

# G3PE-Single-phase

**Compact, Slim-profile SSRs with Heat Sinks. Models with No Zero Cross for a Wide Range of Applications.**



- RoHS compliant.
- Models also available with no zero cross
- Surge pass protection improved surge dielectric strength for output currents. (OMRON testing)
- Compact with a slim profile.
- Mount to DIN Track or with screws.
- Conforms to UL, CSA, and EN standards (TÜV certification).



 Refer to *Safety Precautions* at the end of this document.

## Ordering Information

### List of Models

| Number of phases | Insulation method  | Operation indicator | Rated input voltage | Zero cross function | Applicable load *    | Model                     |
|------------------|--------------------|---------------------|---------------------|---------------------|----------------------|---------------------------|
| Single-phase     | Phototriac coupler | Yes (yellow)        | 12 to 24 VDC        | Yes                 | 15 A, 100 to 240 VAC | <b>G3PE-215B DC12-24</b>  |
|                  |                    |                     |                     |                     | 25 A, 100 to 240 VAC | <b>G3PE-225B DC12-24</b>  |
|                  |                    |                     |                     |                     | 35 A, 100 to 240 VAC | <b>G3PE-235B DC12-24</b>  |
|                  |                    |                     |                     |                     | 45 A, 100 to 240 VAC | <b>G3PE-245B DC12-24</b>  |
|                  |                    |                     |                     | No                  | 15 A, 100 to 240 VAC | <b>G3PE-215BL DC12-24</b> |
|                  |                    |                     |                     |                     | 25 A, 100 to 240 VAC | <b>G3PE-225BL DC12-24</b> |
|                  |                    |                     |                     |                     | 35 A, 100 to 240 VAC | <b>G3PE-235BL DC12-24</b> |
|                  |                    |                     |                     |                     | 45 A, 100 to 240 VAC | <b>G3PE-245BL DC12-24</b> |
|                  |                    |                     |                     | Yes                 | 15 A, 200 to 480 VAC | <b>G3PE-515B DC12-24</b>  |
|                  |                    |                     |                     |                     | 25 A, 200 to 480 VAC | <b>G3PE-525B DC12-24</b>  |
|                  |                    |                     |                     |                     | 35 A, 200 to 480 VAC | <b>G3PE-535B DC12-24</b>  |
|                  |                    |                     |                     |                     | 45 A, 200 to 480 VAC | <b>G3PE-545B DC12-24</b>  |
|                  |                    |                     |                     | No                  | 15 A, 200 to 480 VAC | <b>G3PE-515BL DC12-24</b> |
|                  |                    |                     |                     |                     | 25 A, 200 to 480 VAC | <b>G3PE-525BL DC12-24</b> |
|                  |                    |                     |                     |                     | 35 A, 200 to 480 VAC | <b>G3PE-535BL DC12-24</b> |
|                  |                    |                     |                     |                     | 45 A, 200 to 480 VAC | <b>G3PE-545BL DC12-24</b> |

\* The applicable load current depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in *Engineering Data*.

# G3PE-Single-phase

## Specifications

### Certification

UL508, CSA22.2 No.14, and EN60947-4-3

### Ratings

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

| Model      | Item         | Rated voltage | Operating voltage range | Rated input current | Voltage level        |                      |
|------------|--------------|---------------|-------------------------|---------------------|----------------------|----------------------|
|            |              |               |                         |                     | Must operate voltage | Must release voltage |
| G3PE-□□□B  | 12 to 24 VDC | 9.6 to 30 VDC | 7 mA max.               | 9.6 VDC max.        | 1.0 VDC max.         |                      |
| G3PE-□□□BL |              |               |                         |                     |                      |                      |

#### Output

| Item   | Model | G3PE-215B(L)              | G3PE-225B(L)           | G3PE-235B(L)           | G3PE-245B(L)          | G3PE-515B(L)              | G3PE-525B(L)           | G3PE-535B(L)           | G3PE-545B(L)          |
|--|-------|---------------------------|------------------------|------------------------|-----------------------|---------------------------|------------------------|------------------------|-----------------------|
| Rated load voltage                             |       | 100 to 240 VAC (50/60 Hz) |                        |                        |                       | 200 to 480 VAC (50/60 Hz) |                        |                        |                       |
| Load voltage range                             |       | 75 to 264 VAC (50/60 Hz)  |                        |                        |                       | 180 to 528 VAC (50/60 Hz) |                        |                        |                       |
| Applicable load current *                      |       | 0.1 to 15 A (at 40°C)     | 0.1 to 25 A (at 40°C)  | 0.5 to 35 A (at 25°C)  | 0.5 to 45 A (at 25°C) | 0.1 to 15 A (at 40°C)     | 0.1 to 25 A (at 40°C)  | 0.5 to 35 A (at 25°C)  | 0.5 to 45 A (at 25°C) |
| Inrush current resistance                      |       | 150 A (60 Hz, 1 cycle)    | 220 A (60 Hz, 1 cycle) | 440 A (60 Hz, 1 cycle) |                       | 150 A (60 Hz, 1 cycle)    | 220 A (60 Hz, 1 cycle) | 440 A (60 Hz, 1 cycle) |                       |
| Permissible I <sup>2</sup> t (reference value) |       | 121A <sup>2</sup> s       | 260A <sup>2</sup> s    | 1,260A <sup>2</sup> s  |                       | 128A <sup>2</sup> s       | 1,350A <sup>2</sup> s  |                        | 6,600A <sup>2</sup> s |
| Applicable load (resistive load)               |       | 3 kW (at 200 VAC)         | 5 kW (at 200 VAC)      | 7 kW (at 200 VAC)      | 9 kW (at 200 VAC)     | 6 kW (at 400 VAC)         | 10 kW (at 400 VAC)     | 14 kW (at 400 VAC)     | 18 kW (at 400 VAC)    |

\* The applicable load current depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in *Engineering Data* on page 1228.

### Characteristics

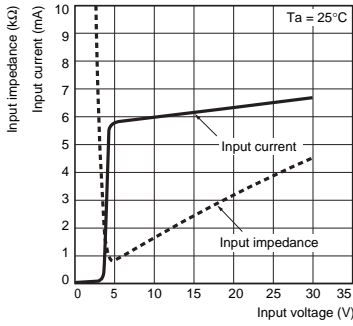
| Item                          | Model | G3PE-215B  | G3PE-225B | G3PE-235B     | G3PE-245B | G3PE-215BL    | G3PE-225BL | G3PE-235BL    | G3PE-245BL |
|-------------------------------|-------|--|-----------|---------------|-----------|---------------|------------|---------------|------------|
| Operate time                  |       | 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.   |           |               |           |               |            |               |            |
| Output ON voltage drop        |       | 1.6 V (RMS) max.   |           |               |           |               |            |               |            |
| Leakage current               |       | 10 mA max. (at 200 VAC)  |           |               |           |               |            |               |            |
| Insulation resistance         |       | 100 MΩ min. (at 500 VDC)   |           |               |           |               |            |               |            |
| Dielectric strength           |       | 2,500 VAC, 50/60 Hz for 1 min  |           |               |           |               |            |               |            |
| Vibration resistance          |       | 10 to 55 to 10 Hz, 0.375-mm single amplitude (0.75-mm double amplitude) (Mounted to DIN track) |           |               |           |               |            |               |            |
| Shock resistance              |       | Destruction: 294 m/s <sup>2</sup> (Mounted to DIN track)                                       |           |               |           |               |            |               |            |
| Ambient storage temperature   |       | -30 to 100°C (with no icing or condensation)   |           |               |           |               |            |               |            |
| Ambient operating temperature |       | -30 to 80°C (with no icing or condensation)  |           |               |           |               |            |               |            |
| Ambient operating humidity    |       | 45% to 85%   |           |               |           |               |            |               |            |
| Weight                        |       | Approx. 240 g  |           | Approx. 400 g |           | Approx. 240 g |            | Approx. 400 g |            |

| Model Item                    | G3PE-515B  | G3PE-525B | G3PE-535B     | G3PE-545B | G3PE-515BL    | G3PE-525BL | G3PE-535BL    | G3PE-545BL |
|-------------------------------|--|-----------|---------------|-----------|---------------|------------|---------------|------------|
| Operate time                  | 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.   |           |               |           |               |            |               |            |
| Output ON voltage drop        | 1.8 V (RMS) max.   |           |               |           |               |            |               |            |
| Leakage current               | 20 mA max. (at 480 VAC)  |           |               |           |               |            |               |            |
| Insulation resistance         | 100 MΩ min. (at 500 VDC)   |           |               |           |               |            |               |            |
| Dielectric strength           | 2,500 VAC, 50/60 Hz for 1 min  |           |               |           |               |            |               |            |
| Vibration resistance          | 10 to 55 to 10 Hz, 0.375-mm single amplitude (0.75-mm double amplitude) (Mounted to DIN track) |           |               |           |               |            |               |            |
| Shock resistance              | Destruction: 294 m/s <sup>2</sup> (Mounted to DIN track)                                       |           |               |           |               |            |               |            |
| Ambient storage temperature   | -30 to 100°C (with no icing or condensation)   |           |               |           |               |            |               |            |
| Ambient operating temperature | -30 to 80°C (with no icing or condensation)  |           |               |           |               |            |               |            |
| Ambient operating humidity    | 45% to 85%   |           |               |           |               |            |               |            |
| Weight                        | Approx. 240 g  |           | Approx. 400 g |           | Approx. 240 g |            | Approx. 400 g |            |

