

# Gas Discharge Tube

## GTCx28-xxxx-P15

### High Surge Two Electrode Series

www.tycopowercomponents.com

Document: SCD 25820  
Status: Released  
Rev. B Date: August 6, 2004

#### 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

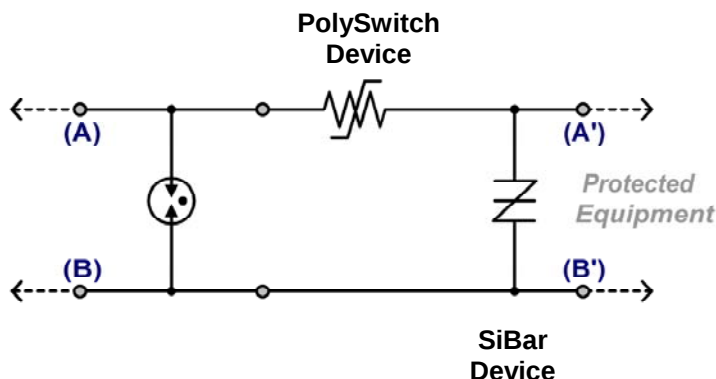
#### APPLICATIONS

- 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

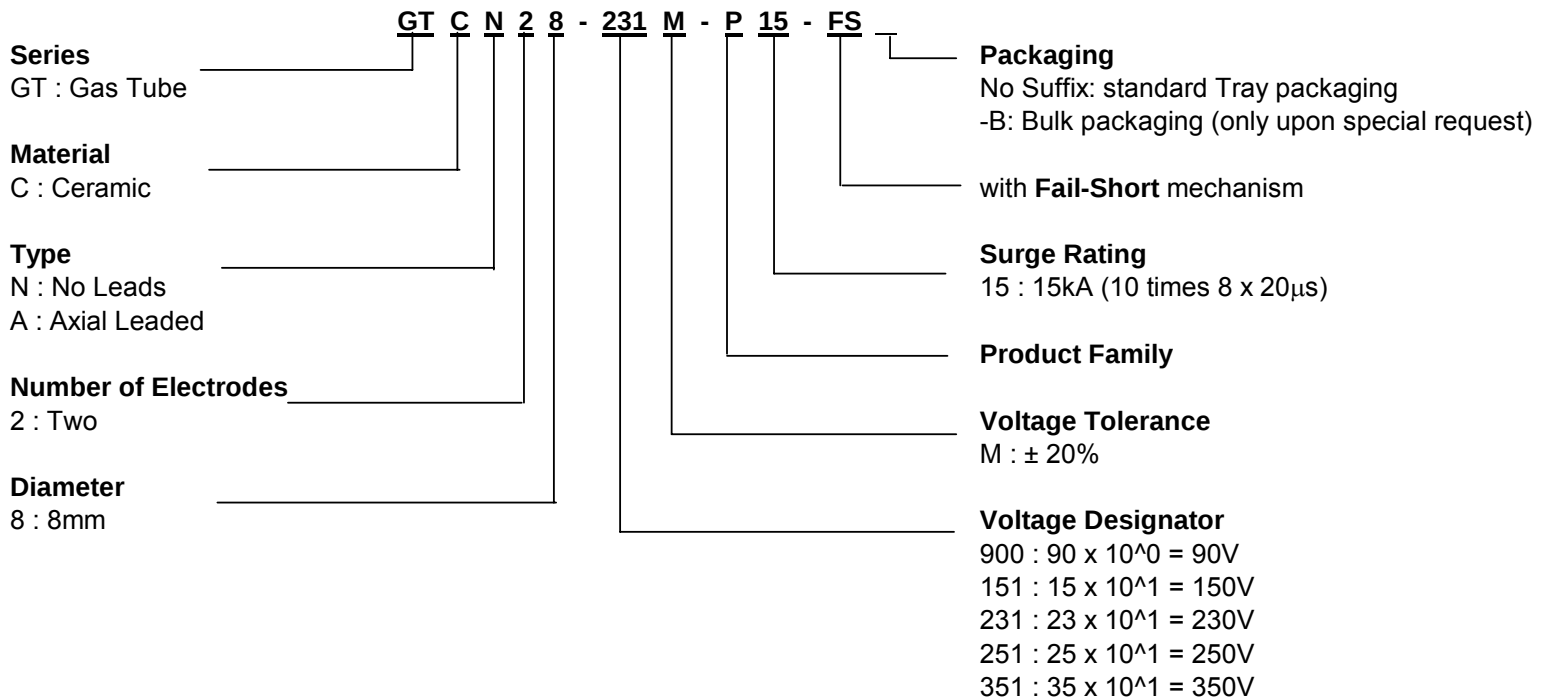
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#### PART NUMBERING

