

G3R/G3RD

Solid State Relays

Same Shape as SSR Type G2R Power Relay for PCB Mounting



- Direct mounting to PCBs.
Also standardized with input indicator.
- High dielectric strength of 2,500 VAC for 2-A models.
- High-voltage DC version also available.
- Lineup includes models with UL and CSA certification
(model numbers ending in “-US”).



RoHS Compliant

Refer to "Solid State Relays Common Precautions".

List of Models

Terminals	Isolation	Zero cross function	Indicator	Rated output load	Rated input voltage	Model	Minimum packing unit	
PCB	Phototriac	Yes	Yes	2 A at 100 to 120 VAC *1	5, 12, 24 VDC	G3R-102PN	20 pcs	
		No				G3R-102PLN		
		Yes		2 A at 100 to 240 VAC *2		G3R-202PN		
		No				G3R-202PLN		
	Photocoupler	—		1.5 A at 5 to 110 VDC		G3RD-101PN		
				2 A at 4 to 48 VDC *3		G3RD-X02PN		

*1. Product is labelled “125 VAC”. *2. Product is labelled “250 VAC”. *3. Product is labelled “50 VDC”.

Ratings

Input (AC Output With Zero Cross Function)

Model	Item	Rated voltage	Operating voltage	Must operate voltage level	Must release voltage level	Input impedance
G3R-102PN G3R-202PN		5 VDC	4 to 6 VDC	3.5 VDC max.	0.375 VDC min.	250 Ω±20%
		12 VDC	9.6 to 14.4 VDC	8.4 VDC max.	0.9 VDC min.	600 Ω±20%
		24 VDC	19.2 to 28.8 VDC	16.8 VDC max.	1.8 VDC min.	1.5 kΩ±20%

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

Model	Item	Rated voltage	Operating voltage	Must operate voltage level	Must release voltage level	Input impedance
G3R-102PLN G3R-202PLN G3RD-X02PN G3RD-101PN		5 VDC	4 to 6 VDC	3.5 VDC max.	0.375 VDC min.	300 Ω±20%
		12 VDC	9.6 to 14.4 VDC	8.4 VDC max.	0.9 VDC min.	750 Ω±20%
		24 VDC	19.2 to 28.8 VDC	16.8 VDC max.	1.8 VDC min.	1.5 kΩ±20%

Output

Model	Item	Applicable load			
		Rated load voltage	Load voltage range	Load current	Inrush current
G3R-102PN G3R-102PLN		100 to 120 VAC	75 to 132 VAC	0.1 to 2 A *	30 A (60 Hz, 1 cycle)
G3R-202PN G3R-202PLN		100 to 240 VAC	75 to 264 VAC	0.1 to 2 A *	30 A (60 Hz, 1 cycle)
G3RD-X02PN		4 to 48 VDC	3 to 52.8 VDC	0.01 to 2 A *	8 A (10 ms)
G3RD-101PN		5 to 110 VDC	3 to 125 VDC	0.01 to 1.5 A *	2.5 A (10 ms)

* The load current varies depending on the ambient temperature. Refer to Load Current vs. Ambient Temperature under Engineering Data.

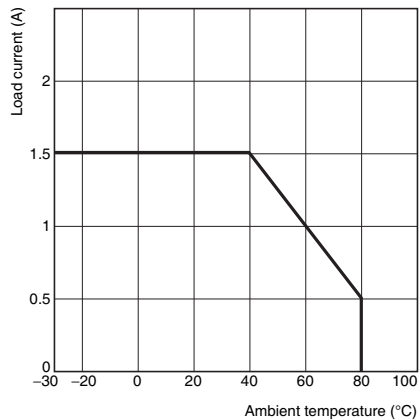
Characteristics

Item	Model	G3R-102PLN	G3R-102PN	G3R-202PLN	G3R-202PN	G3RD-X02PN G3RD-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 50 VDC) 0.1 mA max. (at 125 VDC)
Insulation resistance		100 MΩ min. (at 500 VDC)				
Dielectric strength		2,500 VAC, 50/60Hz for 1 min. between input and output				
Vibration resistance		10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)				
Shock resistance		1,000 m/s ²				
Ambient operating temperature		-30°C to 80°C (with no icing or condensation)				
Ambient operating humidity		45% to 85%RH				
Storage temperature		-30°C to 100°C (with no icing or condensation)				
Weight		Approx. 12g (1-A load model), Approx. 18 g (2-A LOAD, DC output model)				

