

TWO ELECTRODE SURGE ARRESTERS

CG/CG2 Series



DESCRIPTION

SRC Devices CG/CG2 GDT's are designed for a high degree of surge protection at a low cost. The CG Series (75-110V) is used for protection of test and communication equipment in which low voltage limits and extremely low arc voltages are required. The CG2 Series (145V-1000V) is used for protecting equipment for which higher voltage limits and holdover voltages are necessary. Comgaps function as switches which dissipate a minimum amount of energy and therefore handle currents that far surpass other types of transient voltage protection.

FEATURES

- Small size
- Rugged ceramic-metal construction
- Low capacitance (<1pF)
- Non Radioactive 600-1000 V
- Available with or without leads
- Available in tape-and-reel packaging

APPLICATIONS

- Communication lines
- CATV equipment
- Test equipment
- Data lines
- Power supplies
- Instrumentation circuits
- Medical electronics

APPROVALS

- UL Recognized: File Number E111526
- Meets REA PE-80

RATINGS (@ 25° C)

Parameter	Min	Typ	Max	Units
DC Breakdown Voltage	60	75	90	V
	72	90	108	V
	88	110	132	V
	116	145	174	V
	195	230	265	V
	213	250	288	V
	255	300	345	V
	297	350	403	V
	400	470	540	V
	510	600	690	V
	680	800	920	V
	850	1000	1150	V
Insulation Resistance	10^{10}	-	-	Ω
Capacitance	-	-	1	pF
Operational Temperature	-40	-	+125	°C

(See detailed specifications for more information.)

SPECIFICATIONS

All characteristics at 25°C

All characteristics at 25°C			CG75			CG90			CG110			
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Device Specifications												
DC Breakdown	500V/s	V _{BD}	60	75	90	72	90	108	88	110	132	V
Impulse Breakdown	100V/μs	V _{bd}	- ¹⁰	-	400	- ¹⁰	-	400	- ¹⁰	-	450	V
Insulation Resistance	50V	IR	10	-	-	10	-	-	10	-	-	Ω
Capacitance	1MHz	C	-	-	1	-	-	1	-	-	1	pF
Arc Voltage	I=5A min	V _{ARC}	-	10	-	-	10	-	-	10	-	V
Life Ratings ⁽¹⁾												
Surge Life	500A (10/1000μs)	-	1000	-	-	1000	-	-	1000	-	-	shots
Max Current Surge	20kA (8/20μs)	-	5	-	-	5	-	-	5	-	-	shots
AC Current	10x 1sec @ 60Hz	-	-	-	20	-	-	20	-	-	20	A
DC Holdover Voltage	per REA PE-80, 0.2A	-	-	55	-	-	65	-	-	80	-	V

			CG2145			CG2230			CG2250			
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Device Specifications												
DC Breakdown	500V/s	V _{BD}	116	145	174	195	230	265	213	250	288	V
Impulse Breakdown	100V/μs	V _{bd}	- ¹⁰	-	500	- ¹⁰	-	600	- ¹⁰	-	625	V
Insulation Resistance	100V	IR	10	-	-	10	-	-	10	-	-	Ω
Capacitance	1MHz	C	-	-	1	-	-	1	-	-	1	pF
Arc Voltage	I=5A min	V _{ARC}	-	15	-	-	15	-	-	15	-	V
Life Ratings ⁽¹⁾												
Surge Life	500A (10/1000μs)	-	1000	-	-	1000	-	-	1000	-	-	shots
Max Current Surge	20kA (8/20μs)	-	5	-	-	5	-	-	5	-	-	shots
AC Current	10x 1sec @ 60Hz	-	-	-	20	-	-	20	-	-	20	A
AC Follow-on Current	1/2 cycle @ 60Hz	-	-	-	20	-	-	20	-	-	20	A pk
DC Holdover Voltage	per REA PE-80, 0.2A	-	-	90	-	-	150	-	-	150	-	V

