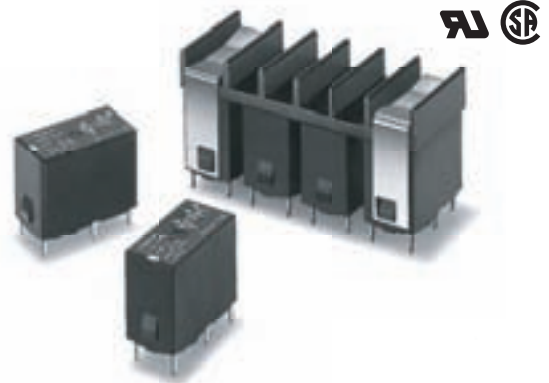


# G3S/G3SD

Solid State Relays

## Ultra-small Relay Breaks up to 1 A

- Ultra-small, dual in-line package (DIP) SSR.
- Terminals are compatible with G6B Electromagnetic Relay's. Be capable mix with G6Bs as the application requires.
- Close mounting possible. In addition, heat sink dedicated to this mounting style also available.
- Both AC- and DC-load versions available.
- High isolation of 2,500 VAC between input and output.
- Built-in varistor effectively absorbs external surges (for AC switching).
- 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

| Isolation    | Zero cross function | Indicator | Rated output load          | Rated input voltage | Model        | Minimum packing unit |
|--------------|---------------------|-----------|----------------------------|---------------------|--------------|----------------------|
| Phototriac   | No                  | No        | 1 A<br>100 to 240 VAC *1   | 5 VDC               | G3S-201PL    | 100 pcs              |
|              |                     |           |                            | 12 VDC              |              |                      |
|              |                     |           |                            | 24 VDC              |              |                      |
|              |                     |           | 1.2 A<br>100 to 240 VAC *1 | 5 VDC               | G3S-201PL-PD |                      |
|              |                     |           |                            | 12 VDC              |              |                      |
|              |                     |           |                            | 24 VDC              |              |                      |
| Photocoupler | No                  | No        | 1 A<br>4 to 24 VDC *2      | 5 VDC               | G3SD-Z01P    |                      |
|              |                     |           |                            | 12 VDC              |              |                      |
|              |                     |           |                            | 24 VDC              |              |                      |
|              |                     |           | 1.1 A<br>4 to 24 VDC *2    | 5 VDC               | G3SD-Z01P-PD |                      |
|              |                     |           |                            | 12 VDC              |              |                      |
|              |                     |           |                            | 24 VDC              |              |                      |

\*1. Product is labelled "250 VAC". \*2 Product is labelled "24 VDC".

### Ratings

**Input** (Each models has 5-VDC, 12-VDC, and 24-VDC input versions.)

| Rated voltage | Operating voltage | Must operate voltage level | Must release voltage level | Impedance                 |                           |
|---------------|-------------------|----------------------------|----------------------------|---------------------------|---------------------------|
|               |                   |                            |                            | G3S-201PL<br>G3S-201PL-PD | G3SD-Z01P<br>G3SD-Z01P-PD |
| 5 VDC         | 4 to 6 VDC        | 4 VDC max.                 | 1 VDC min.                 | 450 Ω ±20%                | 630 Ω ±20%                |
| 12 VDC        | 9.6 to 14.4 VDC   | 9.6 VDC max.               |                            | 1.1 kΩ ±20%               | 1.5 kΩ ±20%               |
| 24 VDC        | 19.2 to 28.8 VDC  | 19.2 VDC max.              |                            | 2.2 kΩ ±20%               | 2.8 kΩ ±20%               |

### Output

| Model        | Item | Rated load voltage | Rated load voltage range | Load current    | Inrush current           |
|--------------|------|--------------------|--------------------------|-----------------|--------------------------|
| G3S-201PL    |      | 100 to 240 VAC     | 75 to 264 VAC            | 0.1 to 1 A *    | 15 A<br>(60 Hz, 1 cycle) |
| G3S-201PL-PD |      |                    |                          | 0.1 to 1.2 A *  |                          |
| G3SD-Z01P    |      | 4 to 24 VDC        | 3 to 26 VDC              | 0.01 to 1 A *   | 3 A (10 ms)              |
| G3SD-Z01P-PD |      |                    |                          | 0.01 to 1.1 A * |                          |