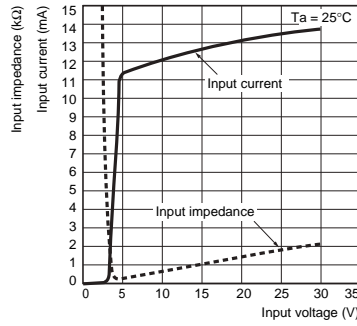
Engineering Data

Input Voltage vs. Input Impedance and Input Voltage vs. Input Current

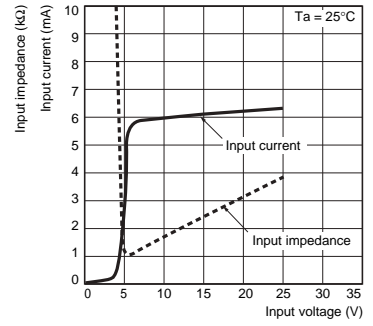
G3PE-2□□B



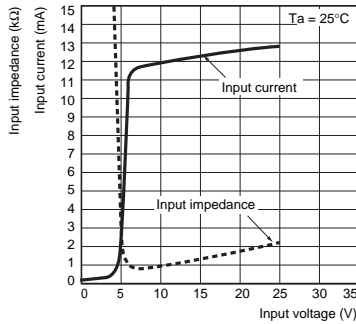
G3PE-2□□BL



G3PE-5□□B

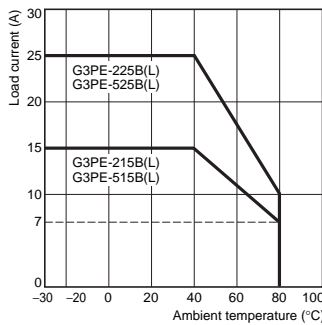


G3PE-5□□BL

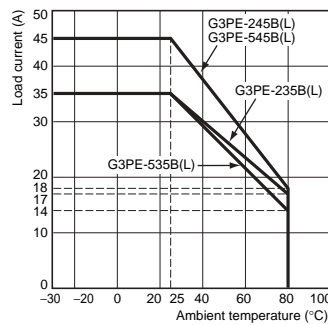


Load Current vs. Ambient Temperature

G3PE-215B(L), G3PE-225B(L)  
G3PE-515B(L), G3PE-525B(L)



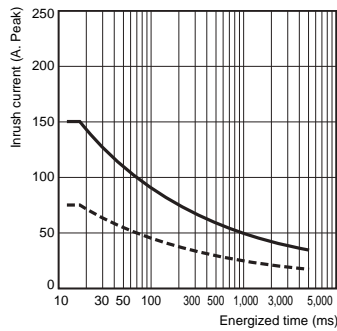
G3PE-235B(L), G3PE-245B(L)  
G3PE-535B(L), G3PE-545B(L)



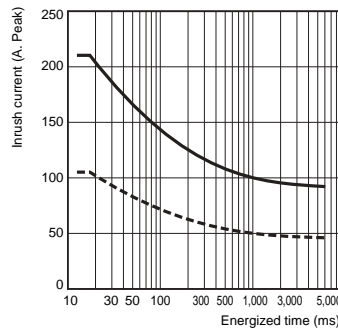
Inrush Current Resistance: Non-repetitive

Keep the inrush current to below the inrush current resistance value (i.e., below the broken line) if it occurs repetitively.

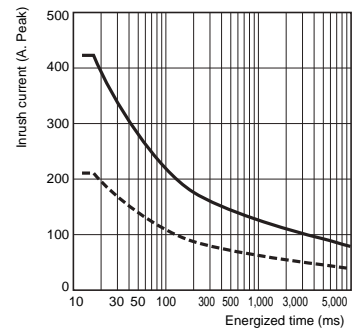
G3PE-215B(L), G3PE-515B(L)



G3PE-225B(L), G3PE-525B(L)



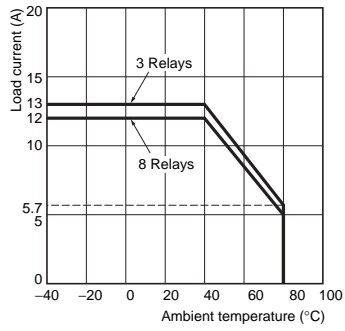
G3PE-235B(L), G3PE-245B(L)  
G3PE-535B(L), G3PE-545B(L)



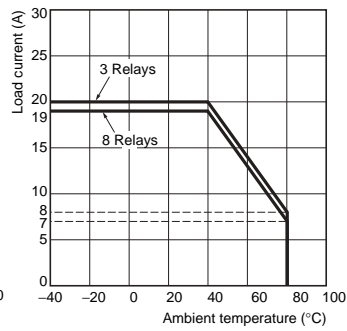
# G3PE-Single-phase

## Close Mounting (3 or 8 SSRs)

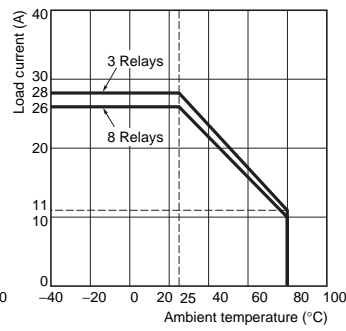
**G3PE-215B(L)**



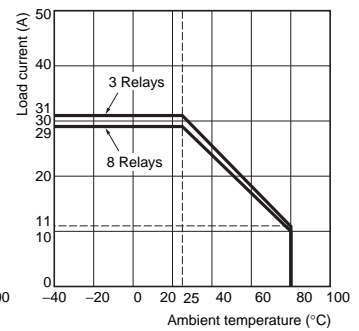
**G3PE-225B(L)**



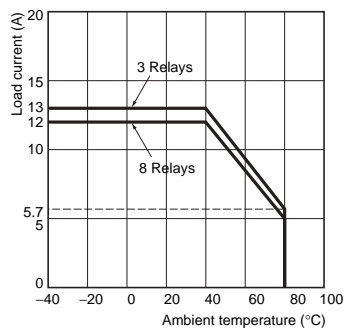
**G3PE-235B(L)**



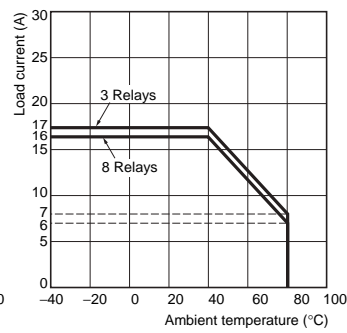
**G3PE-245B(L)**



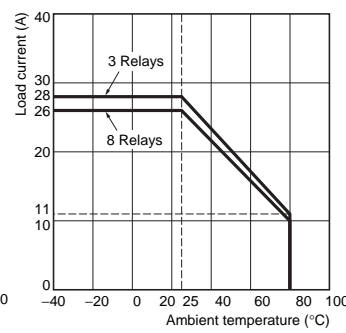
**G3PE-515B(L)**



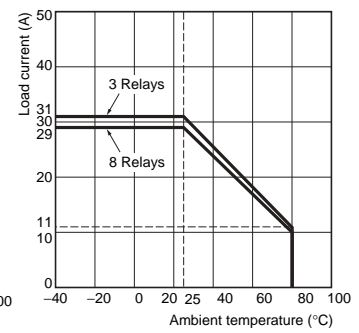
**G3PE-525B(L)**



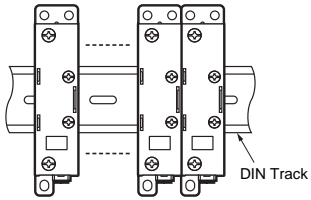
**G3PE-535B(L)**



**G3PE-545B(L)**



## Close Mounting Example

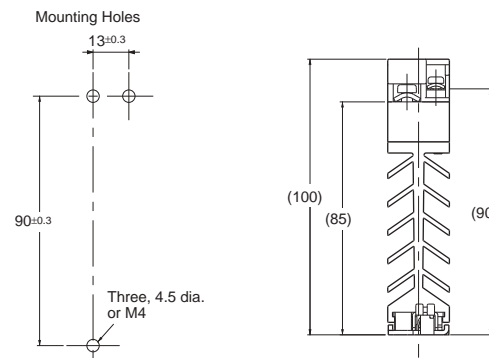
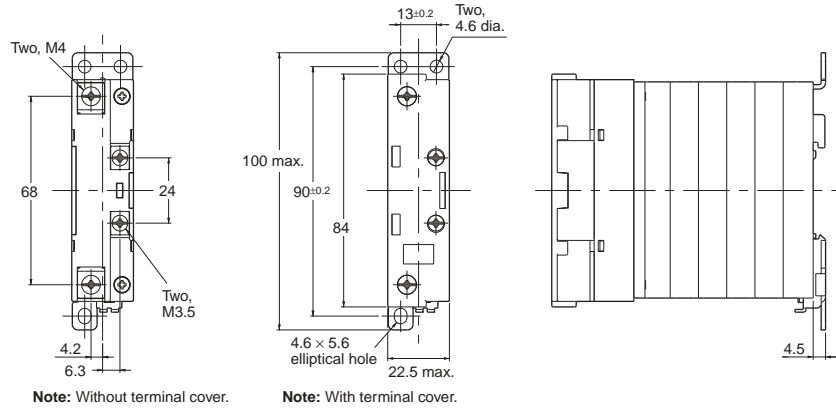


# Dimensions

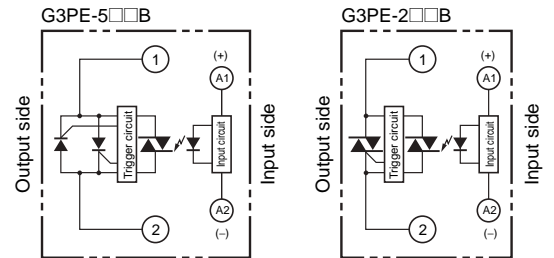
Note: All units are in millimeters unless otherwise indicated.