			CG2300			CG2350			CG2470			
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Device Specifications												
DC Breakdown	500V/s	V _{BD}	255	300	345	297	350	403	400	470	540	V
Impulse Breakdown	100V/μs	V _{bd}	- ¹⁰	-	700	- ¹⁰	-	750	- ¹⁰	-	850	V
Insulation Resistance	100V	IR	10	-	-	10	-	-	10	-	-	Ω
Capacitance	1MHz	C	-	-	1	-	-	1	-	-	1	pF
Arc Voltage	I=5A min	V _{ARC}	-	15	-	-	15	-	-	15	-	V
Life Ratings ⁽¹⁾												
Surge Life	500A (10/1000μs)	-	1000	-	-	1000	-	-	1000	-	-	shots
Max Current Surge	20kA (8/20μs)	-	5	-	-	5	-	-	5	-	-	shots
AC Current	10x 1sec @ 60Hz	-	-	-	20	-	-	20	-	-	20	A
AC Follow-on Current	1/2 cycle @ 60Hz	-	-	-	20	-	-	20	-	-	20	A pk
DC Holdover Voltage	per REA PE-80, 0.2A	-	-	150	-	-	150	-	-	150	-	V

			CG2600			CG2800			CG21000			
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Device Specifications												
DC Breakdown	500V/s	V _{BD}	510	600	690	680	800	920	850	1000	1150	V
Impulse Breakdown	100V/μs	V _{bd}	- ¹⁰	-	1000	- ¹⁰	-	1200	- ¹⁰	-	1500	V
Insulation Resistance	100V	IR	10	-	-	10	-	-	10	-	-	Ω
Capacitance	1MHz	C	-	-	1	-	-	1	-	-	1	pF
Arc Voltage	I=5A min	V _{ARC}	-	15	-	-	15	-	-	15	-	V
Life Ratings ⁽¹⁾												
Surge Life	500A (10/1000μs)	-	1000	-	-	1000	-	-	1000	-	-	shots
Max Current Surge	10kA (8/20μs)	-	10	-	-	10	-	-	10	-	-	shots
AC Current	10x 1sec @ 60Hz	-	-	-	20	-	-	20	-	-	20	A
AC Follow-on Current	¹ / ₂ cycle @ 60Hz	-	-	-	20	-	-	20	-	-	20	A pk
DC Holdover Voltage	per REA PE-80, 0.2A	-	-	150	-	-	150	-	-	150	-	V

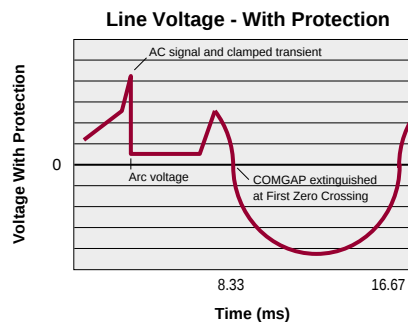
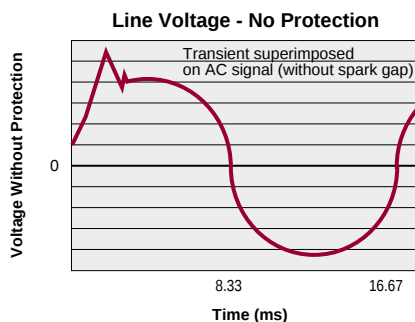
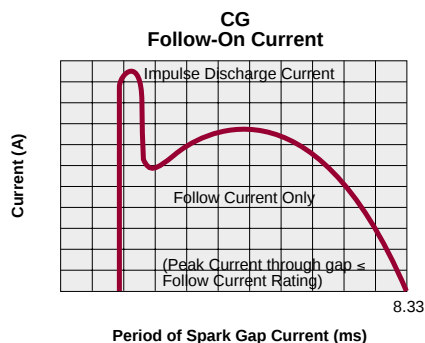
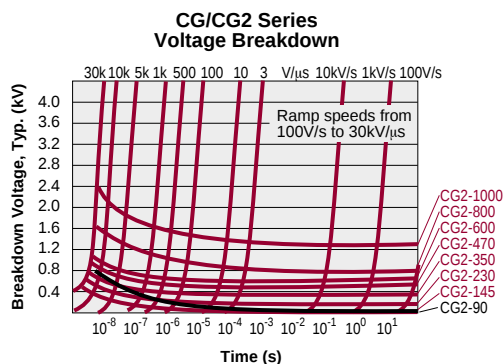
⁽¹⁾End-of-Life limits are: DC: 50% of minimum initial DC breakdown voltage limit to 150% of maximum initial DC breakdown voltage limit
 Impulse: less than 150% of initial Impulse breakdown voltage limit.

