
PART NUMBERING

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 _{DC} | @ 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 ¹ | ≤ 1.5pF | ≤ 52V | 300 times | 20kA | 15kA | 90A | 20A |
| GTCN28-151M-P15 GTCA28-151M-P15 | 120 - 180V | ≤ 500V | ≤ 600V | ≥ 10,000MΩ ¹ | ≤ 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 |

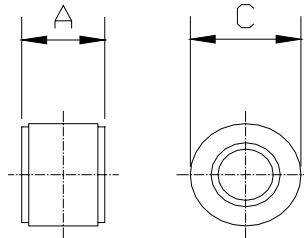
Note 1. Insulation Resistance measured at 50 V_{DC}.

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

Raychem Circuit Protection Products

DIMENSIONS

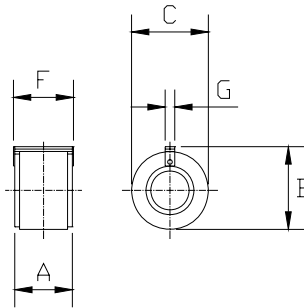
No Leads, no Fail-Short mechanism
(GTCN28-xxxx-P15)



| | 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)

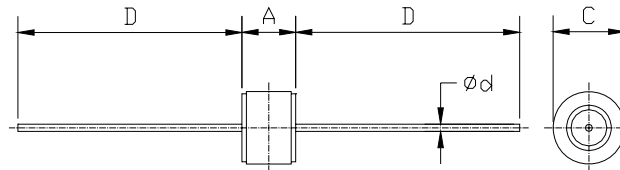


Fail-Short Operation Time
50Hz 0.7A : 210s
2.0A : 60s
7.0A: <1s

| | 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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