

CG4 Series



**Description**

The Littelfuse CG4 Gas Discharge Tubes (GDT) series provides high levels of protection against fast rising transients caused by lightning disturbances. Offered in a miniature surface mount package, it has a surge rating of 3kA 8/20µs.

Littelfuse CG4 mini GDTs are high voltage (800-3000V) components designed for surge protection and high isolation applications. It is also suitable for applications for which bias voltage or signal levels of several hundred volts are normally present. CG4 mini GDTs can be used in conjunction with Littelfuse MOVs (Metal Oxide Varistors) to provide superior protection performance for AC applications.

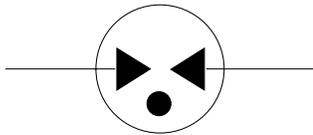
**Agency Approvals**

| Agency | Agency File Number | Part Number                        |
|--------|--------------------|------------------------------------|
|        | E320116            | CG40.8 - CG41.0<br>CG41.8 - CG43.0 |
|        | E320116            | CG41.2                             |

**Features**

- Voltage Ranges 800V to 3000V
- Excellent response to fast rising transients
- 3kA 8/20µs surge capability pulse as defined by IEC 61000-4-5, 2<sup>nd</sup> edition
- UL Recognized to UL 1449. CG41.2 is Recognized to both UL 1449 and CSA C22.2 No. 269.5.
- Offered in SMD package with square terminals
- Non-Radioactive
- Ultra Low capacitance (<0.8pF)
- RoHS compliant and Lead-free

**Two Electrode GDT Graphical Symbol**



**Additional Information**



Datasheet



Resources



Samples

**Applications**

- CATV equipment
- Antennas
- Air conditioning
- EV Power Station
- Inverters/Variable Frequency Drives (VFD)
- IEEE 803.2 compliant Ethernet interfaces
- Power Supplies
- Medical electronics
- Test Equipment
- Renewable Energy

### Electrical Characteristics

| Part Number | Device Specifications (at 25°C) |      |      |  |  |                       | Life Ratings        |  |                                 |   |   |                                 |
|-------------|---------------------------------|------|------|--|--|-----------------------|---------------------|--|---------------------------------|---|---|---------------------------------|
|             | DC Breakdown in Volts (@100V/s) |      |      | Impulse Break-down in Volts (@100V/μs) | Impulse Break-down In Volts (@1 kV/μs) | Insulation Resistance | Capacitance (@1MHz) | Max Impulse Discharge Current (8/20μs) | AC Discharge Current (50Hz, 1s) | AC Discharge Current (Single, 9 Cycles) | Arc Voltage (On State Voltage @ 1A, 1Min) | Impulse Life (10/1000μs) (100A) |
|             | Min                             | Typ  | Max  | Max                                    |  | Min                   | Max                 |  | Min                             | Min                                     |   | Min                             |
| CG40.8      | 640                             | 800  | 960  | 1200                                   | 1300                                   | 1GΩ*                  | 0.8pF               | ±5 Shots (@ 3kA)<br>1 Shot at 5kA      | 3A                              | 10A                                     | 20V                                       | 300 Shots                       |
| CG41.0      | 800                             | 1000 | 1200 | 1400                                   | 1500                                   |                       |                     |  |                                 |   |   |                                 |
| CG41.2      | 960                             | 1200 | 1440 | 1700                                   | 1800                                   |                       |                     |  |                                 |   |   |                                 |
| CG41.8      | 1440                            | 1800 | 2160 | 2700                                   | 2800                                   |                       |                     |  |                                 |   |   |                                 |
| CG42.0      | 1600                            | 2000 | 2400 | 3100                                   | 3200                                   |                       |                     |  |                                 |   |   |                                 |
| CG42.5      | 2000                            | 2500 | 3000 | 3700                                   | 4000                                   |                       |                     |  |                                 |   |   |                                 |
| CG42.7      | 2160                            | 2700 | 3240 | 3800                                   | 4200                                   |                       |                     |  |                                 |   |   |                                 |
| CG43.0      | 2400                            | 3000 | 3600 | 4100                                   | 4500                                   |                       |                     |  |                                 |   |   |                                 |

