

## Solid-state Relay

**G3R/G3RD**

### Compact SSRs Ideal for Built-in Applications

- Vertical, compact SSRs with an operation indicator offered in versatile variations.
- Can be mounted side by side with an electromagnetic relay on the same socket.
- Three sockets: screw terminal (can be DIN-track mounted), PCB terminal, and solder terminal types.
- 2-A versions can either be mounted on a PCB, or directly installed.
- High dielectric strength of 1,500 VAC for 1-A models, and 2,500 VAC for 2-A models.
- High-voltage DC version also available.



RC

### Ordering Information

Terminals	Isolation	Zero cross function	Indicator	Applicable output load	Rated input voltage	Model
PCB	Phototriac	Yes	No	2 A at 75 to 132 VAC (see note 1)	5,12,24 VDC	G3R-102PN-US
		No				G3R-102PLN-US
		Yes		2 A at 75 to 264 VAC (see note 2)		G3R-202PN-US
		No				G3R-202PLN-US
	Photocoupler	---	Yes	1.5 A at 3 to 125 VDC		G3RD-101PN-US
				2 A at 3 to 52.8 VDC (see note 3)		G3RD-X02PN-US

**Note:** 1. Product is labelled "125 VAC".  
 2. Product is labelled "250 VAC".  
 3. Product is labelled "50 VDC".

# Specifications

## ■ Ratings

### Input (AC Output With Zero Cross Function)

Model	Rated voltage	Operating voltage	Impedance	Voltage level	
				Must operate voltage	Must release voltage
G3R-102PN	5 VDC	4 to 6 VDC	250 W+20%	3.5 VDC max.	0.375 VDC min.
	12 VDC	9.6 to 14.4 VDC	600 W+20%	8.4 VDC max.	0.9 VDC min.
G3R-202PN	24 VDC	19.2 to 28.8 VDC	1.5 kW+20%	16.8 VDC max.	1.8 VDC min.

### Input (AC Output Without Zero Cross Function, DC Output)

Model	Rated voltage	Operating voltage	Impedance	Voltage level	
				Must operate voltage	Must release voltage
G3R-102PLN	5 VDC	4 to 6 VDC	300 W+20%	3.5 VDC max.	0.375 VDC min.
G3R-202PLN	12 VDC	9.6 to 14.4 VDC	750 W+20%	8.4 VDC max.	0.9 VDC min.
G3RD-X02PN G3RD-101PN	24 VDC	19.2 to 28.8 VDC	1.5 kW+20%	16.8 VDC max.	1.8 VDC min.

## Output

Model	Applicable load		
	Rated load voltage	Load current	Inrush current
G3R-102PN G3R-102PLN	75 to 132 VAC	0.1 to 1 A	30 A (60 Hz, 1 cycle)
		0.1 to 2 A	
G3R-202PN G3R-202PLN	75 to 264 VAC	0.1 to 1 A	
		0.1 to 2 A	
G3RD-X02/PN	3 to 52.8 VDC	0.01 to 2 A	8 A (10 ms)
G3RD-101/PN	3 to 125 VDC	0.01 to 1.5 A	2.5 A (10 ms)

## ■ Characteristics

Item	G3R-102PLN	G3R-102PN	G3R-202PLN	G3R-202PN	G3RD/-X02PN/-101PN
Operate time	1 ms max.	1/2 of load power source cycle + 1 ms max.	1 ms max.	1/2 of load power source cycle + 1 ms max.	1 ms max.
Release time	1/2 of load power source cycle + 1 ms max.				1 ms max.
Output ON voltage drop	1.6 V (RMS) max.				1.5 V max.
Leakage current	2 mA max. (at 100 VAC)		2 mA max. (at 100 VAC) 5 mA max. (at 200 VAC)		0.1 mA max. (at 125 VDC)
Insulation resistance	100 MW min. (at 500 VDC)				
Dielectric strength	1-A type: 1,500 VAC, 50/60 Hz for 1 min 2-A type: 2,500 VAC, 50/60 Hz for 1 min				2,500 VAC, 50/60 Hz for 1 min
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude				
Shock resistance	Malfunction: 1,000 m/s <sup>2</sup> (approx. 100G)				
Ambient temperature	Operating: -30% to 80°C (with no icing) Storage: -30% to 100°C (with no icing)				
Ambient humidity	Operating: 45% to 85%				
Weight	1-A type: approx. 12 g; 2-A type (output): approx. 18 g				