TWO ELECTRODE SURGE ARRESTERS

CG/CG2 Series



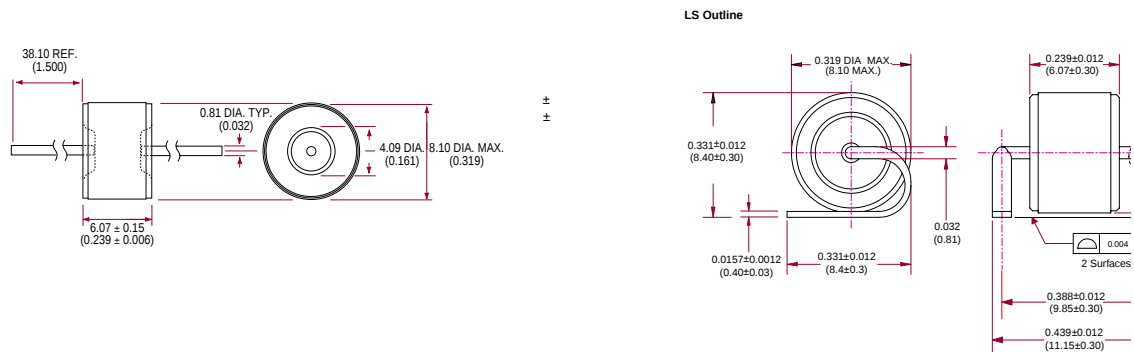
PERFORMANCE CHARACTERISTICS



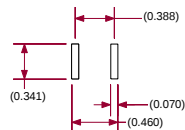
MECHANICAL DIMENSIONS

DIMENSIONS
mm
(inches)

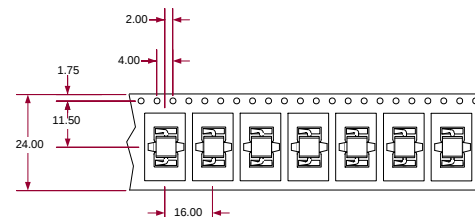
Other lead forms are available upon request.
Contact REMtech for more information.



LS Recommended Land Pattern



LS Tape & Reel Packaging



Tape & Reel packaging is available on request. See ordering information below for part number structure.

ORDERING INFORMATION

Tape & Reel Information

CGXXXLTR - Tape & Reel per EIA RS-296-D. Quantity = 1,000/Reel

CGXXXLTE - Tape & Reel per IEC286-1. Quantity = 1,000/Reel

CGXXXLSTR - See figure above for tape & reel information. Quantity = 1,400/Reel

CG/CG2's with other breakdown voltages in the 75-1000 V range are available upon request. A complete part number is represented by the digits below. For example, CG75 is a non-leaded 75V device, CG2-230L is a leaded 230V device, and CG2-800LTR is a leaded 800V device on tape-and-reel per EIA standard RS-296-D.

