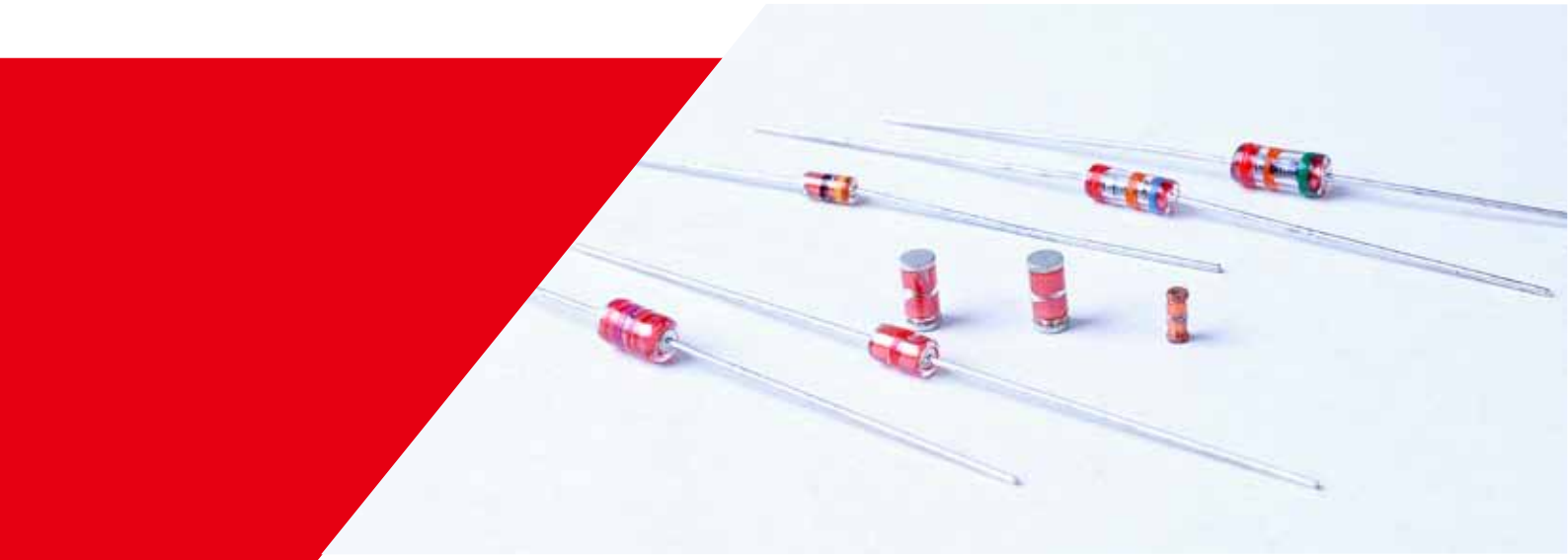
ELECTRONICS



Glass Gas Discharge

RL102 Series

Specifications are subject to change without notice.

Glass Gas Discharge - RL102 Series

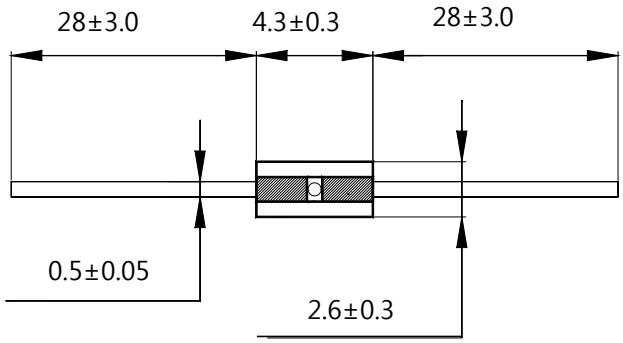
Features

• Compared with other surge absorbers having similar functions has the fast response speed ,largest withstand current and voltage but smallest size.
• All electrical characteristics are very stable even after long period of charge and discharge. There is no need for inspection and exchange periodically.
• Super capability to withstand repeated lightning strikes.
• Stable and very Small electrostatic capacitance (<0.8pf) and great isolation (>100MΩ).
• No pollution material.
• Bilateral and symmetrical.
• Completely insensitive to weather, temperature, humidity and lightness.

