

## Solid State Relays for Heaters

**G3PE-Single-phase**

**Slim Width Industrial SSR with heat sink  
ideal for Heater Control.**



- 15A and 25A models have 22.5mm width.
- Single-phase models have attached heat sink allowing for quick easy track mount installation.
- Load voltage available in 240VAC and 480VAC.
- Zero cross or "random turn on" models.
- Snubber circuit provides excellent short-term surge absorption.
- UL, CSA, and TUV Approved. Also CE Marked.
- RoHS Compliant.



Refer to *Safety Precautions for All G3PE Models.*

勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-34970699  
 勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

**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* on page 3.

## 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				15 mA max.		

## Output

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 3.

## Characteristics

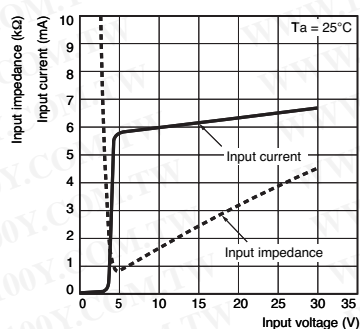
Model	G3PE-215B	G3PE-225B	G3PE-235B	G3PE-245B	G3PE-215BL	G3PE-225BL	G3PE-235BL	G3PE-245BL
Item								
Operate time	1/2 of load power source cycle + 1 ms max.				1 ms max.			
Release time	1/2 of load power source cycle + 1 ms max.							
Output ON voltage drop	1.6 V (RMS) max.							
Leakage current	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 to10 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 to10 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	

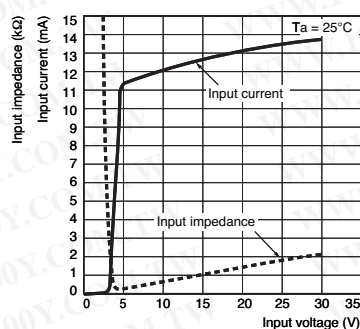
# Engineering Data

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

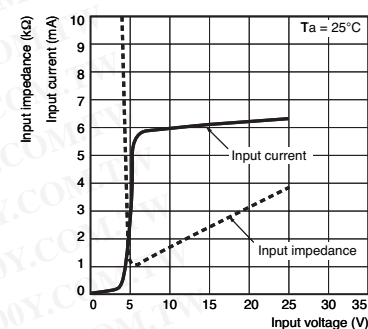
G3PE-2□□B



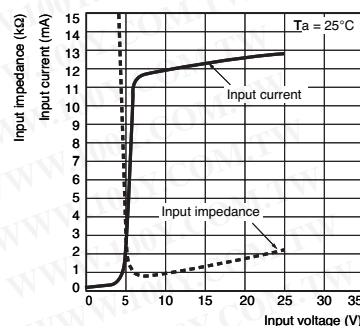
G3PE-2□□BL



G3PE-5□□B



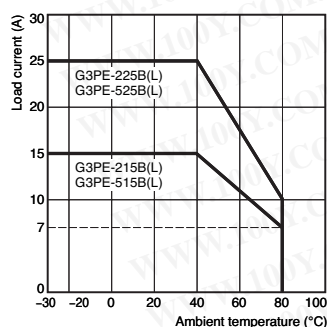
G3PE-5□□BL



## Load Current vs. Ambient Temperature

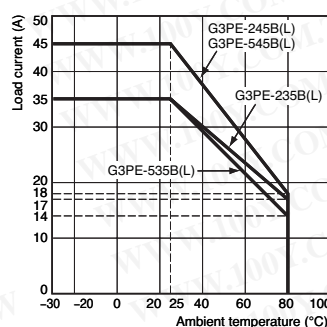
G3PE-215B(L), G3PE-225B(L)

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



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

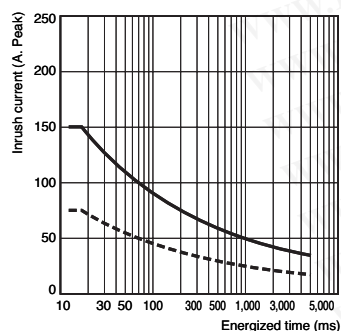
G3PE-535B(L), G3PE-545B(L)



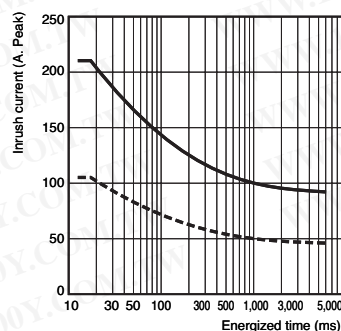
## Inrush Current Resistance: Non-repetitive

Make sure the inrush current stays below the dashed line curve if it occurs repetitively.

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

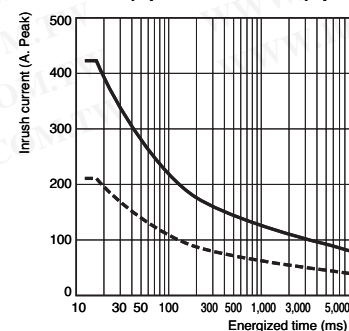


G3PE-225B(L), G3PE-525B(L)



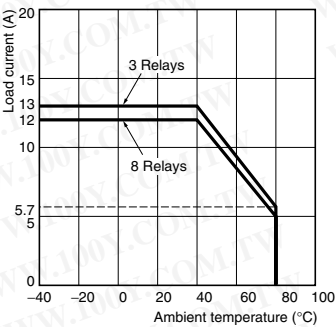
G3PE-235B(L), G3PE-245B(L)

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

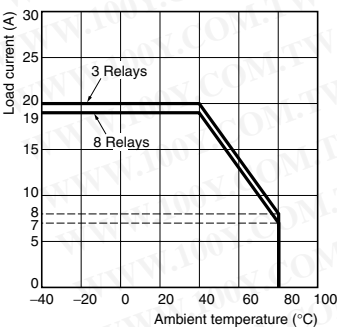


Close Mounting (3 or 8 SSRs)

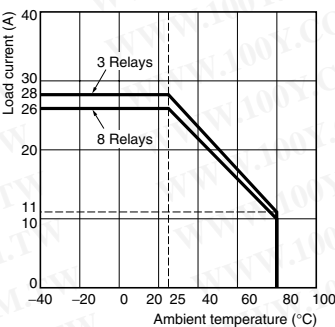
G3PE-215B(L)



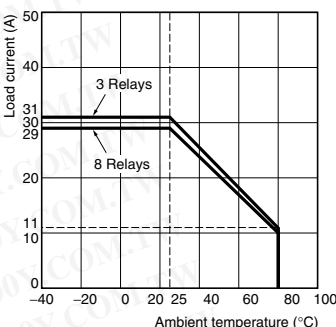
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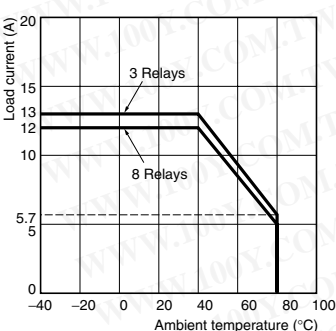
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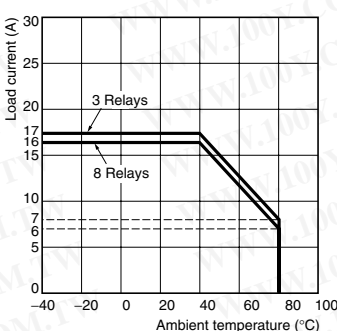
G3PE-245B(L)



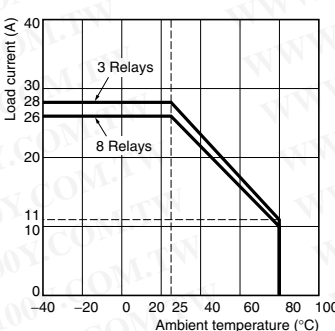
G3PE-515B(L)



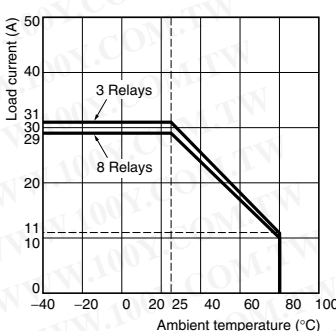
G3PE-525B(L)



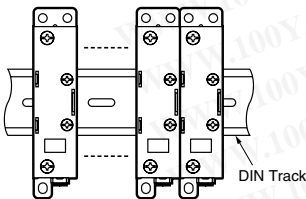
G3PE-535B(L)



G3PE-545B(L)



Close Mounting Example





# Dimensions

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

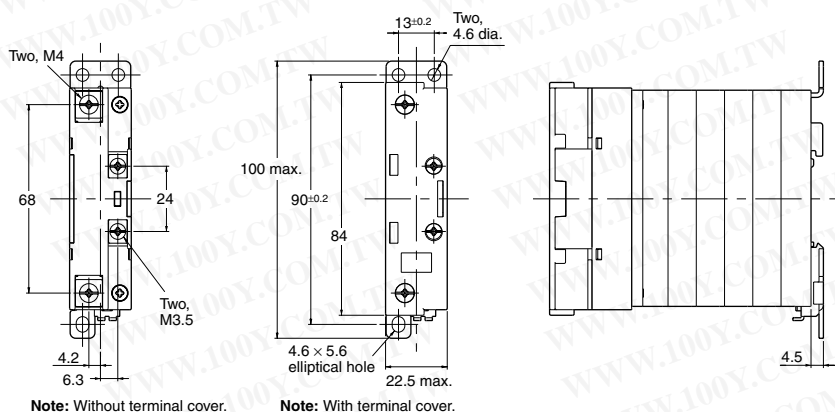
## Solid State Relays

G3PE-215B(L)

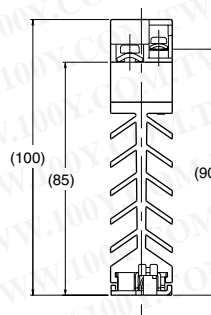
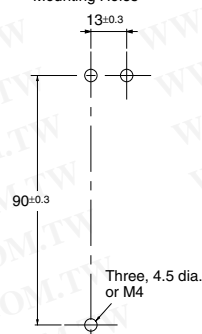
G3PE-225B(L)

G3PE-515B(L)

G3PE-525B(L)

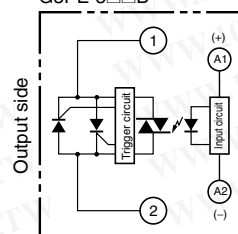


Mounting Holes

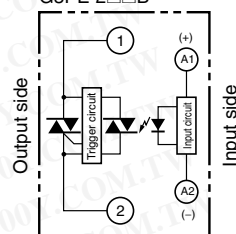


Terminal Arrangement/Internal Circuit Diagram

G3PE-5□□B



G3PE-2□□B

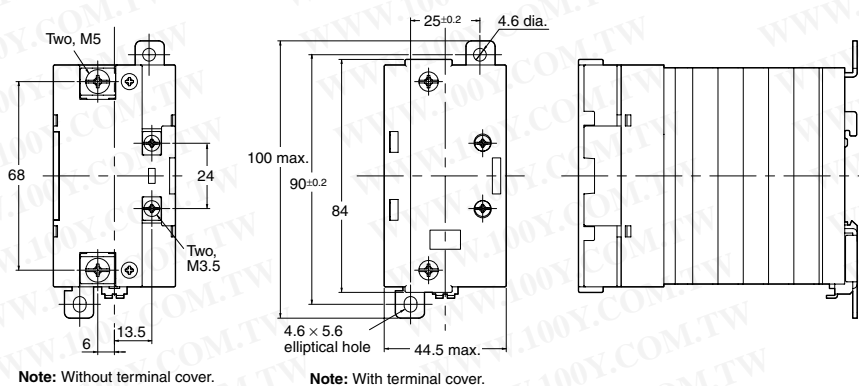


G3PE-235B(L)

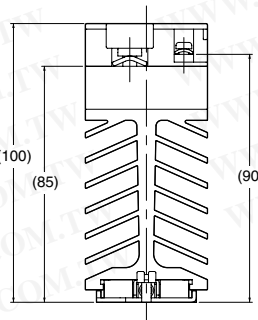
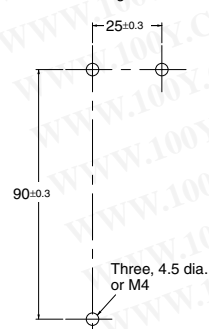
G3PE-245B(L)

G3PE-535B(L)

G3PE-545B(L)

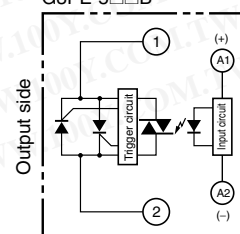


Mounting Holes

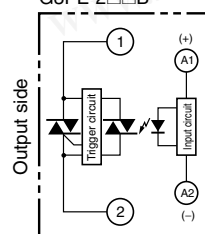


Terminal Arrangement/Internal Circuit Diagram

G3PE-5□□B



G3PE-2□□B



## Solid State Relays for Heaters

**G3PE-Three-phase****DIN Track Mountable Solid State Contactors  
Ideal for Three-phase Heater Applications.**

- Slim relay units with three-phase output.
- DIN track models with attached heat sink allow for quick easy track mount installation.
- Load voltage available in 240VAC and 480VAC.
- Snubber circuit provides excellent short-term surge absorption.
- UL, CSA, and TUV Approved. Also CE Marked.
- RoHS Compliant.

**Ordering Information**

 Refer to *Safety Precautions for All G3PE Models.*

**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
					Screw mounting	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
						15 A, 100 to 240 VAC	3	G3PE-215B-3 DC12-24
							2	G3PE-215B-2 DC12-24
						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
						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 5.

\*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*.

## 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*.

## 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

## Specifications

### Certification

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

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

#### Input Circuit (All Models)

Item	Common characteristics
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

#### Output Circuit of 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)
Item																
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 (60 Hz, 1 cycle)		220 A (60 Hz, 1 cycle)		440 A (60 Hz, 1 cycle)				220 A (60 Hz, 1 cycle)				440 A (60 Hz, 1 cycle)			
Permissible I²t (reference value)	121A²s		260A²s		1,260A²s				260A²s				1,260A²s			
Applicable load (resistive load: AC1 class) * 2	5.1 kW (at 200 VAC)		8.6 kW (at 200 VAC)		12.1 kW (at 200 VAC)		15.5 kW (at 200 VAC)		12.5 kW (at 480 VAC)		20.7 kW (at 480 VAC)		29.0 kW (at 480 VAC)		37.4 kW (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 5.

\*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 ×  $\sqrt{3}$

Example: 15 A × 200 V ×  $\sqrt{3}$  = 5,196 W ≈ 5.1 kW

Example: 15 A × 400 V ×  $\sqrt{3}$  = 10,392 W ≈ 10.3 kW

#### Main Circuit of 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
Item																
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 (60 Hz, 1 cycle)		220 A (60 Hz, 1 cycle)		440 A (60 Hz, 1 cycle)				220 A (60 Hz, 1 cycle)				440 A (60 Hz, 1 cycle)			
Permissible I²t (reference value)	121A²s		260A²s		1,260A²s				260A²s				1,260A²s			
Applicable load (resistive load: AC1 class)	Refer to <i>Engineering Data</i> on page 5.															

\* 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 5.



## 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)
Item																
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	• DIN Track mounting: 10 to 55 to 10 Hz, 0.175-mm single amplitude (0.35-mm double amplitude) • Screw mounting: 10 to 55 to 10 Hz, 0.375-mm single amplitude (0.75-mm double amplitude)															
Shock resistance	294 m/s <sup>2</sup> (reverse mounting: 98 m/s2)															
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
Item																
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.

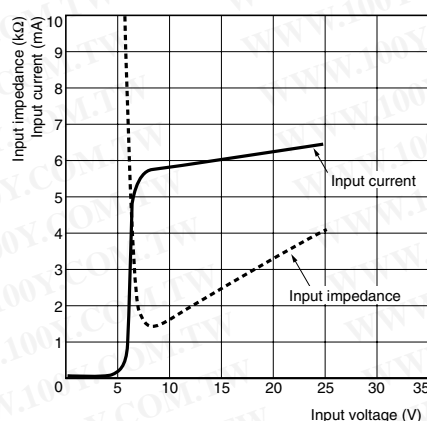
### Heat Sinks

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

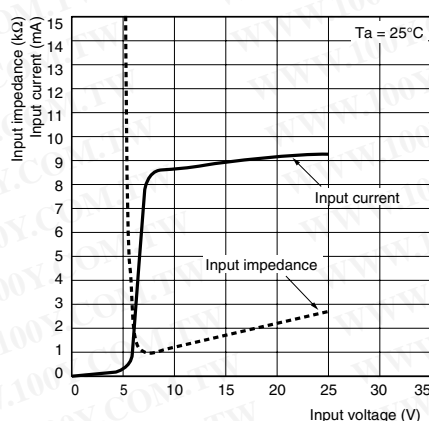
# Engineering Data

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

G3PE-2□□B-□□



G3PE-5□□B-□□



## Load Current vs. Ambient Temperature

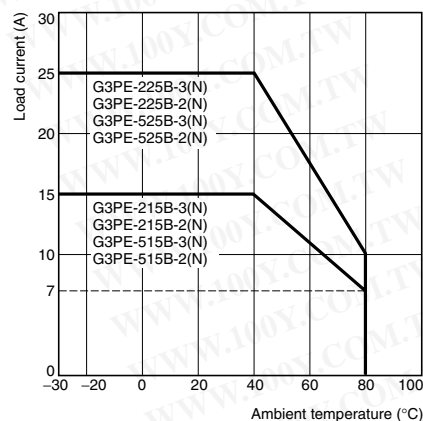
Models with Built-in Heat Sinks

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)

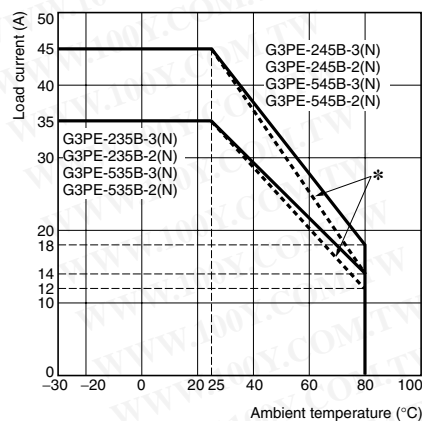


G3PE-235B-3(N), G3PE-245B-3(N)

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).