CG XXX X XX for 75, 90, 110V
 CG2 XXX X XX for 145V & up

Series
 CG
 CG2

Breakdown Voltage
 75 = 75V
 90 = 90V
 110 = 110V
 145 = 145V
 230 = 230V
 250 = 250V
 300 = 300V
 350 = 350V
 470 = 470V
 600 = 600V
 800 = 800V
 1000 = 1000V

Shipping Package
 TR = Tape & Reel
 (Blank) = Bulk

Options
 L = Leads
 (Blank) = No Leads

2 ELECTRODE NON-RADIOACTIVE SURGE ARRESTERS

CG/CG2 SN Series



DESCRIPTION

SRC Devices 2 electrode non-radioactive CG/CG2 SN Comgaps are designed for use in surge protection applications for which the radioactive isotope used in the standard CG/CG2 Series (75-470V) is not desired. The gas-filled, rugged ceramic-metal construction of Comgaps makes them well suited to adverse environments. Comgaps function as switches which dissipate a minimum amount of energy and therefore handle currents that far surpass other types of transient voltage protection.

FEATURES

- Small size
- Rugged ceramic-metal construction
- Non-radioactive
- Low capacitance (<1pF)
- Available with or without leads
- Available in tape-and-reel packaging

APPLICATIONS

- Communication lines
- CATV equipment
- Test equipment
- Power supplies
- Medical electronics
- Instrumentation circuits

APPROVALS

- Meets REA PE-80
- Designed to meet CCITT-K12

RATINGS (@ 25° C)

Parameter	Min	Typ	Max	Units
DC Breakdown Voltage	72	90	108	V
184		230	276	V
200		250	300	V
240		300	360	V
280		350	420	V
376		470	564	V
Insulation Resistance	10 ⁹	-	-	Ω
Capacitance	-	-	1	pF
Operational Temp	-40	-	+125	°C

(See detailed specifications for more information.)

SPECIFICATIONS

All characteristics at 25°C

PARAMETER	CONDITIONS	SYMBOL	CG90SN			CG2-230SN			CG2-250SN			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	
Device Specifications												
DC Breakdown	500V/s	V _{BD}	72	90	113	184	230	276	200	250	300	V
Impulse Breakdown	100V/μs	V _{BD}	-	-	500	-	-	600	-	-	600	V
Insulation Resistance	100V	IR	10 ⁹	-	-	10 ⁹	-	-	10 ⁹	-	-	Ω
Capacitance	1MHz	C	-	-	1	-	-	1	-	-	1	pF
Arc Voltage	1=5A min	V _{ARC}	-	10	-	-	10	-	-	10	-	V
Life Ratings⁽¹⁾												
Surge Life	500A (10/1000μs)	-	400	-	-	400	-	-	400	-	-	shots
Max Current Surge	10kA (8/20μs)	-	10	-	-	10	-	-	10	-	-	shots
AC Current	10x 1sec @ 60Hz	-	-	-	20	-	-	20	-	-	20	A
AC Follow-on Current	1/2 cycle @ 60Hz	-	-	-	N/A	-	-	20	-	-	20	A pk
DC Holdover Voltage	per REA PE-80, 0.2A	-	-	65	-	-	150	-	-	150	-	V

PARAMETER	CONDITIONS	SYMBOL	CG2-300SN			CG2-350SN			CG2-470SN			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	
Device Specifications												
DC Breakdown	500V/s	V _{BD}	240	300	360	280	350	420	376	470	564	V
Impulse Breakdown	100V/μs	V _{BD}	-	-	700	-	-	750	-	-	850	V
Insulation Resistance	100V	IR	10 ⁹	-	-	10 ⁹	-	-	10 ⁹	-	-	Ω
Capacitance	1MHz	C	-	-	1	-	-	1	-	-	1	pF
Arc Voltage	1=5A min	V _{ARC}	-	10	-	-	10	-	-	10	-	V
Life Ratings⁽¹⁾												
Surge Life	500A (10/1000μs)	-	400	-	-	400	-	-	400	-	-	shots
Max Current Surge	10kA (8/20μs)	-	10	-	-	10	-	-	10	-	-	shots
AC Current	10x 1sec @ 60Hz	-	-	-	20	-	-	20	-	-	20	A
AC Follow-on Current	1/2 cycle @ 60Hz	-	-	-	20	-	-	20	-	-	20	A pk
DC Holdover Voltage	per REA PE-80, 0.2A	-	-	150	-	-	150	-	-	150	-	V

⁽¹⁾End-of-life limits are:

DC: 50% of minimum initial DC breakdown voltage limit to 150% of maximum initial DC breakdown voltage limit.