## Solid State Relays

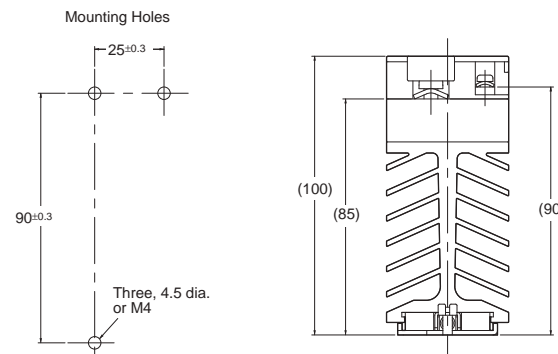
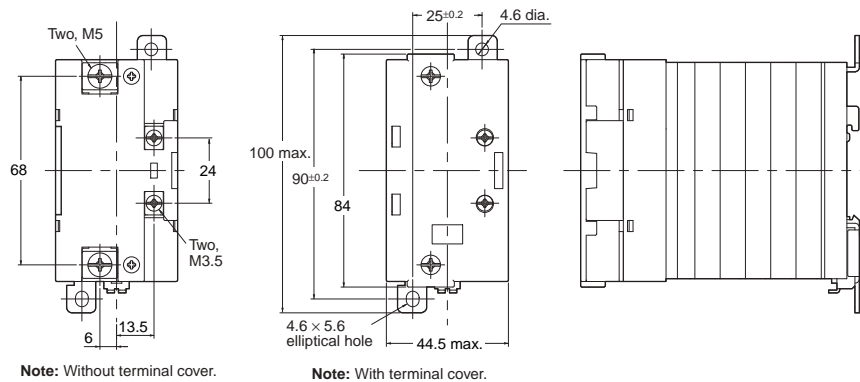
- G3PE-215B(L)
- G3PE-225B(L)
- G3PE-515B(L)
- G3PE-525B(L)



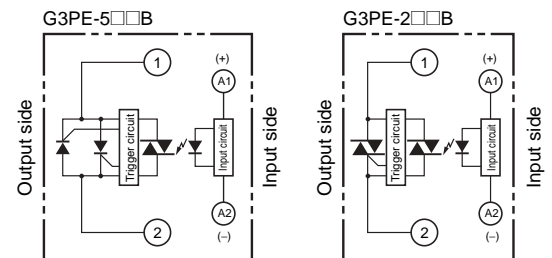
### Terminal Arrangement/Internal Circuit Diagram



- G3PE-235B(L)
- G3PE-245B(L)
- G3PE-535B(L)
- G3PE-545B(L)



### Terminal Arrangement/Internal Circuit Diagram



# G3PE-Three-phase

**Compact, Slim-profile SSRs with Heat Sinks.  
Solid State Contactors for Three-phase  
Heaters Reduced Installation Work  
with DIN Track Mounting.**



- RoHS compliant.
- Surge pass protection improved surge dielectric strength for output currents. (OMRON testing)
- Slim design with 3-phase output and built-in heat sinks.
- DIN Track mounting types and screw mounting types are available.  
All DIN Track mounting types mount to DIN Track (applicable DIN Track: TR35-15Fe (IEC 60715)).
- Conforms to UL, CSA, and EN standards (TÜV certification).

Refer to *Safety Precautions* at the end of this document.

## Ordering Information

### List of Models

#### Models with Built-in Heat Sinks

| Number of phases     | Insulation method  | Operation indicator    | Rated input voltage | Zero cross function | Type                  | Applicable load *1   | Number of poles      | Model                  |
|----------------------|--------------------|------------------------|---------------------|---------------------|-----------------------|----------------------|----------------------|------------------------|
| Three-phase          | Phototriac coupler | Yes (yellow)           | 12 to 24 VDC        | Yes                 | DIN track mounting *2 | 15 A, 100 to 240 VAC | 3                    | G3PE-215B-3N DC12-24   |
|                      |                    |                        |                     |                     |                       |                      | 2                    | G3PE-215B-2N DC12-24   |
|                      |                    |                        |                     |                     |                       | 25 A, 100 to 240 VAC | 3                    | G3PE-225B-3N DC12-24   |
|                      |                    |                        |                     |                     |                       |                      | 2                    | G3PE-225B-2N DC12-24   |
|                      |                    |                        |                     |                     |                       | 35 A, 100 to 240 VAC | 3                    | G3PE-235B-3N DC12-24   |
|                      |                    |                        |                     |                     |                       |                      | 2                    | G3PE-235B-2N DC12-24   |
|                      |                    |                        |                     |                     |                       | 45 A, 100 to 240 VAC | 3                    | G3PE-245B-3N DC12-24   |
|                      |                    |                        |                     |                     |                       |                      | 2                    | G3PE-245B-2N DC12-24   |
|                      |                    |                        |                     |                     |                       | 15 A, 200 to 480 VAC | 3                    | G3PE-515B-3N DC12-24   |
|                      |                    |                        |                     |                     |                       |                      | 2                    | G3PE-515B-2N DC12-24   |
|                      |                    |                        |                     |                     |                       | 25 A, 200 to 480 VAC | 3                    | G3PE-525B-3N DC12-24   |
|                      |                    |                        |                     |                     |                       |                      | 2                    | G3PE-525B-2N DC12-24   |
|                      |                    |                        |                     |                     | 35 A, 200 to 480 VAC  | 3                    | G3PE-535B-3N DC12-24 |                        |
|                      |                    |                        |                     |                     |                       | 2                    | G3PE-535B-2N DC12-24 |                        |
|                      |                    |                        |                     |                     | 45 A, 200 to 480 VAC  | 3                    | G3PE-545B-3N DC12-24 |                        |
|                      |                    |                        |                     |                     |                       | 2                    | G3PE-545B-2N DC12-24 |                        |
|                      |                    |                        |                     |                     | Screw mounting        | 15 A, 100 to 240 VAC | 3                    | G3PE-215B-3 DC12-24    |
|                      |                    |                        |                     |                     |                       |                      | 2                    | G3PE-215B-2 DC12-24 *3 |
|                      |                    |                        |                     |                     |                       | 25 A, 100 to 240 VAC | 3                    | G3PE-225B-3 DC12-24    |
|                      |                    |                        |                     |                     |                       |                      | 2                    | G3PE-225B-2 DC12-24    |
|                      |                    |                        |                     |                     |                       | 35 A, 100 to 240 VAC | 3                    | G3PE-235B-3 DC12-24    |
|                      |                    |                        |                     |                     |                       |                      | 2                    | G3PE-235B-2 DC12-24    |
|                      |                    |                        |                     |                     |                       | 45 A, 100 to 240 VAC | 3                    | G3PE-245B-3 DC12-24    |
|                      |                    |                        |                     |                     |                       |                      | 2                    | G3PE-245B-2 DC12-24    |
| 15 A, 200 to 480 VAC | 3                  | G3PE-515B-3 DC12-24    |                     |                     |                       |                      |                      |                        |
|                      | 2                  | G3PE-515B-2 DC12-24 *3 |                     |                     |                       |                      |                      |                        |
| 25 A, 200 to 480 VAC | 3                  | G3PE-525B-3 DC12-24    |                     |                     |                       |                      |                      |                        |
|                      | 2                  | G3PE-525B-2 DC12-24    |                     |                     |                       |                      |                      |                        |
| 35 A, 200 to 480 VAC | 3                  | G3PE-535B-3 DC12-24    |                     |                     |                       |                      |                      |                        |
|                      | 2                  | G3PE-535B-2 DC12-24    |                     |                     |                       |                      |                      |                        |
| 45 A, 200 to 480 VAC | 3                  | G3PE-545B-3 DC12-24    |                     |                     |                       |                      |                      |                        |
|                      | 2                  | G3PE-545B-2 DC12-24    |                     |                     |                       |                      |                      |                        |

\*1. The applicable load current depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in *Engineering Data* on page 1235.

\*2. The applicable DIN Track is the TR35-15Fe (IEC 60715). For details, refer to the mounting information in the *Safety Precautions for All G3PE Models* on page 1243.