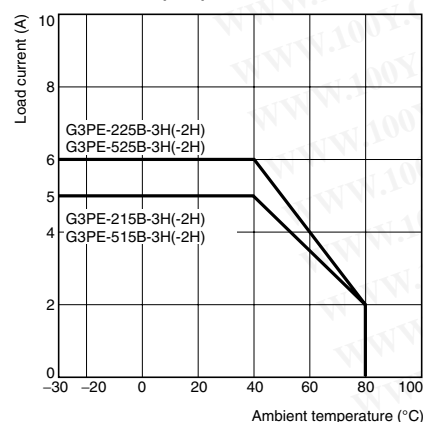
## Models with Externally Attached Heat Sinks

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

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

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

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

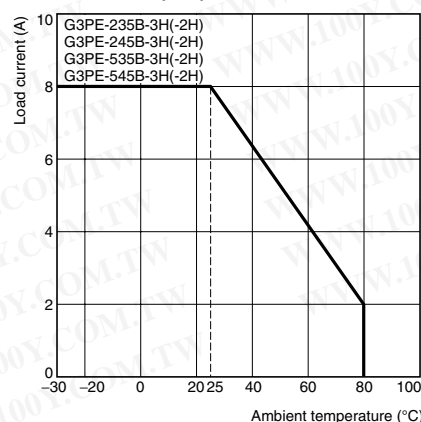


G3PE-235B-3H(-2H)

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

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

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



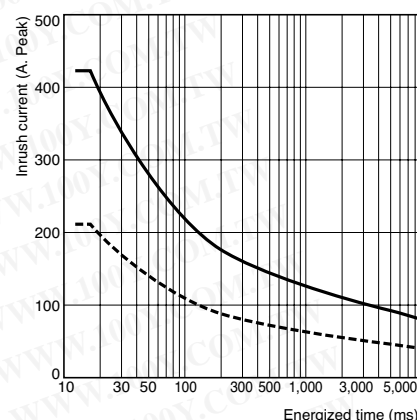
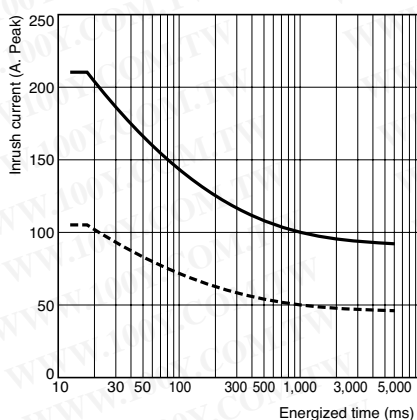
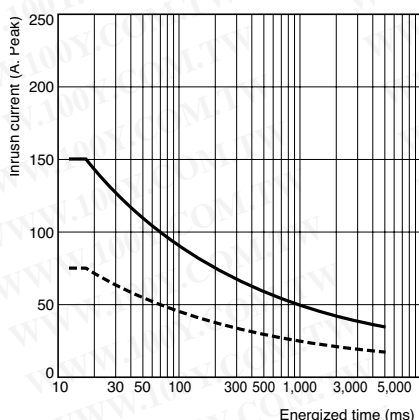
## Inrush Current Resistance: Non-repetitive

Make sure the inrush current stays below the dashed line curve 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),

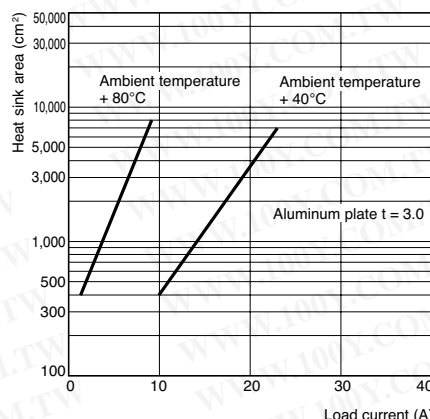
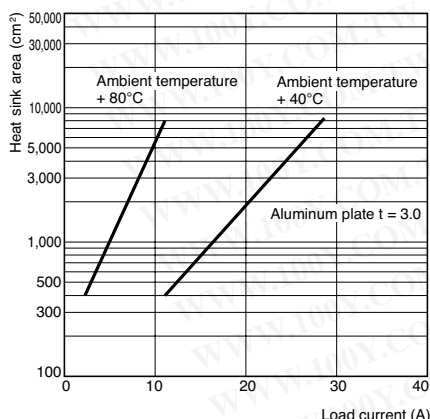
G3PE-235B-3(N)(H), G3PE-535B-3(N)(H)  
G3PE-235B-2(N)(H), G3PE-535B-2(N)(H)  
G3PE-245B-3(N)(H), G3PE-545B-3(N)(H)  
G3PE-245B-2(N)(H), G3PE-545B-2(N)(H)



## 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.

# Dimensions

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

## Solid State Relays

### Models with DIN Track Mounting

G3PE-215B-3N

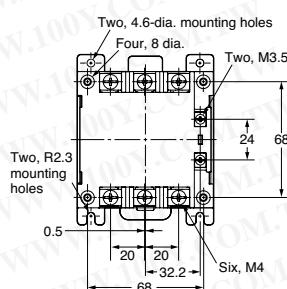
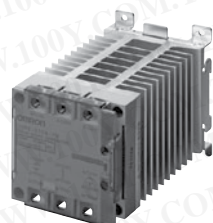
G3PE-215B-2N

G3PE-225B-2N

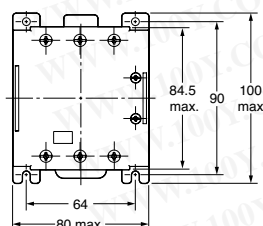
G3PE-515B-3N

G3PE-515B-2N

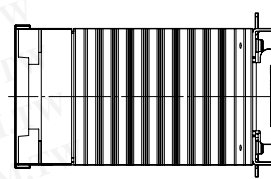
G3PE-525B-2N



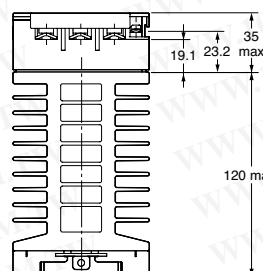
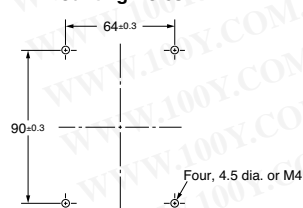
**Note:** Without terminal cover.



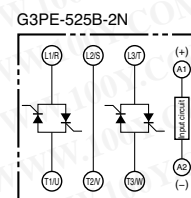
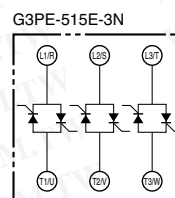
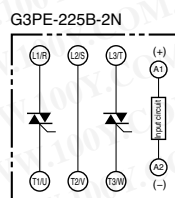
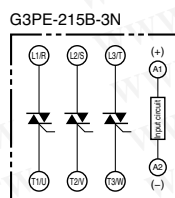
**Note:** With terminal cover.



#### Mounting Holes



#### Terminal Arrangement/Internal Circuit Diagram



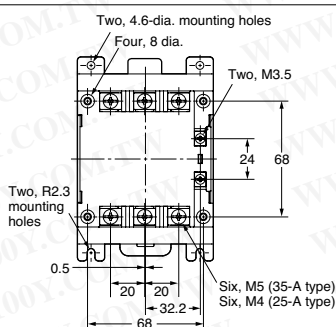
### Models with DIN Track Mounting

G3PE-225B-3N

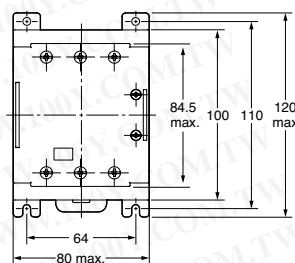
G3PE-235B-2N

G3PE-525B-3N

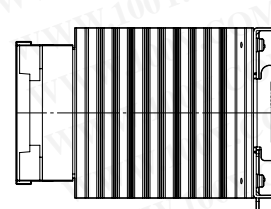
G3PE-535B-2N



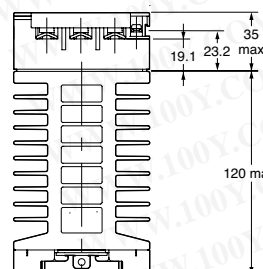
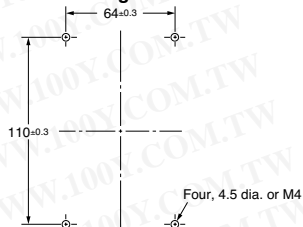
**Note:** Without terminal cover.



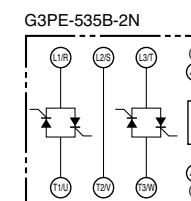
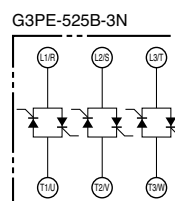
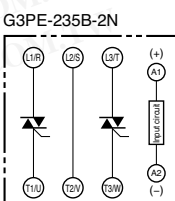
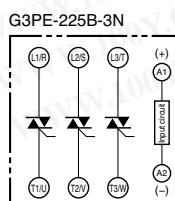
**Note:** With terminal cover.



#### Mounting Holes

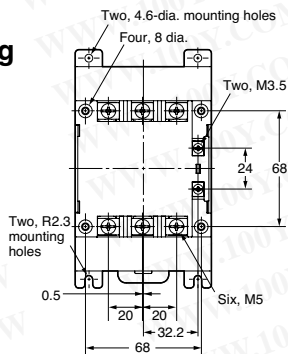


#### Terminal Arrangement/Internal Circuit Diagram

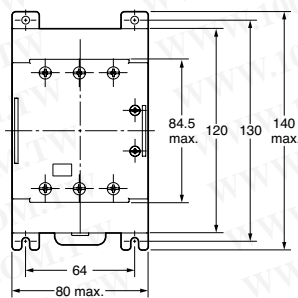




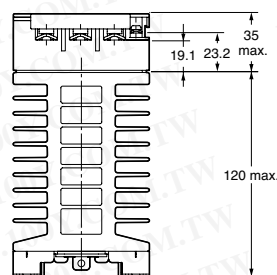
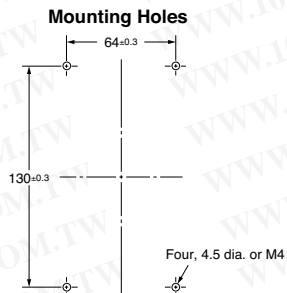
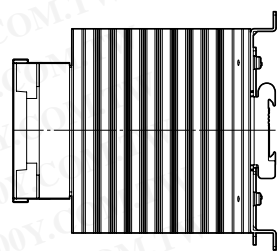
**Models with  
DIN Track Mounting**  
G3PE-235B-3N  
G3PE-245B-2N  
G3PE-535B-3N  
G3PE-545B-2N



**Note:** Without terminal cover.

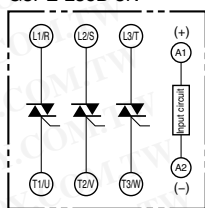


**Note:** With terminal cover.

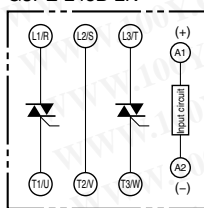


**Terminal Arrangement/Internal Circuit Diagram**

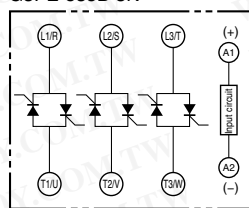
**G3PE-235B-3N**



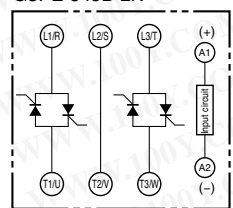
**G3PE-245B-2N**



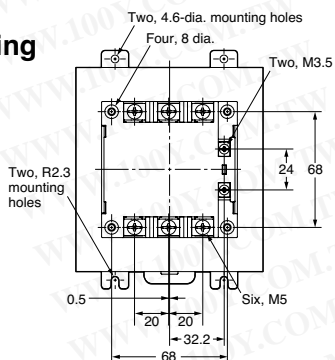
**G3PE-535B-3N**



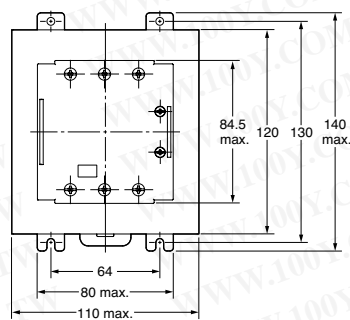
**G3PE-545B-2N**



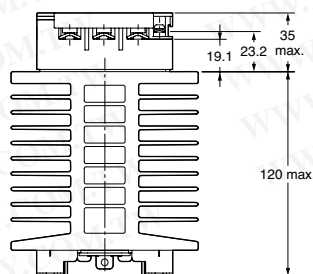
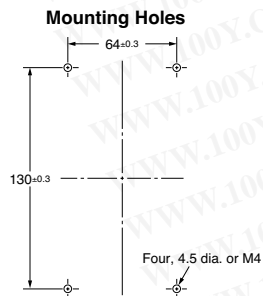
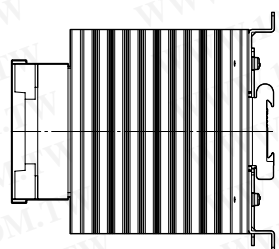
**Models with  
DIN Track Mounting**  
G3PE-245B-3N  
G3PE-545B-3N



**Note:** Without terminal cover.

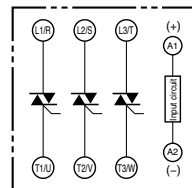


**Note:** With terminal cover.

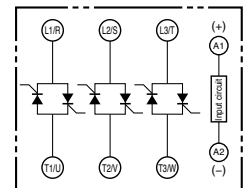


**Terminal Arrangement/Internal Circuit Diagram**

**G3PE245B-3N**

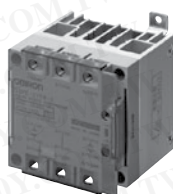


**G3PE-545B-3N**

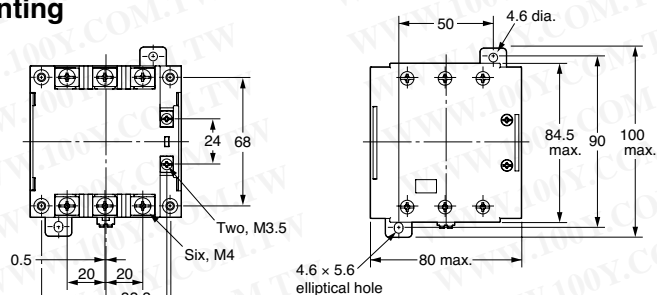


## Models with Screw Mounting

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



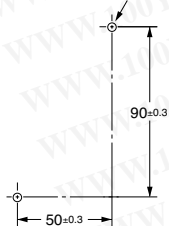
DIN Track or screw mounting



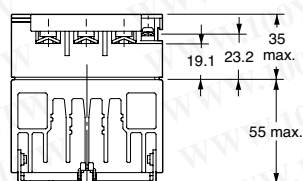
Note: Without terminal cover.

### Mounting Holes

Two, 4.5 dia. or M4

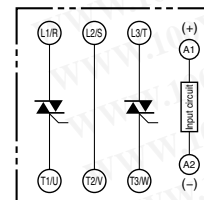


Note: With terminal cover.

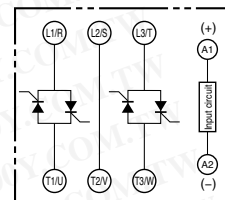


### Terminal Arrangement/Internal Circuit Diagram

G3PE-215B-2

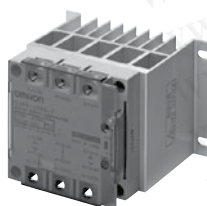


G3PE-515B-2

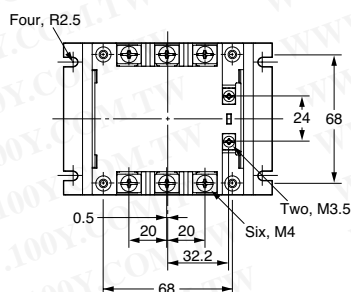


## Models with Screw Mounting

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



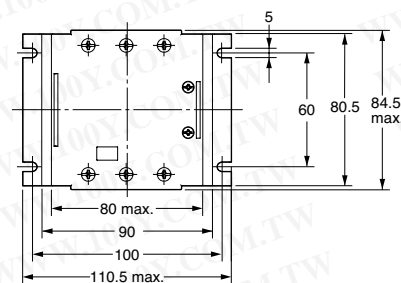
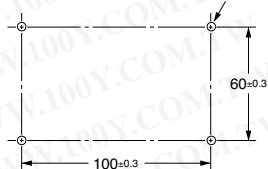
For screw mounting only



Note: Without terminal cover.

### Mounting Holes

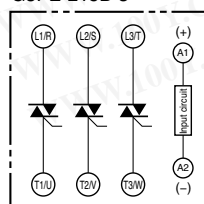
Four, 4.5 dia. or M4



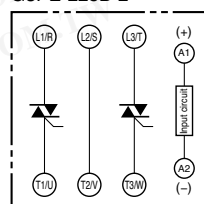
Note: With terminal cover.

