

### Electrical Characteristics

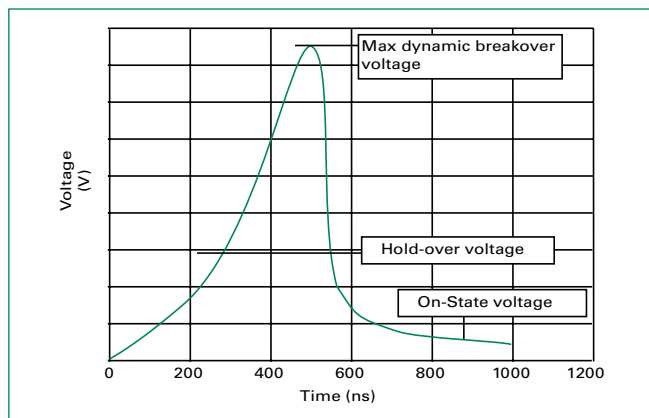
Part Number	Device Specifications (at 25°C)						Life Ratings					
	DC Breakdown in Volts (@ 100V/s)			Impulse Breakdown in Volts (@ 100V/μs)	Impulse Breakdown In Volts (@ 1 Kv/ μsec)	Insulation Resistance	Capacitance (@ 1MHz)	Surge Life (10/1000μs)	Nominal Impulse Discharge Current (8/20μs)	Nominal AC Discharge Current (10x1sec @50-60Hz)	AC Dischage Current (9 cycle @50Hz)	Max Impulse Discharge Current (1 Application @ 10/350μs)
	MIN	TYP	MAX	MAX		MIN	MAX					
SL0902A090 CG590	72	90	108	550	700	10 <sup>10</sup> Ω (at 50V)	1.5 pf	300 shots (@100A)	10 shots (@5kA)	5 A	10 A	0.5kA
CG5145	116	145	174	550	650							
CG5150	120	150	180	550	-							
SL0902A230 CG5230	184	230	276	550	650							
CG5250	200	250	300	600	-							
CG5270*	216	270	324	650	-							
SL0902A350 CG5350	280	350	420	800	900							
CG5400	320	400	480	900	-							
SL0902A420*	336	420	504	900	1000							
CG5470	376	470	564	1000	1200							
SL0902A600 CG5600	480	600	720	1350	1500							

\* - Particular component is not UL Recognized.

### Product Characteristics

<b>Materials</b>	<b>CG5xxxLS (Outline 500), CG5xxxxLTR &amp; CG5350L-03TR (Outline 502), and CG5xxxL-02 (Outline 503):</b> Device Nickel Plated 2-5 Microns Wire Tin Plated 17.5±12.5 Microns Construction Ceramic Insulator.	<b>Product Marking</b>	LF Logo, Voltage and date code
	<b>CG5xxx (Outline 501), and CG5xxxMS &amp; SL0902AxxxSM (Outline 505):</b> Device Tin Plated 17.5±12.5 Microns Construction Ceramic Insulator.	<b>Glow to arc transition current</b>	< 0.5Amps
		<b>Glow Voltage</b>	140 Volts
		<b>Storage and Operational Temperature</b>	-40 to +90

### Voltage vs. Time Characteristic



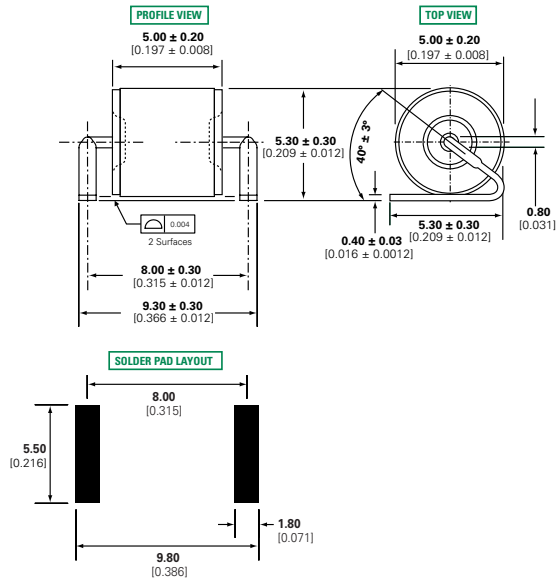
### Typical Insertion Loss

@ 1.0 GHz = 0.01 dB
@ 1.4GHz = 0.1 dB
@ 1.8 GHz = 0.53 dB
@ 2.1 GHz = 0.81 dB
@ 2.45 GHz= 1 dB
@ 2.8 GHz = 1.2 dB
@ 3.1 GHz = 1.5 dB
@ 3.5 GHz = 2.1 dB

