

CG10 Series

Gas Discharge Tubes



Description

Littelfuse's highly reliable CG10 Series GDTs provide a high surge capability in a small size ideal for board level circuit protection. GDTs function as switches which dissipate a minimum amount of energy and therefore handle currents that far surpass other types of transient voltage protection. Their gas-filled, rugged ceramic metal construction make them well suited to adverse environments.

The CG10 series comes different forms including surface mount, straight leads, to serve a variety of mounting methods.

Features

- High surge current rating
- Rugged ceramic-metal construction
- Low Capacitance (<1.0 pf)
- High operating temperature up to 125 °C
- Available in surface mount, and straight leads options
- RoHS Compliant and Lead-free

Applications

- Communication lines and equipment
- CATV equipment
- Test equipment
- Data lines
- Power supplies
- Instrumentation circuits
- Medical electronics
- ADSL equipment
- Telecom SLIC protection
- Alarm system

Web Resources



Download ECAD models, order samples, and find technical resources at www.littelfuse.com

Agency Approvals

Agency	Agency File Number
	E1286621
	E320116 ²

Notes:
 1. Certified to UL 497B.
 2. Certified to UL 1449.

Two Electrode GDT Graphical Symbol



Electrical Characteristics

Part Number	Device Specifications (at 25 °C)						Life Rating					
	DC Breakdown in Volts (@100 V/s)			Impulse Break-down In Volts (@100 V/μs)	Impulse Break-down In Volts (@1 kV/μs)	Insulation Resistance	Capacitance (@1 MHz)	Arc Voltage (on state Voltage) @1Amp Min	Surge Life (@100A 10/1000μs)	Nominal Impulse Discharge Current (8/20μs)	Nominal AC Discharge Current (10x1sec @50Hz)	Max Impulse Discharge Current (1 Application @ 10/350 μs)
	MIN	TYP	MAX			MIN	TYP					
CG1090	72	90	108	500	600		<1 pF	10 V	300 shots	10 shots (@20 kA)	10 A	2.5 kA
CG10230	184	230	276	550	650	10 ¹⁰ Ω at 50VDC	<1 pF	10 V	300 shots	10 shots (@20 kA)	20 A	2.5 kA
CG10350	280	350	420	700	900		<1 pF	10 V	300 shots	10 shots (@20 kA)	20 A	2.5 kA
CG10470	376	470	564	1000	1100	10 ⁹ Ω at 100VDC	<1 pF	10 V	300 shots	10 shots (@20 kA)	20 A	2.5 kA
CG10600	480	600	720	1100	1400	10 ¹⁰ Ω at 100VDC	<1 pF	10 V	300 shots	10 shots (@20 kA)	20 A	2.5 kA
CG10800	640	800	960	1300	1500	10 ¹⁰ Ω at 100VDC	<1 pF	10 V	300 shots	10 shots (@20 kA)	20 A	1.5 kA
CG101000	800	1000	1200	1400	1500	10 ⁹ Ω at 100VDC	<1 pF	30 V	–	10 shots (@10 kA), 1 shot (@15 kA)	10 A	–

