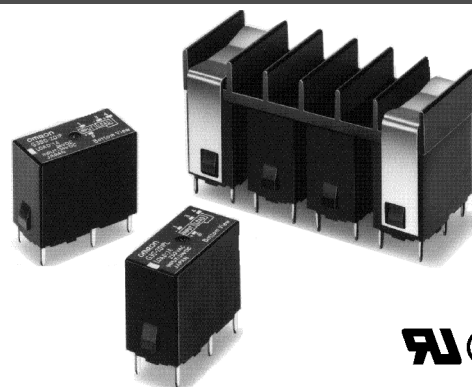


# Solid State Relay G3S/G3SD

## Ultra-small Relay Breaks up to 1 A

- Ultra-small, dual in-line package (DIP) SSR.
- Terminals compatible with G6B Electromagnetic Relay's. Mix with G6Bs as the application requires.
- Close side-by-side 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 freeing inputs from noise surge generated in the load.
- Approved by UL and CSA.



## Ordering Information

To order: Select the part number and add the desired input voltage (Ex: G3SD-Z01P-PD-US *DC12*)

| Isolation    | Zero cross function | Indicator | Rated output load<br>(applicable output load)                       | Rated input voltage | Model           |
|--------------|---------------------|-----------|---------------------------------------------------------------------|---------------------|-----------------|
| Phototriac   | No                  | No        | 1 A at 100 to 240 VAC<br>(1 A at 75 to 264 VAC)<br>(see note 1)     | 5 VDC               | G3S-201PL-US    |
|              |                     |           |                                                                     | 12 VDC              |                 |
|              |                     |           |                                                                     | 24 VDC              |                 |
|              |                     |           | 1.2 A at 100 to 240 VAC<br>(1.2 A at 75 to 264 VAC)<br>(see note 1) | 5 VDC               | G3S-201PL-PD-US |
|              |                     |           |                                                                     | 12 VDC              |                 |
|              |                     |           |                                                                     | 24 VDC              |                 |
| Photocoupler |                     |           | 1 A at 4 to 24 VDC<br>(1 A at 3 to 26 VDC)<br>(see note 2)          | 5 VDC               | G3SD-Z01P-US    |
|              |                     |           |                                                                     | 12 VDC              |                 |
|              |                     |           |                                                                     | 24 VDC              |                 |
|              |                     |           | 1.1 A at 4 to 24 VDC<br>(1.1 A at 3 to 26 VDC)<br>(see note 2)      | 5 VDC               | G3SD-Z01P-PD-US |
|              |                     |           |                                                                     | 12 VDC              |                 |
|              |                     |           |                                                                     | 24 VDC              |                 |

**Note:** 1. Product is labelled "250 VAC"

2. Product is labelled "24 VDC"

## ■ Accessories (Order Separately)

### Heat Sink

|           |           |
|-----------|-----------|
| Heat Sink | Y92B-S08N |
|-----------|-----------|

See *Dimension* for details.

### Connecting Socket

|                   |         |
|-------------------|---------|
| Connecting socket | P6D-04P |
|-------------------|---------|

See *Dimensions* for details.

# Specifications

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

### Input

| Rated voltage | Operating voltage | Impedance               |                         | Voltage level |              |
|---------------|-------------------|-------------------------|-------------------------|---------------|--------------|
|               |                   | G3S-201PL/201PL-PD      | G3S-Z01PL/Z01P-PD       | Must operate  | Must release |
| 5VDC          | 4 to 6 VDC        | 450 $\Omega \pm 20\%$   | 630 $\Omega \pm 20\%$   | 4 VDC max.    | 1 VDC min.   |
| 12 VDC        | 9.6 to 14.4 VDC   | 1.1 k $\Omega \pm 20\%$ | 1.5 k $\Omega \pm 20\%$ | 9.6 VDC max.  |              |
| 24 VDC        | 19.2 to 28.8 VDC  | 2.2 k $\Omega \pm 20\%$ | 2.8 k $\Omega \pm 20\%$ | 19.2 VDC max. |              |

