

CG6 Series



Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E128662

Two Electrode GDT Graphical Symbol



Description

Littelfuse CG6 Series offers high surge ratings in a miniature surface mount package. Capable to divert 3KA pulse without destruction, it provides high levels of protection against fast rising transients caused by lightning disturbances. This series offers low insertion loss perfectly suited to broadband equipment applications.

Littelfuse CG6 mini Gas Tubes are specifically designed for protection of electrical, multimedia, and communication equipment against over voltage transients in surface mount assembly applications. This series offers the most cutting edge protection using non-radioactive elements.

Features

- RoHS compliant and Lead-free
- GHz working frequency
- Excellent stability on multiple pulse duty cycle
- Excellent response to fast rising transients.
- Ultra Low Insertion Loss
- 3KA surge capability tested with 8/20µS pulse
- Compact SMD package offered in two squared terminals
- Non-Radioactive
- Ultra Low capacitance (<0.3pF)
- Voltage Ranges 75V to 600V
- UL recognized
- Conforms to ITU-T K12, IEC 61000-4-2

Applications

- Broadband equipment
- CATV equipment
- Data lines
- Telecom SLIC protection
- ADSL equipment, including ADSL2+
- XDSL equipment
- IAD (Internet Access Device)
- Coaxial Cable
- Set Top Box (STB)
- General telecom equipment
- Embedded Multimedia Terminal Adapter (EMTA)
- RF Connector
- RJ45 Connector
- Multimedia over Coax Alliance (MoCA)
- Antenna
- G.Fast Modem

**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 (8x20μs)	Max Impulse Discharge Current (10x700μs)	AC Discharge Current (50Hz, 1sec)	AC Discharge Current (Single, 9 Cycles)	DC Holdover Voltage (<150ms)	Impulse Life (10/1000μs) (50A)
	MIN	TYP	MAX	MAX		MIN	MAX			MIN	MIN		MIN
CG675	60	75	90	400	700	1GΩ @50V	0.3pf	±5 Shots @ (3kA) <sup>1</sup> 1 Shot at 5kA	±5 Shots @ (150A/6kV) <sup>2</sup>	3A	6A	52V	300 Shots
CG690	72	90	108	400	700	52V							
CG6145	116	145	174	400	700	52V							
CG6230	186	230	276	600	700	80V							
CG6250	200	250	300	600	700	80V							
CG6300	240	300	360	600	750	135V							
CG6350	280	350	420	650	800	135V							
CG6400	360	400	480	700	850	135V							
CG6470	376	470	564	800	900	150V							
CG6600	480	600	720	900	1000	1GΩ@250V						150V	

Note:  
1. 5 x (+) and 5 x (-) applications of 3kA 8x20μs sec.  
2. 5 x (+) and 5 x (-) applications of 150A 10x700μs sec.

**Product Characteristics**

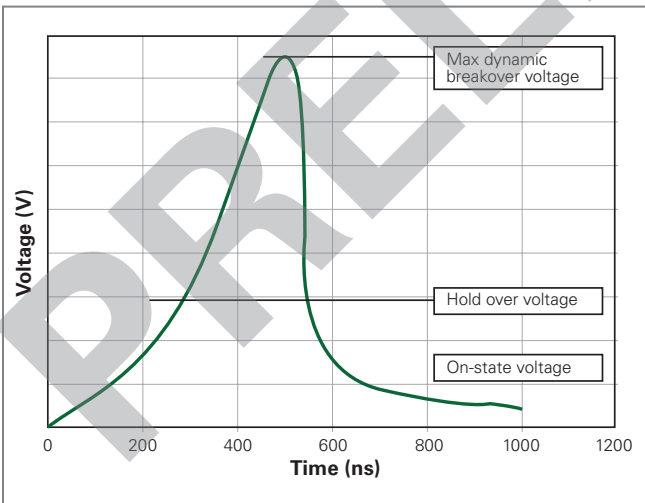
<b>Materials</b>	Device Tin Plated 17.5 ± 12.5 Microns Construction: Ceramic Insulator
<b>Storage and Operational Temperature</b>	-40 to +90°C

**Typical Insertion Loss**

@1.0GHz = 0.03dB
@1.4GHz = 0.06dB
@1.8GHz = 0.09dB
@2.0GHz = 0.11dB
@2.4GHz = 0.13dB
@2.8GHz = 0.15dB
@3.1GHz = 0.17dB
@3.5GHz = 0.19dB
@4.0GHz = 0.22dB