CG10 Series

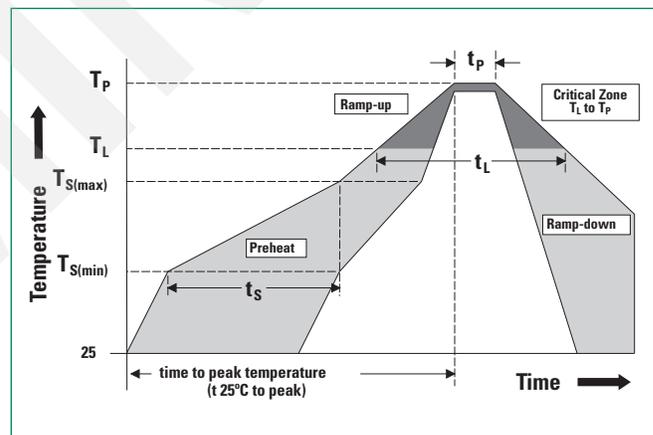
Gas Discharge Tubes

Product Characteristics

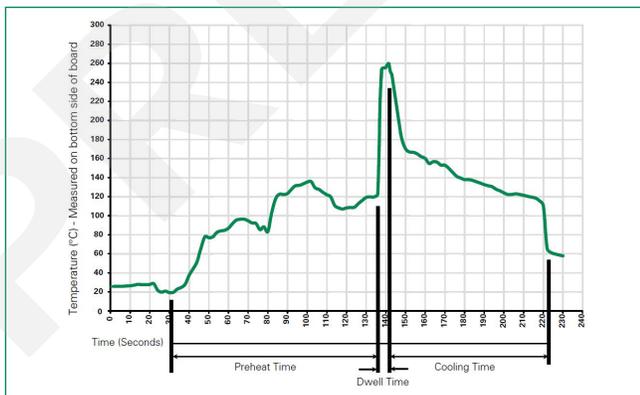
Materials	LTR, Axial Device: 17.5±12.5 Microns Lead Wires: 6-9 Microns SM, SMD Device: 17.5±12.5 Microns
Operating & Storage Temperature	-40 °C to 125 °C
Product Marking	LF Logo, Voltage and date code; Black ink positive print
Glow to arc transition current	<0.5 Amps
Glow Voltage	65 to 180 Volts
Storage & Operational Temperature	-40 to +125

Soldering Parameters - Reflow Soldering (Surface Mount Devices)

Reflow Condition	Pb-free assembly	
Number of allowed reflow cycles	3	
Pre Heat	- Temperature Min ($T_{s(min)}$)	150 °C
	- Temperature Max ($T_{s(max)}$)	200 °C
	- Time (Min to Max) (t_s)	60–180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)	3 °C / second max.	
$T_{s(max)}$ to T_L - Ramp-up Rate	3 °C / second max.	
Reflow	- Temperature (T_L) (Liquidus)	217 °C
	- Temperature (t_L)	60–150 seconds
Peak Temperature (T_p)	260 ^{+0/-5} °C	
Time within 5°C of actual peak Temperature (t_p)	10 – 30 seconds	
Ramp-down Rate	6 °C / second max.	
Time 25 °C to peak Temperature (T_p)	8 minutes max.	
Do not exceed	260 °C	



Soldering Parameters: Wave Soldering (Thru-Hole Devices)



Wave Parameter	Lead-Free Recommendation
Preheat: (Depends on Flex Activation Temperature)	(Typical Industry Recommendation)
Temperature Minimum	100 °C
Temperature Maximum	150 °C
Preheat Time	60–180 seconds
Solder Pot Temperature	280 °C Maximum
Solder Dwell Time	2–5 seconds

Recommended Hand-Solder Parameters:

Solder Iron Temperature: 350 °C +/- 5 °C
Heating Time: 5 seconds max.

Note: These devices are not recommended for IR or Convection Reflow process.

Soldering Parameters: Hand Soldering

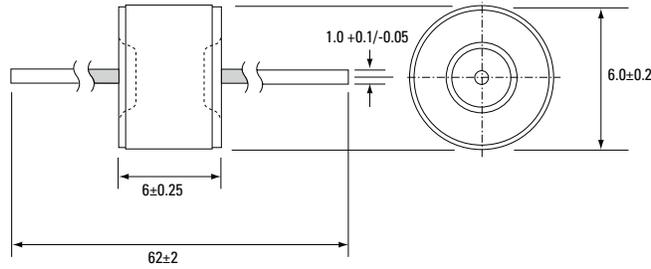
Solder Iron Temperature: 350 °C +/- 5 °C
Heating Time: 5 seconds max.