Applications

• Power Supplies
• Motor sparks eliminating
• Relay switching spark absorbing
• Data line pulse guarding
• Electronic devices requiring UL497A and UL497B compliant
• Telephone/Fax/Modem
• High frequency signal transmitters/receivers
• Satellite antenna
• Radio amplifiers
• Alarm systems
• Cathode ray tubes in Monitors/TVs

Dimensions



Part Number Code

R	L	M	1	0	2	-	1	4	1	N

LOGO

Taping form
Blank:Line
S:Magnet-type
M:SMD

Surge Current Capacity
501:0.5KA
102:1KA
302:3KA

DC Spark-over voltage(Vs)
$14*10^{1}$=140V

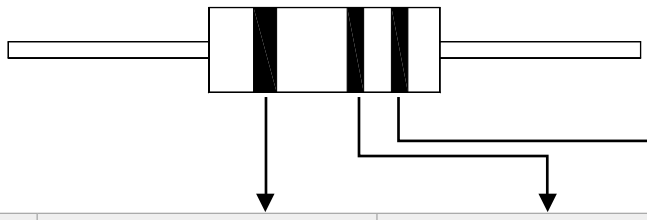
DC Spark-over voltage tolerance
N:30%
M:20%

Glass Gas Discharge - RL102 Series

Electrlcal Characterlstlcs

Type Number	DC Spark-Over Voltage	Insulation Resistance IR		Electrostatic Capacitance 1KHz-6Vmax	Surge current capacity 8/20us	AC withstanding voltage test condition	UL	Surge Life Test
	V	MΩ	DC V	pF	A	A		
RL102-141N	140±30%	>100MΩmin	50	<1.0	1000	-	-	10*700us 4000V 100A 10time
RL102-201M	200±20%	>100MΩmin	100	<1.0	1000	-	O	
RL102-301M	300±20%	>100MΩmin	100	<1.0	1000	-	O	
RL102-401M	400±20%	>100MΩmin	250	<1.0	1000	-	O	
RL102-501M	500±20%	>100MΩmin	250	<1.0	1000	-	O	
RL102-701M	700±20%	>100MΩmin	250	<1.0	1000	-	-	
RL102-102M	1000±20%	>100MΩmin	500	<1.0	1000	-	-	
RL102-152M	1500±20%	>100MΩmin	500	<1.0	1000	-	-	

Marking of colcor code



Type Number	1st Band	2nd Band	3nd Band
RL102-141N	Borwn	-	-
RL102-201M	Red	-	-
RL102-301M	Orange	-	-
RL102-401M	Yellow	-	-
RL102-501M	Green	-	-
RL102-701M	Blue	-	-
RL102-102M	Black	-	-
RL102-152M	Black	Green	Red

Glass Gas Discharge - RL102 Series

Test Observance Lab

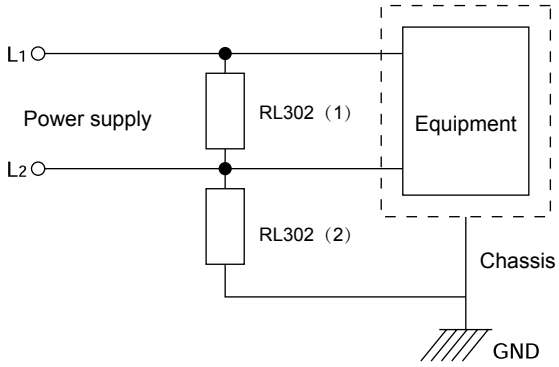
Troubled with surge requirements.
*Products being developed can't meet UL standards.
*Need to protect equipment from indirect lightning surges in the field.
Testhing of their product with the latest impulse voltage and current generators that can duplicate the test requirements of the various worldwide standards agencies. From these tests we can recommend the best solution to help you pass requirements.

Reference standard	Wave form	comments
JEC standard	1.2/50μs 30kVmax	Indirect lightning protection
	8/20μs 6kAmax	
IEC61000-4-5 conformance	1.2/50μs 15kV 8/20μs7.5kA	Indirect lightning protection
IEC61000-4-2 conformance	150pF 330Ω 30kVmax	Static electricty protection
FCC standard	10/560μs 800V 100A	Communication related protection
FCC standard	10/160μs 1 .5kV 200A	Communication related protection
FCC standard conformance	10/700μs 15kVmax	Communication related protection
IEEE	0.5μ-100kHz 6kVmax	-
UL standards	AC600V 40A 1.5s	Communications (AC power cross)
	AC600V 7A 5s	
	AC600V 2 .2A 30min	
	Over-voltage to AC600V	
others	Rectangular wave, pulse width 50~1000ns, 4kV max, 30~60Hz	-
	2/10μs 2 .5kV 1kA	
	10/200μs 20kVmax	
	0.5/700μs 6kVmax	
	100/700μs 5kVmax	

