

# Solid State Relays G3□-VD

## G3H/G3HD

Refer to *Warranty and Application Considerations* (page 1), *Safety Precautions* (page 4), and *Technical and Safety Information* (page 6).

### International Standards for G3H Series, Same Profile as LY Power Relays

- Shape-compatible with mechanical relays.
- Certified by UL, CSA, and VDE (models numbers with a suffix of “-VD”).
- Socket type, same size as LY Power Relays.
- Operation indicator provided to confirm input (models numbers with “N” before the suffix).



## Model Number Structure

### ■ Model Number Legend

G3H-□□□□□□-□  
 1 2 3 4 5 6 7 8

- |   |  |
|---|--|
| <p><b>1. Basic Model Name</b><br/>G3H: Solid State Relay</p> <p><b>2. Rated Load Power Supply Voltage</b><br/>2: 200 VAC</p> <p><b>3, 4. Rated Load Current</b><br/>03: 3 A</p> <p><b>5. Terminal Type</b><br/>S: Plug-in terminals</p> | <p><b>6. Zero Cross Function</b><br/>Blank: Equipped with zero cross function<br/>L: Not equipped with zero cross function</p> <p><b>7. Operation Indicator</b><br/>Blank: Not equipped with operation indicator<br/>N: Equipped with operation indicator</p> <p><b>8. Certification</b><br/>VD: Certified by UL, CSA, and VDE standards</p> |
|---|--|

G3HD-□□□□□-□  
 1 2 3 4 5 6 7

- |   |   |
|---|---|
| <p><b>1. Basic Model Name</b><br/>G3H: Solid State Relay</p> <p><b>2. Load Power Supply Type</b><br/>D: DC</p> <p><b>3. Rated Load Power Supply Voltage</b><br/>X: 50 VDC</p> <p><b>4. Rated Load Current</b><br/>03: 3 A</p> | <p><b>5. Terminal Type</b><br/>S: Plug-in terminals</p> <p><b>6. Operation Indicator</b><br/>Blank: Not equipped with operation indicator<br/>N: Equipped with operation indicator</p> <p><b>7. Certification</b><br/>VD: Certified by UL, CSA, VDE</p> |
|---|---|

# Ordering Information

## List of Models

Isolation	Zero cross function	Indicator	Rated output load	Rated input voltage	Model
Photocoupler	Yes	Yes	3 A at 100 to 240 VAC (See note 1.)	5 to 24 VDC	G3H-203SN-VD
Phototriac coupler	No			5 VDC	G3H-203SLN-VD
				12 VDC	
				24 VDC	
Photocoupler	No	3 A at 4 to 48 VDC (See note 2.)	5 to 24 VDC	G3HD-X03SN-VD	
Photocoupler	Yes	No	3 A at 100 to 240 VAC (See note 1.)	4 to 24 VDC	G3H-203S-VD
Phototriac coupler	No			5 VDC	G3H-203SL-VD
				12 VDC	
				24 VDC	
Photocoupler	No	3 A at 4 to 48 VDC (See note 2.)	4 to 24 VDC	G3HD-X03S-VD	

- Note:** 1. Product is labelled "250 VAC".  
 2. Product is labelled "50 VDC".  
 3. When ordering, specify the rated input voltage.

## Accessories (Order Separately)

### Connecting Sockets

Refer to page 297 for details.

Item	PTF08A-E	PT08	PT08-0	PT08QN
Connecting	Front connecting	Back connecting		
Mounting method/ Terminal type	Track mounted screw terminals	Solder terminals	PCB terminals	Wire-wrapping terminals
Hold-down clip	PYC-A1	PYC-P		

## Specifications

### Ratings (at an Ambient Temperature of 25°C)

#### Input

Model	Rated voltage	Operating voltage	Impedance	Voltage level	
				Must operate voltage	Must release voltage
G3H-203SN-VD	5 to 24 VDC	4 to 28 VDC	15 mA max. (See note.)	4 VDC max.	1 VDC min.
G3H-203SLN-VD	5 VDC	4 to 6 VDC	390 Ω±20%	4 VDC max.	1 VDC min.
	12 VDC	9.6 to 14.4 VDC	900 Ω±20%	9.6 VDC max.	
	24 VDC	19.2 to 28.8 VDC	2 kΩ±20%	19.2 VDC max.	
G3HD-X03SN-VD	5 to 24 VDC	4 to 28 VDC	1.5 kΩ <sup>+20%</sup> / <sub>-10%</sub>	4 VDC max.	1 VDC min.
G3H-203S-VD	4 to 24 VDC	3 to 28 VDC	15 mA max. (See note.)	3 VDC max.	1 VDC min.
G3H-203SL-VD	5 VDC	4 to 6 VDC	390 Ω±20%	4 VDC max.	1 VDC min.
	12 VDC	9.6 to 14.4 VDC	900 Ω±20%	9.6 VDC max.	
	24 VDC	19.2 to 28.8 VDC	2 kΩ±20%	19.2 VDC max.	
G3HD-X03S-VD	4 to 24 VDC	3 to 28 VDC	1.5 kΩ <sup>+20%</sup> / <sub>-10%</sub>	3 VDC max.	1 VDC min.