CG10 Series

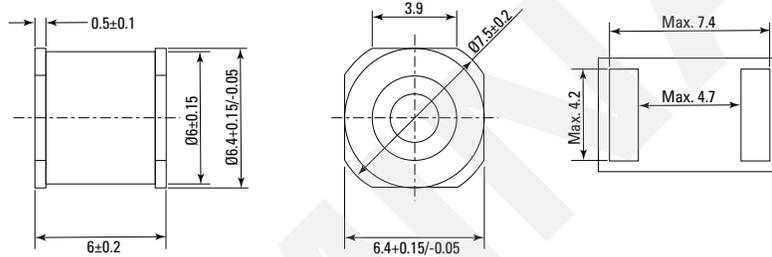
Gas Discharge Tubes

Device Dimensions

Leaded LTR Type Straight Axial Devices

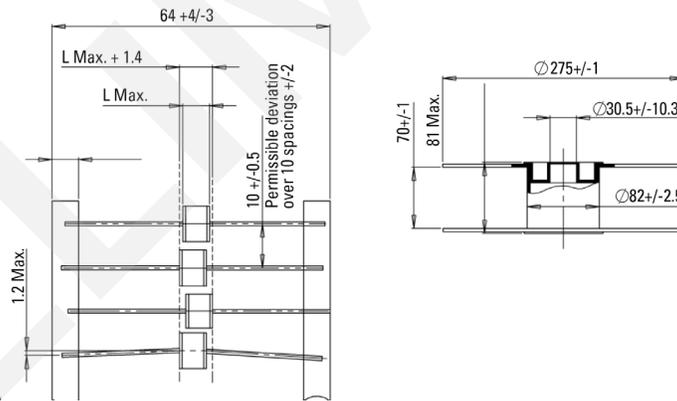


SM Type Devices

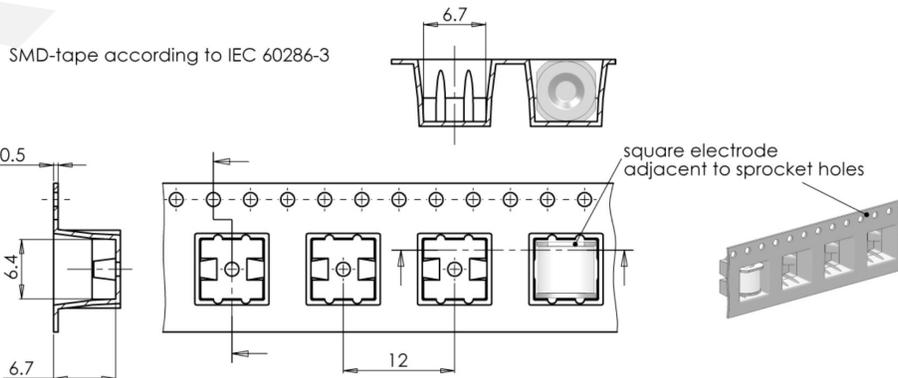


Packaging Dimensions

For LTR Type Axial Lead Items



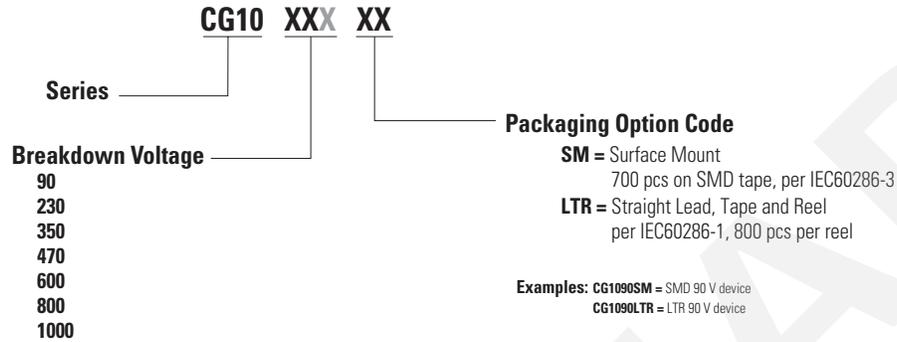
For SM Type Items



CG10 Series

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Part Numbering System and Ordering Information



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