Impulse: less than 150% of initial Impulse breakdown voltage limit.

2 ELECTRODE NON-RADIOACTIVE SURGE ARRESTERS

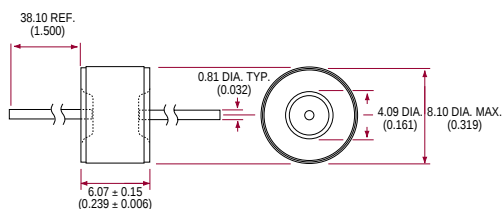
CG/CG2 SN Series



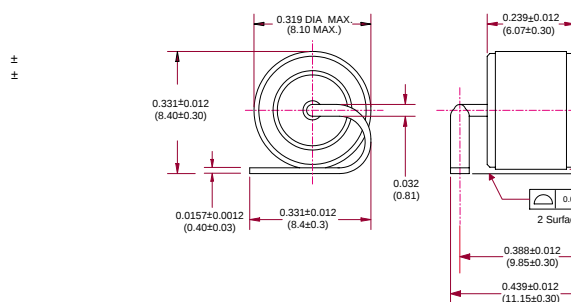
MECHANICAL DIMENSIONS

Other lead forms are available upon request.
Contact REMtech for more information.

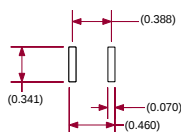
DIMENSIONS
mm
(inches)



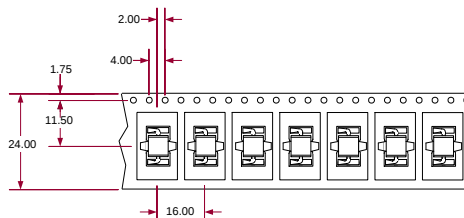
LS Outline



LS Recommended Land Pattern



LS Tape & Reel Packaging



Tape & Reel packaging is available on request. See ordering information below for part number structure.

ORDERING INFORMATION

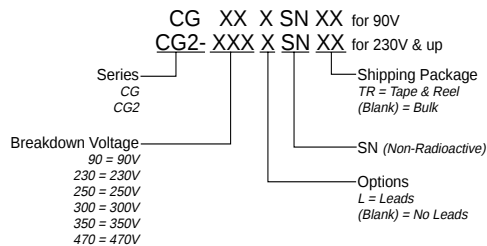
CG/CG2 SN's with other breakdown voltages in the 90-470 V range are available upon request. A complete part number is represented by the digits below. For example, CG2-230SN is a non-leaded 230V device, CG2-470LSN is a leaded 470V device, and CG90LSNTR is a leaded 90V device on tape-and-reel per EIA standard RS-296-D.

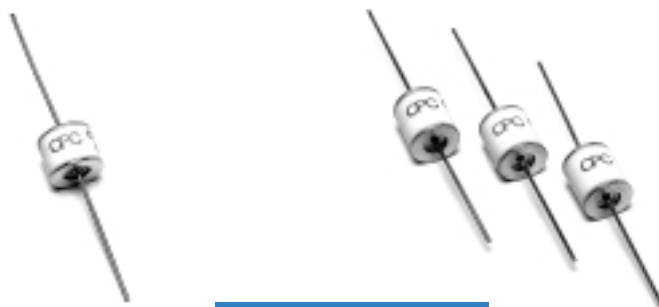
Tape & Reel Information

CGXXXLSNTR - Tape & Reel per EIA RS-296-D. Quantity = 1,000/Reel

CGXXXLSNTE - Tape & Reel per IEC286-1. Quantity = 1,000/Reel

CGXXXLSSNTR - See figure above for tape & reel information. Quantity = 1,400/Reel





DESCRIPTION

SRC Devices 2 electrode high voltage CG3 Comgaps (1.0 - 8.5 kV) are designed for surge protection in applications for which bias voltages or signal levels of several hundred volts are normally present. Comgaps function as switches which dissipate a minimum amount of energy and therefore handle currents that far surpass other types of transient voltage protection.