### Output

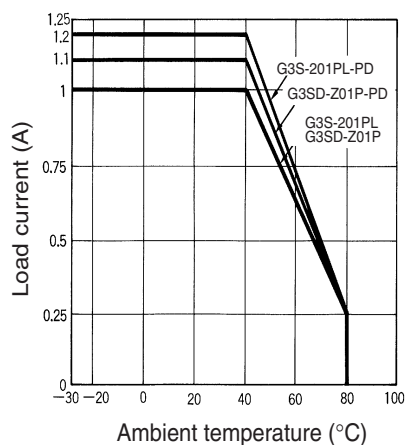
| Model         | Applicable load    |                          |               |                       |
|---------------|--------------------|--------------------------|---------------|-----------------------|
|               | Rated load voltage | Rated load voltage range | Load current  | Inrush current        |
| G3S-201PL     | 100 to 240 VAC     | 75 to 264 VAC            | 0.1 to 1A     | 15 A (60 Hz, 1 cycle) |
| G3S-201PL-PD  |                    |                          | 0.1 to 1.2 A  |                       |
| G3SD-Z01PL    | 4 to 24 VDC        | 3 to 26 VDC              | 0.01 to 1A    | 3 A (10 ms)           |
| G3SD-Z01PL-PD |                    |                          | 0.01 to 1.1 A |                       |

## ■ Characteristics

| Item                   | G3S-201PL/201PL-PD                                                                                                  | G3SD-Z01PL/Z01P-PD      |
|------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------|
| Operate time           | 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.                                                                                                           | 0.1 mA max. (at 26 VDC) |
| Insulation resistance  | 100 M $\Omega$ min. (500 VDC)                                                                                       |                         |
| Dielectric strength    | 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>                                                                                 |                         |
| Ambient temperature    | Operating: -30°C to 80°C (with no icing or condensation)<br>Storage: -30°C to 100°C (with no icing or condensation) |                         |
| Ambient humidity       | Operating: 45% to 85%                                                                                               |                         |
| Approved standards     | UL File No. E64562/CSA File No. LR35535                                                                             |                         |
| Weight                 | Approx. 13 g                                                                                                        |                         |

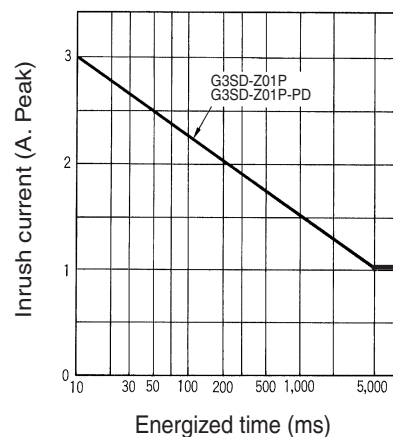
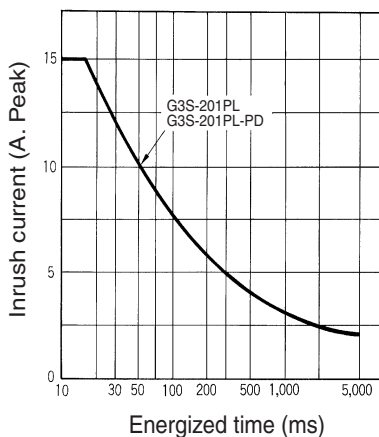
# Engineering Data

## Load Current vs. Ambient Temperature Characteristics



## Inrush Current Resistivity

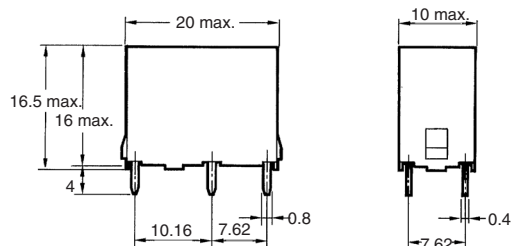
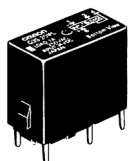
Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)