##### EXAMPLE:



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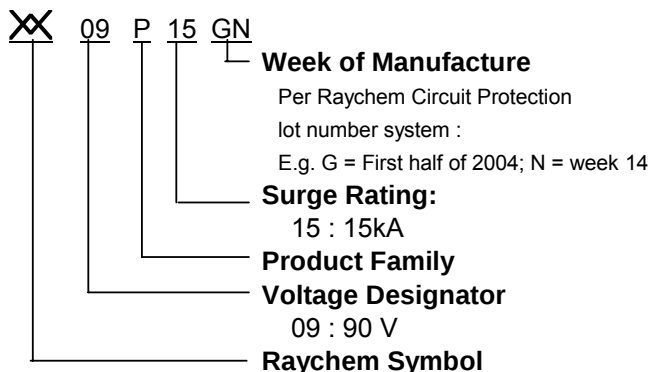
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#### DEVICE MARKING

EXAMPLE : GTCN28-900M-P15



#### 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<br>GTCA28-900M-P15                       | 72 - 108V            | ≤ 450V                    | ≤ 500V   | ≥ 10,000MΩ <sup>1</sup> | ≤ 1.5pF                       | ≤ 52V               | 300 times       | 20kA                             | 15kA                                    | 90A                        | 20A                           |
| GTCN28-151M-P15<br>GTCA28-151M-P15                       | 120 - 180V           | ≤ 500V                    | ≤ 600V   | ≥ 10,000MΩ <sup>1</sup> | ≤ 1.5pF                       | ≤ 52V               | 300 times       | 20kA                             | 15kA                                    | 90A                        | 20A                           |
| GTCN28-231M-P15<br>GTCN28-231M-P15-FS<br>GTCA28-231M-P15 | 184 - 280V           | ≤ 600V                    | ≤ 700V   | ≥ 10,000MΩ              | ≤ 1.5pF<br>≤ 3.5pF<br>≤ 1.5pF | ≤ 52V               | 300 times       | 20kA                             | 15kA                                    | 90A                        | 20A                           |
| GTCN28-251M-P15<br>GTCA28-251M-P15                       | 200 - 300V           | ≤ 600V                    | ≤ 700V   | ≥ 10,000MΩ              | ≤ 1.5pF                       | ≤ 52V               | 300 times       | 20kA                             | 15kA                                    | 90A                        | 20A                           |
| GTCN28-351M-P15<br>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>.

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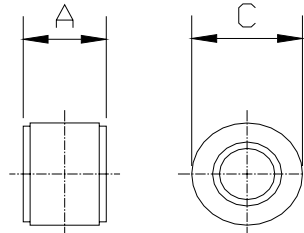
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#### DIMENSIONS

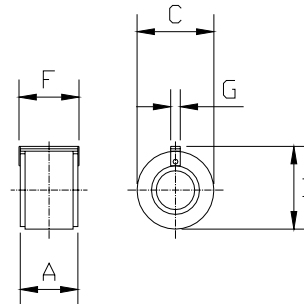
No Leads, no Fail-Short mechanism  
(GTCN28-xxxx-P15)



|      | 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)

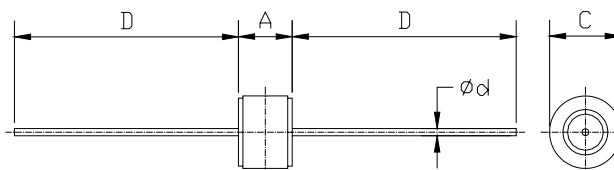


Fail-Short Operation Time  
50Hz 0.7A : 210s  
2.0A : 60s  
7.0A: <1s

|      | 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



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#### PACKAGING

| Packaging | Bulk*<br>( 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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