\*3. DIN Track or Screw mounting.

## Models with Externally Attached Heat Sinks

| Number of phases | Insulation method  | Operation indicator | Rated input voltage | Zero cross function | Type                           | Applicable load *    | Number of poles | Model                |
|------------------|--------------------|---------------------|---------------------|---------------------|--------------------------------|----------------------|-----------------|----------------------|
| Three-phase      | Phototriac coupler | Yes (yellow)        | 12 to 24 VDC        | Yes                 | Externally attached heat sinks | 15 A, 100 to 240 VAC | 3               | G3PE-215B-3H DC12-24 |
|                  |                    |                     |                     |                     |                                |                      | 2               | G3PE-215B-2H DC12-24 |
|                  |                    |                     |                     |                     |                                | 25 A, 100 to 240 VAC | 3               | G3PE-225B-3H DC12-24 |
|                  |                    |                     |                     |                     |                                |                      | 2               | G3PE-225B-2H DC12-24 |
|                  |                    |                     |                     |                     |                                | 35 A, 100 to 240 VAC | 3               | G3PE-235B-3H DC12-24 |
|                  |                    |                     |                     |                     |                                |                      | 2               | G3PE-235B-2H DC12-24 |
|                  |                    |                     |                     |                     |                                | 45 A, 100 to 240 VAC | 3               | G3PE-245B-3H DC12-24 |
|                  |                    |                     |                     |                     |                                |                      | 2               | G3PE-245B-2H DC12-24 |
|                  |                    |                     |                     |                     |                                | 15 A, 200 to 480 VAC | 3               | G3PE-515B-3H DC12-24 |
|                  |                    |                     |                     |                     |                                |                      | 2               | G3PE-515B-2H DC12-24 |
|                  |                    |                     |                     |                     |                                | 25 A, 200 to 480 VAC | 3               | G3PE-525B-3H DC12-24 |
|                  |                    |                     |                     |                     |                                |                      | 2               | G3PE-525B-2H DC12-24 |
|                  |                    |                     |                     |                     |                                | 35 A, 200 to 480 VAC | 3               | G3PE-535B-3H DC12-24 |
|                  |                    |                     |                     |                     |                                |                      | 2               | G3PE-535B-2H DC12-24 |
|                  |                    |                     |                     |                     |                                | 45 A, 200 to 480 VAC | 3               | G3PE-545B-3H DC12-24 |
|                  |                    |                     |                     |                     |                                |                      | 2               | G3PE-545B-2H DC12-24 |

\* The rated load current depends on the heat sink or radiator that is mounted. It also depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* on page 1235.

## Accessories (Order Separately)

### Heat Sink

| Heat resistance Rth (s-a) (°C/W) | Model     |
|----------------------------------|-----------|
| 1.67                             | Y92B-P50  |
| 1.01                             | Y92B-P100 |
| 0.63                             | Y92B-P150 |
| 0.43                             | Y92B-P200 |
| 0.36                             | Y92B-P250 |

# G3PE-Three-phase

## Specifications

### Certification

UL508, CSA22.2 No.14, and EN60947-4-3

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

#### Operating Circuit (All Models)

| Item/Model                      | Same for all models |
|---------------------------------|---------------------|
| Rated operating voltage         | 12 to 24 VDC        |
| Operating voltage range         | 9.6 to 30 VDC       |
| Rated input current (impedance) | 10 mA max. (24 VDC) |
| Must-operate voltage            | 9.6 VDC max.        |
| Must-release voltage            | 1 VDC min.          |
| Insulation method               | Phototriac          |
| Operation indicator             | Yellow LED          |

#### Main Circuit of Models with Built-in Heat Sinks

| Item   | Model | G3PE-215B-3(N)            | G3PE-215B-2(N)            | G3PE-225B-3(N)            | G3PE-225B-2(N)          | G3PE-235B-3(N)          | G3PE-235B-2(N)          | G3PE-245B-3(N)            | G3PE-245B-2(N)          | G3PE-515B-3(N) | G3PE-515B-2(N) | G3PE-525B-3(N)            | G3PE-525B-2(N) | G3PE-535B-3(N) | G3PE-535B-2(N) | G3PE-545B-3(N) | G3PE-545B-2(N) |
|--|-------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------------------|-------------------------|----------------|----------------|---------------------------|----------------|----------------|----------------|----------------|----------------|
| Rated load voltage                             |       | 100 to 240 VAC            |                           |                           |                         |                         |                         |                           |                         | 200 to 480 VAC |                |                           |                |                |                |                |                |
| Operating voltage range                        |       | 75 to 264 VAC             |                           |                           |                         |                         |                         |                           |                         | 180 to 528 VAC |                |                           |                |                |                |                |                |
| Rated load current *1                          |       | 15 A (at 40°C)            | 25 A (at 40°C)            | 35 A (at 25°C)            | 45 A (at 25°C)          | 15 A (at 40°C)          | 25 A (at 40°C)          | 35 A (at 25°C)            | 45 A (at 25°C)          |                |                |                           |                |                |                |                |                |
| Minimum load current                           |       | 0.2 A                     |                           |                           |                         |                         |                         |                           |                         | 0.5 A          |                |                           |                |                |                |                |                |
| Inrush current resistance (peak value)         |       | 150 A<br>(60 Hz, 1 cycle) | 220 A<br>(60 Hz, 1 cycle) | 440 A<br>(60 Hz, 1 cycle) |                         |                         |                         | 220 A<br>(60 Hz, 1 cycle) |                         |                |                | 440 A<br>(60 Hz, 1 cycle) |                |                |                |                |                |
| Permissible I <sup>2</sup> t (reference value) |       | 121A <sup>2</sup> s       | 260A <sup>2</sup> s       | 1,260A <sup>2</sup> s     |                         |                         |                         | 260A <sup>2</sup> s       |                         |                |                | 1,260A <sup>2</sup> s     |                |                |                |                |                |
| Applicable load (resistive load: AC1 class) *2 |       | 5.1 kW<br>(at 200 VAC)    | 8.6 kW<br>(at 200 VAC)    | 12.1 kW<br>(at 200 VAC)   | 15.5 kW<br>(at 200 VAC) | 12.5 kW<br>(at 480 VAC) | 20.7 kW<br>(at 480 VAC) | 29.0 kW<br>(at 480 VAC)   | 37.4 kW<br>(at 480 VAC) |                |                |                           |                |                |                |                |                |

\*1. The applicable load current depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in *Engineering Data* on page 1235.

\*2. Applicable Load

Use the following formula to calculate the maximum total capacity of a heater load for a three-phase balanced load with delta connections.

Maximum load capacity = Load current × Load voltage × √3

Example: 15 A × 200 V × √3 = 5,196 W ≅ 5.1 kW

Example: 15 A × 400 V × √3 = 10,392 W ≅ 10.3 kW

#### Main Circuit of Models with Externally Attached Heat Sinks

| Item   | Model | G3PE-215B-3H                                   | G3PE-215B-2H              | G3PE-225B-3HH             | G3PE-225B-2H   | G3PE-235B-3H   | G3PE-235B-2H   | G3PE-245B-3H              | G3PE-245B-2H   | G3PE-515B-3H   | G3PE-515B-2H | G3PE-525B-3H              | G3PE-525B-2H | G3PE-535B-3H | G3PE-535B-2H | G3PE-545B-3H | G3PE-545B-2H |
|--|-------|--|---------------------------|---------------------------|----------------|----------------|----------------|---------------------------|----------------|----------------|--------------|---------------------------|--------------|--------------|--------------|--------------|--------------|
| Rated load voltage                             |       | 100 to 240 VAC                                 |                           |                           |                |                |                |                           |                | 200 to 480 VAC |              |                           |              |              |              |              |              |
| Operating voltage range                        |       | 75 to 264 VAC                                  |                           |                           |                |                |                |                           |                | 180 to 528 VAC |              |                           |              |              |              |              |              |
| Rated load current *                           |       | 15 A (at 40°C)                                 | 25 A (at 40°C)            | 35 A (at 25°C)            | 45 A (at 25°C) | 15 A (at 40°C) | 25 A (at 40°C) | 35 A (at 25°C)            | 45 A (at 25°C) |                |              |                           |              |              |              |              |              |
| Minimum load current                           |       | 0.2 A  |                           |                           |                |                |                |                           |                | 0.5 A          |              |                           |              |              |              |              |              |
| Inrush current resistance (peak value)         |       | 150 A<br>(60 Hz, 1 cycle)                      | 220 A<br>(60 Hz, 1 cycle) | 440 A<br>(60 Hz, 1 cycle) |                |                |                | 220 A<br>(60 Hz, 1 cycle) |                |                |              | 440 A<br>(60 Hz, 1 cycle) |              |              |              |              |              |
| Permissible I <sup>2</sup> t (reference value) |       | 121A <sup>2</sup> s                            | 260A <sup>2</sup> s       | 1,260A <sup>2</sup> s     |                |                |                | 260A <sup>2</sup> s       |                |                |              | 1,260A <sup>2</sup> s     |              |              |              |              |              |
| Applicable load (resistive load: AC1 class)    |       | Refer to <i>Engineering Data</i> on page 1235. |                           |                           |                |                |                |                           |                |                |              |                           |              |              |              |              |              |

\* The rated load current depends on the heat sink or radiator that is mounted. It also depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in *Engineering Data* on page 1235.