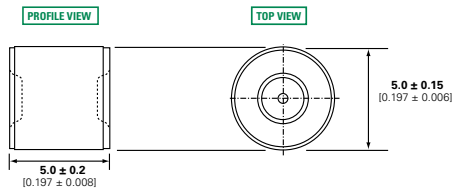


### Device Dimensions

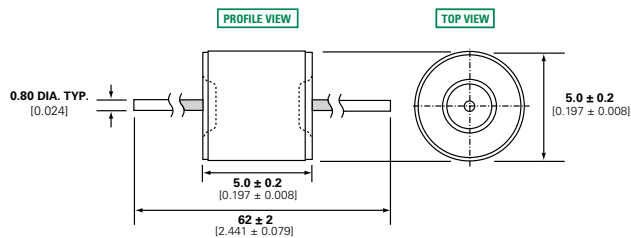
#### Outline 500 - CG5xxxLS



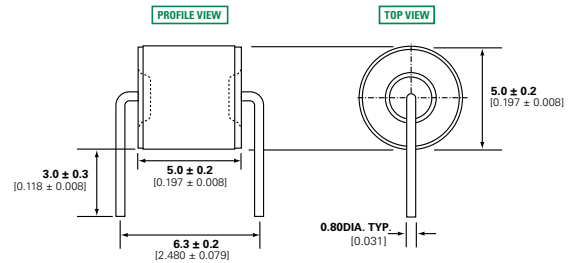
#### Outline 501 - CG5xxx



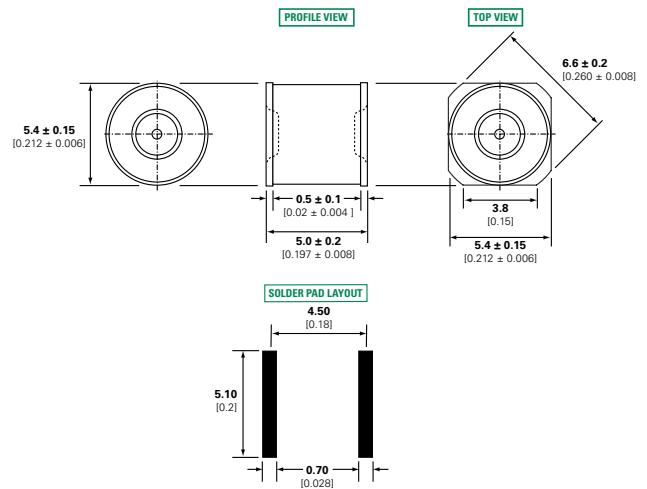
#### Outline 502 - CG5xxxLTR (also CG5350L-03TR, CG5600L-02)



#### Outline 503 - CG5xxxL-02 (except CG5600L-02, see Outline 502)



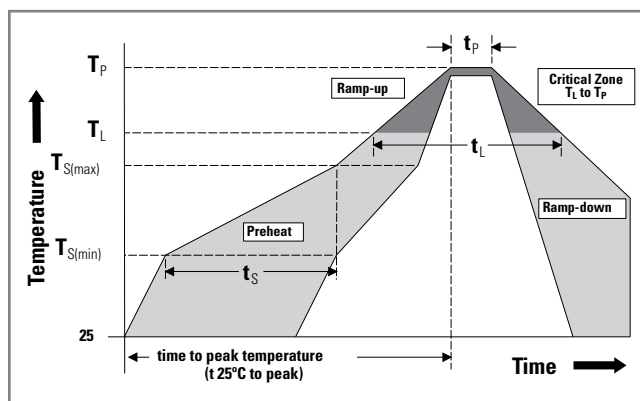
#### Outline 505 - CG5xxxMS and SL0902AxxxSM