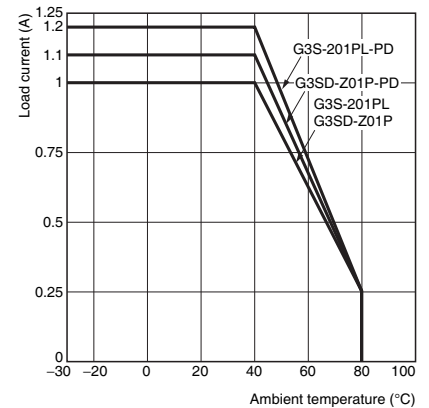
\* The applicable output load current varies depending on the ambient temperature. Refer to reference data the "Load Current vs. Ambient Temperature" rating characteristic for details.

### Characteristics

| Item                          | Model | G3S-201PL, G3S-201PL-PD   | G3SD-Z01P, G3SD-Z01P-PD |
|-------------------------------|-------|---|-------------------------|
| Operate time                  |       | 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 (at 200 VAC)   | 0.1 mA max. (at 26 VDC) |
| Insulation resistance         |       | 100 MΩ min. (at 500 VDC)  |                         |
| Dielectric strength           |       | 2,500 VAC, 50/60 Hz 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 <sup>2</sup>  |                         |
| Storage temperature           |       | -30°C to 100°C (with no icing or condensation)                        |                         |
| Ambient operating temperature |       | -30°C to 80°C (with no icing or condensation)                         |                         |
| Ambient operating humidity    |       | 45% to 85% RH   |                         |
| Weight                        |       | Approx. 13 g  |                         |

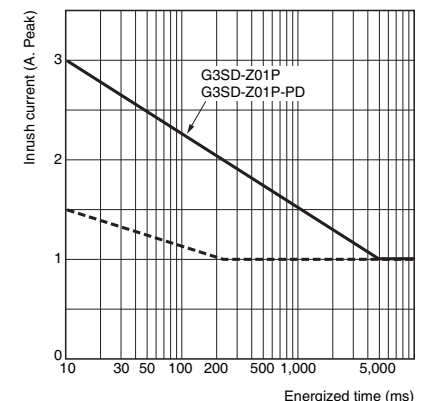
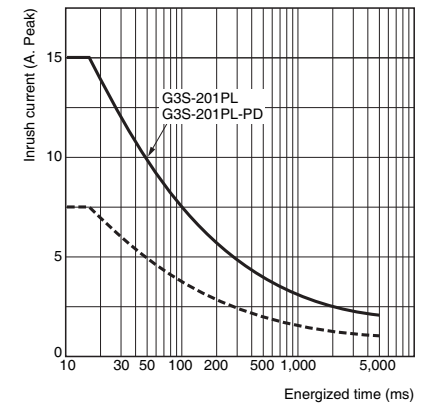
### Engineering Data

#### Load Current vs Ambient Temperature Characteristics



#### One Cycle Surge Current: Non-repetitive


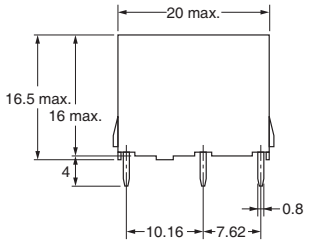
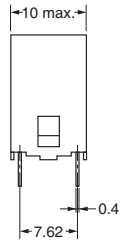
Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)



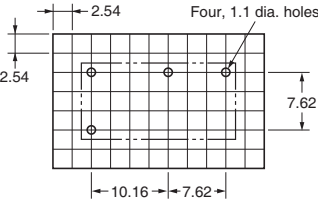
## ■Dimensions

(Unit: mm)

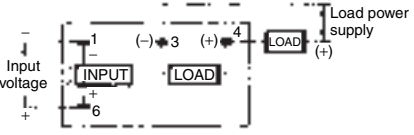
**G3S**  
**G3SD**

**Mounting Holes (BOTTOM VIEW)**  
Tolerance:  $\pm 0.1$  mm




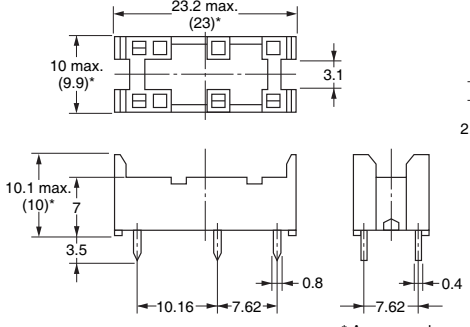
**Terminal Arrangement/ Internal Connections (BOTTOM VIEW)**