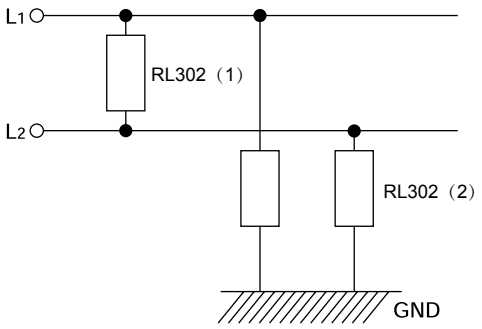
Glass Gas Discharge - RL102 Series

Surge Applications

1. Power supply requiring AC withstanding voltage test



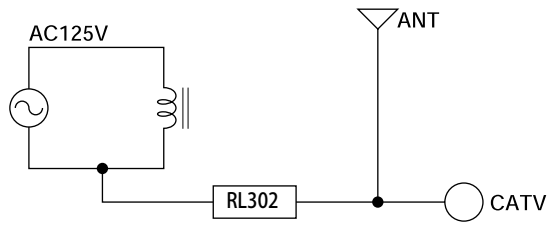
2. High quality supply



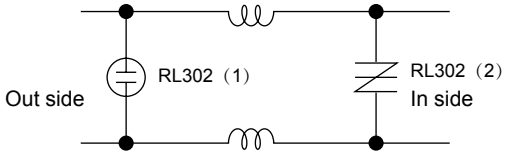
Conditions		AC125V	AC250V
Normal mode (Between L_1 and L_2)	RL302（2）	RL302-301M	RL302-501M
Common mod (Between L_1, L_2-GND)	RL302（1） Test is not required	RL302-301M	RL302-501M
AC withstanding voltage test condition	AC1200V	RL302-242M	RL302-242M
	AC1500V	RL302-302M	RL302-302M
	AC1800V	RL302-362M	RL302-362M
	AC2000V	RL302-452M	RL302-452M

Applications : SW power supply, inverter power supply, power supply of office and home appliance

3. TV tuner circuit : cold chassis



4. Sensor and data line

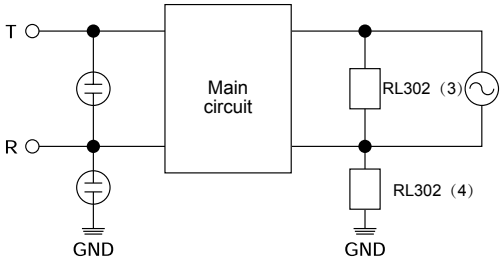


SA1:RL302-201M
SA2:P0300EA

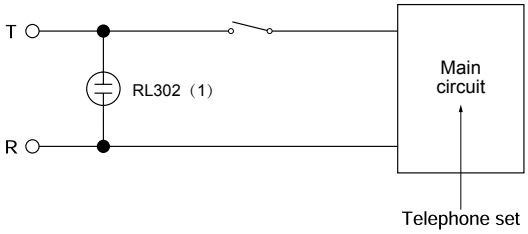
Glass Gas Discharge - RL102 Series

Surge Applications

5.Telecommunication equipment (FAX, KTS, PBX)

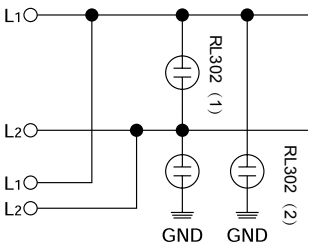


Telephone (One piece, cordless, answering machine)



	Telecommunication interface				Power supply	
					AC125V	AC250V
Normal mode	Between T and R. RL302 (1)	Japan,USA,EU and South East Asia	RL102-301M	RL302 (3)	RL302-301M	RL302-501M
		Canada	RL102-401M			
Common mode	Between T, R and GND. RL302 (2)	AC withstanding test is not required	DSA=RL302	RL302 (3)	RL302-301M	RL302-302M RL302-362M
		AC withstanding test is required	AC1200V→ RL302-242M AC1500V→ RL302-302M			