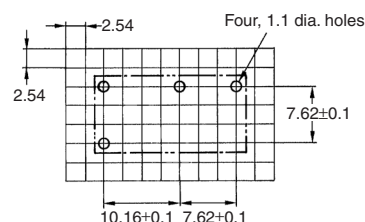
# Dimensions

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

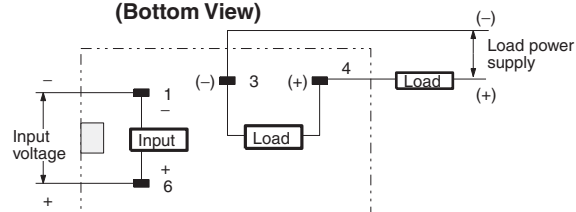
## G3S/G3SD



## PCB Dimensions (Bottom View)

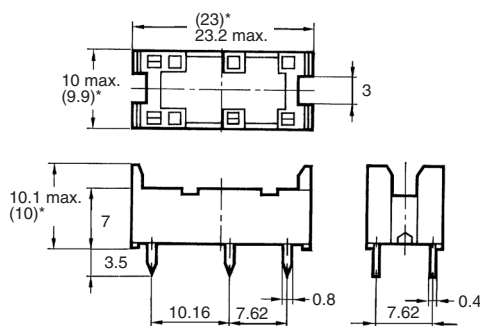
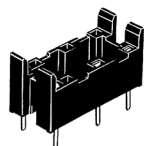


## Terminal Arrangement/ Internal Connections (Bottom View)

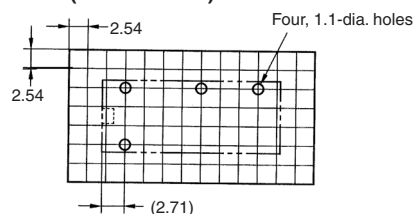


**Note:** Values in parentheses apply to the DC-load versions.

### Connecting Socket P6B-04P

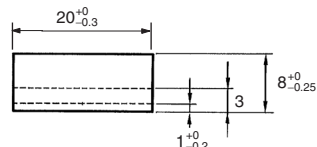
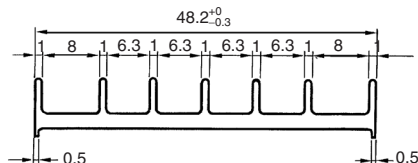
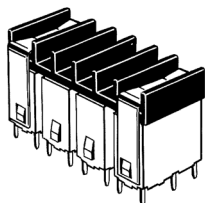


### PCB Dimensions (Bottom View)

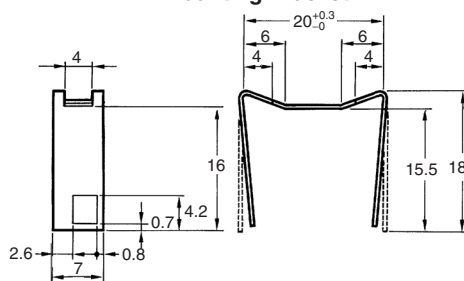


\*Average value

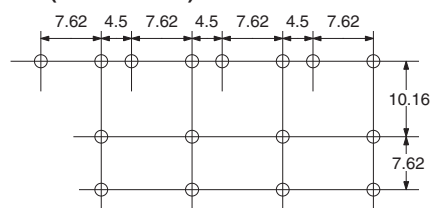
### Heat Sink Y92B-S08N



### Mounting Bracket



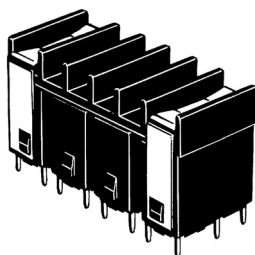
### PCB Dimensions (Bottom View)



## Precautions

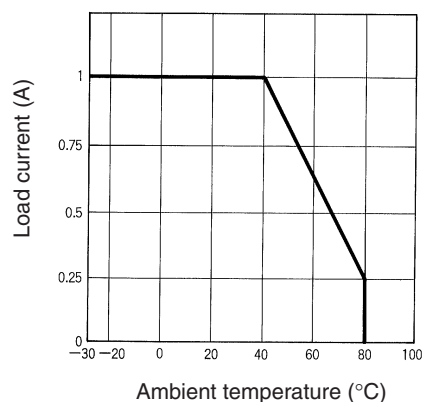
### Close Mounting

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 on the right.



### Load Current vs. Ambient Temperature Characteristics

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



### 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.



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