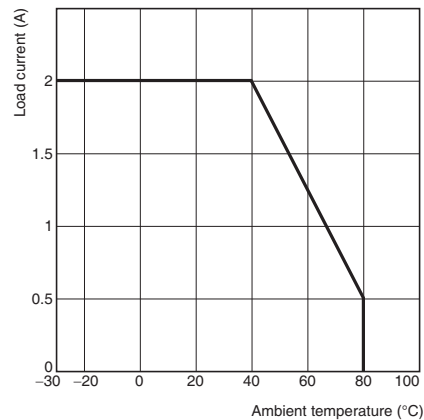
Engineering Data

Load Current vs. Ambient Temperature Characteristics

1-A Load Model
G3RD-101PN

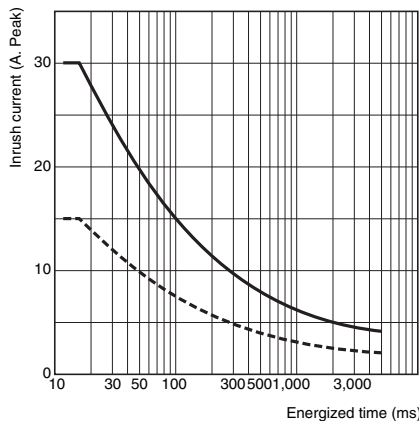


2-A Load Model
G3R-102P(L)N, G3RD-X02PN,
G3R-202P(L)N

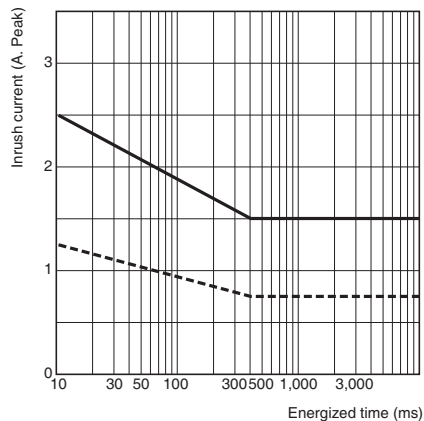


One Cycle Surge Current: Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

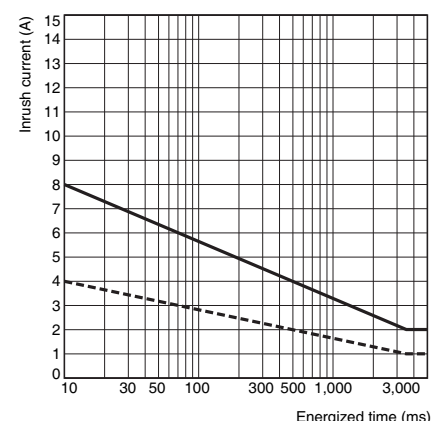
G3R-102PN, G3R-102PLN
G3R-202PN, G3R-202PLN



G3RD-101PN



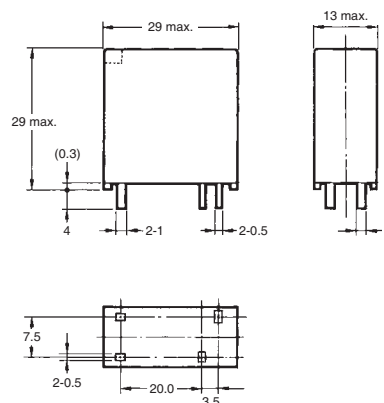
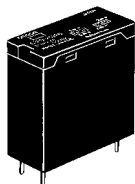
For DC-load
G3RD-X02PN



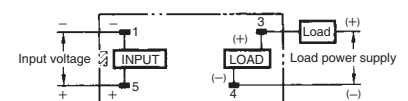
Dimensions

(Unit: mm)

G3R-102P□
G3R-202P□
G3RD-101PN
G3RD-X02PN

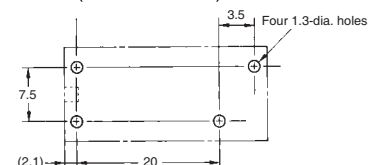


Terminal Arrangement/ Internal Connections (BOTTOM VIEW)



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

Mounting Holes (BOTTOM VIEW)



Safety Precautions

Please refer to "Solid State Relays Common Precautions" for correct use.

• Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
• Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Note: Do not use this document to operate the Unit.

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