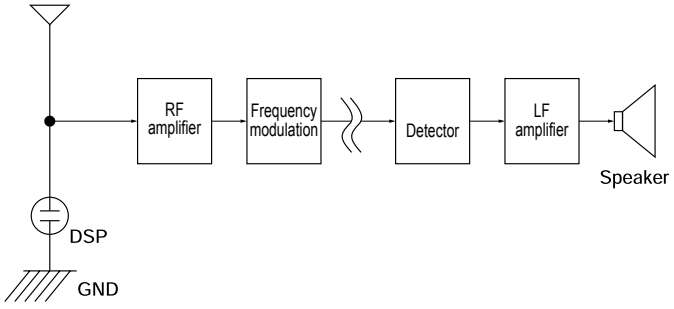
Modem



Applications : key telephone system, PBX, modem, answering phone, cordless telephone, normal telephone etc.

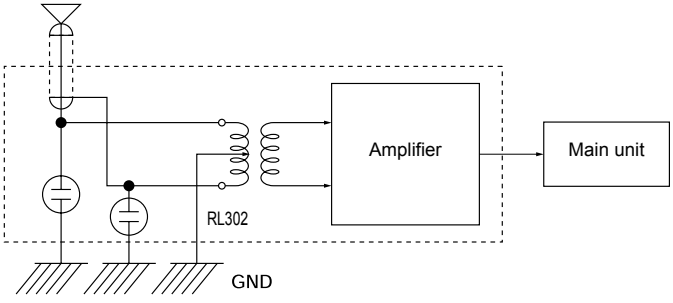
6.Car radio, radio cassette, wireless

absorber will protect the semiconductor (front-Inserted in the antenna input terminal, the surge end IC or FET, etc.)against failure due to static surge entering from the antenna.



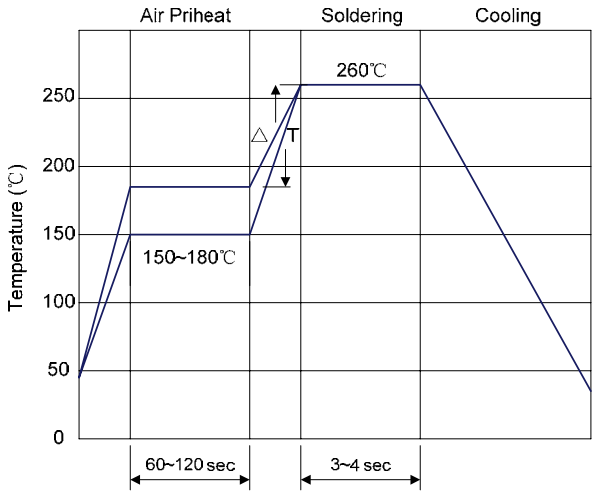
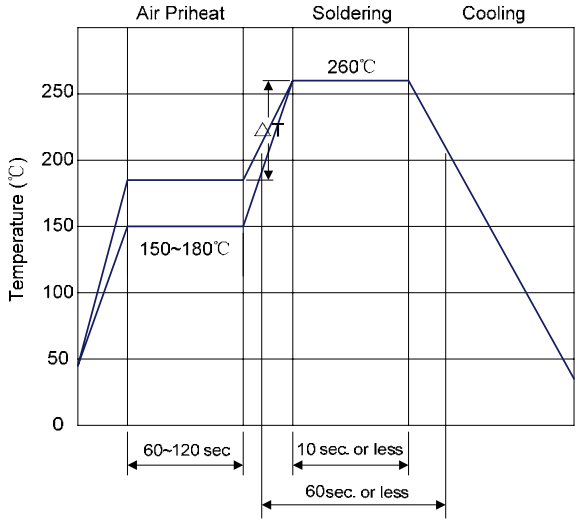
7.Boosters (for satellite broadcasting and general TV equipment)

In this application, the surge absorber protects the semiconductor against small surge energies from the vicinity of the antenna or against static electricity due to human contact.
The recent use of high-sensitivity FET has led to a stronger requirement for surge protection.



Glass Gas Discharge - RL102 Series

Recommended Soldering Conditions

Flow Soldering Conditions	Reflow Soldering Conditions
	

1) Time shown in the above figures is measured from the point when chip surface reaches temperature.
2) Temperature difference in high temperature part should be within 110℃.
3) After soldering, do not force cool, allow the parts to cool gradually.