FEATURES

- Rugged ceramic-metal construction
- Non-radioactive
- Low capacitance (<1pF)
- Available in tape-and-reel packaging
- Available with or without leads

APPLICATIONS

- CRT terminal
- CATV equipment
- Antennas
- Power supplies
- Medical electronics

APPROVALS

- UL Recognized: File Number E111526
- CSA Approved: File Number LR89617

RATINGS (@ 25° C)

Parameter	Min	Typ	Max	Unit
DC Breakdown Voltage	800	1000	1200	V
	1200	1500	1800	V
	1600	2000	2400	V
	2000	2500	3000	V
	2400	3000	3600	V
	3200	4000	4800	V
	4000	5000	6000	V
	6000	7500	9000	V
	6800	8500	10200	V
Insulation Resistance	10 ¹⁰	-	-	Ω
Capacitance	-	-	1	pF
Operational Temperature	-40	-	+125	°C

(See detailed specifications for more information.)

TWO ELECTRODE HIGH VOLTAGE SURGE ARRESTERS

CG3 Series



SPECIFICATIONS

All characteristics at 25°C

All characteristics at 25°C			CG3-1.0			CG3-1.5			
			CG3-1.0L			CG3-1.5L			
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Device Specifications									
DC Breakdown	500V/s	V _{BD}	800	1000	1200	1200	1500	1800	V
Impulse Breakdown	100V/μs	V _{BD}	-	-	1500	-	-	2200	V
Insulation Resistance	100V	IR	10 ¹⁰	-	-	10 ¹⁰	-	-	Ω
Capacitance	1MHz	C	-	-	1	-	-	1	pF
Arc Voltage	I=5A min	V _{ARC}	-	10	-	-	10	-	V
Mechanical Outline		-	-	A	-	-	A	-	-
Life Ratings ⁽¹⁾									
Surge Life	.002mF, 100Ω	-	500	-	-	500	-	-	shots
Max Current Surge	10kA (8/20μs)	-	5	-	-	5	-	-	shots
AC Follow-on Current	1/2 cycle @ 60Hz	-	-	-	300	-	-	300	A pk

			CG3-2.0			CG3-2.5			
			CG3-2.0L			CG3-2.5L			
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Device Specifications									
DC Breakdown	500V/s	V _{BD}	1600	2000	2400	2000	2500	3000	V
Impulse Breakdown	100V/μs	V _{BD}	-	-	3000	-	-	3750	V
Insulation Resistance	100V	IR	10 ¹⁰	-	-	10 ¹⁰	-	-	Ω
Capacitance	1MHz	C	-	-	1	-	-	1	pF
Arc Voltage	I=5A min	V _{ARC}	-	10	-	-	10	-	V
Mechanical Outline		-	-	A	-	-	A	-	-
Life Ratings ⁽¹⁾									
Surge Life	.002mF, 100Ω	-	500	-	-	500	-	-	shots
Max Current Surge	10kA (8/20μs)	-	5	-	-	5	-	-	shots
AC Follow-on Current	1/2 cycle @ 60Hz	-	-	-	300	-	-	300	A pk