### Terminal Arrangement/Internal Circuit Diagram

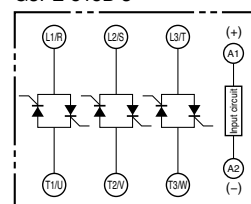
G3PE-215B-3



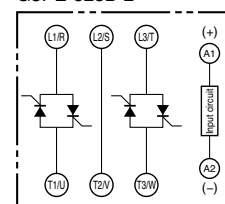
G3PE-225B-2



G3PE-515B-3

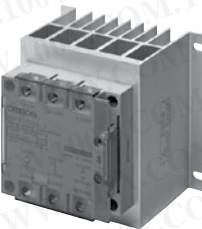


G3PE-525B-2

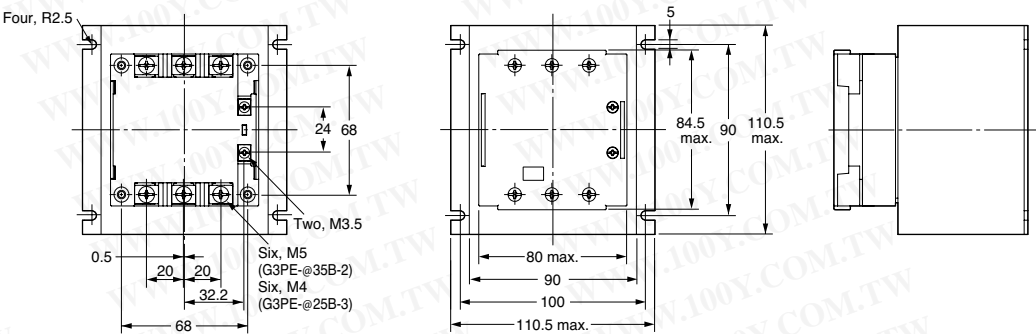


Models with  
Screw Mounting

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



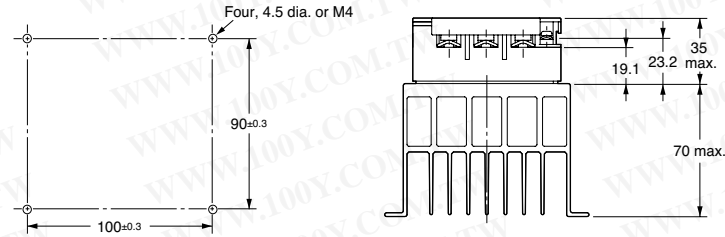
For screw mounting only



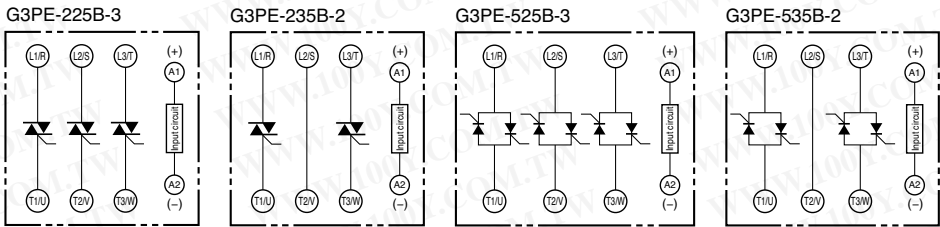
Note: Without terminal cover.

Note: With terminal cover.

Mounting Holes

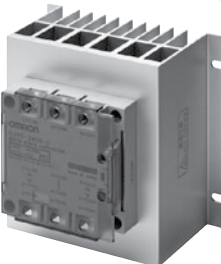


Terminal Arrangement/Internal Circuit Diagram

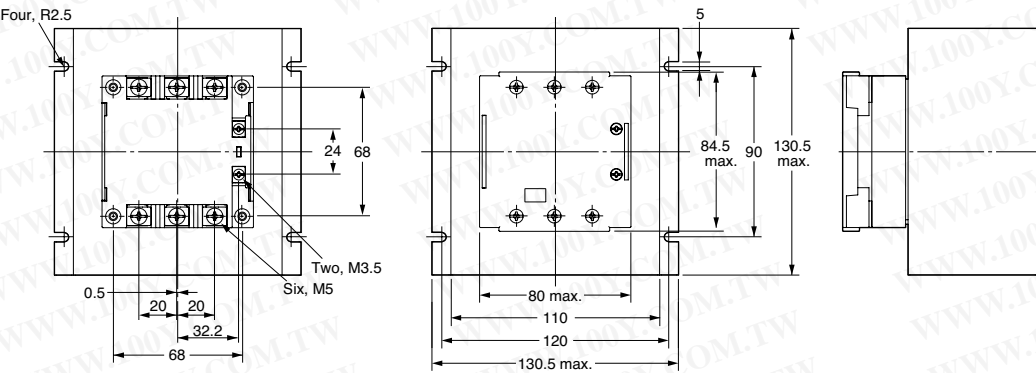


Models with  
Screw Mounting

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



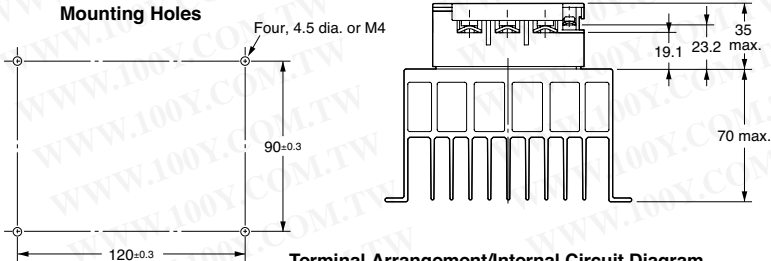
For screw mounting only



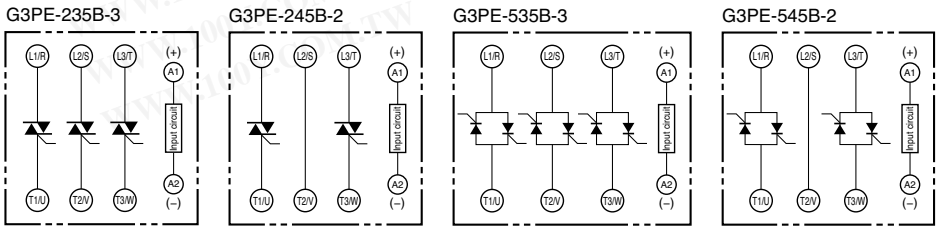
Note: Without terminal cover.

Note: With terminal cover.

Mounting Holes



Terminal Arrangement/Internal Circuit Diagram

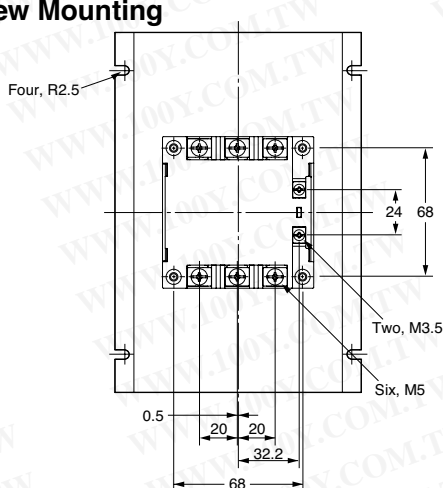


# Models with Screw Mounting

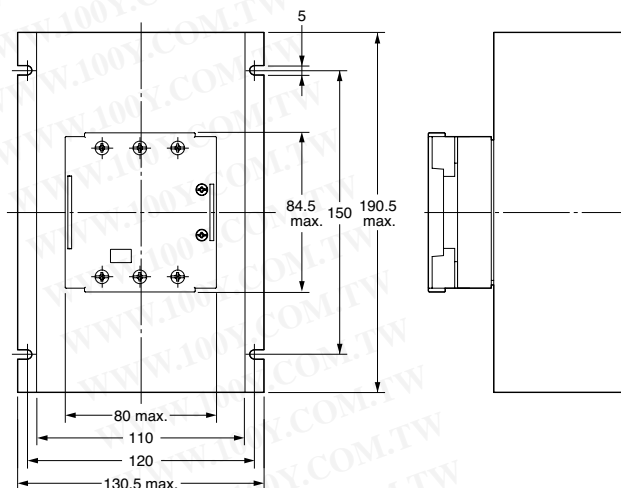
G3PE-245B-3  
G3PE-545B-3



For screw mounting only

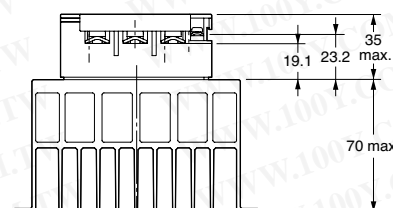
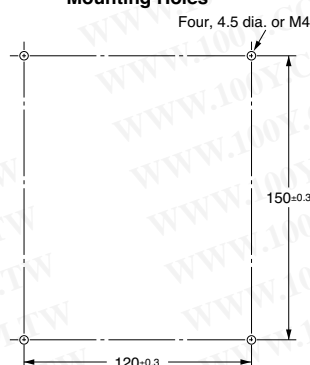


Note: Without terminal cover.



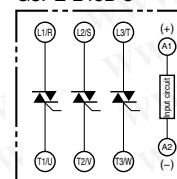
Note: With terminal cover.

## Mounting Holes

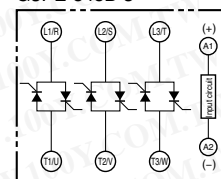


## Terminal Arrangement/Internal Circuit Diagram

G3PE-245B-3

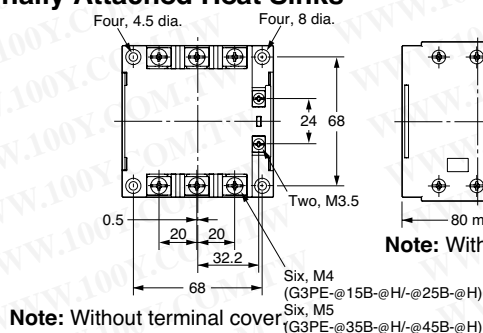


G3PE-545B-3

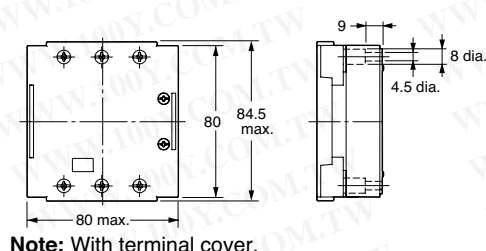


# Models with Externally Attached Heat Sinks

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

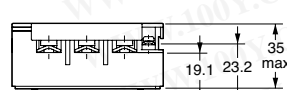
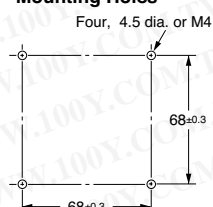


Note: Without terminal cover.



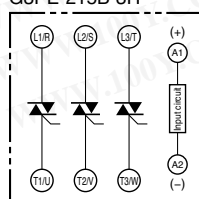
Note: With terminal cover.

## Mounting Holes

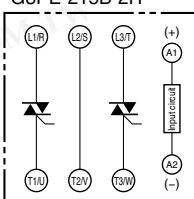


## Terminal Arrangement/Internal Circuit Diagram

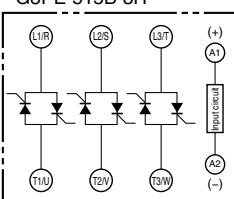
G3PE-215B-3H



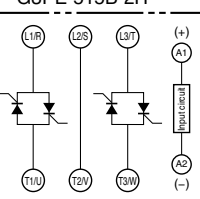
G3PE-215B-2H



G3PE-515B-3H



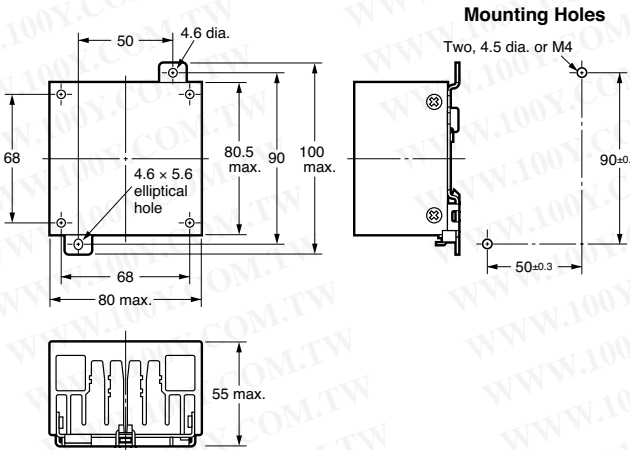
G3PE-515B-2H



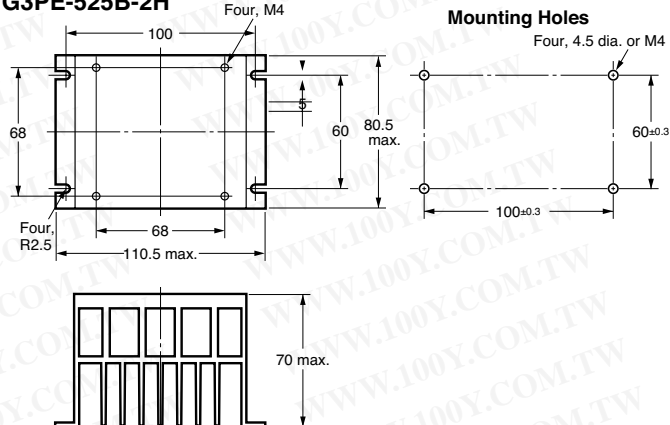


Accessories (Order Separately)

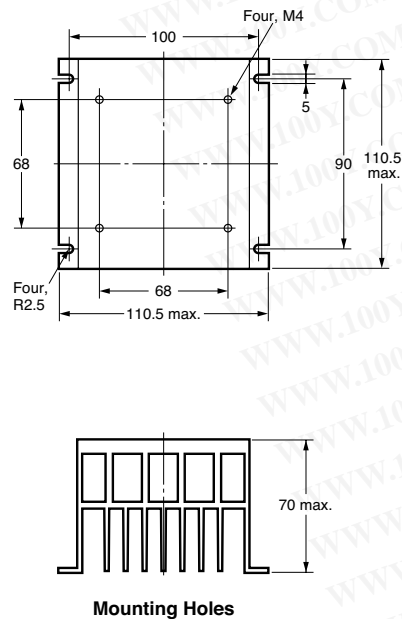
**Heat Sink**  
**Y92B-P50 (Mounts to DIN Track.)**  
For G3PE-215B-2H and  
G3PE-515B-2H



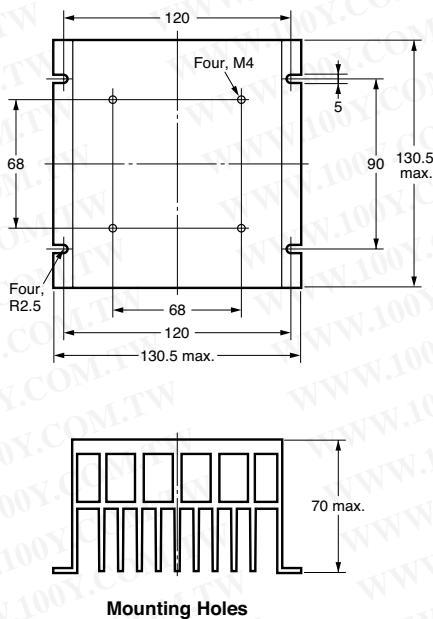
**Heat Sink**  
**Y92B-P100**  
For G3PE-215B-3H,  
G3PE-225B-2H,  
G3PE-515B-3H, and  
G3PE-525B-2H



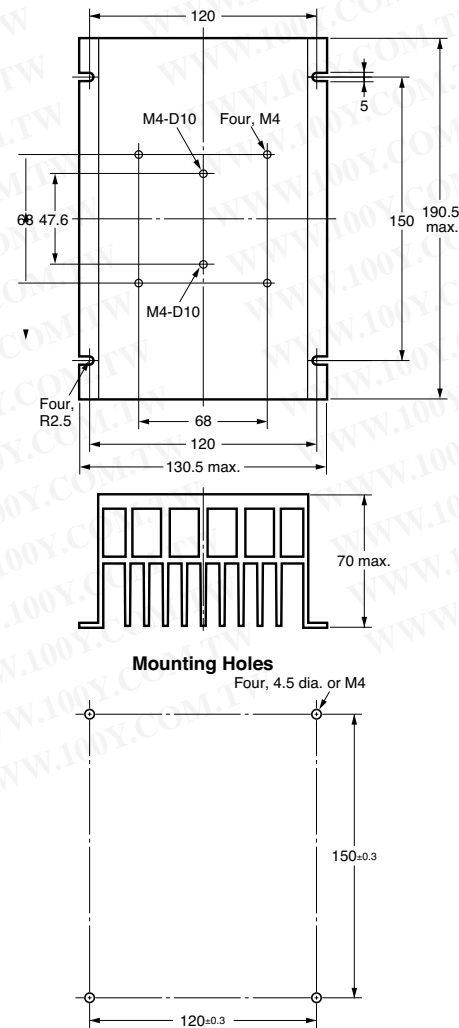
**Heat Sink**  
**Y92B-P150**  
For G3PE-225B-3H,  
G3PE-235B-2H,  
G3PE-525B-3H, and  
G3PE-535B-2H



**Heat Sink**  
**Y92B-P200**  
For G3PE-235B-3H,  
G3PE-245B-2H,  
G3PE-535B-3H, and  
G3PE-545B-2H



**Heat Sink**  
**Y92B-P250**  
For G3PE-245B-3H and  
G3PE-545B-3H



## Safety Precautions

Refer to *Safety Precautions for All Solid State Relays*.

### ⚠ CAUTION

Minor electrical shock may occasionally occur.  
Do not touch the G3PE terminal section (i.e., current-carrying parts) while the power is being supplied.  
Also, always attach the cover terminal.



The G3PE may rupture if short-circuit current flows.  
As protection against accidents due to short-circuiting, be sure to install protective devices, such as fuses and no-fuse breakers, on the power supply side.



Minor electrical shock may occasionally occur.  
Do not touch the main circuit terminals on the SSR immediately after the power supply has been turned OFF. Shock may result due to the electrical charge stored in the built-in snubber circuit.



Minor burns may occasionally occur.  
Do not touch the SSR or the heat sink while the power is being supplied or immediately after the power supply has been turned OFF. The SSR and heat sink become extremely hot.



### Precautions for Safe Use

OMRON constantly strives to improve quality and reliability. SSRs, however, use semiconductors, and semiconductors may commonly malfunction or fail. In particular, it may not be possible to ensure safety if the SSRs are used outside the rated ranges. Therefore, always use the SSRs within the ratings. When using an SSR, always design the system to ensure safety and prevent human accidents, fires, and social harm in the event of SSR failure. System design must include measures such as system redundancy, measures to prevent fires from spreading, and designs to prevent malfunction.

