

# Gas Discharge Tubes

## CG/CG2 Series

### CG/CG2 Series



#### Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E128662 <sup>1</sup>
	E320116 <sup>2</sup>

NOTES:

1. Certified to UL 497B.
2. Only CG2300, CG2470, CG2600, CG2800 and CG221000. Certified to UL 1449.

#### 2 Electrode GDT Graphical Symbol



#### Additional Information



[Datasheet](#)



[Resources](#)



[Samples](#)

#### Description

Littelfuse's highly reliable CG/CG2 Series GDTs provide a high degree of surge protection 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 CG/CG2 series comes in a variety of forms including surface mount, core, straight and shaped leads, to serve a variety of mounting methods.

The CG Series (75V-110V) is ideal for protection of test and communication equipment and other devices in which low voltage limits and extremely low arc voltages are required.

The CG2 Series (145V-1000V) is ideal for protecting equipment where higher voltage limits and holdover voltages are necessary.

#### Features

- RoHS and Lead-free compliant
- Rugged Ceramic-Metal construction
- Low Capacitance (<1.5pf)
- Meets REA PE-80
- Available in surface mount, and a variety of lead options options
- RoHS Compliant and Lead-Free

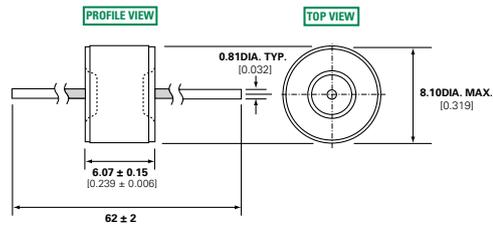
#### Applications

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

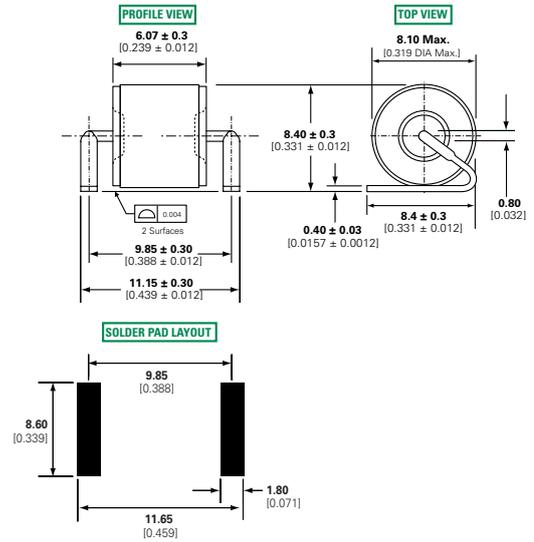


### Device Dimensions

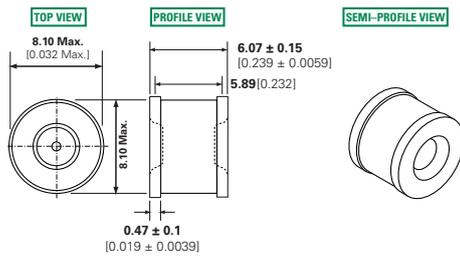
#### Leaded 'L' Type Straight Axial Devices



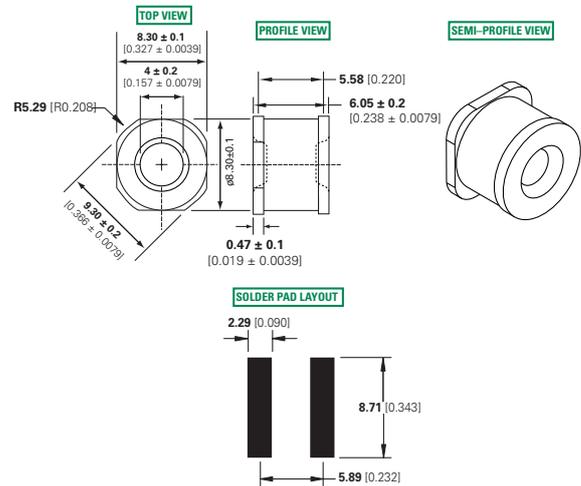
#### Leaded 'LS' Type Shaped Lead Devices



#### Core Devices

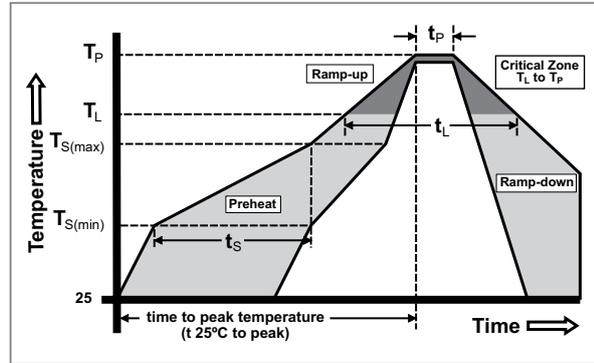


#### 'MS' Type Devices

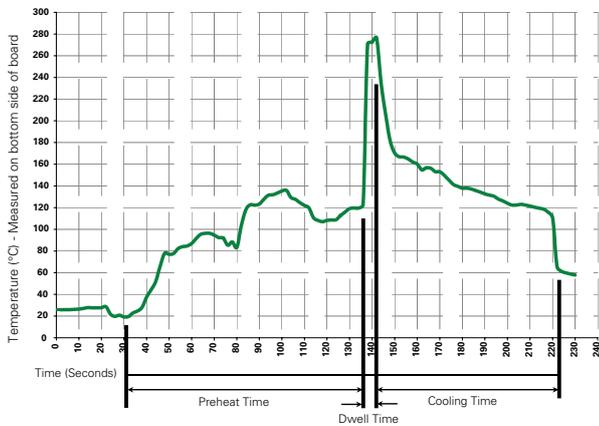


**Soldering Parameters - Reflow Soldering (Surface Mount Devices)**

Reflow Condition		Pb – Free assembly
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		5°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Temperature ( $t_L$ )	60 – 150 seconds
Peak Temperature ( $T_P$ )		260 <sup>+0/-5</sup> °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)**



