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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!



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**Gas Discharge Tube
Three Electrode Q Series
Overvoltage Protection Device**

Raychem Circuit Protection Products

PRODUCT: GTCx38-xxxx-Q10

DOCUMENT: SCD 25913
REV LETTER: D
REV DATE: JULY 7, 2008
PAGE NO.: 1 OF 7

Specification Status: Released

GENERAL DESCRIPTION

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

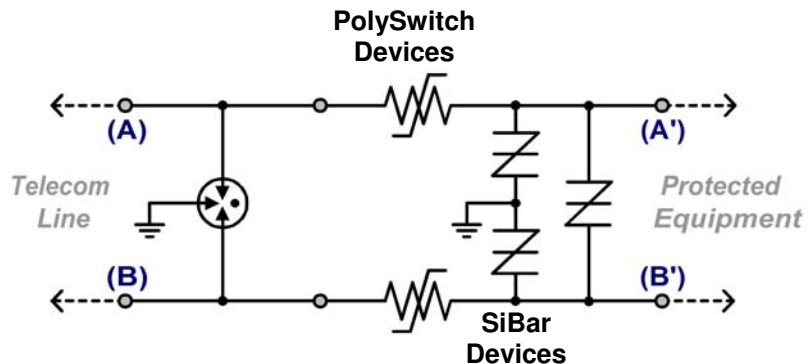
APPLICATIONS

- 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



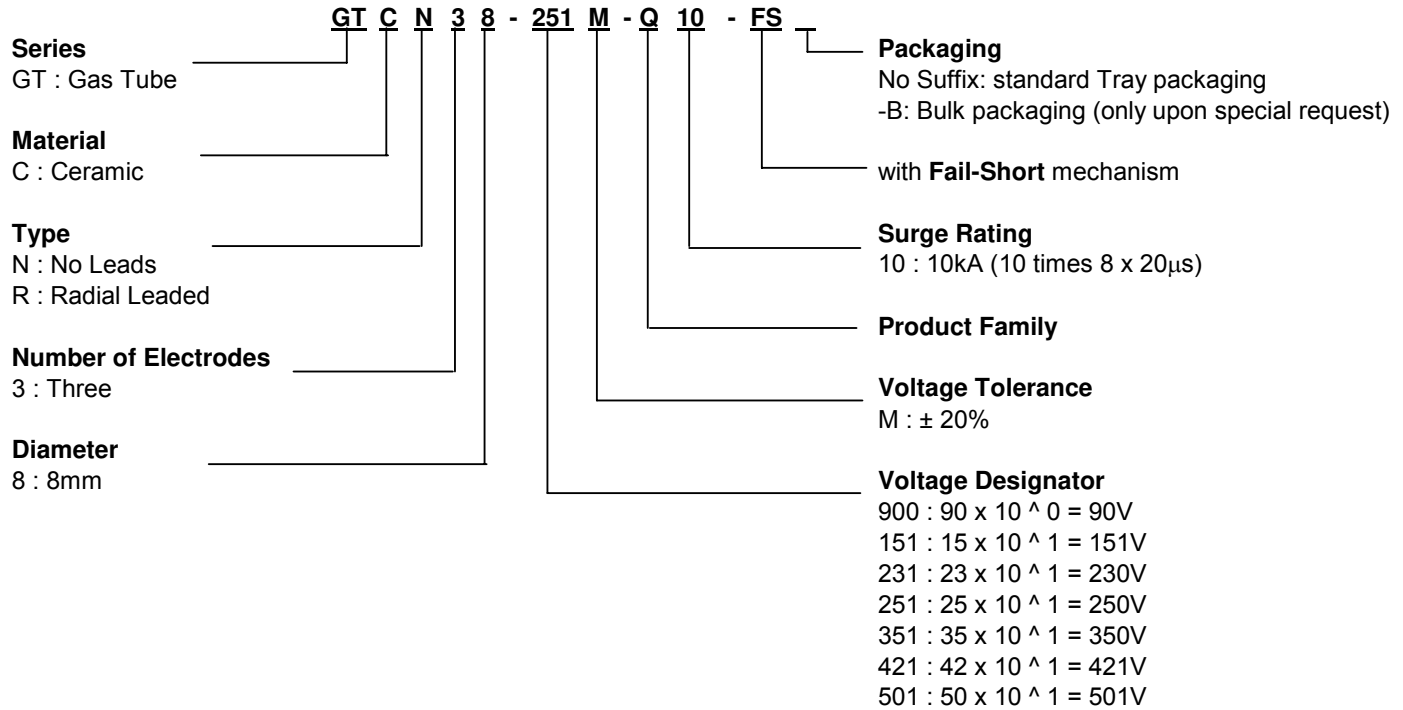
Gas Discharge Tube Three Electrode Q Series