### Transport

Do not transport the G3PE under the following conditions. Doing so may result in damage, malfunction, or deterioration of performance characteristics.

- Conditions in which the G3PE may be subject to water.
- Conditions in which the G3PE may be subject to high temperature or high humidity.
- Conditions in which the G3PE is not packaged.

### Operating and Storage Environments

Do not use or store the G3PE in the following locations. Doing so may result in damage, malfunction, or deterioration of performance characteristics.

- Locations subject to rainwater or water splashes.
- Locations subject to exposure to water, oil, or chemicals.
- Locations subject to high temperature or high humidity.
- Do not store in locations subject to ambient storage temperatures outside the range -30 to 100°C.
- Do not use in locations subject to relative humidity outside the range 45% to 85%.
- Locations subject to corrosive gases.
- Locations subject to dust (especially iron dust) or salts.
- Locations subject to direct sunlight.
- Locations subject to shock or vibration.

### Installation and Handling

- Do not block the movement of the air surrounding the G3PE or heat sink. Abnormal heating of the G3PE may result in shorting failures of the output elements or burn damage.
- Do not use the G3PE if the heat radiation fins have been bent by being dropped. Doing so may result in malfunction due to a reduction in the heat radiation performance.
- Do not handle the G3PE with oily or dusty (especially iron dust) hands. Doing so may result in malfunction.
- Attach a heat sink or radiator when using an SSR. Not doing so may result in malfunction due to a reduction in the heat radiation performance.

### Installation and Mounting

- Mount the G3PE in the specified direction. Otherwise excessive heat generated by the G3PE may cause short-circuit failures of the output elements or burn damage.
- Make sure that there is no excess ambient temperature rise due to the heat generation of the G3PE. If the G3PE is mounted inside a panel, install a fan so that the interior of the panel is fully ventilated.
- Make sure the DIN track is securely mounted. Otherwise, the G3PE may fall.
- When mounting the heat sink, do not allow any foreign matter between the heat sink and the mounting surface. Foreign matter may cause malfunction due to a reduction in the heat radiation performance.
- If the G3PE is mounted directly in a control panel, use aluminum, steel plating, or similar material with a low heat resistance as a substitute for a heat sink. Using the G3PE mounted in wood or other material with a high heat resistance may result in fire or burning due to heat generated by the G3PE.

### Installation and Wiring

- Use wires that are suited to the load current. Otherwise, excessive heat generated by the wires may cause burning.
- Do not use wires with a damaged outer covering. Otherwise, it may result in electric shock or ground leakage.
- Do not wire any wiring in the same duct or conduit as power or high-tension lines. Otherwise, inductive noise may damage the G3PE or cause it to malfunction.
- When tightening terminal screws, prevent any non-conducting material from becoming caught between the screws and the tightening surface. Otherwise, excessive heat generated by the terminal may cause burning.
- Do not use the G3PE with loose terminal screws. Otherwise, excessive heat generated by the wire may cause burning.
- For the G3PE models with a carry current of 35 A or larger, use M5 crimp terminals that are an appropriate size for the diameter of the wire.
- Always turn OFF the power supply before performing wiring. Not doing so may cause electrical shock.

### Installation and Usage

- Select a load within the rated values. Not doing so may result in malfunction, failure, or burning.
- Select a power supply within the rated frequencies. Not doing so may result in malfunction, failure, or burning.
- The G3PE provides a circuit to prevent photocoupler damage by forcibly arcing the output element for surge voltages applied to the load. The G3PE therefore cannot be used for motor loads. Doing so may result in load motor malfunction.

## Safety Precautions

### Precautions for Correct Use

The SSR in operation may cause an unexpected accident. Therefore it is necessary to test the SSR under the variety of conditions that are possible. As for the characteristics of the SSR, it is necessary to consider differences in characteristics between individual SSRs.

The ratings in this catalog are tested values in a temperature range between 15°C and 30°C, a relative humidity range between 25% and 85%, and an atmospheric pressure range between 86 and 106 kPa. It will be necessary to provide the above conditions as well as the load conditions if the user wants to confirm the ratings of specific SSRs.

### Causes of Failure

- Do not drop the G3PE or subject it to abnormal vibration or shock during transportation or mounting. Doing so may result in deterioration of performance, malfunction, or failure.
- Tighten each terminal to the torque specified below. Improper tightening may result in abnormal heat generation at the terminal, which may cause burning.

Terminals	Screw terminal diameter	Tightening torque
Input terminals	M3.5	0.59 to 1.18 N·m
Output terminals	M4	0.98 to 1.47 N·m
	M5	1.57 to 2.45 N·m

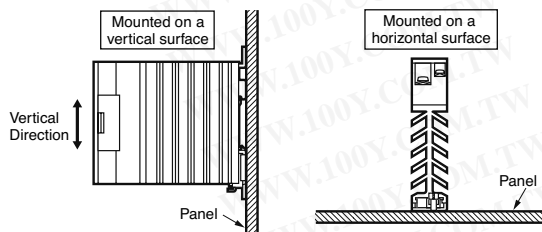
- Do not supply overvoltage to the input circuits or output circuits. Doing so may result in failure or burning.
- Do not use or store the G3PE in the following conditions. Doing so may result in deterioration of performance.
  - Locations subject to static electricity or noise
  - Locations subject to strong electric or magnetic fields
  - Locations subject to radioactivity

### Mounting

- The G3PE is heavy. Firmly mount the DIN Track and secure both ends with End Plates for DIN Track mounting models. When mounting the G3PE directly to a panel, firmly secure it to the panel.

Screw diameter: M4

Tightening torque: 0.98 to 1.47 N·m



**Note:** Make sure that the load current is 50% of the rated load current when the G3PE is mounted horizontally. For details on close mounting, refer to the related information under performance characteristics. Mount the G3PE in a direction so that the markings read naturally.

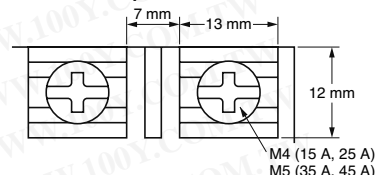
- The G3PE-2N/-3N (DIN Track mounting models) can be mounted on the following TR35-15Fe (IEC 60715) DIN Tracks.

Manufacturer	Thickness	1.5 mm	2.3 mm
Schneider	AM1-DE200	---	---
WAGO	210-114, 210-197	---	210-118
PHOENIX	NS35/15	---	NS35/15-2.3

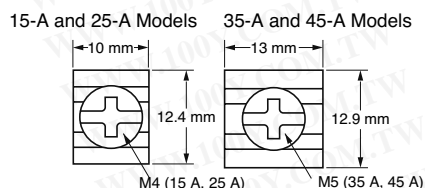
### Wiring

- When using crimp terminals, refer to the terminal clearances shown below.

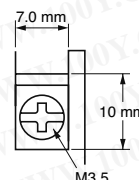
#### Output Terminal Section for Three-phase Models



#### Output Terminal Section for Single-phase Models



#### Input Terminal Section



- Make sure that all lead wires are thick enough for the current.
- For three-element and two-element models, the output terminal will be charged even when the Relay is OFF. Touching the terminal may result in electric shock. To isolate the Relay from the power supply, install an appropriate circuit breaker between the power supply and the Relay.

Always turn OFF the power supply before wiring the Unit.

- Terminal L2 and terminal T2 of a 2-element model are internally connected to each other. Connect terminal L2 to the ground terminal of the power supply. If terminal L2 is connected to a terminal other than the ground terminal, cover all the charged terminals, such as heater terminals, to prevent electric shock and ground faults.

### Fuses

- Use a quick-burning fuse on the output terminals to prevent accidents due to short-circuiting. Use a fuse with equal or greater performance than those given in the following table.

#### Recommended Fuse Capacity

Rated G3PE output current	Applicable SSR	Fuse (IEC 60269-4)
15 A	G3PE□15B Series	32 A
25 A	G3PE□25B Series	
35 A	G3PE□35B Series	63 A
45 A	G3PE□45B Series	

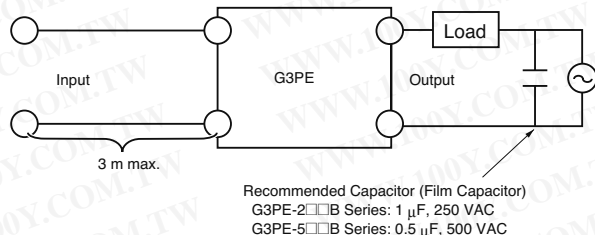


# Safety Precautions

## EMC Connection

Make EMC connections according to the following figure.

- Connect a capacitor to the load power supply.
- The input cable must be no longer than 3 m.



## EMI

This is a Class A product (for industrial environments). In a domestic environment, the G3PE may cause radio interference, in which case the user may be required to take appropriate measures.

## Noise and Surge Effects

If noise or an electrical surge occurs that exceeds the malfunction withstand limit for the G3PE output circuit, the output will turn ON for a maximum of one half cycle to absorb the noise or surge. Confirm that turning the output ON for a half cycle will not cause a problem for the device or system in which the G3PE is being used prior to actual use. The G3PE malfunction withstand limit is shown below.

- Malfunction withstand limit (reference value): 500 V

**Note:** This value was measured under the following conditions.

Noise duration: 100 ns and 1  $\mu$ s

Repetition period: 100 Hz

Noise application time: 3 min

## Mounting Models with Externally Attached Heat Sinks

- Before attaching an external Heat Sink or Radiator to the Unit, always apply silicone grease, such as Toshiba Silicone's YG6260 or Sinetsu Silicone's G746, to the mounting surface to enable proper heat radiation.
- Tighten the screws to the following torque to secure the Unit and external Heat Sink or Radiator to enable proper heat dissipation.  
Tightening torque: 2.0 N·m

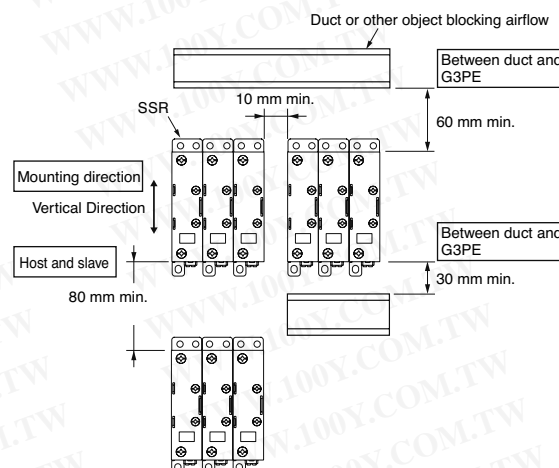
## Mounting to Control Panel

The G3PE is heavy. Firmly mount the DIN track and secure both ends with End Plates for DIN-track-mounting models. When mounting the G3PE directly to a panel, firmly secure it to the panel.

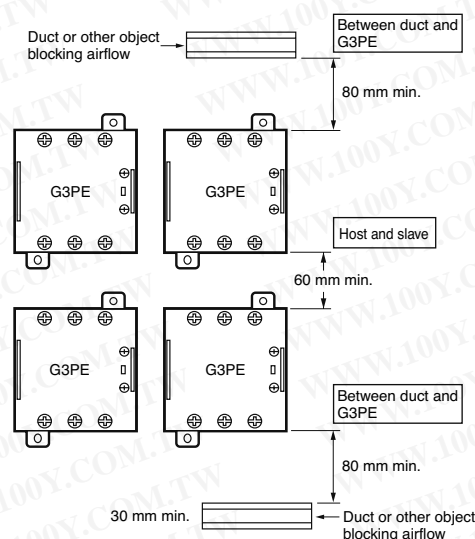
If the panel is airtight, heat from the SSR will build up inside, which may reduce the current carry ability of the SSR or adversely affect other electrical devices. Be sure to install ventilation holes on the top and bottom of the panel.

## SSR Mounting Pitch (Panel Mounting)

- Single-phase Model



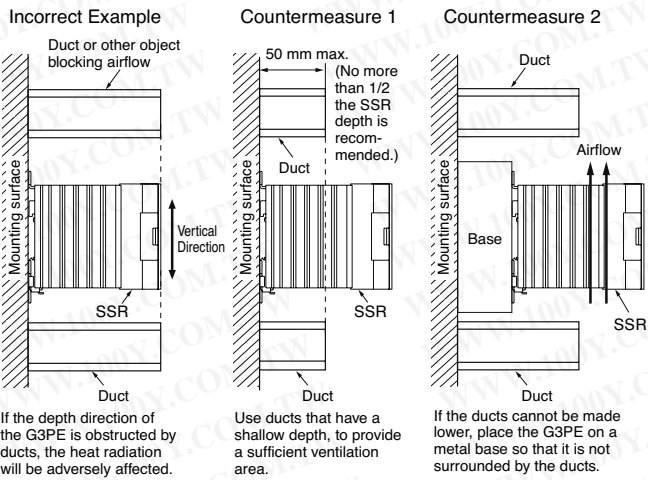
- Three-phase Models



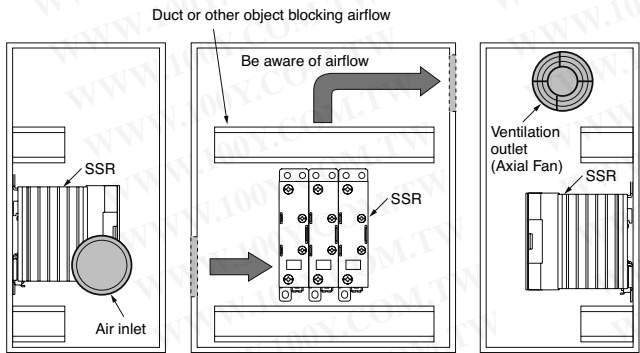


Safety Precautions

Relationship between the G3PE and Ducts or Other Objects Blocking Airflow



Ventilation Outside the Control Panel



- Note:**
1. If the air inlet or air outlet has a filter, clean the filter regularly to prevent it from clogging to ensure an efficient flow of air.
  2. Do not locate any objects around the air inlet or air outlet, otherwise the objects may obstruct the proper ventilation of the control panel.
  3. A heat exchanger, if used, should be located in front of the G3PE to ensure the efficiency of the heat exchanger.

G3PE Ambient Temperature

The rated current of the G3PE is measured at an ambient temperature of 40°C.

The G3PE uses a semiconductor to switch the load. This causes the temperature inside the control panel to increase due to heating resulting from the flow of electrical current through the load. The G3PE reliability can be increased by adding a ventilation fan to the control panel to dispel this heat, thus lowering the ambient temperature of the G3PE.

(Arrhenius's law suggests that life expectancy is doubled by each 10°C reduction in ambient temperature.)

SSR rated current (A)	15 A	25 A	35 A	45 A
Required number of fans per SSR	0.23	0.39	0.54	0.70

Example: For 10 G3PE SSRs with load currents of 15 A,  
 $0.23 \times 10 = 2.3$   
Thus, 3 fans would be required.

- Note:**
1. Size of fans: 92 mm × 92 mm, Air volume: 0.7 m³/min, Ambient temperature of control panel: 30°C
  2. If there are other instruments that generate heat in the control panel in addition to SSRs, more ventilation will be required.
  3. Ambient temperature: The temperature that will allow the SSR to cool by convection or other means.

## Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

## Warranty and Limitations of Liability

### WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

### LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

## Application Considerations

### SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

### PROGRAMMABLE PRODUCTS

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

## Disclaimers

### CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

### DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

### PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

### ERRORS AND OMISSIONS

The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

# 加熱器專用固態繼電器 G3PE (單相)

散熱器一體成形之小型、輕巧型SSR。  
另備有非零相序(Zero Cross)型，  
適用於各種應用需求



- 支援RoHS指令
- 備有非零相序型
- 提高輸出電路之耐突波電壓特性
- 體積小、外型輕巧
- 除了DIN軌道安裝方式外，亦可使用螺絲安裝
- 已通過EN認證(TÜV認證)。即將取得UL、CSA規格認證(申請中)  
(G3PE-2□□B(L)型系列已取得上述規格的認證)



請參照18頁「正確的使用方式」。



**NEW**

**種類**(有◎記號者為標準機種，無記號者(訂製機種)之交貨日期請向經銷商洽詢。)

## 本體

電源 相數	絕緣方式	動作指示燈	輸入的額定電壓	零相序功能	輸出適用負載*	型式
單相	Phototriac Coupler	有(黃色)	DC12~24V	有	15A AC100~240V	◎G3PE-215B DC12-24型
					25A AC100~240V	◎G3PE-225B DC12-24型
					35A AC100~240V	◎G3PE-235B DC12-24型
					45A AC100~240V	◎G3PE-245B DC12-24型
				無	15A AC100~240V	G3PE-215BL DC12-24型
					25A AC100~240V	G3PE-225BL DC12-24型
					35A AC100~240V	G3PE-235BL DC12-24型
					45A AC100~240V	G3PE-245BL DC12-24型
				有	15A AC200~480V	G3PE-515B DC12-24型
					25A AC200~480V	G3PE-525B DC12-24型
					35A AC200~480V	G3PE-535B DC12-24型
					45A AC200~480V	G3PE-545B DC12-24型
				無	15A AC200~480V	G3PE-515BL DC12-24型
					25A AC200~480V	G3PE-525BL DC12-24型
					35A AC200~480V	G3PE-535BL DC12-24型
					45A AC200~480V	G3PE-545BL DC12-24型

\* 依環境溫度而異，詳細內容請參閱第3頁特性資料中「●負載電流－額定環境溫度」之說明。

## G3PE (單相)

### 額定/性能

#### 認定規格

EN60947-4-3 (已取得)、UL508 (申請中)、CSA22.2 NO.14 (申請中)

註: G3PE-2□□B(L)型系列已取得上述規格之認證。

#### 額定

輸入(環境溫度25°C)

型式	項目	額定電壓	使用電壓範圍	輸入電流	電壓等級	
					動作電壓	復歸電壓
G3PE-□□□B型		DC12~24V	DC9.6~30V	7mA以下	DC9.6V以下	DC1.0V以下
G3PE-□□□BL型				15mA以下		