## Characteristics

### Models with Built-in Heat Sinks

| Model                         | G3PE-215B-3(N)   | G3PE-215B-2(N)  | G3PE-225B-3(N)  | G3PE-225B-2(N)  | G3PE-235B-3(N)  | G3PE-235B-2(N) | G3PE-245B-3(N)  | G3PE-245B-2(N)  | G3PE-515B-3(N)          | G3PE-515B-2(N)  | G3PE-525B-3(N)  | G3PE-525B-2(N)  | G3PE-535B-3(N) | G3PE-535B-2(N)  | G3PE-545B-3(N) | G3PE-545B-2(N)  |
|-------------------------------|--|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|-------------------------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|-----------------|
| Operate time                  | 1/2 of load power source cycle + 1 ms max.   |                 |                 |                 |                 |                |                 |                 |                         |                 |                 |                 |                |                 |                |                 |
| Release time                  | 1/2 of load power source cycle + 1 ms max.   |                 |                 |                 |                 |                |                 |                 |                         |                 |                 |                 |                |                 |                |                 |
| Output ON voltage drop        | 1.6 V (RMS) max.   |                 |                 |                 |                 |                |                 |                 | 1.8 V (RMS) max.        |                 |                 |                 |                |                 |                |                 |
| Leakage current *             | 10 mA max. (at 200 VAC)  |                 |                 |                 |                 |                |                 |                 | 20 mA max. (at 480 VAC) |                 |                 |                 |                |                 |                |                 |
| Insulation resistance         | 100 MΩ min. (at 500 VDC)   |                 |                 |                 |                 |                |                 |                 |                         |                 |                 |                 |                |                 |                |                 |
| Dielectric strength           | 2,500 VAC, 50/60 Hz for 1 min  |                 |                 |                 |                 |                |                 |                 |                         |                 |                 |                 |                |                 |                |                 |
| Vibration resistance          | <ul style="list-style-type: none"> <li>DIN Track mounting: 10 to 55 to 10 Hz, 0.175-mm single amplitude (0.35-mm double amplitude)</li> <li>Screw mounting: 10 to 55 to 10 Hz, 0.375-mm single amplitude (0.75-mm double amplitude)</li> </ul> |                 |                 |                 |                 |                |                 |                 |                         |                 |                 |                 |                |                 |                |                 |
| Shock resistance              | 294 m/s <sup>2</sup> (reverse mounting: 98 m/s <sup>2</sup> )  |                 |                 |                 |                 |                |                 |                 |                         |                 |                 |                 |                |                 |                |                 |
| Ambient storage temperature   | -30 to 100°C (with no icing or condensation)   |                 |                 |                 |                 |                |                 |                 |                         |                 |                 |                 |                |                 |                |                 |
| Ambient operating temperature | -30 to 80°C (with no icing or condensation)  |                 |                 |                 |                 |                |                 |                 |                         |                 |                 |                 |                |                 |                |                 |
| Ambient operating humidity    | 45% to 85%   |                 |                 |                 |                 |                |                 |                 |                         |                 |                 |                 |                |                 |                |                 |
| Weight                        | Approx. 1.25 kg  | Approx. 1.45 kg | Approx. 1.25 kg | Approx. 1.65 kg | Approx. 1.45 kg | Approx. 2.0 kg | Approx. 1.65 kg | Approx. 1.25 kg | Approx. 1.45 kg         | Approx. 1.25 kg | Approx. 1.65 kg | Approx. 1.45 kg | Approx. 2.0 kg | Approx. 1.65 kg | Approx. 2.0 kg | Approx. 1.65 kg |

\* The leakage current of phase S will be approximately  $\sqrt{3}$  times larger if the 2-element model is used.

### Models with Externally Attached Heat Sinks

| Model                         | G3PE-215B-3H  | G3PE-215B-2H | G3PE-225B-3H | G3PE-225B-2H | G3PE-235B-3H | G3PE-235B-2H | G3PE-245B-3H | G3PE-245B-2H | G3PE-515B-3H            | G3PE-515B-2H | G3PE-525B-3H | G3PE-525B-2H | G3PE-535B-3H | G3PE-535B-2H | G3PE-545B-3H | G3PE-545B-2H |
|-------------------------------|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Operate time                  | 1/2 of load power source cycle + 1 ms max.                              |              |              |              |              |              |              |              |                         |              |              |              |              |              |              |              |
| Release time                  | 1/2 of load power source cycle + 1 ms max.                              |              |              |              |              |              |              |              |                         |              |              |              |              |              |              |              |
| Output ON voltage drop        | 1.6 V (RMS) max.  |              |              |              |              |              |              |              | 1.8 V (RMS) max.        |              |              |              |              |              |              |              |
| Leakage current *             | 10 mA max. (at 200 VAC)   |              |              |              |              |              |              |              | 20 mA max. (at 480 VAC) |              |              |              |              |              |              |              |
| Insulation resistance         | 100 MΩ min. (at 500 VDC)  |              |              |              |              |              |              |              |                         |              |              |              |              |              |              |              |
| Dielectric strength           | 2,500 VAC, 50/60 Hz for 1 min   |              |              |              |              |              |              |              |                         |              |              |              |              |              |              |              |
| Vibration resistance          | 10 to 55 to 10 Hz, 0.375-mm single amplitude (0.75-mm double amplitude) |              |              |              |              |              |              |              |                         |              |              |              |              |              |              |              |
| Shock resistance              | Destruction: 294 m/s <sup>2</sup>                                       |              |              |              |              |              |              |              |                         |              |              |              |              |              |              |              |
| Ambient storage temperature   | -30 to 100°C (with no icing or condensation)                            |              |              |              |              |              |              |              |                         |              |              |              |              |              |              |              |
| Ambient operating temperature | -30 to 80°C (with no icing or condensation)                             |              |              |              |              |              |              |              |                         |              |              |              |              |              |              |              |
| Ambient operating humidity    | 45% to 85%  |              |              |              |              |              |              |              |                         |              |              |              |              |              |              |              |
| Weight                        | Approx. 300 g   |              |              |              |              |              |              |              |                         |              |              |              |              |              |              |              |

\* The leakage current of phase S will be approximately  $\sqrt{3}$  times larger if the 2-element model is used.

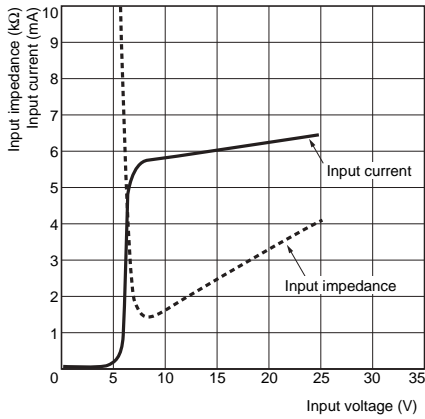
### Heat Sinks

| Model     | Weight          |
|-----------|-----------------|
| Y92B-P50  | Approx. 450 g   |
| Y92B-P100 | Approx. 450 g   |
| Y92B-P150 | Approx. 600 g   |
| Y92B-P200 | Approx. 850 g   |
| Y92B-P250 | Approx. 1,200 g |

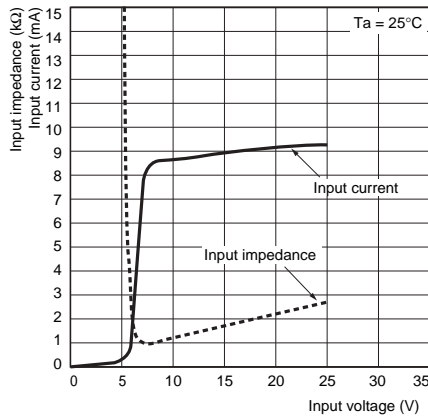
# G3PE-Three-phase Engineering Data

## Input Voltage vs. Input Impedance and Input Voltage vs. Input Current

G3PE-2□□B-□□



G3PE-5□□B-□□



## Load Current vs. Ambient Temperature

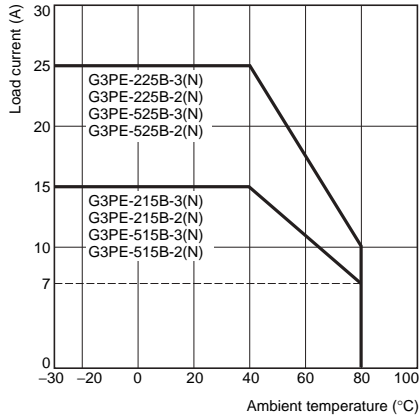
### Models with Built-in Heat Sinks

G3PE-215B-3(N), G3PE-225B-3(N)

G3PE-215B-2(N), G3PE-225B-2(N)

G3PE-515B-3(N), G3PE-525B-3(N)

G3PE-515B-2(N), G3PE-525B-2(N)

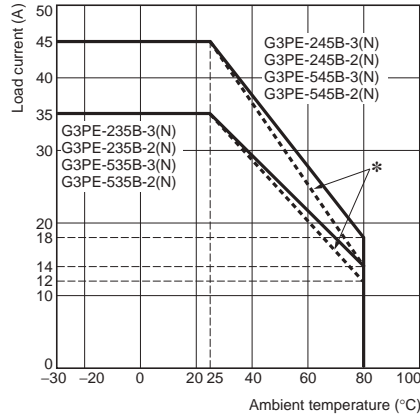


G3PE-235B-3(N), G3PE-245B-3(N)

G3PE-235B-2(N), G3PE-245B-2(N)

G3PE-535B-3(N), G3PE-545B-3(N)

G3PE-535B-2(N), G3PE-545B-2(N)



\* The dotted lines in the charts are the UL derating curves for the G3PE-235B-3(N), G3PE-245B-3(N), G3PE-235B-2(N), G3PE-245B-2(N), G3PE-535B-3(N), G3PE-545B-3(N), G3PE-535B-2(N), G3PE-545B-2(N).