**Note:** Constant-current input circuit.

## Output

Model	Applicable load			
	Rated load voltage	Load voltage range	Load current	Inrush current
G3H-203SN-VD G3H-203S-VD G3H-203SLN-VD G3H-203SL-VD	100 to 240 VAC	75 to 264 VAC	0.1 to 3 A	45 A 60 Hz, 1 cycle
G3HD-X03SN-VD G3HD-X03S-VD	4 to 48 VDC	3 to 52.8 VDC	0.1 to 3 A	18 A (10 ms)

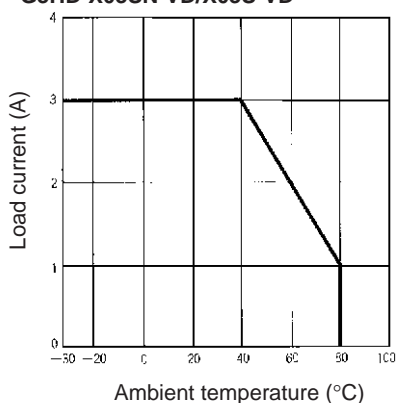
## ■ Characteristics

Model	G3H-203SN-VD/203S-VD	G3H-203SLN-VD/203SL-VD	G3HD-X03SN-VD/X03S-VD
Operate time	1/2 cycle of load power source + 1 ms max.	1 ms max.	0.5 ms max.
Release time	1/2 cycle of load power source + 1 ms max.		2 ms max.
Output ON voltage drop	1.6 V (RMS) max.		1.5 V max.
Leakage current	5 mA max. (at 100 VAC); 10 mA max. (at 200 VAC)	2.5 mA max. (at 100 VAC); 5 mA max. (at 200 VAC)	5 mA max. (at 50 VDC)
Insulation resistance	100 MΩ min. (at 500 VDC)		
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min		1,500 VAC, 50/60 Hz for 1 min
Vibration resistance	Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude		
Shock resistance	Destruction: 1,000 m/s <sup>2</sup>		
Ambient temperature	Operating: -30°C to 80°C (with no icing) Storage: -30°C to 100°C (with no icing)		
Ambient humidity	45% to 85%		
Certified standards	G3H: UL508, CSA C22.2 No. 14, EN60947-4-3 G3HD: UL508, CSA C22.2 No. 14, EN60950		
Weight	Approx. 50 g		

## Engineering Data

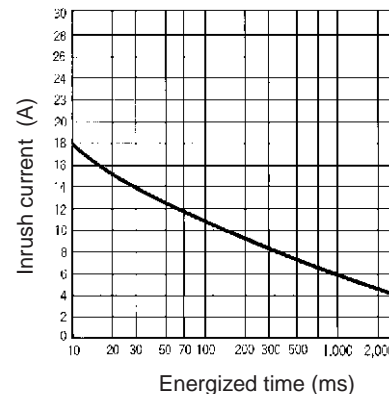
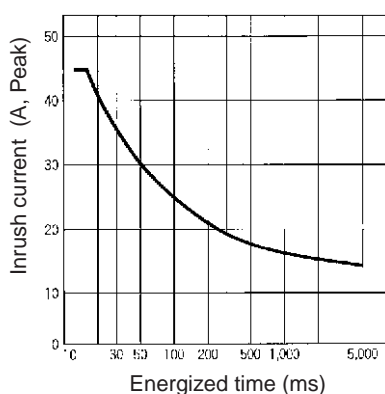
### Load Current vs. Ambient Temperature Characteristics

G3H-203SN-VD/203S-VD/203SLN-VD/  
203SL-VD  
G3HD-X03SN-VD/X03S-VD



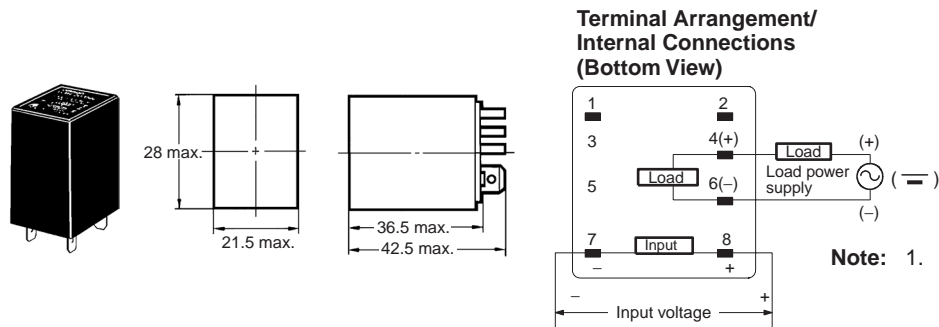
### One Cycle Surge Current: Non-repetitive

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)  
G3H-203SN-VD/203S-VD/203SLN-VD/  
G3H-203SL-VD      G3HD-X03SN-VD/X03S-VD



# Dimensions

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



# Safety Precautions

## ■ Precautions for Correct Use

Please observe the following precautions to prevent failure to operate, malfunction, or undesirable effect on product performance.

The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.

## Connection

With the SSR for DC switching, the load can be connected to either positive or negative output terminal of the SSR.

## Protective Component

Since the SSR does not incorporate an overvoltage absorption component, be sure to connect an overvoltage absorption component when using the SSR under an inductive load.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.