#### 輸出

項目	型式	G3PE -215B(L)型	G3PE -225B(L)型	G3PE -235B(L)型	G3PE -245B(L)型	G3PE -515B(L)型	G3PE -525B(L)型	G3PE -535B(L)型	G3PE -545B(L)型
額定負載電壓		AC100~240V (50/60Hz)				AC200~480V (50/60Hz)			
負載電壓範圍		AC75~264V (50/60Hz)				AC180~528V (50/60Hz)			
適用之負載電流*		0.1~15A (在40°C的條件下)	0.1~25A (在40°C的條件下)	0.5~35A (在25°C的條件下)	0.5~45A (在25°C的條件下)	0.1~15A (在40°C的條件下)	0.1~25A (在40°C的條件下)	0.5~35A (在25°C的條件下)	0.5~45A (在25°C的條件下)
非重複之突波電流耐量		150A (60Hz、1週期)	220A (60Hz、1週期)	440A (60Hz、1週期)		150A (60Hz、1週期)	220A (60Hz、1週期)	440A (60Hz、1週期)	
電流平方(I <sup>2</sup> t) (參考值)		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
適用之負載容量(阻抗負載)		3kW (AC200V的情況 下)	5kW (AC200V的情況 下)	7kW (AC200V的情況 下)	9kW (AC200V的情況 下)	6kW (AC400V的情況 下)	10kW (AC400V的情況 下)	14kW (AC400V的情況 下)	18kW (AC400V的情況 下)

\* 依環境溫度而異，詳細內容請參閱第3頁特性資料中「●負載電流—額定環境溫度」之說明。

#### 性能

項目	型式	G3PE -215B型	G3PE -225B型	G3PE -235B型	G3PE -245B型	G3PE -215BL型	G3PE -225BL型	G3PE -235BL型	G3PE -245BL型
動作時間		小於負載電源的1/2週期+1ms				1ms以下			
復歸時間		小於負載電源的1/2週期+1ms							
輸出ON電壓下降		1.6V (RMS)以下							
漏電電流		10mA以下(AC200V的情況下)							
絕緣阻抗		100MΩ 以上(500V Mega)							
耐電壓		AC2,500V 50/60Hz 1分鐘內							
震動		10~55~10Hz單側振幅0.375mm (複振幅0.75mm) (採DIN軌道安裝方式時)							
衝擊		294m/s <sup>2</sup> (採DIN軌道安裝方式時)							
存放溫度		-30 ~ +100°C (但不可結冰或結露)							
使用環境溫度		-30 ~ +80°C (但不可結冰或結露)							
使用環境濕度		45~85%RH							
重量		約240g		約400g		約240g		約400g	

項目	型式	G3PE -515B型	G3PE -525B型	G3PE -535B型	G3PE -545B型	G3PE -515BL型	G3PE -525BL型	G3PE -535BL型	G3PE -545BL型
動作時間		小於負載電源的1/2週期+1ms				1ms以下			
復歸時間		小於負載電源的1/2週期+1ms							
輸出ON電壓下降		1.8V (RMS)以下							
漏電電流		20mA以下(AC480V的情況下)							
絕緣阻抗		100MΩ 以上(500V Mega)							
耐電壓		AC2,500V 50/60Hz 1分鐘內							
震動		10~55~10Hz單側振幅0.375mm (複振幅0.75mm) (採DIN軌道安裝方式時)							
衝擊		294m/s <sup>2</sup> (採DIN軌道安裝方式時)							
存放溫度		-30 ~ +100°C (但不可結冰或結露)							
使用環境溫度		-30 ~ +80°C (但不可結冰或結露)							
使用環境濕度		45~85%RH							
重量		約240g		約400g		約240g		約400g	

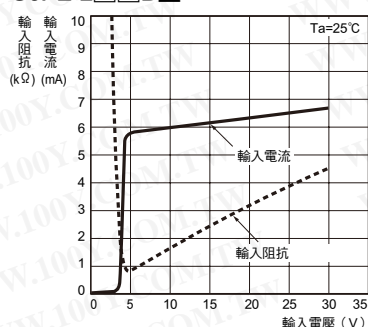


## 特性資料

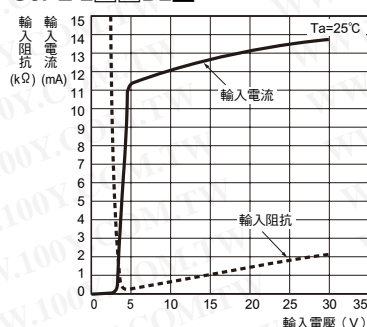
輸入電壓－輸入阻抗特性

輸入電壓－輸入電流特性

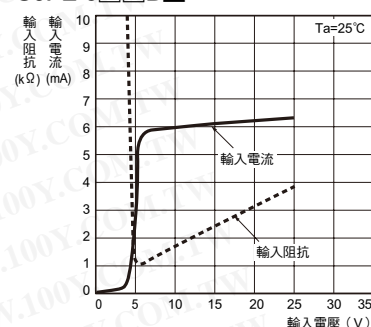
G3PE-2□□B型



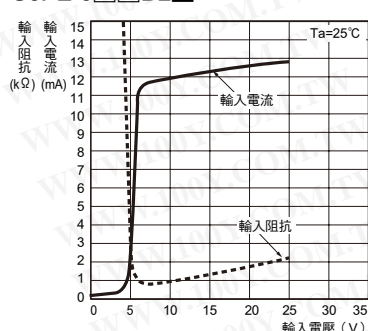
G3PE-2□□BL型



G3PE-5□□B型



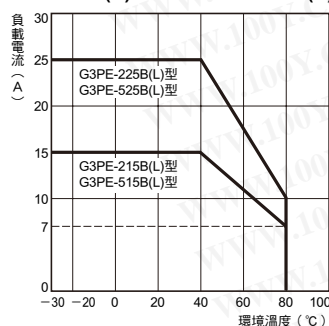
G3PE-5□□BL型



負載電流－額定環境溫度

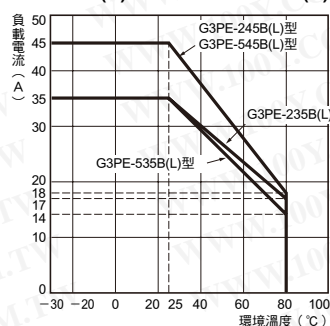
G3PE-215B(L)型、G3PE-225B(L)型

G3PE-515B(L)型、G3PE-525B(L)型



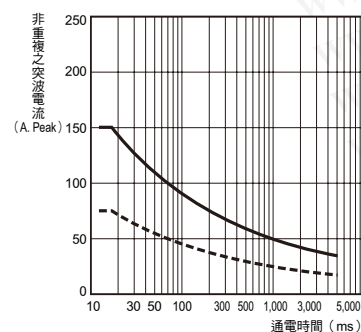
G3PE-235B(L)型、G3PE-245B(L)型

G3PE-535B(L)型、G3PE-545B(L)型

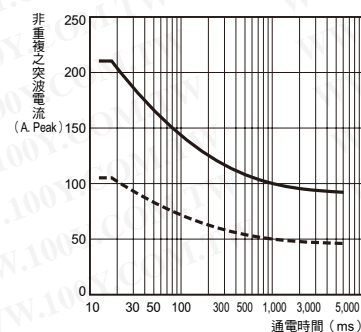


非重複之突波電流耐量 非反覆通電(反覆通電時，則必須低於虛線處的突波電流耐量)

G3PE-215B(L)型、G3PE-515B(L)型

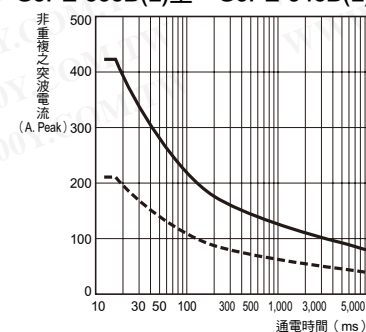


G3PE-225B(L)型、G3PE-525B(L)型



G3PE-235B(L)型、G3PE-245B(L)型

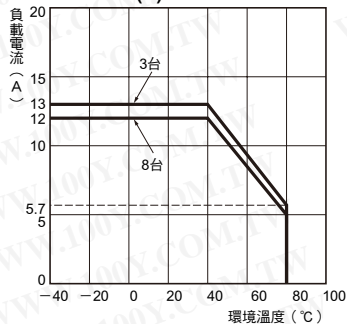
G3PE-535B(L)型、G3PE-545B(L)型



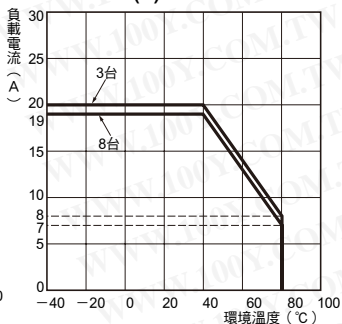
# G3PE (單相)

採用密合安裝方式(3台、8台)

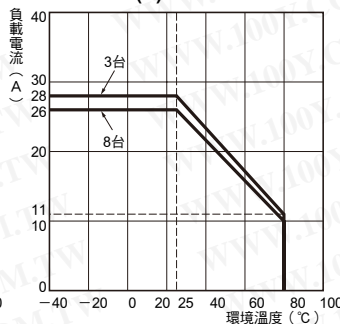
G3PE-215B(L)型



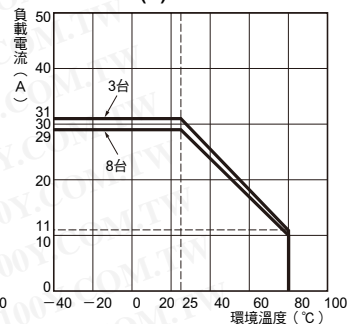
G3PE-225B(L)型



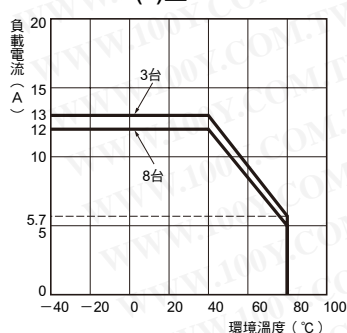
G3PE-235B(L)型



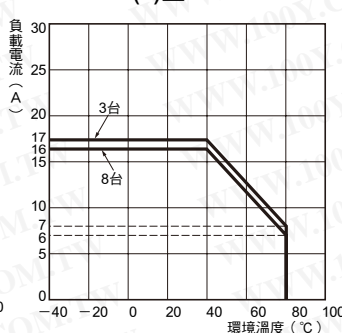
G3PE-245B(L)型



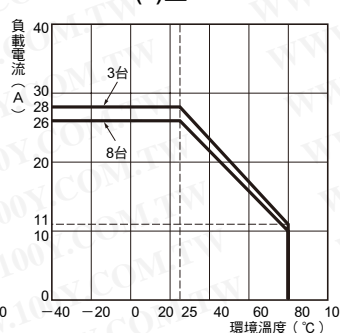
G3PE-515B(L)型



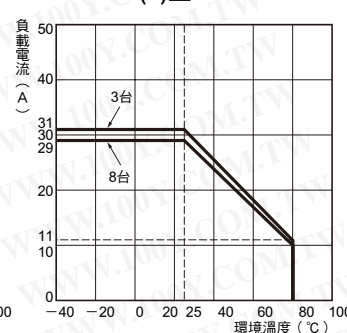
G3PE-525B(L)型



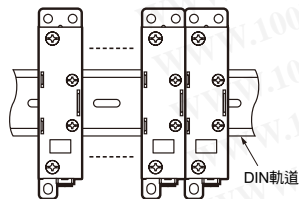
G3PE-535B(L)型



G3PE-545B(L)型



密合安裝範例

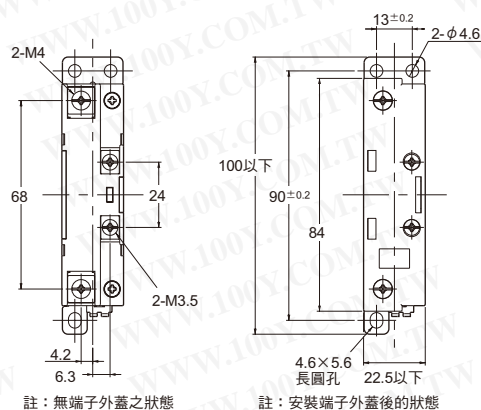


## 外觀尺寸

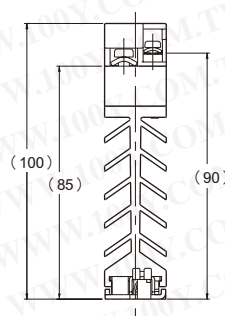
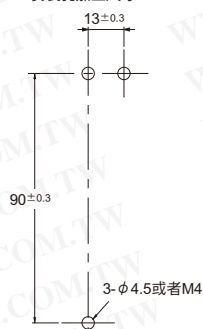
CAD資料 附有此標記之產品有 2D 之 CAD 圖示與 3D 之 CAD 資料。  
CAD之相關資料可於www.fa.omron.co.jp下載。

## 本體

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

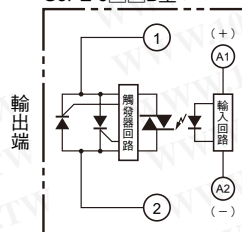


安裝孔加工尺寸

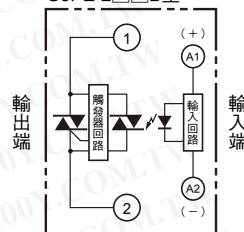


端子配置/內部連接

G3PE-5□□B型

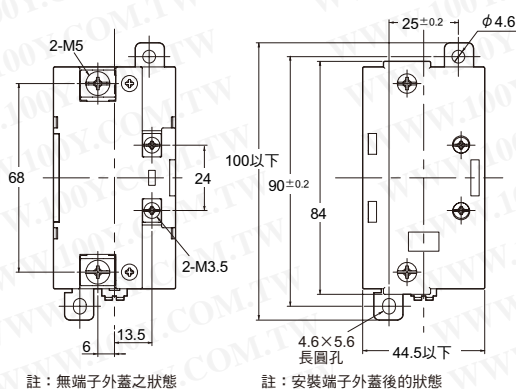


G3PE-2□□B型

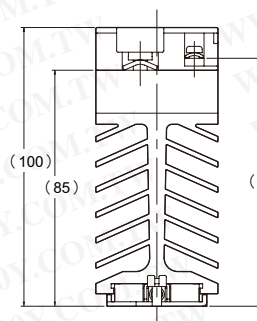
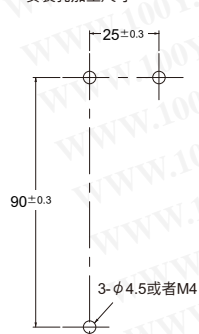


CAD資料

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

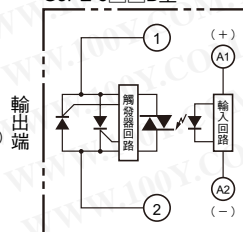


安裝孔加工尺寸

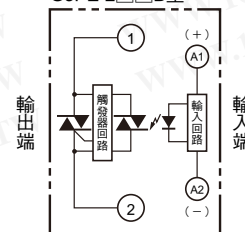


端子配置/內部連接

G3PE-5□□B型



G3PE-2□□B型



CAD資料

# 加熱器用固態接觸器

## G3PE (三相)

散熱器一體成形之小型、輕巧型

三相加熱器用固態接觸器。

0.可安裝於DIN軌道，因此能減少設置工時。

(安裝於DIN軌道類型)

- 支援RoHS指令。
- 提高輸出電路之耐突波電壓特性。
- 採用三相一體結構，因此能達到輕薄短小化的目標。
- 備有DIN軌道安裝型與螺絲安裝型等機型。
- DIN軌道安裝型係就是將DIN軌道的安裝結構標準化之機型。  
(適合DIN軌道：TR35-15Fe (IEC60715))
- 已通過EN認證(TÜV認證)。即將取得UL、CSA規格認證(申請中)



請參照18頁「正確的使用方式」。



**NEW**

**種類**(有◎記號者為標準機種，無記號者(訂製機種)之交貨日期請向經銷商洽詢。)

**本體**

●散熱器一體型

電源 相數	絕緣方式	動作 指示燈	輸入的 額定電壓	零相序 功能	類型	輸出適用負載*1	元件像素	型式
三相	Photo Triac光耦 合器	有(黃色)	DC12~24V	有	DIN軌道安 裝型*2	15A AC100~240V	3	G3PE-215B-3N DC12-24型
							2	G3PE-215B-2N DC12-24型
						25A AC100~240V	3	G3PE-225B-3N DC12-24型
							2	G3PE-225B-2N DC12-24型
						35A AC100~240V	3	G3PE-235B-3N DC12-24型
							2	G3PE-235B-2N DC12-24型
						45A AC100~240V	3	G3PE-245B-3N DC12-24型
							2	G3PE-245B-2N DC12-24型
						15A AC200~480V	3	G3PE-515B-3N DC12-24型
							2	G3PE-515B-2N DC12-24型
						25A AC200~480V	3	G3PE-525B-3N DC12-24型
							2	G3PE-525B-2N DC12-24型
						35A AC200~480V	3	G3PE-535B-3N DC12-24型
							2	G3PE-535B-2N DC12-24型
						45A AC200~480V	3	G3PE-545B-3N DC12-24型
							2	G3PE-545B-2N DC12-24型
					螺絲安裝型	15A AC100~240V	3	G3PE-215B-3 DC12-24型
							2	G3PE-215B-2 DC12-24型
						25A AC100~240V	3	G3PE-225B-3 DC12-24型
							2	G3PE-225B-2 DC12-24型
						35A AC100~240V	3	G3PE-235B-3 DC12-24型
							2	G3PE-235B-2 DC12-24型
						45A AC100~240V	3	G3PE-245B-3 DC12-24型
							2	G3PE-245B-2 DC12-24型
						15A AC200~480V	3	G3PE-515B-3 DC12-24型
							2	G3PE-515B-2 DC12-24型
						25A AC200~480V	3	G3PE-525B-3 DC12-24型
							2	G3PE-525B-2 DC12-24型
						35A AC200~480V	3	G3PE-535B-3 DC12-24型
							2	G3PE-535B-2 DC12-24型
						45A AC200~480V	3	G3PE-545B-3 DC12-24型
							2	G3PE-545B-2 DC12-24型