			CG3-3.0			CG3-4.0			
			CG3-3.0L			CG3-4.0L			
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Device Specifications									
DC Breakdown	500V/s	V _{BD}	2400	3000	3600	3200	4000	4800	V
Impulse Breakdown	100V/μs	V _{BD}	-	-	4500	-	-	6000	V
Insulation Resistance	100V	IR	10 ¹⁰	-	-	10 ¹⁰	-	-	Ω
Capacitance	1MHz	C	-	-	1	-	-	1	pF
Arc Voltage	I=5A min	V _{ARC}	-	10	-	-	10	-	V
Mechanical Outline		-	-	B	-	-	B	-	-
Life Ratings ⁽¹⁾									
Surge Life	.002mF,100W	-	500	-	-	500	-	-	shots
Max Current Surge	10kA (8/20μs)	-	5	-	-	5	-	-	shots
AC Follow-on Current	¹ / ₂ cycle @ 60Hz	-	-	-	300	-	-	300	A pk

⁽¹⁾End-of-life limits are:

DC: 50% of minimum initial DC breakdown voltage limit to 150% of maximum initial DC breakdown voltage limit.

Impulse: less than 150% of initial impulse breakdown voltage limit.

SPECIFICATIONS

All characteristics at 25°C

All characteristics at 25°C												
CG3-5.0 CG3-5.0L CG3-7.5 CG3-7.5L CG3-8.5 CG3-8.5L												
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Device Specifications												
DC Breakdown	500V/s	V _{BD}	4000	5000	6000	6000	7500	9000	6800	8500	10200	V
Impulse Breakdown	100V/μs	V _{BD}	-	-	7500	-	-	10000	-	-	13500	V
Insulation Resistance	100V	IR	10 ¹⁰	-	-	10 ¹⁰	-	-	10 ¹⁰	-	-	Ω
Capacitance	1MHz	C	-	-	1	-	-	1	-	-	1	pF
Arc Voltage	I=5A min	V _{ARC}	-	10	-	-	10	-	-	10	-	V
Mechanical Outline		-	-	B	-	-	B	-	-	B	-	-
Life Ratings ⁽¹⁾												
Surge Life	.002mF,100Ω	-	500	-	-	500	-	-	500	-	-	shots
Max Current Surge	10kA (8/20μs)	-	5	-	-	5	-	-	5	-	-	shots
AC Follow-on Current	¹ /2 cycle @ 60Hz	-	-	-	300	-	-	300	-	-	300	A pk

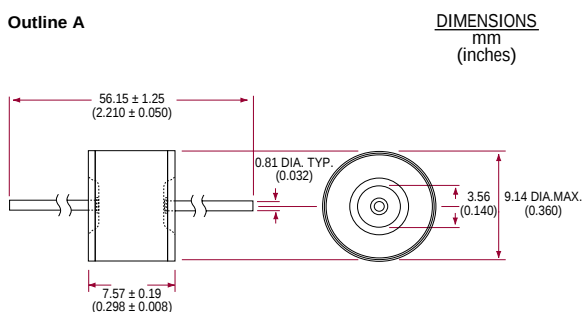
⁽¹⁾End-of-life limits are:

DC: 50% of minimum initial DC breakdown voltage limit to 150% of maximum initial DC breakdown voltage limit.
 Impulse: less than 150% of initial impulse breakdown voltage limit.

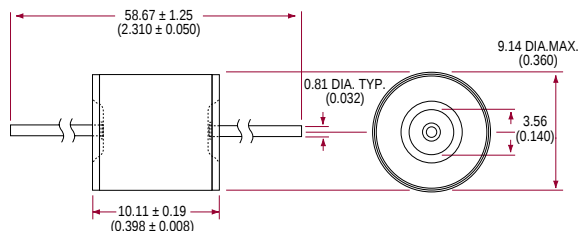
MECHANICAL DIMENSIONS

Other lead forms are available upon request.
 Contact SRC Devices for more information.

Outline A



Outline B



ORDERING INFORMATION

CG3's with other breakdown voltages in the 1.0-8.5kV range are available upon request. A complete part number is represented by the digits below. For example, CG3-1.5 is a non-leaded 1500V device, CG3-5.0L is a leaded 5000V device, and CG3-7.5LTR is a leaded 7500V device on tape-and-reel per EIA standard RS-296-D.