Overvoltage Protection Device

Raychem Circuit Protection Products

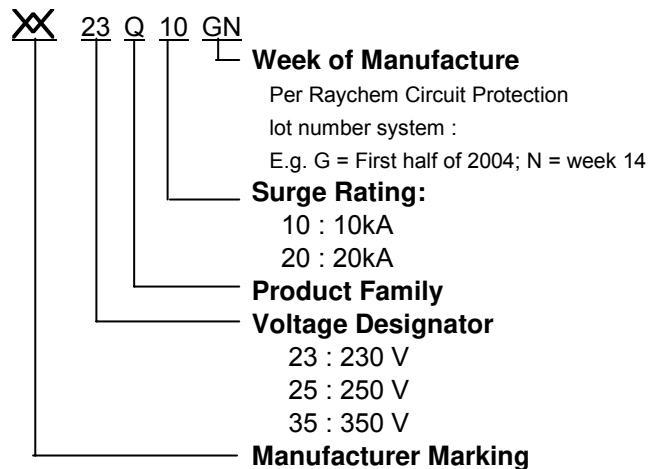
PART NUMBERING

EXAMPLE:



DEVICE MARKING

EXAMPLE : GTCR38-231M-Q10



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GENERAL CHARACTERISTICS

No Radioactive Material

Storage temperature:

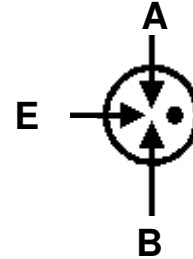
Devices without Fail-Short Mechanism: -40°C ... +90°C
Devices with Fail-Short Mechanism: -20°C ... +65°C

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



MATERIALS INFORMATION

ROHS Compliant

ELV Compliant

**Directive 2002/95/EC
Compliant**

**Directive 2000/53/EC
Compliant**

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DEVICE RATINGS AND CHARACTERISTICS

Part Number	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 8/20 μ s (A + B - E)	AC Discharge Current, 50Hz (A + B - E)
	@ 100V/s	@ 100V/ μ s	@ 1kV/ μ s	@ 100V _{DC}	@ 1MHz	Per ITU K.12	10/1000 μ s, 200A	Repeat 10 times (5 times each polarity)	Repeat 5 times (1s interval)
GTCN38-900M-Q10 GTCN38-900M-Q10-FS GTCR38-900M-Q10 GTCR38-900M-Q10-FS	72-108	≤ 450	$\leq 500V$	$\geq 10,000M\Omega$	$\leq 3.0pF$	$\leq 52V$	300 times	10kA	10A
GTCN38-151M-Q10 GTCN38-151M-Q10-FS GTCR38-151M-Q10 GTCR38-151M-Q10-FS	120 - 180	≤ 500	≤ 600	$\geq 10,000M\Omega$	$\leq 3.0pF$	$\leq 52V$	300 times	10kA	10A
GTCN38-231M-Q10 GTCN38-231M-Q10-FS GTCR38-231M-Q10 GTCR38-231M-Q10-FS	184 - 280V	≤ 600	$\leq 700V$	$\geq 10,000M\Omega$	$\leq 3.0pF$	$\leq 135V$	300 times	10kA	10A
GTCN38-251M-Q10 GTCN38-251M-Q10-FS GTCR38-251M-Q10 GTCR38-251M-Q10-FS	200 - 300V	≤ 600	$\leq 700V$	$\geq 10,000M\Omega$	$\leq 3.0pF$	$\leq 135V$	300 times	10kA	10A
GTCN38-351M-Q10 GTCN38-351M-Q10-FS GTCR38-351M-Q10 GTCR38-351M-Q10-FS	280 - 420V	≤ 900	$\leq 900V$	$\geq 10,000M\Omega$	$\leq 3.0pF$	$\leq 135V$	300 times	10kA	10A
GTCN38-421M-Q10 GTCN38-421M-Q10-FS GTCR38-421M-Q10 GTCR38-421M-Q10-FS	300 - 500	≤ 900	≤ 1000	$\geq 10,000M\Omega$	$\leq 3.0pF$	$\leq 135V$	300 times	10kA	10A
GTCN38-501M-Q10 GTCN38-501M-Q10-FS GTCR38-501M-Q10 GTCR38-501M-Q10-FS	400 - 600	≤ 1100	≤ 1200	$\geq 10,000M\Omega$	$\leq 3.0pF$	$\leq 135V$	300 times	10kA	10A

Gas Discharge Tube Three Electrode Q Series

Overvoltage Protection Device

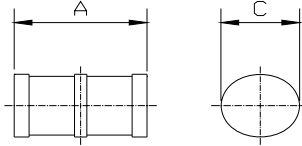
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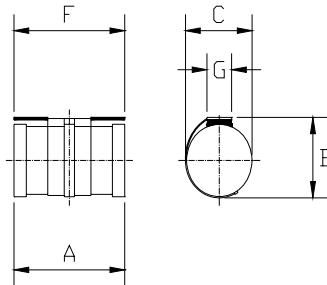
DIMENSIONS