\*1. 依環境溫度而異，詳細內容請參閱特性資料中「●負載電流—額定環境溫度」之說明。

\*2. 適用之DIN軌道為TR35-15Fe (IEC60715)。詳細內容請參閱第19頁的「●安裝」之相關說明。



## ● 散熱器外接型

電源相數	絕緣方式	動作指示燈	輸入的額定電壓	零相序功能	類型	輸出適用負載*1	元件像素	型式
三相	Photo Triac 光耦合器	有(黃色)	DC12~24V	有	散熱器 外接型	15A AC100~240V	3	G3PE-215B-3H DC12-24型
							2	G3PE-215B-2H DC12-24型
						25A AC100~240V	3	G3PE-225B-3H DC12-24型
							2	G3PE-225B-2H DC12-24型
						35A AC100~240V	3	G3PE-235B-3H DC12-24型
							2	G3PE-235B-2H DC12-24型
						45A AC100~240V	3	G3PE-245B-3H DC12-24型
							2	G3PE-245B-2H DC12-24型
						15A AC200~480V	3	G3PE-515B-3H DC12-24型
							2	G3PE-515B-2H DC12-24型
						25A AC200~480V	3	G3PE-525B-3H DC12-24型
							2	G3PE-525B-2H DC12-24型
						35A AC200~480V	3	G3PE-535B-3H DC12-24型
							2	G3PE-535B-2H DC12-24型
						45A AC200~480V	3	G3PE-545B-3H DC12-24型
							2	G3PE-545B-2H DC12-24型

\*適用負載將依所安裝的散熱器、散熱板，以及環境溫度而異。詳細內容請參閱特性資料中「●負載電流—額定環境溫度」之說明。

## 選購品(另售)

## ● 散熱器

熱電阻Rth (s-a) (°C/W)	型式
1.67	Y92B-P50型
1.01	Y92B-P100型
0.63	Y92B-P150型
0.43	Y92B-P200型
0.36	Y92B-P250型

# G3PE (三相)

## 額定/性能

### 認定規格

EN60947-4-3 (取得)

UL508 (申請中)、CSA22.2 No.14 (申請中)

### 額定(環境溫度25°C)

#### ●操作電路區(共用)

項目	型式	所有型式通用
額定工作電壓		DC12~24V
使用電壓範圍		DC9.6~30V
額定輸入電流(阻抗)		10mA以下(DC24V的情況下)
動作電壓		DC9.6V以下
復歸電壓		DC1V以上
絕緣方式		光觸發矽控整流器(Photo Triac)方式
動作顯示		黃色LED

#### ●主電路區(散熱器一體型)

項目	型式	G3PE -215B -3(N) 型	G3PE -215B -2(N) 型	G3PE -225B -3(N) 型	G3PE -225B -2(N) 型	G3PE -235B -3(N) 型	G3PE -235B -2(N) 型	G3PE -245B -3(N) 型	G3PE -245B -2(N) 型	G3PE -515B -3(N) 型	G3PE -515B -2(N) 型	G3PE -525B -3(N) 型	G3PE -525B -2(N) 型	G3PE -535B -3(N) 型	G3PE -535B -2(N) 型	G3PE -545B -3(N) 型	G3PE -545B -2(N) 型
額定負載電壓		AC100~240V								AC200~480V							
負載電壓範圍		AC75~264V								AC180~528V							
額定通電電流*1		15A(在40°C的條件下)		25A(在40°C的條件下)		35A(在25°C的條件下)		45A(在25°C的條件下)		15A(在40°C的條件下)		25A(在40°C的條件下)		35A(在25°C的條件下)		45A(在25°C的條件下)	
最小負載電流		0.2A				0.5A											
突波發生時之電流耐量(峰值)		150A (60Hz、1週期)		220A (60Hz、1週期)		440A (60Hz、1週期)				220A (60Hz、1週期)				440A (60Hz、1週期)			
電流平方(I²t) (參考值)		121A²s		260A²s		1,260A²s				260A²s				1,260A²s			
適用負載*2 (阻抗負載AC1級)		5.1kW以下 (AC200V時)		8.6kW以下 (AC200V時)		12.1kW以下 (AC200V時)		15.5kW以下 (AC200V時)		12.5kW以下 (AC480V時)		20.7kW以下 (AC480V時)		29.0kW以下 (AC480V時)		37.4kW以下 (AC480V時)	

\*1. 依環境溫度而異，詳細內容請參閱特性資料中「●負載電流—額定環境溫度」之說明。

\*2. 適用負載

適用負載(加熱器)之最大容量係根據下列公式算出。(使用三相平衡負載、Delta接線的條件下)

適用負載之最大容量=通電電流×使用電壓× $\sqrt{3}$

例)  $15A \times 200V \times \sqrt{3} = 5,196W \approx 5.1kW$

例)  $15A \times 400V \times \sqrt{3} = 10,392W \approx 10.3kW$

#### ●主回路區(散熱器外接型)

項目	型式	G3PE -215B -3H型	G3PE -215B -2H型	G3PE -225B -3H型	G3PE -225B -2H型	G3PE -235B -3H型	G3PE -235B -2H型	G3PE -245B -3H型	G3PE -245B -2H型	G3PE -515B -3H型	G3PE -515B -2H型	G3PE -525B -3H型	G3PE -525B -2H型	G3PE -535B -3H型	G3PE -535B -2H型	G3PE -545B -3H型	G3PE -545B -2H型
額定負載電壓	AC100~240V										AC200~480V						
負載電壓範圍	AC75~264V										AC180~528V						
額定通電電流*	15A(在40°C的條件下)		25A(在40°C的條件下)		35A(在25°C的條件下)		45A(在25°C的條件下)		15A(在40°C的條件下)		25A(在40°C的條件下)		35A(在25°C的條件下)		45A(在25°C的條件下)		
最小負載電流	0.2A				0.5A												
突波發生時之電流耐量(峰值)	150A (60Hz、1週期)		220A (60Hz、1週期)		440A (60Hz、1週期)				220A (60Hz、1週期)				440A (60Hz、1週期)				
電流平方(I²t) (參考值)	121A²s		260A²s		1,260A²s				260A²s				1,260A²s				
適用負載 (阻抗負載AC1級)	詳細內容請參閱第10頁「特性資料」之說明。																

\* 適用負載將依所安裝的散熱器、散熱板，以及環境溫度而異。

詳細內容請參閱特性資料中「●負載電流—額定環境溫度」之說明。

## 性能

### ●散熱器一體型

項目	型式	G3PE -215B -3(N) 型	G3PE -215B -2(N) 型	G3PE -225B -3(N) 型	G3PE -225B -2(N) 型	G3PE -235B -3(N) 型	G3PE -235B -2(N) 型	G3PE -245B -3(N) 型	G3PE -245B -2(N) 型	G3PE -515B -3(N) 型	G3PE -515B -2(N) 型	G3PE -525B -3(N) 型	G3PE -525B -2(N) 型	G3PE -535B -3(N) 型	G3PE -535B -2(N) 型	G3PE -545B -3(N) 型	G3PE -545B -2(N) 型
動作時間	小於負載電源的1/2週期+1ms																
復歸時間	小於負載電源的1/2週期+1ms																
輸出ON電壓下降	1.6V (RMS)以下									1.8V (RMS)以下							
漏電電流*	10mA以下(AC200V的情況下)									20mA以下(AC480V的情況下)							
絕緣阻抗	100MΩ 以上(500V Mega)																
耐電壓	AC2,500V 50/60Hz 1分鐘內																
震動	安裝於 DIN 軌道類型：10~55~10Hz 單側振幅 0.175mm (複振幅 0.35mm) 螺絲安裝型：10~55~10Hz單側振幅0.375mm (複振幅0.75mm)																
衝擊	294m/s²(安裝方向相反時：98m/s²)																
存放溫度	-30 ~ +100°C (但不可結冰或結露)																
使用環境溫度	-30 ~ +80°C (但不可結冰或結露)																
使用環境濕度	45~85%RH																
重量	約1.25kg	約1.45kg	約1.25kg	約1.65kg	約1.45kg	約2.0kg	約1.65kg	約1.25kg	約1.45kg	約1.25kg	約1.65kg	約1.45kg	約2.0kg	約1.65kg	約1.45kg	約2.0kg	約1.65kg

\* 2元件型的S相漏電流約會增加 $\sqrt{3}$ 倍。

### ●散熱器外接型

[illegible]

\* 2元件型的S相漏電流約會增加 $\sqrt{3}$ 倍。

## ●散熱器

型式	重量
Y92B-P50	約450g
Y92B-P100	約450g
Y92B-P150	約600g
Y92B-P200	約850g
Y92B-P250	約1,200g

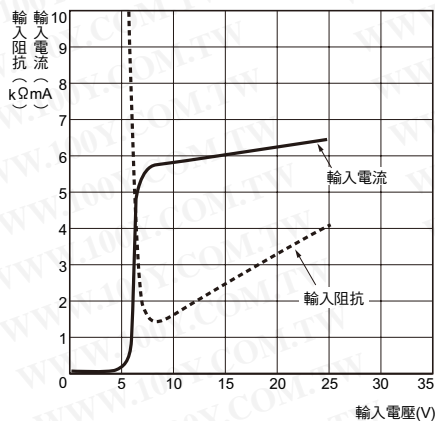
# G3PE (三相)

## 特性資料

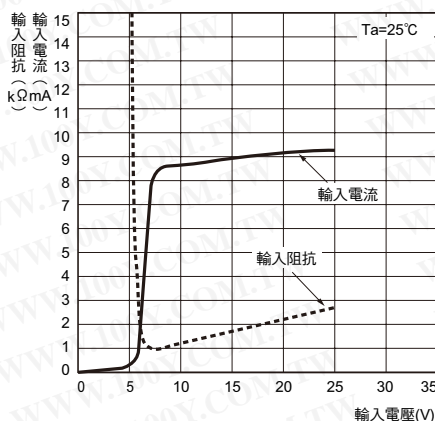
### ●輸入電壓－輸入阻抗特性

### ●輸入電壓－輸入電流特性

#### G3PE-2□□B-□□型



#### G3PE-5□□B-□□型



### ●負載電流－額定環境溫度

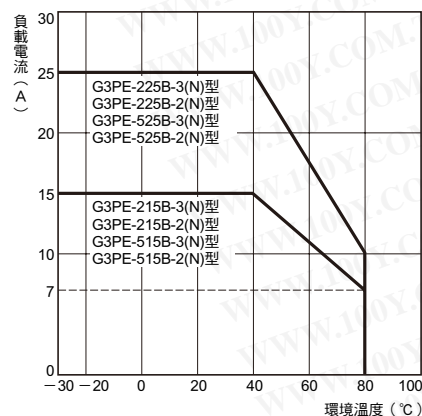
#### 散熱器一體型

G3PE-215B-3(N)型、G3PE-225B-3(N)型

G3PE-215B-2(N)型、G3PE-225B-2(N)型

G3PE-515B-3(N)型、G3PE-525B-3(N)型

G3PE-515B-2(N)型、G3PE-525B-2(N)型

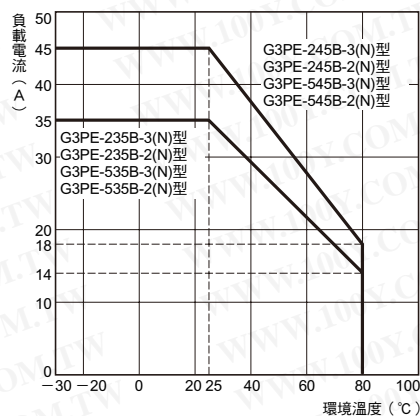


G3PE-235B-3(N)型、G3PE-245B-3(N)型

G3PE-235B-2(N)型、G3PE-245B-2(N)型

G3PE-535B-3(N)型、G3PE-545B-3(N)型

G3PE-535B-2(N)型、G3PE-545B-2(N)型



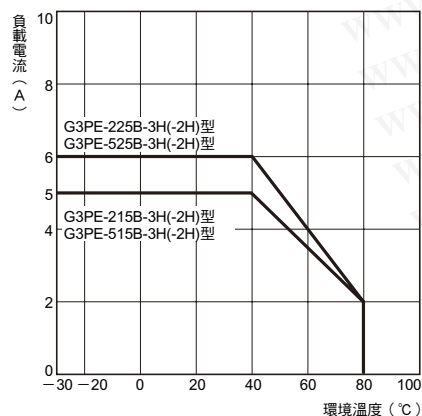
#### 散熱器外接型(未附散熱器)

G3PE-215B-3H(-2H)型

G3PE-225B-3H(-2H)型

G3PE-515B-3H(-2H)型

G3PE-525B-3H(-2H)型

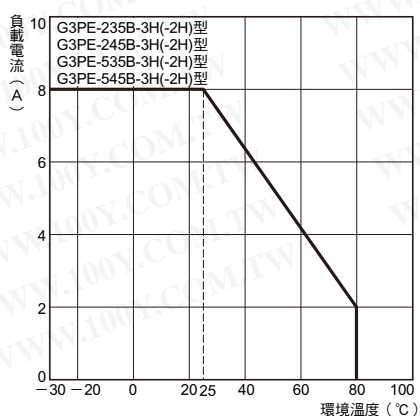


G3PE-235B-3H(-2H)型

G3PE-245B-3H(-2H)型

G3PE-535B-3H(-2H)型

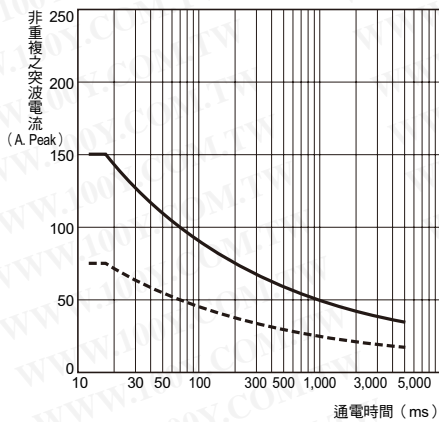
G3PE-545B-3H(-2H)型



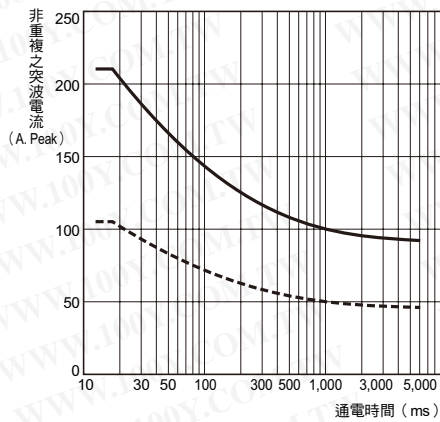


● 非重複之突波電流耐量 非反覆通電(反覆通電時，則必須低於虛線處的突波電流耐量)

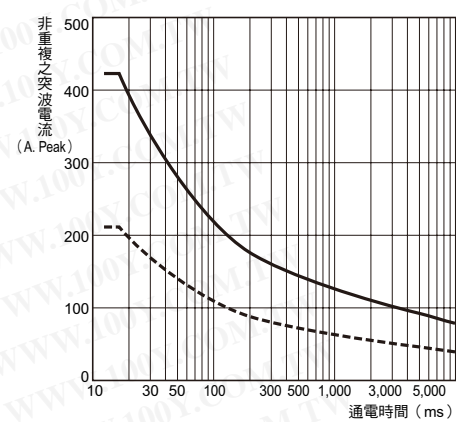
G3PE-215B-3(N)(H)型  
G3PE-215B-2(N)(H)型



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

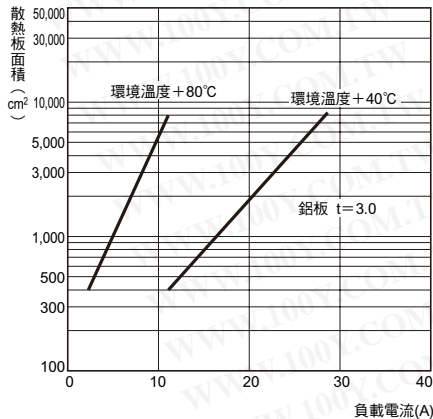


G3PE-235B-3(N)(H)、G3PE-535B-3(N)(H)型  
G3PE-235B-2(N)(H)、G3PE-535B-2(N)(H)型  
G3PE-245B-3(N)(H)、G3PE-545B-3(N)(H)型  
G3PE-245B-2(N)(H)、G3PE-545B-2(N)(H)型

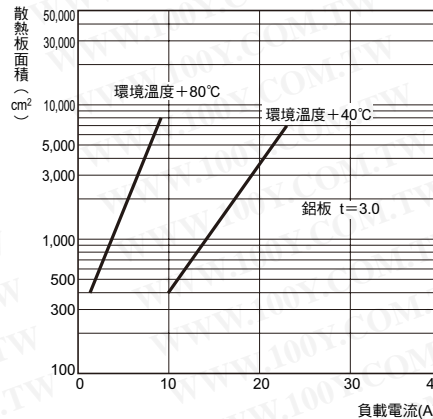


● 散熱板面積－負載電流特性(40°C、80°C)

G3PE-225B-3H型



G3PE-525B-3H型



註. 散熱面積是指散熱板內外層之有效散熱面積總和。  
例如，假設希望G3PE-525B-3H型在40°C的環境下通電18A，根據圖表所示，散熱面積約為2,500cm²，因此以內外層有效散熱的區域而言，如果要使用正方形散熱板的話，依照計算公式  
 $\sqrt{2,500(\text{cm}^2)/2}=36\text{cm}$ (小數點以下無條件進位)，也就是需要使用邊長為36cm以上的散熱板(鋁板)。

● 散熱器外接型

熱阻抗Rth (接合面－SSR內面)

型式	Rth (°C/W)
G3PE-215B-3H型	1.05
G3PE-225B-3H型	0.57
G3PE-235B-3H型	0.57
G3PE-245B-3H型	0.57