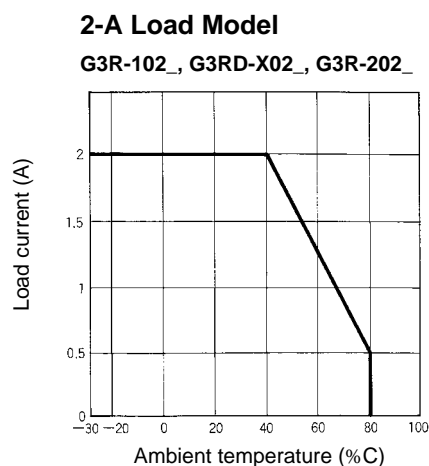
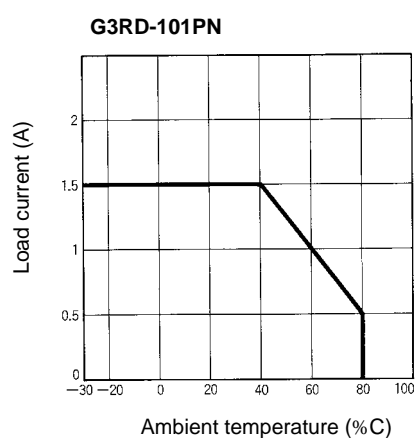
## ■ Approved Standards

UL508 File No.E64562/CSA C22.2 (No.0, No.14) File No. LR35535

Model	Ratings
G3R-101P(L)(N)-US	1 A at 120 VAC
G3R-102P(L)(N)-US	2 A at 120 VAC
G3R-101S(L)(N)-US	1 A at 120 VAC
G3R-102S(L)(N)-US	2 A at 120 VAC
G3R-201P(L)(N)-US	1 A at 240 VAC
G3R-202P(L)(N)-US	2 A at 240 VAC
G3R-201S(L)(N)-US	1 A at 240 VAC
G3R-202S(L)(N)-US	2 A at 240 VAC
G3RD-X02P(N)-US/X02S(N)-US	2 A at 48 VDC

## Engineering Data

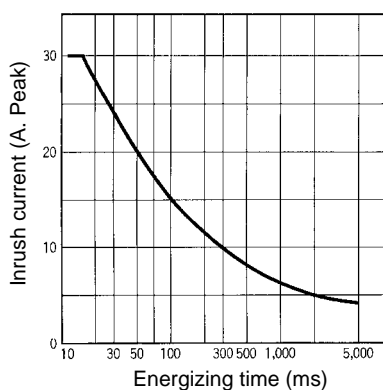
### Load Current vs. Ambient Temperature Characteristics



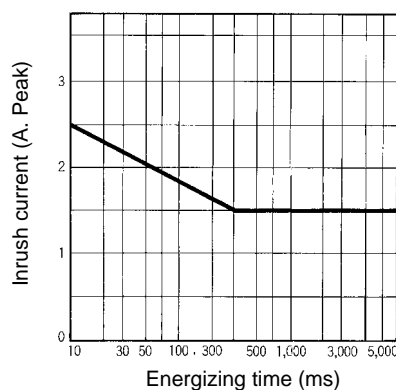
### Inrush Current Resistivity

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

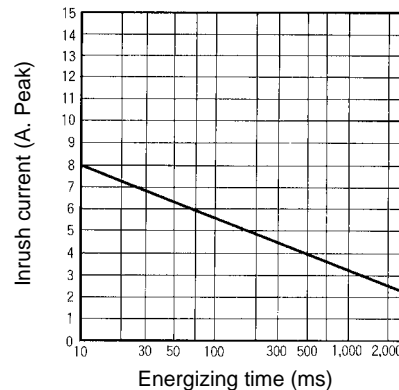
G3R-101\_/102\_/201\_/202\_



G3RD-101PN



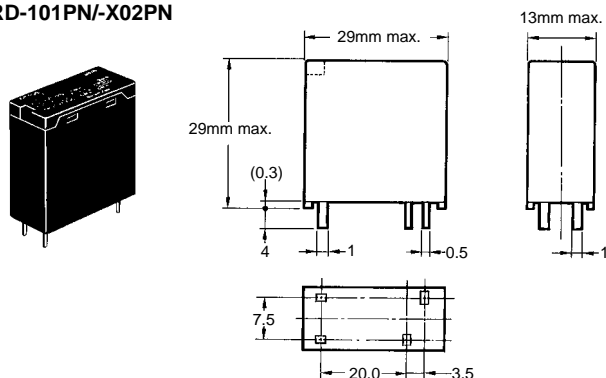
G3RD-X02\_



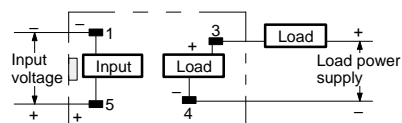
## Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

G3R-102P\_/202P\_  
G3RD-101PN/-X02PN

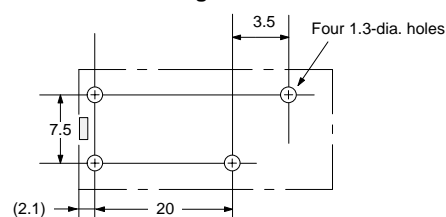


**Terminal Arrangement/  
Internal Connections  
(Bottom View)**



**Note:** The plus and minus symbols shown in the parentheses are for DC loads.

**Mounting Holes**



## Precautions

Refer to pages 5 to 13 for general precautions.

Because the operation time of the SSR is extremely short, take measures to suppress noise induced between the INPUT terminals. If generation of strong noise is expected, connect an external noise absorber such as an RC circuit. Limit the rise and fall time of the input voltage to 50 ms maximum.

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.