**Recommended Process Parameters:**

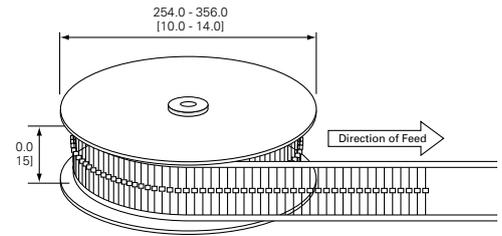
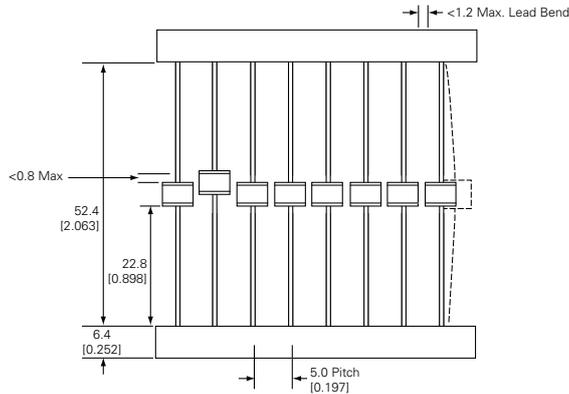
Wave Parameter	Lead-Free Recommendation
<b>Preheat:</b> (Depends on Flux Activation Temperature) (Typical Industry Recommendation)	
Temperature Minimum:	100° C
Temperature Maximum:	150° C
Preheat Time:	60-180 seconds
<b>Solder Pot Temperature:</b>	280° C Maximum
<b>Solder Dwell Time:</b>	2-5 seconds

**Soldering Parameters - Hand Soldering**

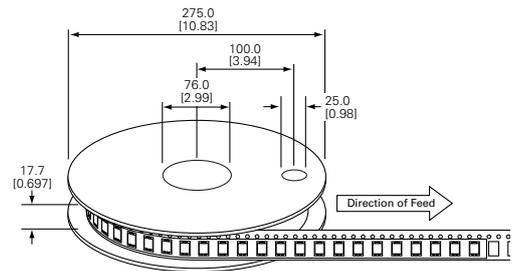
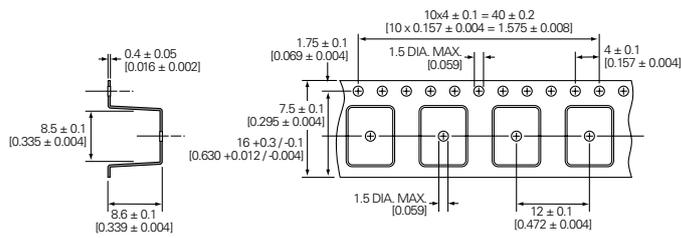
Solder Iron Temperature: 350° C +/- 5°C  
Heating Time: 5 seconds max.

### Packaging Dimensions

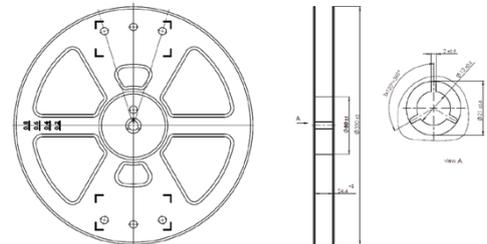
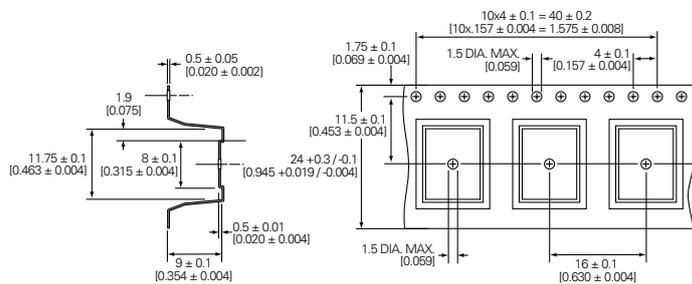
#### For 'L' Type Axial Lead Items



#### Core and 'MS' Type Items



#### For 'LS' Type Shaped Lead Items



### Part Numbering System and Ordering Information

**CG2 XXX XX \* XX**

**Series**

**CG** – for 75, 90, or 110V  
**CG2** – for 145V to 1000V

**Breakdown Voltage**

75	300
90	350
110	470
145	600
230	800
250	1000

**Lead Option Code**

(Blank) = No Leads / Core  
**L** = Straight Leads  
**LS** = Shaped Leads  
**MS** = Surface Mount

**Option Code\***

SN = may have different DC Breakover Voltage Limit. Please refer to Electrical Characteristics table for additional information.

**Packaging Option Code**

(Blank) = No Leads / Core, Bulk Bag - 400 pcs  
L(Blank) = Straight Lead, Tray - 50 pcs  
**LTR** = Straight Lead, Tape & Reel per EIA RS-296-E - 500 per reel  
LS(Blank) = Shaped Lead (see LS dimensions), Tape & Reel - 500 per reel

**Examples:**

- CG75** – A non-leaded 75V device
- CG2230L** – A leaded 230V device
- CG2800LTR** – A leaded 800V device, tape-and-reel (per EIA standard RS-296-D)

**Notes:**

CG/CG2 devices with other breakdown voltages in the 75-1000 V range are available upon request.