

**Gas Discharge Tube
Miniature Three Electrode
Overvoltage Protection Device**

Raychem Circuit Protection Products

PRODUCT: GTCx36

DOCUMENT: SCD 25815
REV LETTER: E
REV DATE: JULY 7, 2008
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 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

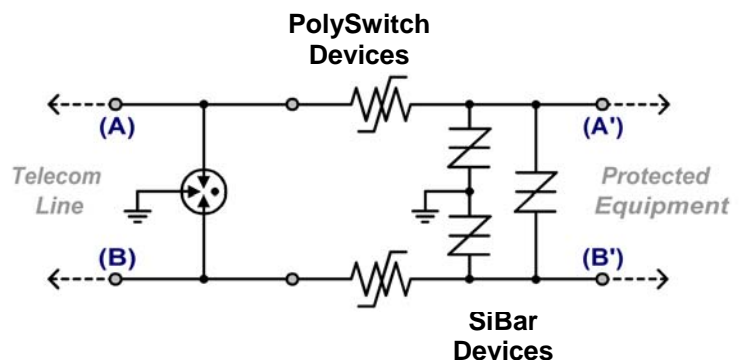
APPLICATIONS

- 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 Miniature Three Electrode Overvoltage Protection Device

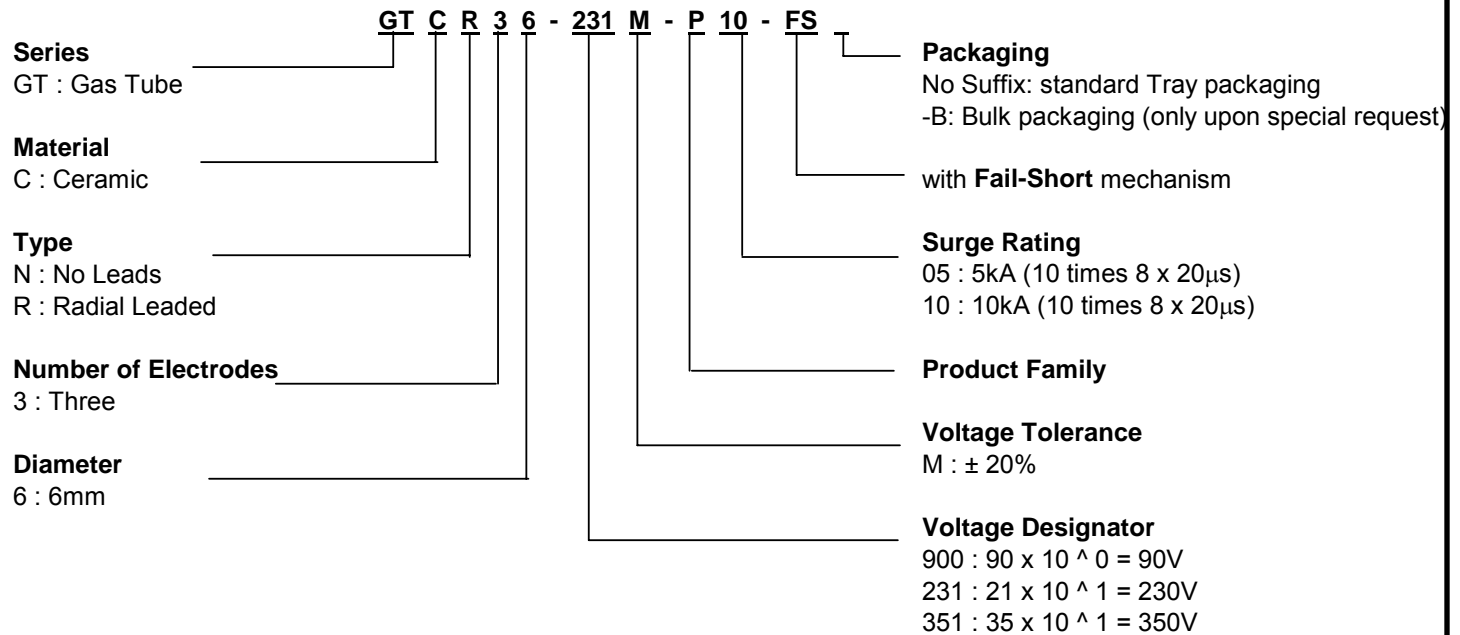
Raychem Circuit Protection Products

PRODUCT: GTCx36

DOCUMENT: SCD 25815
REV LETTER: E
REV DATE: JULY 7, 2008
PAGE NO.: 2 OF 6

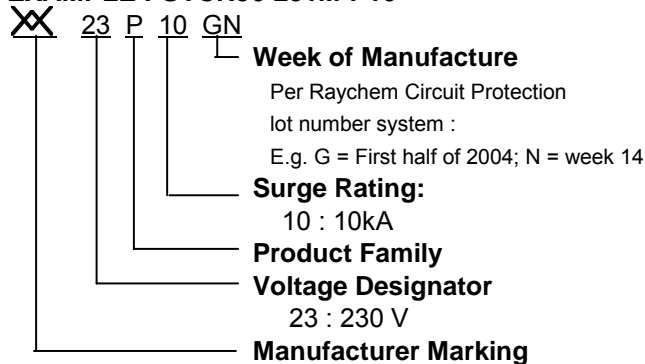
PART NUMBERING

EXAMPLE:



DEVICE MARKING

EXAMPLE : GTCR36-231M-P10



Gas Discharge Tube Miniature Three Electrode Overvoltage Protection Device

Raychem Circuit Protection Products

PRODUCT: GTCx36

DOCUMENT: SCD 25815
REV LETTER: E
REV DATE: JULY 7, 2008
PAGE NO.: 3 OF 6

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:

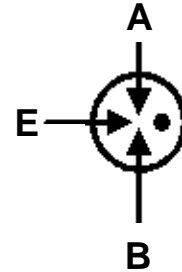
Devices without Fail-Short mechanism: -40°C ... +90°C

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

	DC Sparkover Voltage (A-E) (B-E)	Impulse Sparkover Voltage (A-E) (B-E)	Insulation Resistance	Capacitance	DC Holdover Voltage	Impulse Life (A+B-E)	Impulse Discharge Current 8/20µs (A+B-E)	AC Discharge Current, 50 Hz (A+B-E)
Part Number	@ 100V/s	@1kV/µs	@100V _{DC}	@ 1MHz	Per ITU K.12	10/1000µs, 100A	Repeat 10 times (5 times each polarity)	Repeat 5 times (1s interval)
GTCN36-900M-P05 GTCR36-900M-P05 GTCR36-900M-P05-FS	90V ± 20%	≤ 850V	≥ 10,000MΩ ¹	≤ 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

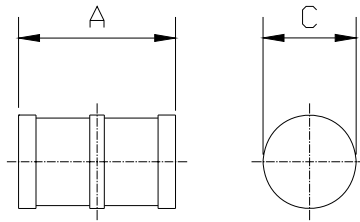
Note 1. Measured at 50V_{DC}

**Gas Discharge Tube
 Miniature Three Electrode
 Overvoltage Protection Device**

Raychem Circuit Protection Products

DIMENSIONS

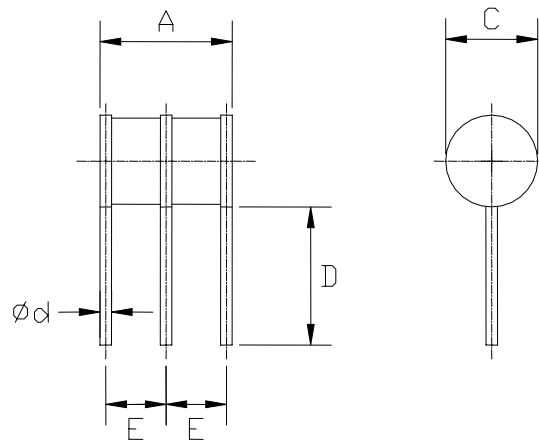
No Leads, no Fail-Short mechanism
 (GTCN36)



	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)



