

Solid State Relays G3□-VD

G3H/G3HD

Refer to *Safety Precautions* (page 4).

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

G3HD-□□□□□-□
1 2 3 4 5 6 7

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

Solid state relays

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

| Item | PTF08A-E | PT08 | PT08-0 | PT08QN |
|-----------------------------------|-------------------------------------|------------------|---------------|-------------------------|
| Connecting | Front connecting | Back connecting | | |
| Mounting method/ Terminal type | DIN-rail 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 ^{+20%} / _{-10%} | 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 ^{+20%} / _{-10%} | 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) |

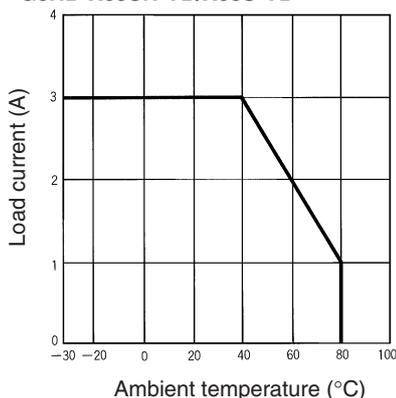
Characteristics

| 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 ² | | |
| 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

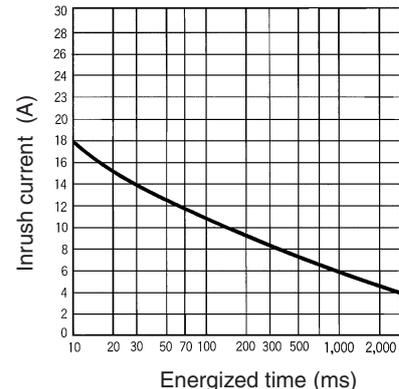
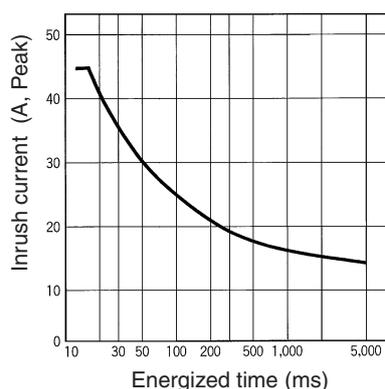
G3H-203SN-VD/203S-VD/203SLN-VD/
203SL-VD
G3HD-X03SN-VD/X03S-VD



One Cycle Surge Current: Non-repetitive

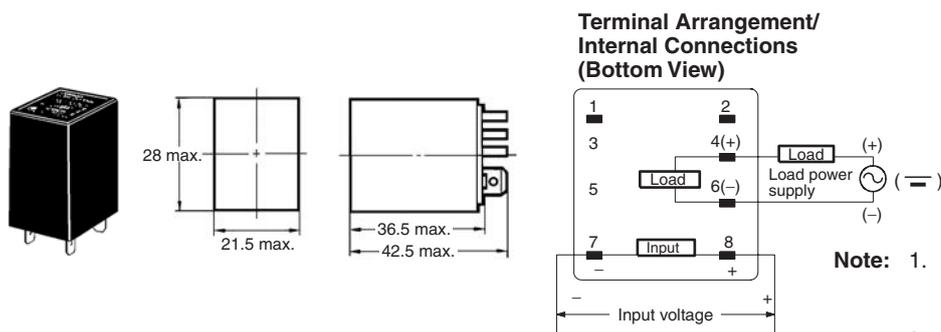
Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

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.