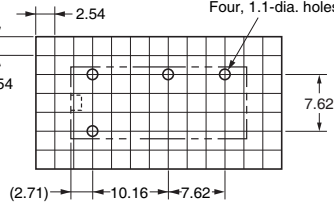
Note: Values in parentheses apply to the DC-load versions.

## ■Connecting Socket

**G6B-04P**

**Mounting Holes (BOTTOM VIEW)**  
Tolerance:  $\pm 0.1$  mm



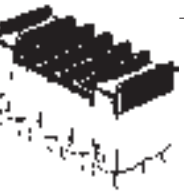
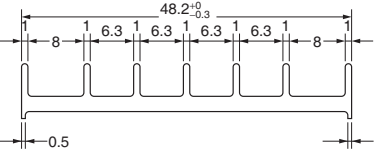
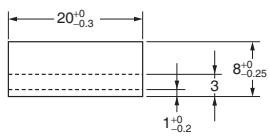
|                              |         |
|------------------------------|---------|
| Model                        | P6B-04P |
| Minimum order quantity (pcs) | 20      |

Note: Order the models below in increments of the minimum quantity packaged.

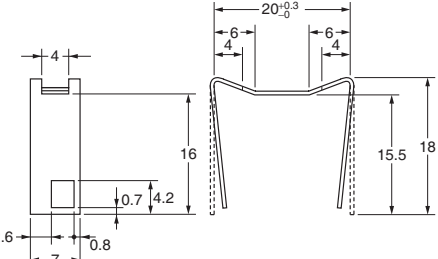
\* Average value

## Heat Sink

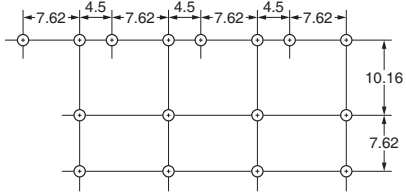
**Y92B-S08N**

**Mounting Bracket**



**Mounting Holes (BOTTOM VIEW)**  
Tolerance:  $\pm 0.1$  mm



|       |           |
|-------|-----------|
| Model | Y92B-S08N |
|-------|-----------|

Note: The Y92B-S08N Relay is composed of heat sink with two mounting tools.

## ■Safety Precautions

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

### Precautions for Correct Use

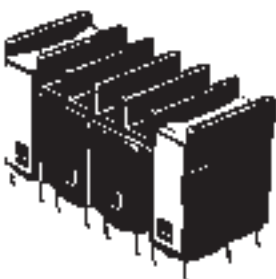
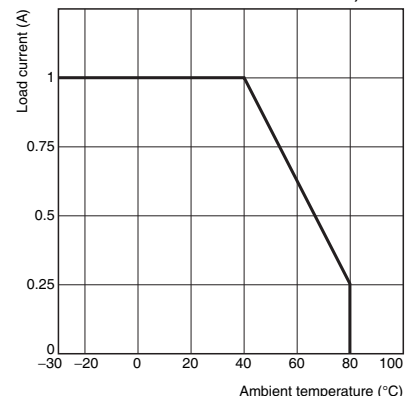
#### • Close Mounting

G3S-201PL-PD and G3SD-Z01-PD SSRs can be closely mounted side by side. Attach the Y92B-S08N Heat Sink to the SSRs mounted closely side by side. When these SSRs are mounted side by side, the load current vs. ambient

temperature characteristic declines as shown below. Apply a thin layer of Momentive Performance Materials's YG6260 or Shin-Etsu Chemical's G747, or similar product to the heat sink before mounting. When these SSRs are mounted side by side (with heat sink), the load current vs. ambient temperature characteristic declines as shown on the right.

#### • Load Current vs. Ambient Temperature Characteristics

(When four SSRs are mounted closely side by side and each of them is switched to the same load current)



- 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.**