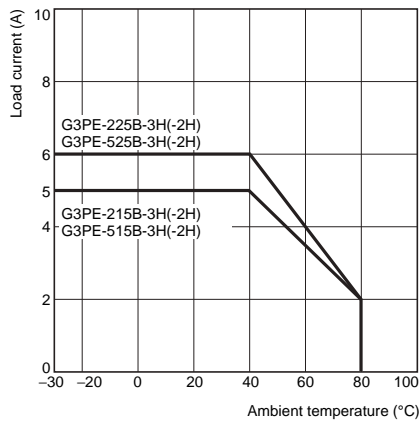
### Models with Externally Attached Heat Sinks

G3PE-215B-3H(-2H)

G3PE-225B-3H(-2H)

G3PE-515B-3H(-2H)

G3PE-525B-3H(-2H)

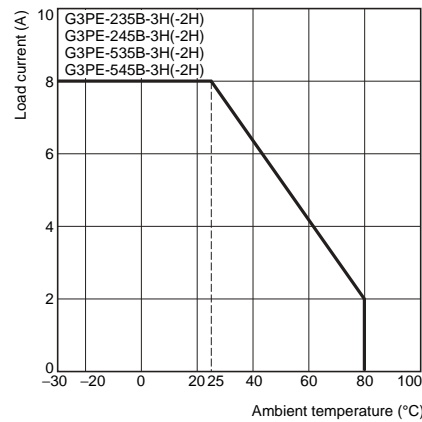


G3PE-235B-3H(-2H)

G3PE-245B-3H(-2H)

G3PE-535B-3H(-2H)

G3PE-545B-3H(-2H)



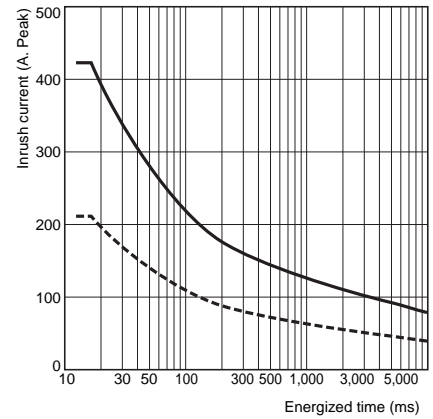
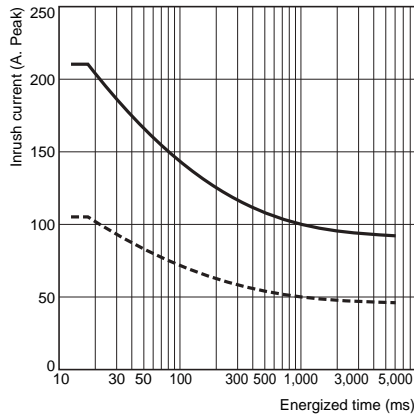
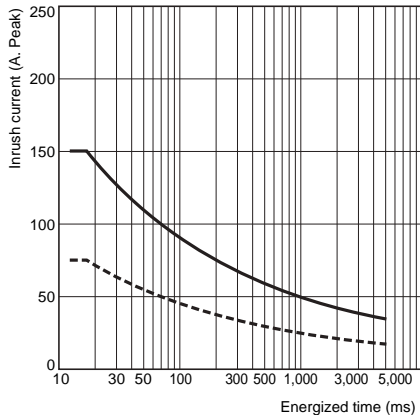
## Inrush Current Resistance: Non-repetitive

Keep the inrush current to below the inrush current resistance value (i.e., below the broken line) if it occurs repetitively.

G3PE-215B-3(N)(H)  
G3PE-215B-2(N)(H)

G3PE-225B-3(N)(H), G3PE-525B-3(N)(H)  
G3PE-225B-2(N)(H), G3PE-525B-2(N)(H)  
G3PE-515B-3(N)(H),  
G3PE-515B-2(N)(H),

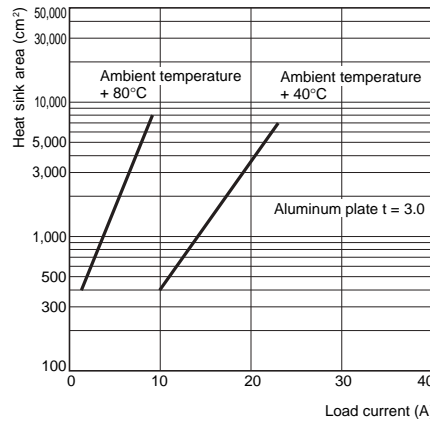
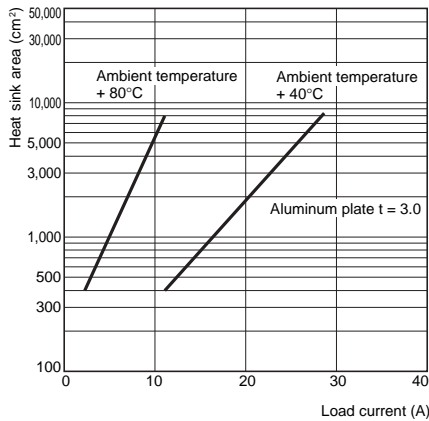
G3PE-235B-3(N)(H), G3PE-535B-3(N)(H)  
G3PE-235B-2(N)(H), G3PE-535B-2(N)(H)  
G3PE-245B-3(N)(H), G3PE-545B-3(N)(H)  
G3PE-245B-2(N)(H), G3PE-545B-2(N)(H)



## Heat Sink Area vs. Load Current (40°C and 80°C)

G3PE-225B-3H

G3PE-525B-3H



**Note:** The heat sink area is the combined area of all surfaces of the heat sink that radiate heat. For the G3PE-525B-3H, when a current of 18 A flows through the SSR at 40°C, the graph shows that a heat sink area of about 2,500 cm<sup>2</sup> would be required. Therefore, if the heat sink is square, one side of an aluminum plate in the heat sink must be 36 cm or longer ( $\sqrt{2,500 \text{ (cm}^2\text{)}/2} = 36 \text{ cm}$  (rounded to a whole number)).

## Models with Externally Attached Heat Sinks Heat Resistance R<sub>th</sub> (Junction/SSR Back Surface)

| Model        | R <sub>th</sub> (°C/W) |
|--------------|------------------------|
| G3PE-215B-3H | 1.05                   |
| G3PE-225B-3H | 0.57                   |
| G3PE-235B-3H | 0.57                   |
| G3PE-245B-3H | 0.57                   |

## Heat Resistance of Heat Sinks

| Model     | R <sub>th</sub> (°C/W) |
|-----------|------------------------|
| Y92B-P50  | 1.67                   |
| Y92B-P100 | 1.01                   |
| Y92B-P150 | 0.63                   |
| Y92B-P200 | 0.43                   |
| Y92B-P250 | 0.36                   |

**Note:** If a commercially available heat sink is used, use one that has a heat resistance equal to or lower than a standard OMRON Heat Sink.

# G3PE-Three-phase

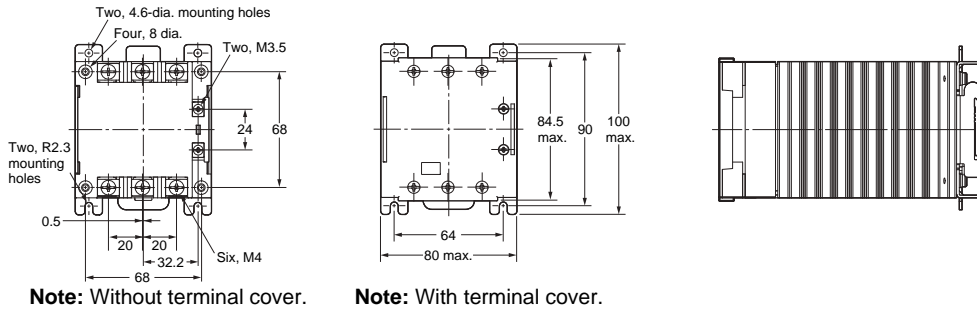
## Dimensions

Note: All units are in millimeters unless otherwise indicated.