● 散熱器的熱阻抗Rth

型式	Rth (°C/W)
Y92B-P50型	1.67
Y92B-P100型	1.01
Y92B-P150型	0.63
Y92B-P200型	0.43
Y92B-P250型	0.36

註. 若使用市售的散熱器時，必須選擇熱阻抗值低於本公司標準散熱器的產品。

# G3PE (三相)

## 外觀尺寸

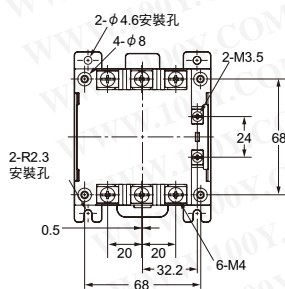
CAD資料 附有此標記之產品有2D之CAD圖示與3D之CAD資料。  
CAD之相關資料可於[www.fa.omron.co.jp](http://www.fa.omron.co.jp)下載。

(單位: mm)

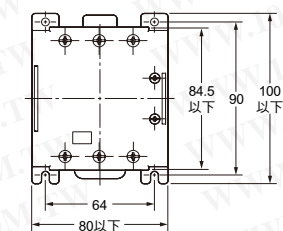
### 本體

#### ●安裝於DIN軌道類型

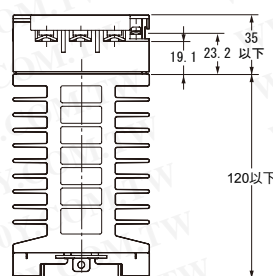
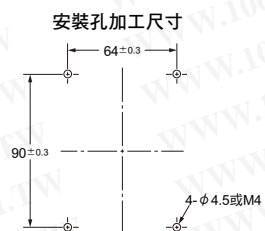
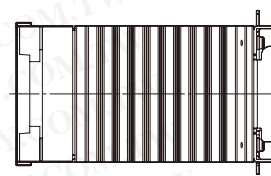
G3PE-215B-3N型  
G3PE-215B-2N型  
G3PE-225B-2N型  
G3PE-515B-3N型  
G3PE-515B-2N型  
G3PE-525B-2N型



註. 無端子外蓋之狀態

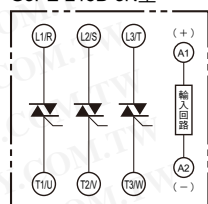


註. 安裝端子外蓋後的狀態

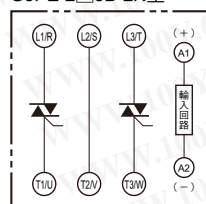


端子配置/內部連接

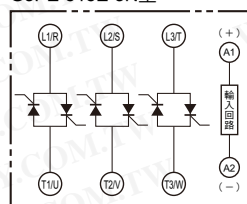
G3PE-215B-3N型



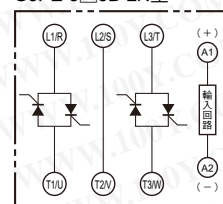
G3PE-2□5B-2N型



G3PE-515E-3N型



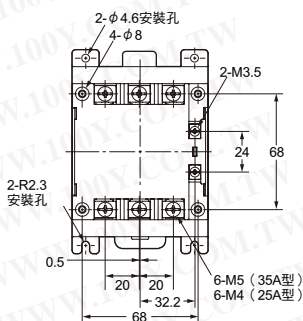
G3PE-5□5B-2N型



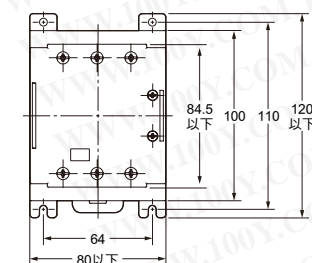
CAD資料

#### ●安裝於DIN軌道類型

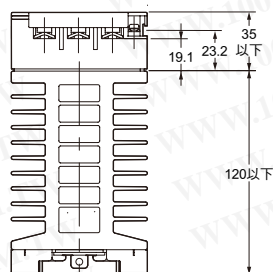
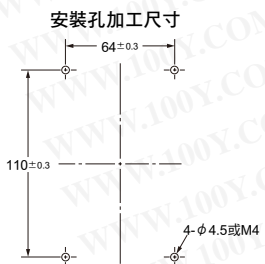
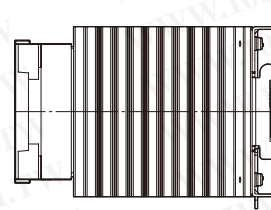
G3PE-225B-3N型  
G3PE-235B-2N型  
G3PE-525B-3N型  
G3PE-535B-2N型



註. 無端子外蓋之狀態

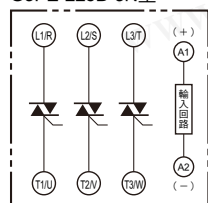


註. 安裝端子外蓋後的狀態

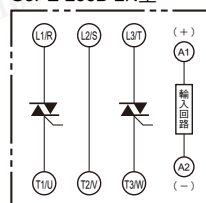


端子配置/內部連接

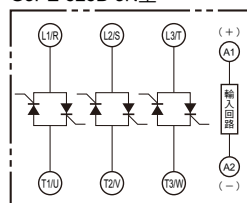
G3PE-225B-3N型



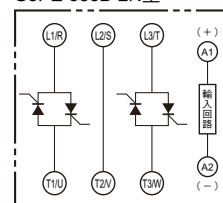
G3PE-235B-2N型



G3PE-525B-3N型



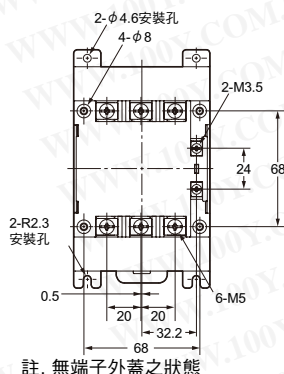
G3PE-535B-2N型



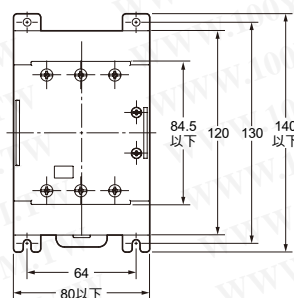
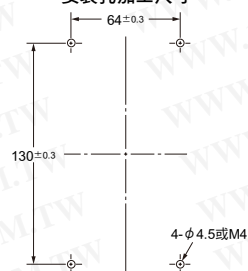
CAD資料

## ● 安裝於DIN軌道類型

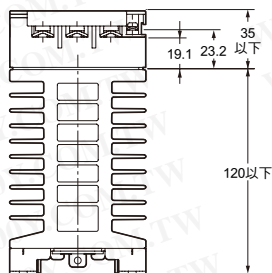
G3PE-235B-3N型  
G3PE-245B-2N型  
G3PE-535B-3N型  
G3PE-545B-2N型



安裝孔加工尺寸

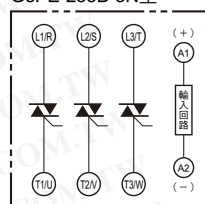


註. 安裝端子外蓋後的狀態

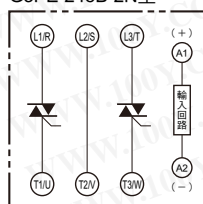


端子配置/內部連接

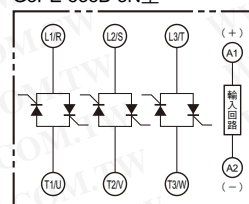
G3PE-235B-3N型



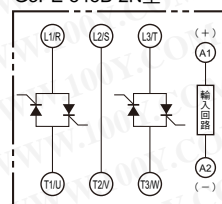
G3PE-245B-2N型



G3PE-535B-3N型



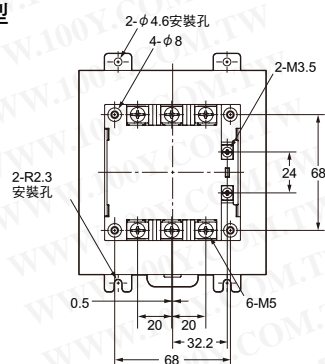
G3PE-545B-2N型



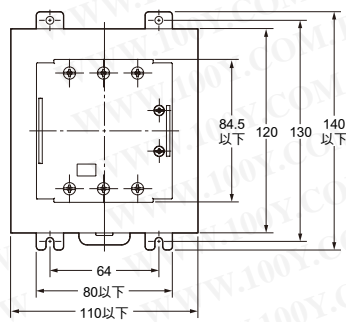
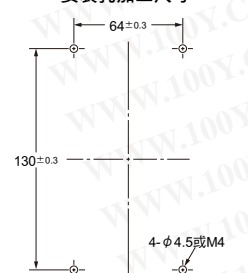
CAD資料

## ● 安裝於DIN軌道類型

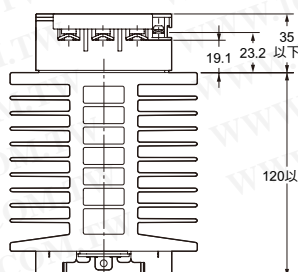
G3PE-245B-3N型  
G3PE-545B-3N型



安裝孔加工尺寸

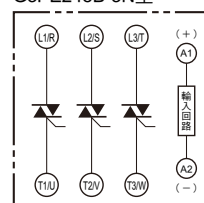


註. 安裝端子外蓋後的狀態

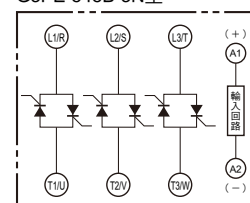


端子配置/內部連接

G3PE245B-3N型



G3PE-545B-3N型



CAD資料

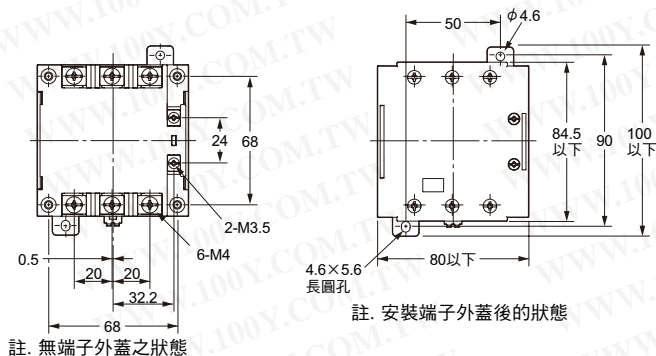
# G3PE (三相)

## ● 螺絲安裝型

G3PE-215B-2型  
G3PE-515B-2型



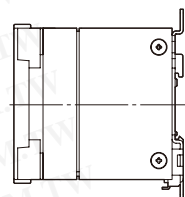
DIN軌道安裝與螺絲安裝共用



安裝孔加工尺寸

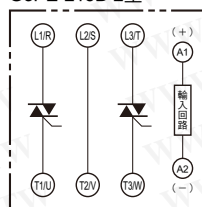
2- $\phi 4.5$ 或M4

註: 安裝端子外蓋後的狀態

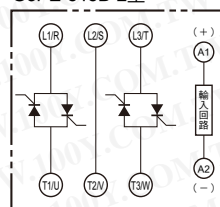


端子配置/內部連接

G3PE-215B-2型



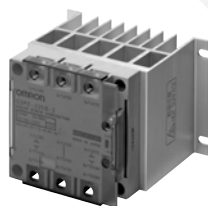
G3PE-515B-2型



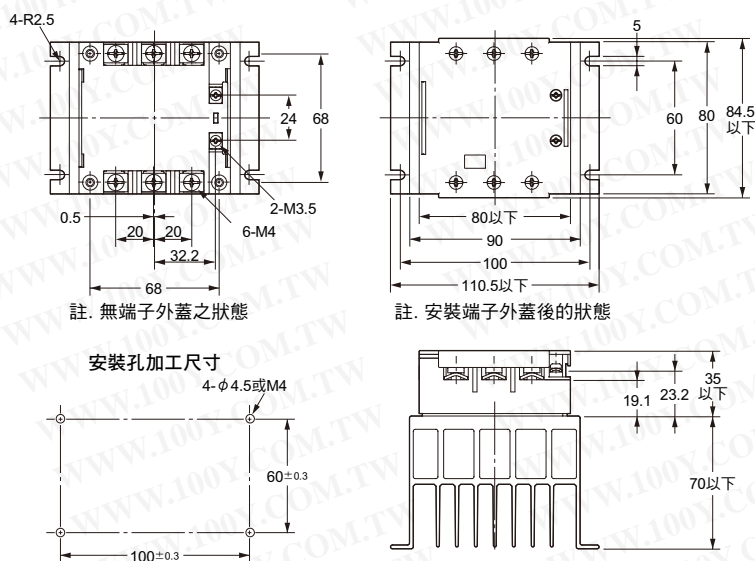
CAD資料

## ● 螺絲安裝型

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



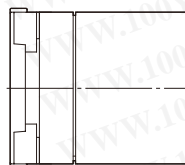
螺絲安裝



安裝孔加工尺寸

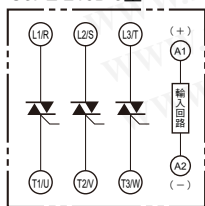
4- $\phi 4.5$ 或M4

註: 安裝端子外蓋後的狀態

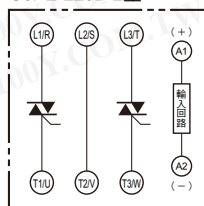


端子配置/內部連接

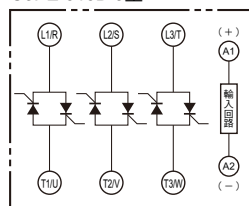
G3PE-215B-3型



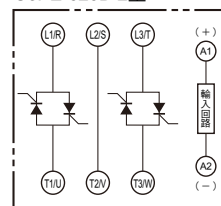
G3PE-225B-2型



G3PE-515B-3型



G3PE-525B-2型



CAD資料

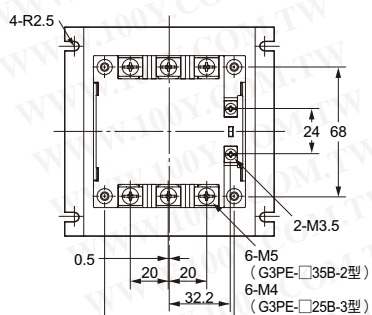


## ● 螺絲安裝型

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

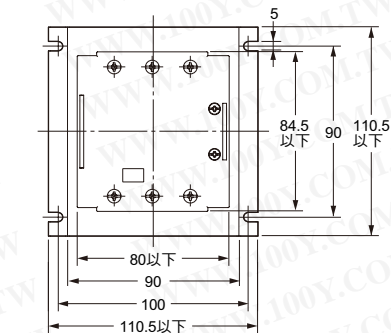
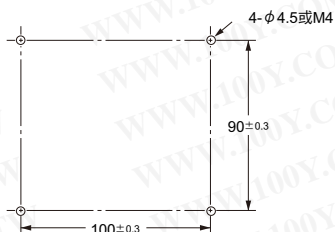


螺絲安裝



註. 無端子外蓋之狀態

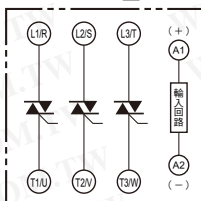
安裝孔加工尺寸



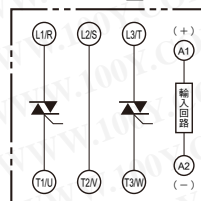
註. 安裝端子外蓋後的狀態

端子配置/內部連接

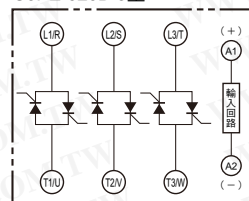
G3PE-225B-3型



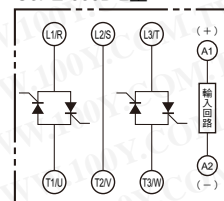
G3PE-235B-2型



G3PE-525B-3型



G3PE-535B-2型



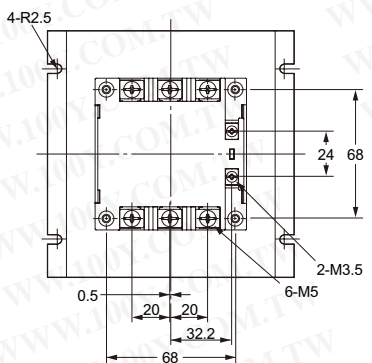
CAD資料

## ● 螺絲安裝型

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

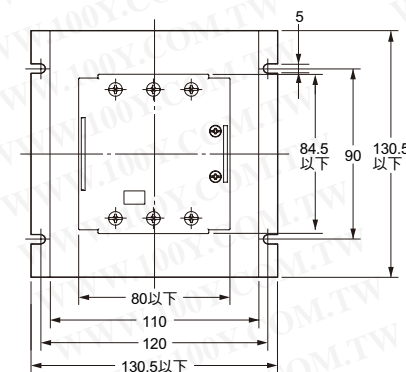
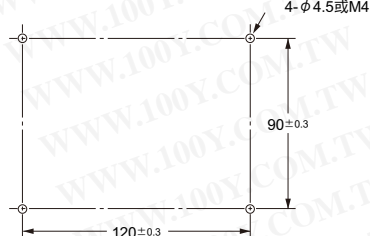


