



**THE DATASHEET OF  
GTCR36-900M-R10**





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

## Gas Discharge Tube Miniature Three Electrode Overvoltage Protection Device

Raychem Circuit Protection Products

PRODUCT: GTCx36

DOCUMENT: SCD 25815  
REV LETTER: E1  
REV DATE: 15-Apr-11  
PAGE NO.: 1 OF 6

# Specification Status: Released

## BENEFITS

- Helps provide overvoltage fault protection against high energy surges
- Suitable for sensitive equipment due to excellent impulse spark over 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

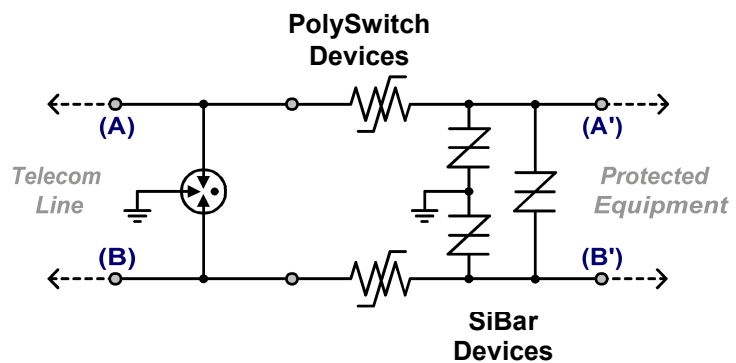
## APPLICATIONS

- 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





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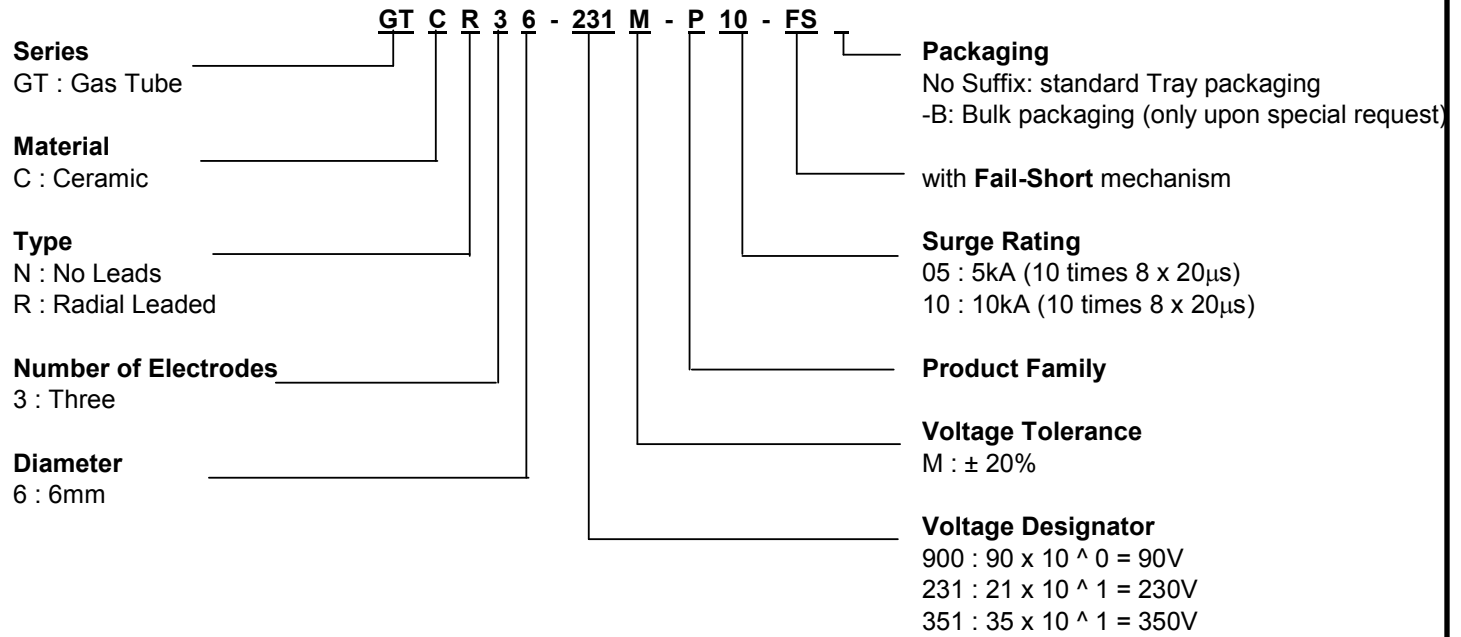
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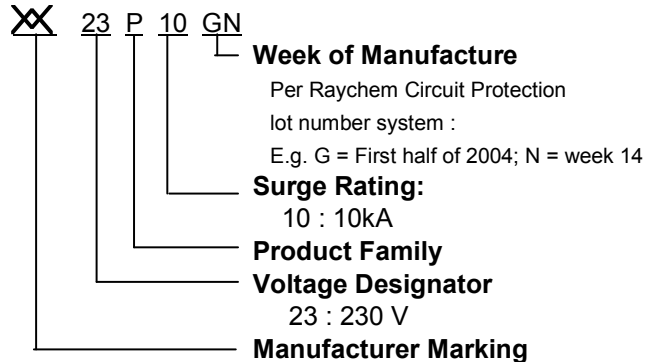
### PART NUMBERING