### Solid State Relays

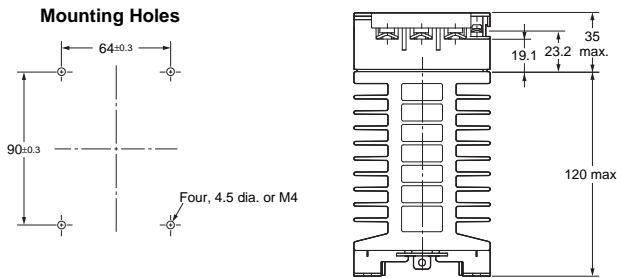
#### Models with DIN Track Mounting

- G3PE-215B-3N
- G3PE-215B-2N
- G3PE-225B-2N
- G3PE-515B-3N
- G3PE-515B-2N
- G3PE-525B-2N

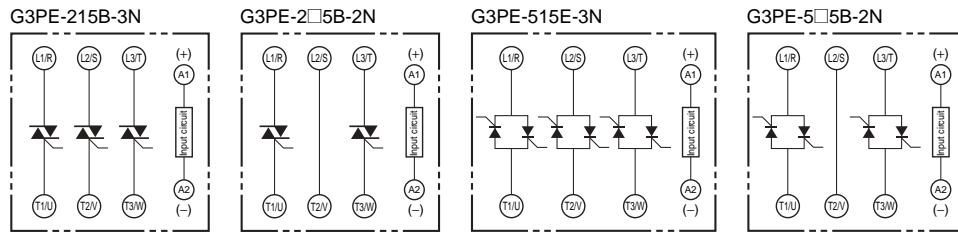


Note: Without terminal cover.

Note: With terminal cover.

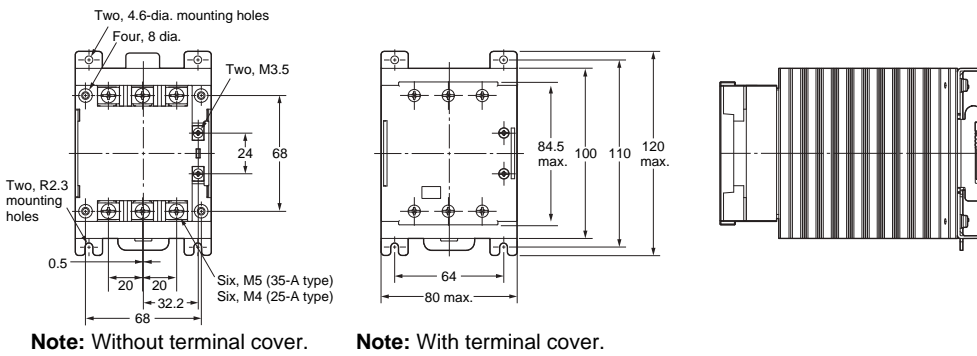


#### Terminal Arrangement/Internal Circuit Diagram



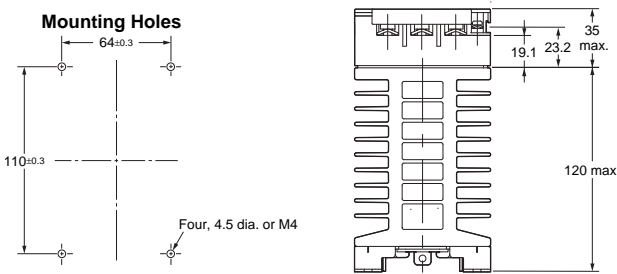
#### Models with DIN Track Mounting

- G3PE-225B-3N
- G3PE-235B-2N
- G3PE-525B-3N
- G3PE-535B-2N

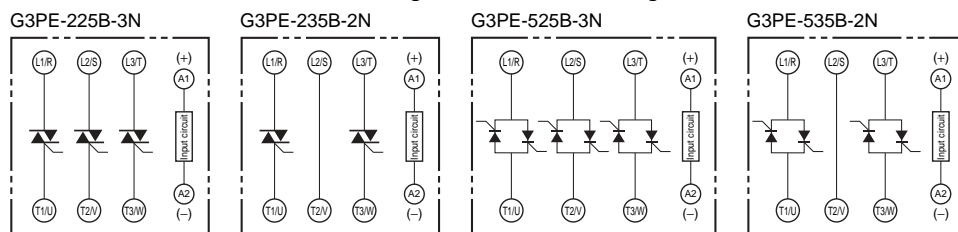


Note: Without terminal cover.

Note: With terminal cover.

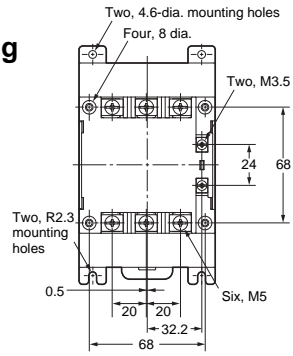


#### Terminal Arrangement/Internal Circuit Diagram



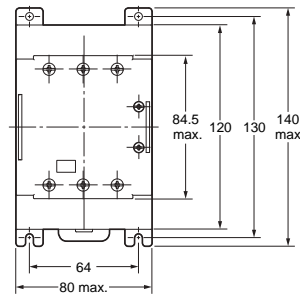
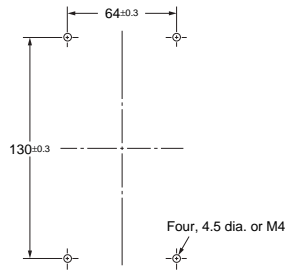
## Models with DIN Track Mounting

- G3PE-235B-3N
- G3PE-245B-2N
- G3PE-535B-3N
- G3PE-545B-2N

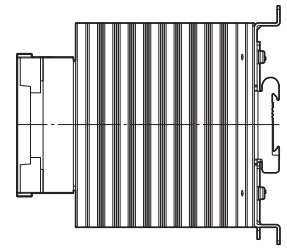
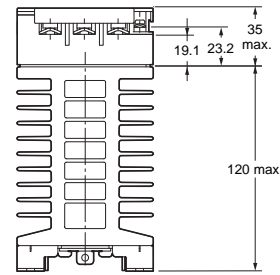


**Note:** Without terminal cover.

### Mounting Holes

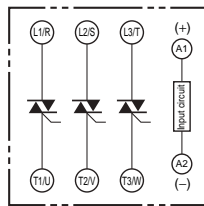


**Note:** With terminal cover.

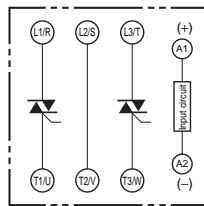


### Terminal Arrangement/Internal Circuit Diagram

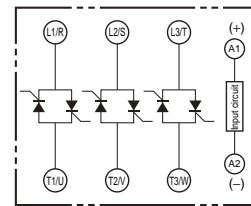
G3PE-235B-3N



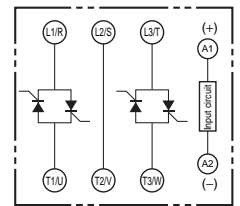
G3PE-245B-2N



G3PE-535B-3N

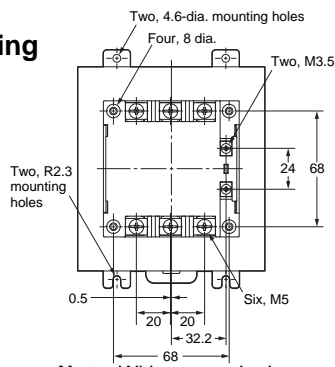


G3PE-545B-2N



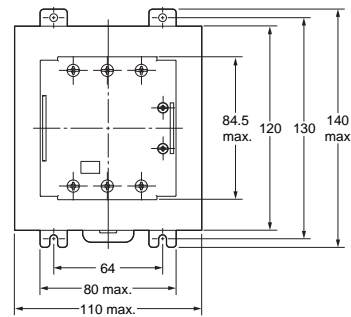
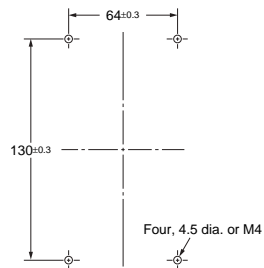
## Models with DIN Track Mounting

- G3PE-245B-3N
- G3PE-545B-3N

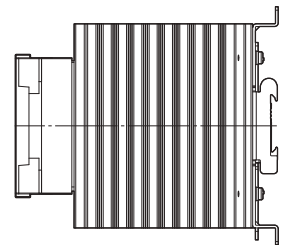
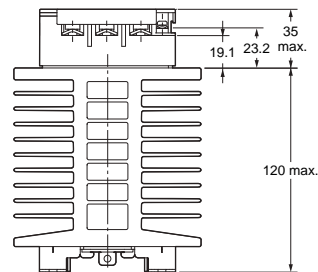