**Note:**

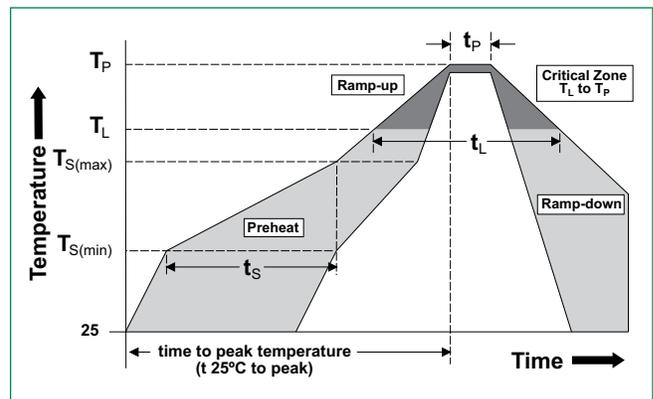
- \* Insulation resistance measured at:
  - 250Vdc for CG40.8,
  - 500Vdc for CG41.0, CG41.2, CG41.8 and CG42.0,
  - 1000Vdc for CG42.5, CG42.7 and CG43.0

### Product Characteristics

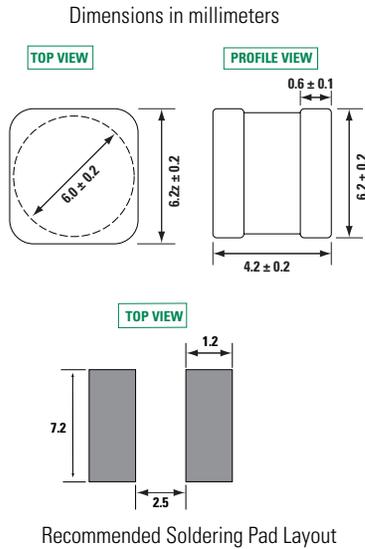
|  |  |
|--|--|
| <b>Materials</b>                           | Device Tin Plated 17.5 ± 12.5 Microns<br>Construction: Ceramic Insulator |
| <b>Storage and Operational Temperature</b> | -40 to +90°C   |

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

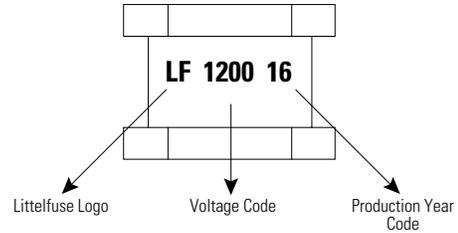
|  |                                    |                  |
|--|------------------------------------|------------------|
| <b>Reflow Condition</b>  | Pb – Free assembly                 |                  |
| <b>Pre Heat</b>  | - Temperature Min ( $T_{s(min)}$ ) | 150°C            |
|  | - Temperature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



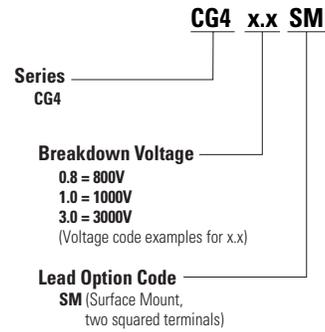
### Device Dimensions



### Product Marking



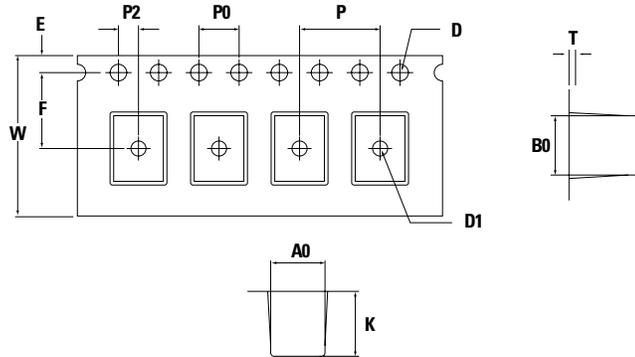
### Part Numbering System and Ordering Information



### Taping and Reel Specifications

Unit = mm

| Item      | Spec           | Item      | Spec              |
|-----------|----------------|-----------|-------------------|
| <b>P</b>  | $8.0 \pm 0.1$  | <b>E</b>  | $1.75 \pm 0.1$    |
| <b>P0</b> | $4.0 \pm 0.1$  | <b>D</b>  | $1.50 + 0.1/-0.0$ |
| <b>P2</b> | $2.0 \pm 0.1$  | <b>D1</b> | $1.50 + 0.1/-0.0$ |
| <b>W</b>  | $16.0 \pm 0.3$ | <b>K0</b> | $6.5 \pm 0.1$     |
| <b>F</b>  | $7.5 \pm 0.1$  | <b>T</b>  | $0.4 \pm 0.05$    |
| <b>A0</b> | $4.9 \pm 0.1$  | <b>B0</b> | $6.5 \pm 0.1$     |



**Packaging Quantity:**

- 1000 pcs per reel (13")
- 1 reels per inner box
- 10 inners box per carton
- 10,000 pcs per full carton