**EXAMPLE:**



### DEVICE MARKING

**EXAMPLE : GTCR36-231M-P10**





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### GENERAL CHARACTERISTICS

No Radioactive Materials

Storage temperature:

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

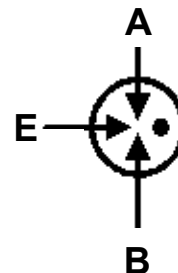
Operating temperature:

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

Body: Nickel Plated

Leads: Tin Plated

UL 497B Pending



### MATERIALS INFORMATION

RoHS Compliant

ELV Compliant

Directive 2002/95/EC  
Compliant

Directive 2000/53/EC  
Compliant

### DEVICE RATINGS AND CHARACTERISTICS

Part Number	DC Spark over Voltage (A-E) (B-E) @ 100V/s	Impulse Spark over Voltage (A-E) (B-E) @1kV/μs	Insulation Resistance @100V <sub>DC</sub>	Capacitance @ 1MHz	DC Holdover Voltage Per ITU K.12	Impulse Life (A+B-E) 10/1000μs, 100A	Impulse Discharge Current 8/20μs (A+B-E) Repeat 10 times (5 times each polarity)	AC Discharge Current, 50 Hz (A+B-E) Repeat 5 times (1s interval)
GTCN36-900M-P05 GTCR36-900M-P05 GTCR36-900M-P05-FS	90V ± 20%	≤ 850V	≥ 10,000MΩ <sup>1</sup>	≤ 3.0pF	≤ 52V	300times	5kA	5A
GTCN36-231M-P10 GTCR36-231M-P10 GTCR36-231M-P10-FS	230V ± 20%	≤ 700V	≥ 10,000MΩ	≤ 3.0pF	≤ 135V	300 times	10kA	10A
GTCN36-351M-P05 GTCR36-351M-P05 GTCR36-351M-P05-FS	350V ± 20%	≤ 750V	≥ 10,000MΩ	≤ 3.0pF	≤ 150V	300 times	5kA	5A

Note 1. Measured at 50V<sub>DC</sub>



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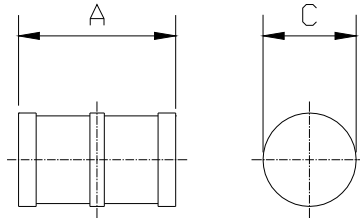
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### DIMENSIONS

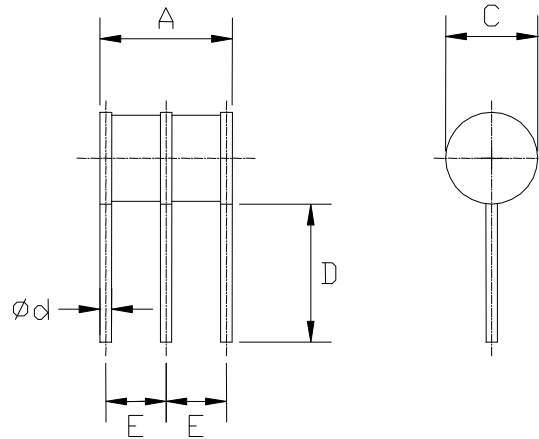
No Leads, no Fail-Short mechanism  
 (GTCN36)



	A		C	
	MIN	MAX	MIN	MAX
mm:	8.3	8.9	5.8	6.2
in*:	0.33	0.35	0.23	0.25

\*Rounded off approximation

Radial Leads, no Fail-Short mechanism  
 (GTCR36)