**Note:** Without terminal cover.

### Mounting Holes

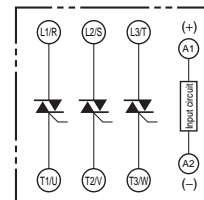


**Note:** With terminal cover.

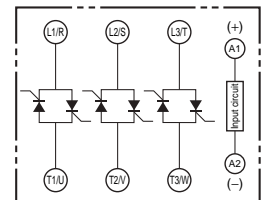


### Terminal Arrangement/Internal Circuit Diagram

G3PE245B-3N



G3PE-545B-3N



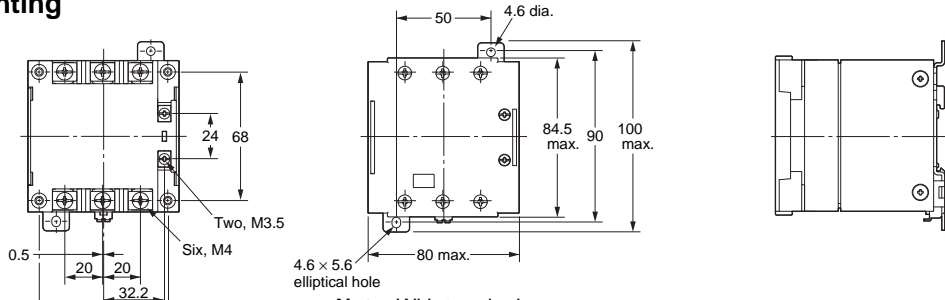
# G3PE-Three-phase

## Models with Screw Mounting

G3PE-215B-2  
G3PE-515B-2



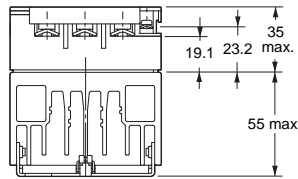
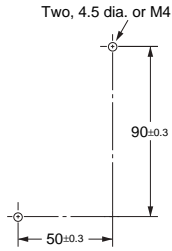
DIN Track or screw mounting



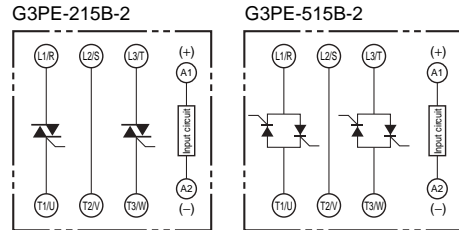
Note: Without terminal cover.

Note: With terminal cover.

### Mounting Holes

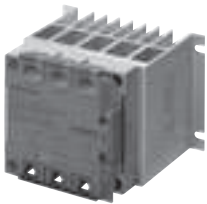


### Terminal Arrangement/Internal Circuit Diagram

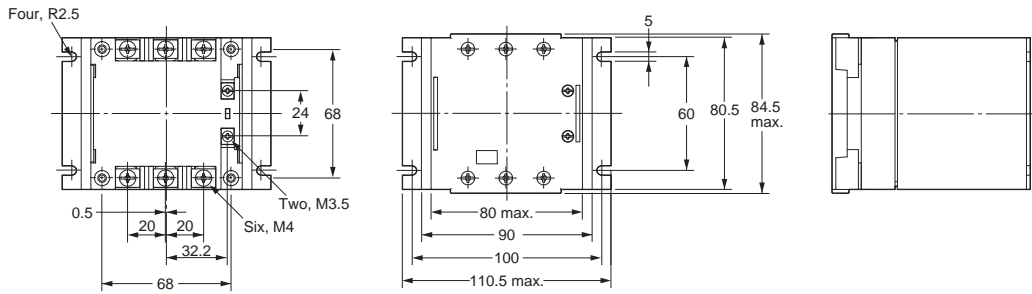


## Models with Screw Mounting

G3PE-215B-3  
G3PE-225B-2  
G3PE-515B-3  
G3PE-525B-2



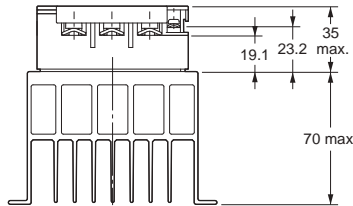
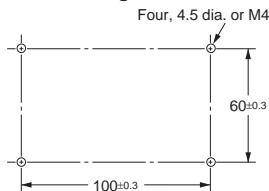
For screw mounting only



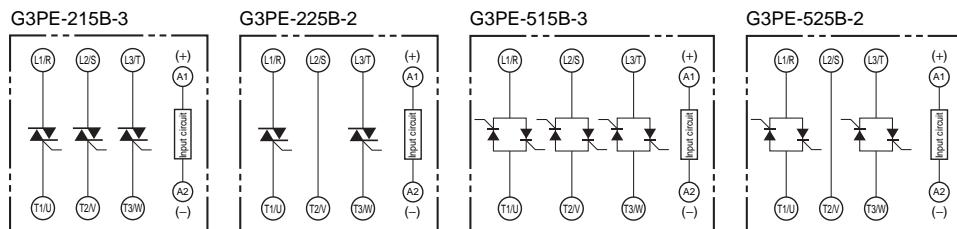
Note: Without terminal cover.

Note: With terminal cover.

### Mounting Holes



### Terminal Arrangement/Internal Circuit Diagram

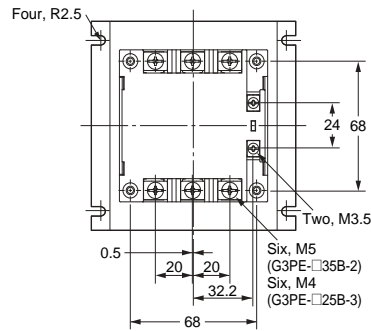


## Models with Screw Mounting

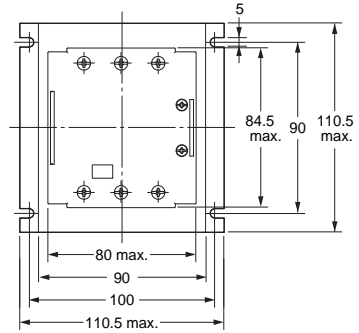
G3PE-225B-3  
G3PE-235B-2  
G3PE-525B-3  
G3PE-535B-2



For screw mounting only

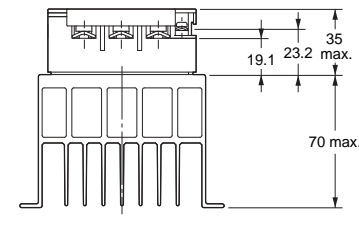
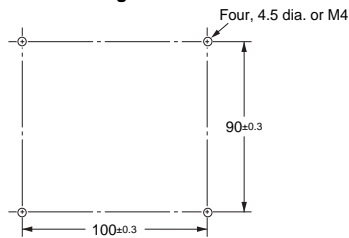


Note: Without terminal cover.

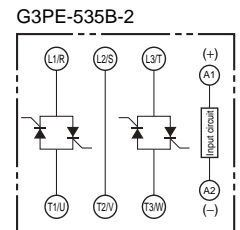
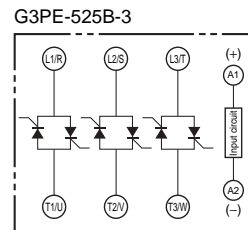
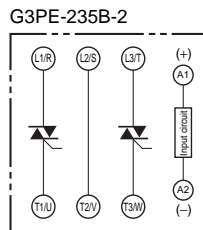
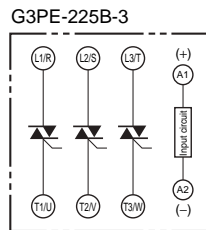


Note: With terminal cover.

### Mounting Holes



### Terminal Arrangement/Internal Circuit Diagram

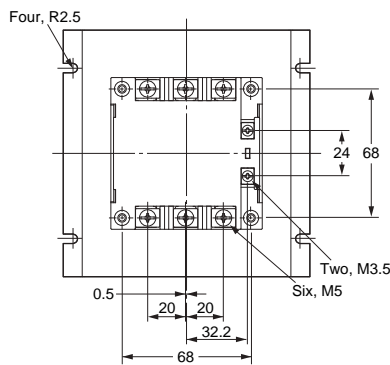


## Models with Screw Mounting

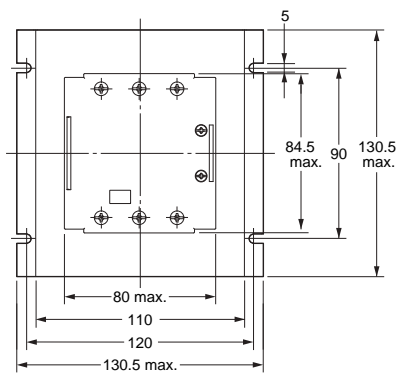
G3PE-235B-3  
G3PE-245B-2  
G3PE-535B-3  
G3PE-545B-2



For screw mounting only

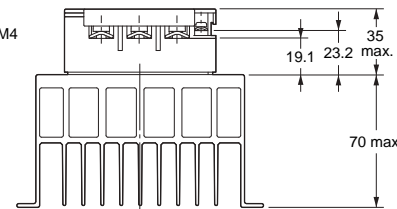
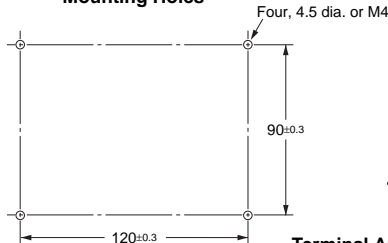


Note: Without terminal cover.



Note: With terminal cover.

### Mounting Holes



### Terminal Arrangement/Internal Circuit Diagram