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

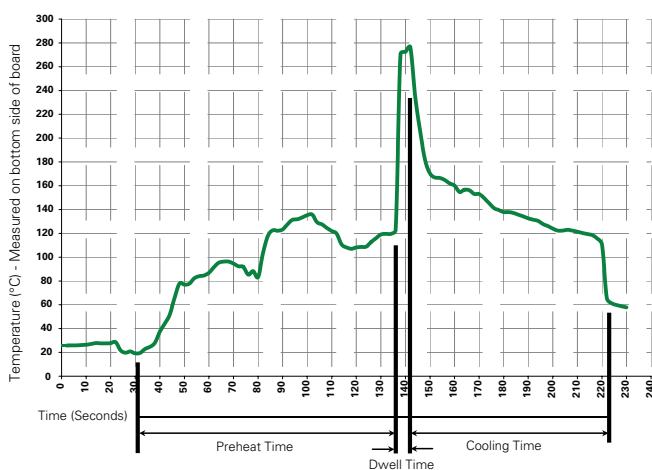
Reflow Condition		Pb – Free assembly
Pre Heat	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (Min to Max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		5°C/second max
Reflow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

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

### Soldering Parameters - Wave Soldering (Thru-Hole Devices)



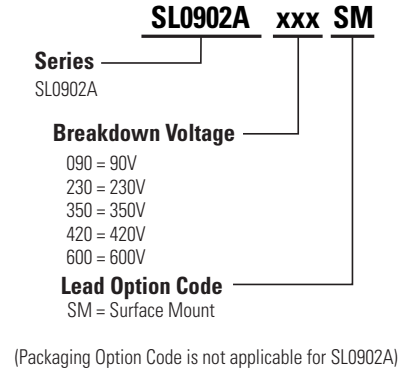
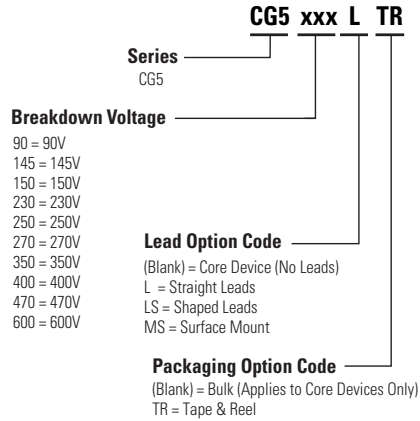
### Recommended Process Parameters:

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

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



### Part Numbering System and Ordering Information



### Packaging

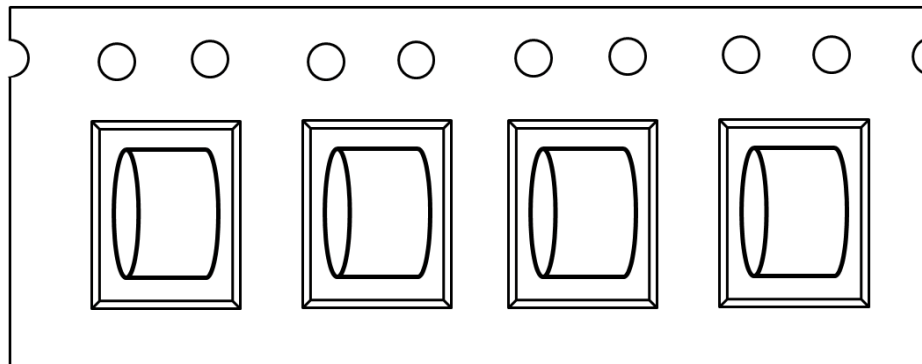
Part Number and Device Type	Device Dimensions Reference	Quantity and Packaging Description
CG5xxx	Core	Outline 501
CG5xxxLS	Shaped Leads	Outline 500
CG5xxxLTR CG5xxxL-03TR**	Straight Axial Leads	Outline 502
CG5xxxL-02**	Bent Radial Leads	Outline 503
CG5xxxMS SL0902AxxxSM	Surface mount	Outline 505

\* For tape specifications and dimensions, please contact factory.

\*\* Special order items not available for general sale. Please contact Littelfuse for details.

### Surface Mount Device Orientation

**Note:** Surface Mount device orientation on carrier tape as shown below



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