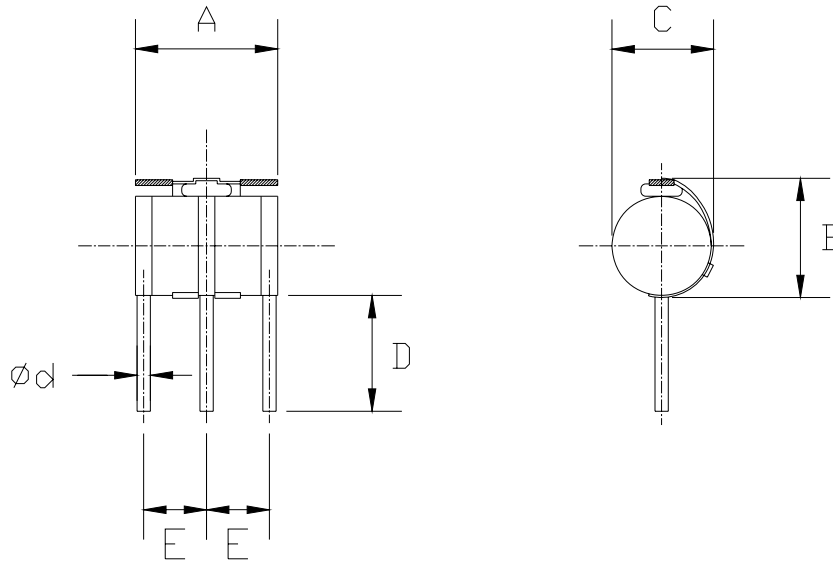
	A		C		D		E		ϕd
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	NOM
mm:	8.3	8.9	5.8	6.2	6.5	7.5	3.5	4.1	0.8
in*:	0.33	0.35	0.23	0.25	0.26	0.30	0.14	0.16	0.03

* Rounded off approximation

**Gas Discharge Tube
 Miniature Three Electrode
 Overvoltage Protection Device**

Raychem Circuit Protection Products

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



A		B		C		D		E		Ød	
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

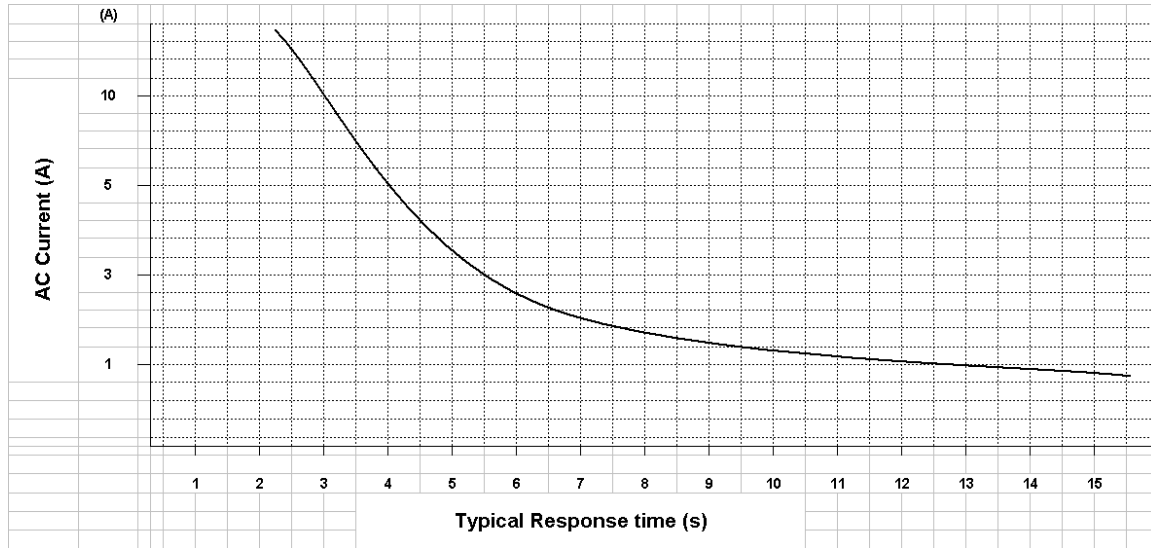
Gas Discharge Tube Miniature Three Electrode Overvoltage Protection Device

Raychem Circuit Protection Products

PRODUCT: GTCx36

DOCUMENT: SCD 25815
REV LETTER: E
REV DATE: JULY 7, 2008
PAGE NO.: 6 OF 6

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

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.