Hand Soldering

Solder iron temperature: 350±5℃
Heating time: 3 seconds max.

General attention to soldering

● High soldering temperatures and long soldering times can cause leaching of the termination, decrease in adherence strength, and the change of characteristic may occur.
● For soldering, please refer to the soldering curves above. However, please keep exposures to temperatures exceeding 200℃ to fewer than 50 seconds.
● Please use a mild flux (containing less than 0.2wt% Cl). Also, if the flux is water soluble, be sure to wash thoroughly to remove any residue from the underside of components that could affect resistance.

Cleaning

When using ultrasonic cleaning, the board may resonate if the output power is too high. Since this vibration can cause cracking or a decrease in the adherence of the termination, we recommend that you use the conditions below.
Frequency: 40kHz max.
Output power: 20W/liter
Cleaning time: 5 minutes max.

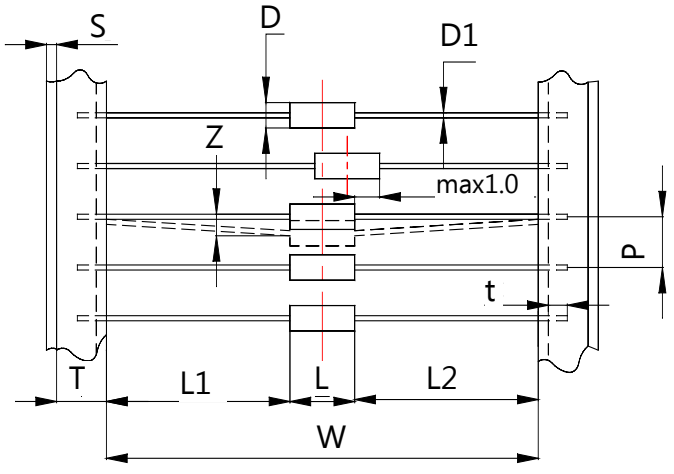
Glass Gas Discharge - RL102 Series

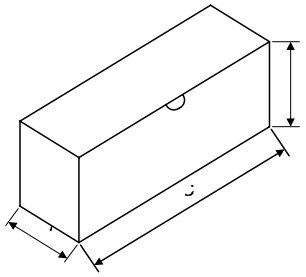
Test Methods And Results

ITEM	TEST METHOD	STANDARD
Static Life	10KV with 1500pf condens er is discharged through 2KΩ resistor. 200 times at an interval of 10sec.	Rate-of-change, within±30% insulation resistance & capacitance, conformed to rated spec.
Cold Resistance	Measurement after -40℃/1000 HRS & normal temperature/2 HRS.	Features are conformed to rated spec.
Heat Resistance	Measurement after 125℃/1000 HRS & normal temperature/2 HRS.STANDARD	
Humidity Resistance	Measurement after humidity 90~95%(45℃)/1000 HRS & normal temperature/2 HRS.	
Temperature Cycle	10 times repetition of cycle -40℃/30min normal,temp/2 min →125℃/30min,measurement after normal temp/2 HRS.	
Solder Ability	Apply flux and immerse in molten solder230±5℃for 3sec up to the point of 1.5mmFrom body. Check for solder adhesion.	Lead wire is evenly covered by solder.
Solder Heat	Measurement after lead wire is dipped up to the point of 1.5mm from body into 260±5℃ solder for 10sec.	Conformed to rated spec.
Pull Strength	Apply 0.5kg load for 10sec.	Lead shall not pull out or snap.
Flexural Strength	Bend lead wire at the point of 2mm from body under 0.25 load and back to its original point. Repeat 1 time.	

Glass Gas Discharge - RL102 Series

Ordering Information





Symbol	Dimension (mm)
W	52.0±1.5
P	5.0±0.5
L1-L2	1.0max.
T	6.0±1.0
Z	1.2max.
t	3.2max.
S	0.8max.
D	ϕ 2.6max.
D1	ϕ 0.5±0.05
L	4.3±1.0
A	78.0
B	78.0
C	255.0
Antity: 2000PCS	

Warehouse Storage Conditions of Products

▪ Storage Conditions:

1. Storaging temperature range: -25℃+85℃.
2. Relative Humidity:≤75%RH
3. Keep away from corrosive atmosphere and sunlight.
4. Period of Storage: 1 year

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