	A		C		D		E		Ød
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	NOM
mm:	8.3	8.9	5.8	6.2	6.5	7.5	3.5	4.1	0.8
in*:	0.33	0.35	0.23	0.25	0.26	0.30	0.14	0.16	0.03

\* Rounded off approximation



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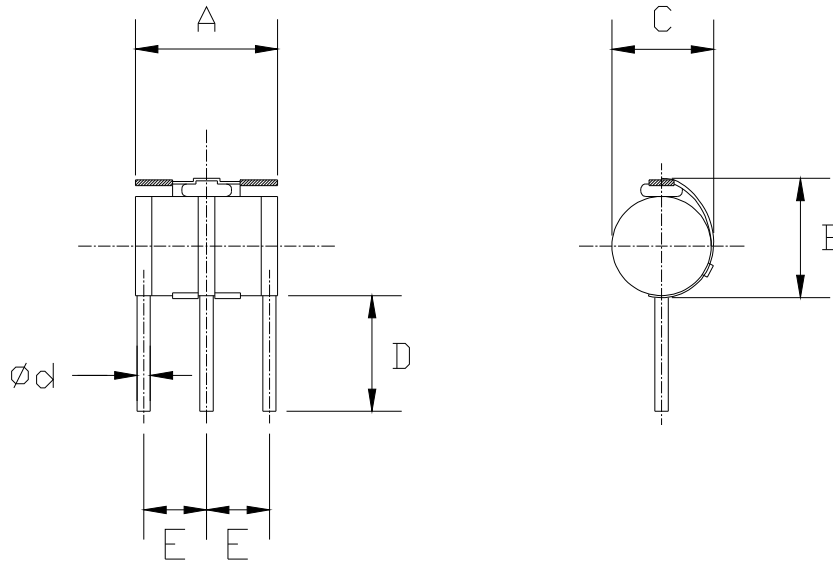
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Radial Leads, with Fail-Short mechanism  
 (GTCR36-xxxM-Pxx-FS)



A		B		C		D		E		∅d	
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	NOM	
mm:	8.3	8.9	--	7.7	--	6.5	6.5	7.5	3.5	4.1	0.8
in*:	0.33	0.35	--	0.30	--	0.26	0.26	0.30	0.14	0.16	0.03

\* Rounded off approximation



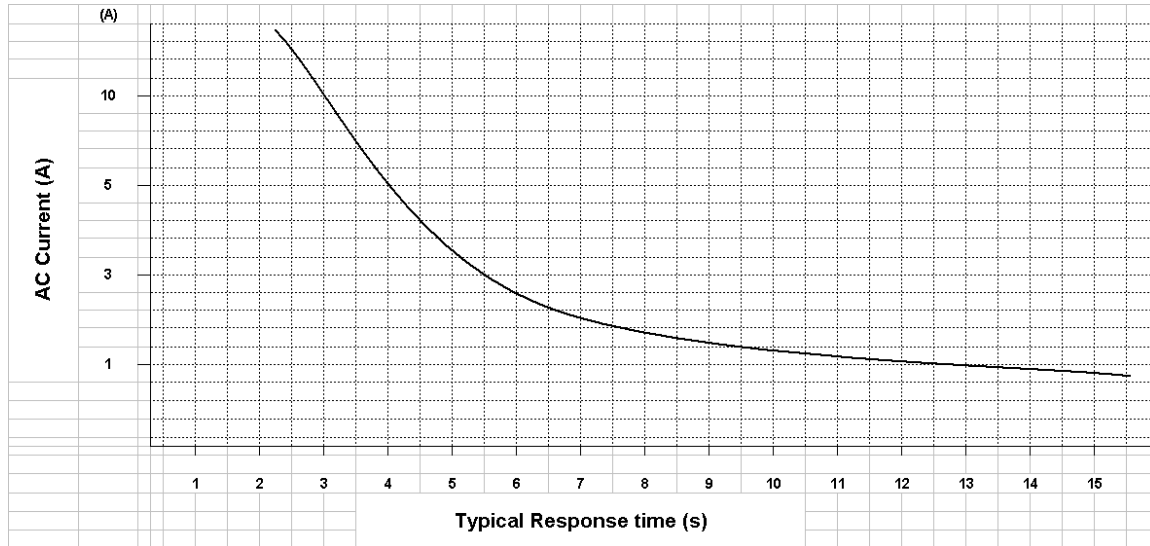
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**FAIL-SHORT MECHANISM RESPONSE TIME** (Graph represents typical values)



**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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-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management