CG3	XX	X	XX
Series CG3	Breakdown Voltage	Shipping Package TR = Tape & Reel (Blank) = Bulk	Options L = Leads (Blank) = No Leads
	1.0 = 1000V 1.5 = 1500V 2.0 = 2000V 2.5 = 2500V 3.0 = 3000V 4.0 = 4000V 5.0 = 5000V 7.5 = 7500V 8.5 = 8500V		

Tape & Reel Information

CG3XXLTR - Tape & Reel per EIA RS-296-D. Quantity = 1,000/Reel

CG3XXLTE - Tape & Reel per IEC286-1. Quantity = 1,000/Reel

TWO ELECTRODE MINI SURGE ARRESTERS

CG5 Series



DESCRIPTION

SRC Devices two electrode mini CG5 Comgaps are gas filled, non-radioactive surge protectors. These devices are physically smaller than the standard CG/CG2 series reducing the space required to provide high performance circuit protection. The CG5 series can be supplied with or without leads. These components are used in a variety of different applications, including telecom and CATV communication lines. The small CG5 gas tubes function as switches which dissipate a minimum amount of energy and therefore handle currents that far surpass other types of transient voltage protection.

FEATURES

- Non-radioactive
- Rugged ceramic-metal construction
- Low capacitance (<1pF)
- Available with or without leads
- Available in tape-and-reel packaging

APPLICATIONS

- CATV equipment
- Test equipment
- Data and Telecom lines
- Instrumentation circuits

RATINGS (@ 25° C)

Parameter	Min	Typ	Max	Units
DC Breakdown Voltage	72	90	113	V
	184	230	276	V
	280	350	420	V
Insulation Resistance	10 ¹⁰	-	-	Ω
Capacitance	-	-	1	pF
Operational Temperature	-40	-	+125	°C

(See detailed specifications for more information.)

SPECIFICATIONS

All characteristics at 25°C												

⁽¹⁾ End-of-Life limits are:

DC: 50% of minimum initial DC Breakdown Voltage limit to 150% of maximum initial DC Breakdown Voltage limit.

Impulse: less than 150% of initial impulse Breakdown Voltage limit.

TWO ELECTRODE MINI SURGE ARRESTERS

CG5 Series



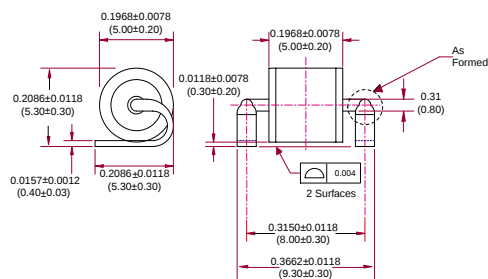
MECHANICAL DIMENSIONS

Other lead forms are available upon request.
Contact REMtech for more information.

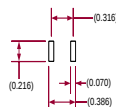
DIMENSIONS
mm
(inches)



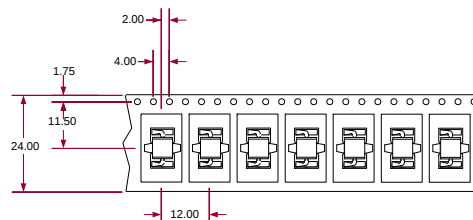
LS Outline



LS Recommended Land Pattern



LS Tape & Reel Packaging



Tape & Reel packaging is available on request. See ordering information below for part number structure.

ORDERING INFORMATION

A complete part number is represented by the digits below.
For example, CG5-90 is a non-leaded 90V device, CG5-230L is a leaded 230V device, and CG5-350LTR is a leaded 350V device on tape-and-reel per EIA standard RS-296-D.

Tape & Reel Information

CG5XXXLTR - Tape & Reel per EIA RS-296-D. Quantity = 1,000/Reel

CG5XXXLTE - Tape & Reel per IEC286-1. Quantity = 1,000/Reel

CG5XXXLSTR - See figure above for tape & reel information. Quantity = 2,900/Reel