No Leads, no Fail-Short mechanism
(GTCN38-xxxx-Q10)



		A		C	
		MIN	MAX	MIN	MAX
mm:		9.7	10.3	7.8	8.2
in*:		0.38	0.41	0.31	0.32

No Leads, with Fail-Short mechanism
(GTCN38-xxxx-10-FS)



		A		B		C		F		G	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
mm:		9.7	10.3	--	9.5	--	8.2	--	10.5	--	3.0
in*:		0.38	0.41	--	0.37	--	0.32	--	0.41	--	0.12

- Rounded off approximation

* R

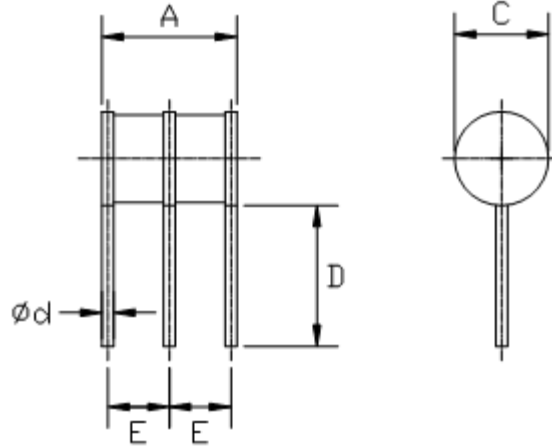
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Radial Leads, no Fail-Short mechanism
(GTCR38-xxxx-Q10)

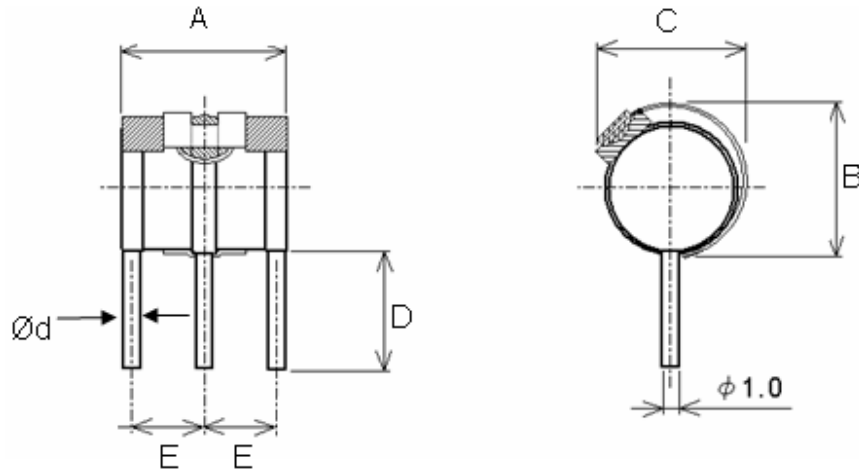


mm:
in*:

A		C		D		E		Ød
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	NOM
9.7	10.3	7.8	8.2	6.5	7.5	4.1	4.7	1.0
0.38	0.41	0.31	0.32	0.26	0.30	0.16	0.19	0.04

* Rounded off approximation

Radial Leads, with Fail-Short mechanism
(GTCR38-xxxxQ10-FS)



mm:
in*:

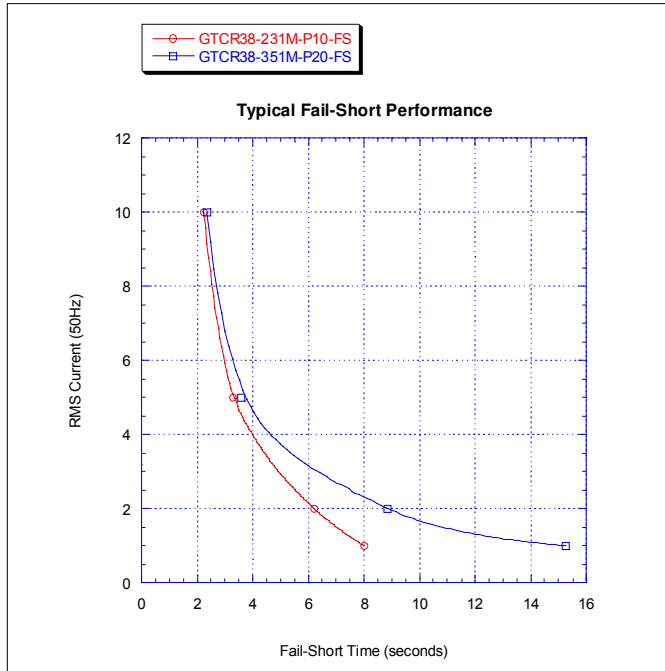
A		B		C		D		E		Ød
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	NOM
9.7	10.3	--	9.5	--	8.5	6.0	--	4.1	4.7	1.0
0.38	0.41	--	0.37	--	0.34	0.24	--	0.16	0.19	0.04

* 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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