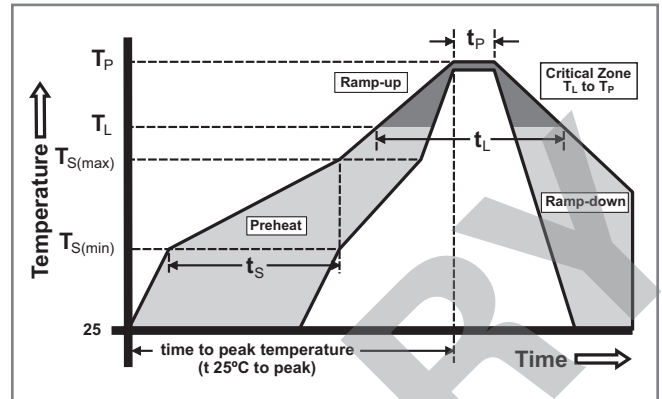
Note: Insertion data for customer reference only, application testing needed for verification.

**Voltage Vs. Time Characteristic**

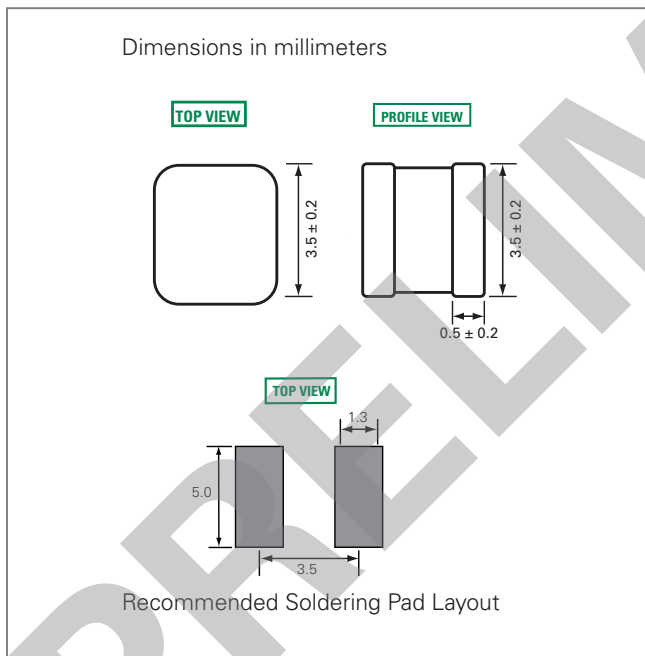


### Soldering Parameters - Reflow Soldering (Surface Mount Devices)

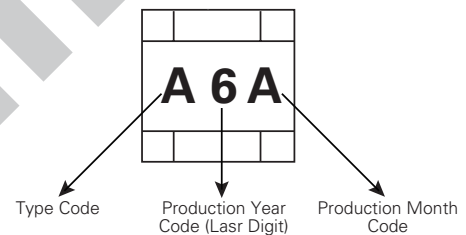
Reflow Condition		Pb – Free assembly
Pre Heat	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (Min to Max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		5°C/second max
Reflow	- 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



### Device Dimensions



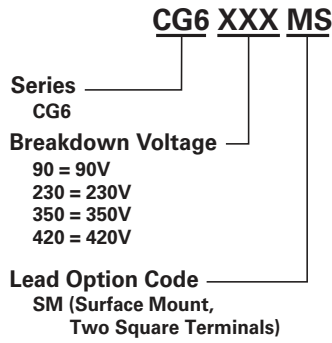
### Product Marking



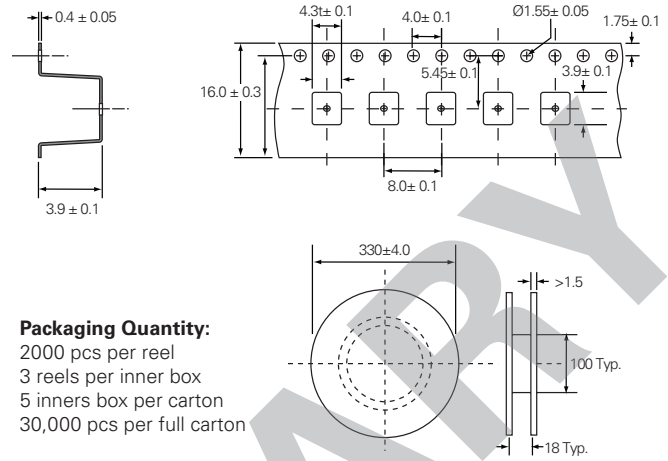
Type Code	
A	CG675
B	CG690
S	CG6145
D	CG6230
R	CG6250
E	CG6300
G	CG6350
I	CG6400
P	CG6470
V	CG6600

Month Code	
A	January
B	February
C	March
D	April
E	May
F	June
G	July
H	August
I	September
J	October
K	November
L	December

**Part Numbering System and Ordering Information**



**Taping and Reel Specifications**



PRELIMINARY