螺絲安裝



註. 無端子外蓋之狀態

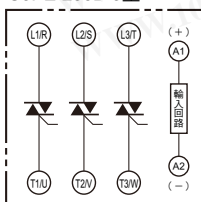
安裝孔加工尺寸



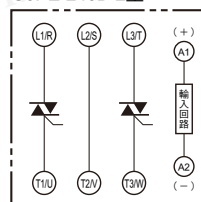
註. 安裝端子外蓋後的狀態

端子配置/內部連接

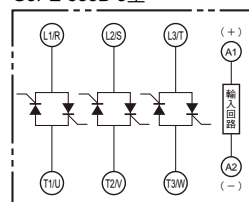
G3PE-235B-3型



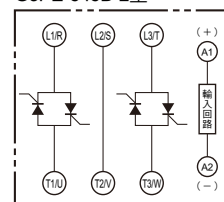
G3PE-245B-2型



G3PE-535B-3型



G3PE-545B-2型



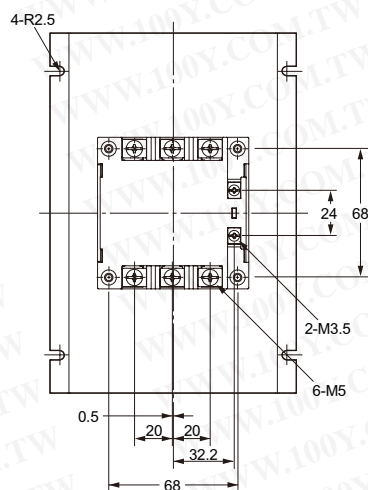
CAD資料

## G3PE (三相)

### ● 螺絲安裝型 G3PE-245B-3型 G3PE-545B-3型

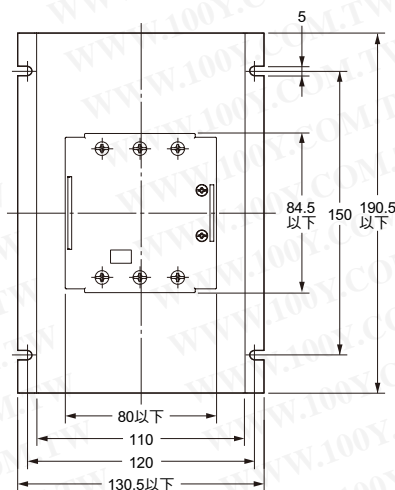
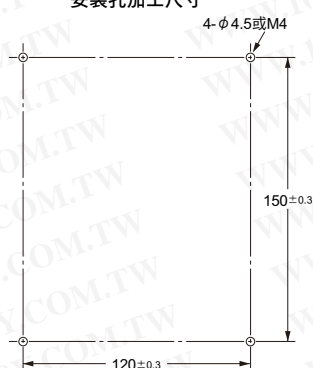


螺絲安裝

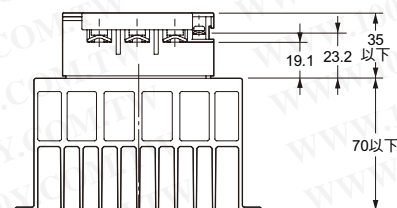


註. 無端子外蓋之狀態

安裝孔加工尺寸

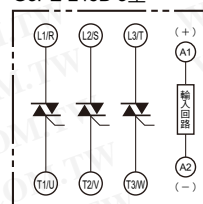


註. 安裝端子外蓋後的狀態

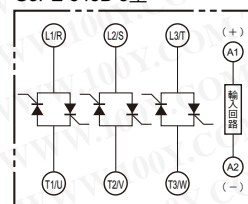


端子配置/內部連接

G3PE-245B-3型

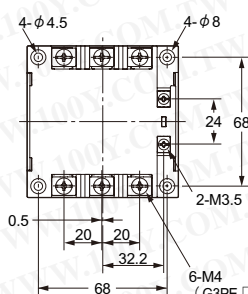


G3PE-545B-3型



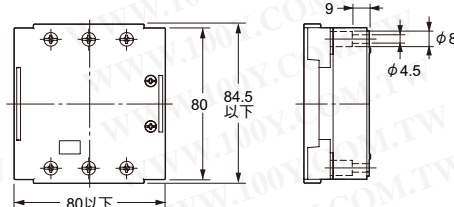
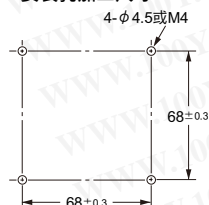
CAD資料

### ● 散熱器外接型 G3PE-215B-3H型 G3PE-215B-2H型 G3PE-225B-3H型 G3PE-225B-2H型 G3PE-235B-3H型 G3PE-235B-2H型 G3PE-245B-3H型 G3PE-245B-2H型 G3PE-515B-3H型 G3PE-515B-2H型 G3PE-525B-3H型 G3PE-525B-2H型 G3PE-535B-3H型 G3PE-535B-2H型 G3PE-545B-3H型 G3PE-545B-2H型



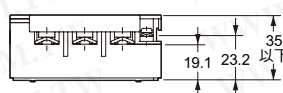
註. 無端子外蓋之狀態

安裝孔加工尺寸



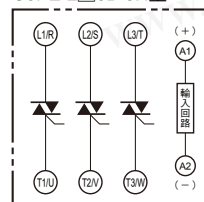
註. 安裝端子外蓋後的狀態

6-M4  
(G3PE-□15B-□H/□25B-□H型)  
6-M5  
(G3PE-□35B-□H/□45B-□H型)

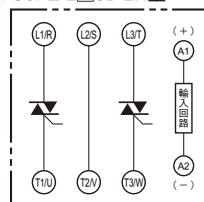


端子配置/內部連接

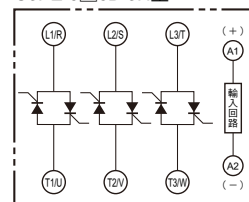
G3PE-2□5B-3H型



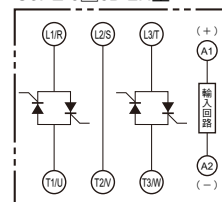
G3PE-2□5B-2H型



G3PE-5□5B-3H型



G3PE-5□5B-2H型

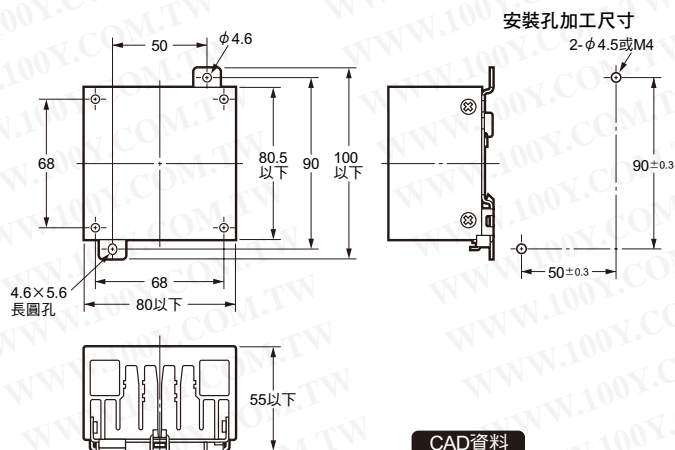


CAD資料

## 選購品(另售)

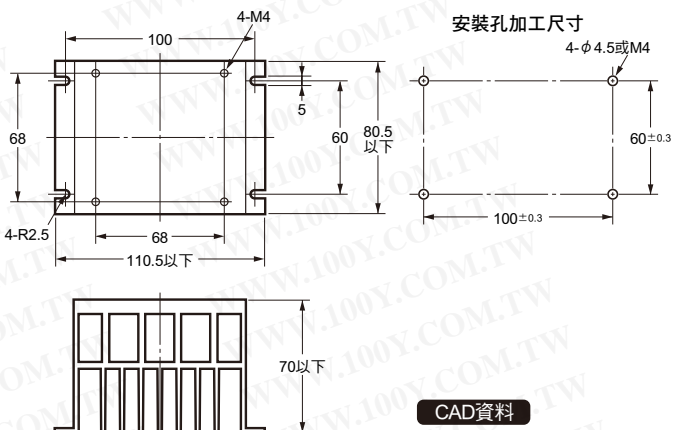
## ● 散熱器

## Y92B-P50型(DIN軌道安裝型)

G3PE-215B-2H型用  
G3PE-515B-2H型用

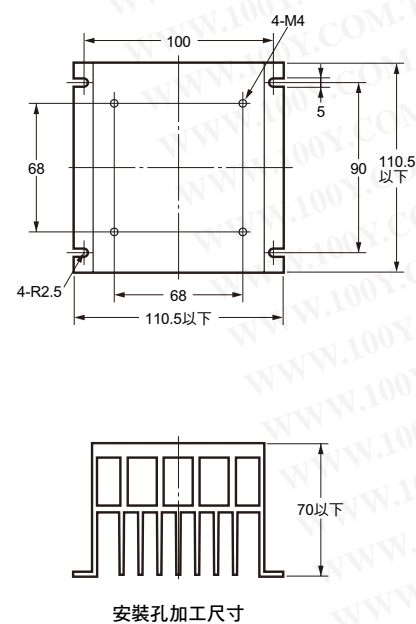
## ● 散熱器

## Y92B-P100型

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

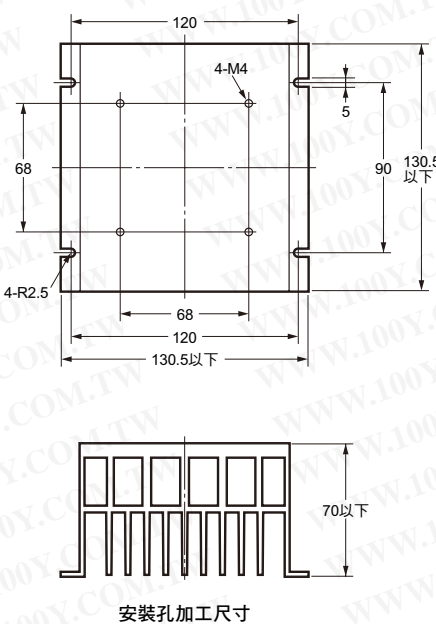
## ● 散熱器

## Y92B-P150型

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

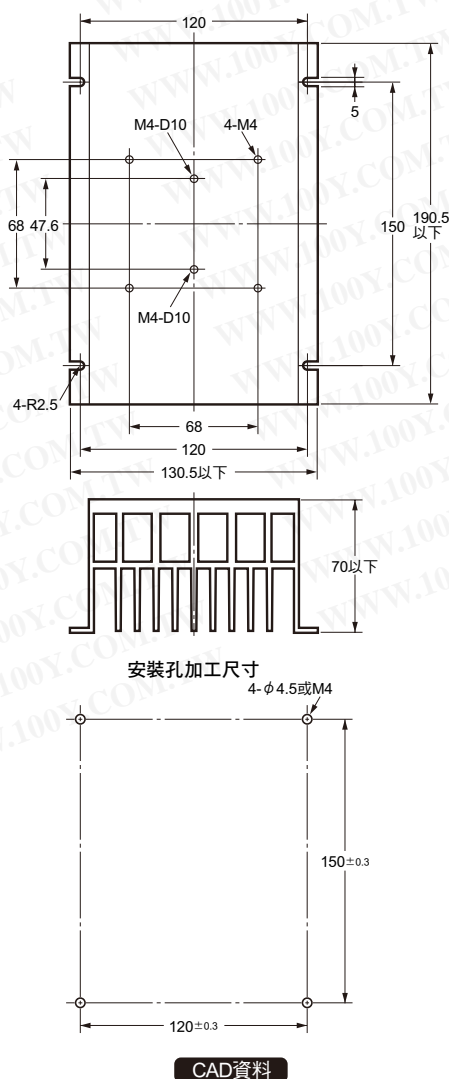
## ● 散熱器

## Y92B-P200型

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

## ● 散熱器

## Y92B-P250型

G3PE-245B-3H型用  
G3PE-545B-3H型用



# 正確使用須知

## ⚠ 注意

在極少數的情形下可能有觸電的可能性。

請勿碰觸通電中的G3PE型之端子部位(充電部位)。另外，請務必於安裝端子套後再行使用本產品。



當短路電流通過後，有可能會造成G3PE型的損壞。欲避免短路事故發生時，請務必將速斷保險絲等保護裝置安裝於電源端。



在極少數的情形下可能有觸電的可能性。

在電源切斷後，請勿立刻碰觸G3PE型的主電路端子。內建緩衝(Snubber)電路的電荷已經完成充電。



在極少數的情形下可能會造成燙傷。

在通電狀態或是切斷電源後，請勿立刻碰觸G3PE型的本體以及散熱器。此時本體及散熱器仍處於高溫狀態。



## 安全上的要點

OMRON持續致力於提升產品的品質與可靠性，但SSR中含有半導體元件，在一般狀態下，半導體仍有發生錯誤動作或是故障等可能性。尤其是在超過額定範圍的條件下使用時，將無法確保其安全性，因此當您在使用時請務必遵守額定範圍之規定。當您使用SSR時，請特別注意備援設計、防止延燒設計、防止誤動作設計等安全設計系統以作為安全考量，藉此避免因為SSR故障而導致人身安全、火災事故、或是對社會造成重大損害等情形發生。

### ● 運送

請避免在下列狀態下運送本產品，否則有可能會造成故障、誤動作或是造成特性不佳的情形發生。

- 水份潑濺狀態
- 高溫高溼狀態
- 未包裝狀態

### ● 關於使用/保管環保

請盡量避免在下列環境中使用或存放本產品，否則將容易造成故障、錯誤動作或是產品特性劣化等情形發生。

- 容易潑濺到雨水、水滴的場所
- 有水分、油沫、藥品等飛沫散佈的場所
- 高溫高溼的場所
- 存放於環境溫度的範圍超過-30°C ~ +100°C的場所
- 相對濕度超過45~85%RH的場所，因溫度劇烈變化而結露的場所。
- 具有腐蝕性氣體的場所
- 空氣中含有大量粉塵、鹽分、鐵粉的場所
- 直接受到日光照射之場所
- 容易使本體直接遭受震動或衝擊的場所

### ● 關於設置、操作事項

- 請避免妨礙 G3PE 型的本體與散熱器四周的空氣對流。否則有可能會因為本體異常發熱，造成輸出元件發生短路故障、燒毀的情形。
- 請勿繼續使用因摔落而造成散熱片彎折的產品。否則可能會因散熱不良而造成產品故障。
- 手上沾附油污或是金屬粉末後，請勿操作本產品。否則可能會造成產品故障。
- 使用SSR時，必須安裝散熱器或是散熱板。否則可能會因散熱不良而造成產品故障。

### ● 關於設置、安裝

- 請依指定的安裝方向進行安裝。否則有可能會因為本體異常發熱，造成元件故障或是燒毀。
- 請注意本體發熱將會造成環境溫度上升的情形。尤其是安裝在控制盤內部時，需加裝風扇等才能與外部空氣充分進行換氣。
- 安裝 DIN 軌道時，需穩固地插入直到發出喀噠聲為止。否則有可能會造成本產品摔落。
- 安裝散熱器時，請注意不要讓異物不慎卡入散熱器中。否則可能會因散熱不良而造成產品故障。
- 如果要將 G3PE 型直接安裝於控制盤等以取代散熱器使用時，面板的材質必須選擇熱阻抗較低的鋁材或是鐵板等較佳。
- 若將本產品安裝於木材等熱阻抗較高的材質上使用時，有可能因為G3PE型散熱的緣故造成冒火花或是燒毀的情形。

### ● 關於設置、配線

- 請使用符合負載電流之電線。否則有可能會因為電線異常發熱，造成本產品燒毀。
- 請勿使用外皮有缺損的電線。否則有可能會造成觸電、漏電。
- 請勿將高壓動力線等安裝於相同的配管或導管中。否則有可能會因為電磁感應而造成本產品的錯誤動作或損壞。
- 安裝端子螺絲時，請避免不慎卡入不導電物質。否則有可能會因為端子異常發熱而使產品燒毀。
- 請勿在端子螺絲鬆脫的狀態下使用本產品。否則有可能會因為端子異常發熱而使產品燒毀。
- 使用通電電流超過35A的G3PE型時，需選擇符合線徑大小之M5壓接端子。
- 配線前請務必先將電源切斷。否則有可能會造成觸電的情形。

### ● 關於設置、使用

- 請選擇額定範圍內的負載。否則有可能會造成本產品產生錯誤動作、故障或是燒毀的情形。
- 請選擇額定頻率範圍內的電源。否則有可能會造成本產品產生錯誤動作、故障或是燒毀的情形。
- 對於施加於負載(LOAD)端的突波電壓，本產品的電路能夠強制使輸出元件產生電弧，藉以防止損壞光耦合器。如果將本產品運用於馬達負載用途時，可能會讓馬達負載產生錯誤動作，因此請避免此一使用方式。



## 使用注意事項

當您實際在使用SSR時，有可能會發生無法想像或預期的意外事故，因此，必須在可執行的範圍內進行測試。例如當您在考慮SSR的特性時，必須隨時將每個產品的差異性等事項列入考量。

關於型錄上所刊載的各項額定性能值，如未特別標示，則表示該數值係於完全符合JIS C5442所規定之標準試驗狀態(溫度為15~30°C、相對濕度為25~85%Rh、氣壓為86~106 kPa)的條件下所產生。如需進行實機確認，則除了負載條件外，亦必須於相同條件下確認使用環境及使用條件。

### ● 故障要因

- 運送及設置產品時，請勿讓產品摔落，或施以異常的震動及撞擊等動作，否則會造成產品特性劣化、出現錯誤動作或故障的情形。
- 請依照下列所規定之扭力值來鎖緊端子，否則可能會因端子異常發熱而使產品燒毀。

端子	螺絲端子直徑	鎖合扭力
輸入端子	M3.5	0.59~1.18N・m
輸出端子	M4	0.98~1.47N・m
	M5	1.57~2.45N・m

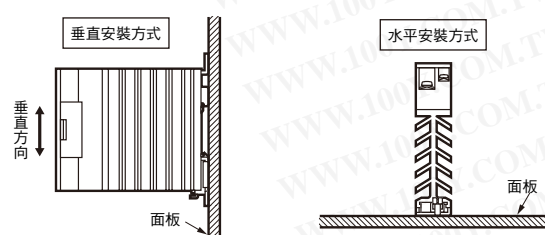
- 請勿對輸入電路或是輸出施加過電壓，否則有可能導致產品故障或燒毀。
- 在下列環境中使用或存放本產品時，容易導致故障、錯誤動作或是產品特性劣化等情形，因此請盡量避免。
  - 會產生靜電或雜訊干擾的場所
  - 會產生強大電場或磁場的場所
  - 有可能會發生輻射線外洩意外的場所

### ● 關於安裝

- 由於本產品的重量較重，因此必須使用 DIN 軌道安裝型。穩固地安裝DIN軌道後，再用端板(End Plate)來固定兩端。要直接安裝至面板上時，請依下列條件將本產品穩固地進行安裝。

螺絲直徑：M4

鎖合扭力：0.98~1.47N・m



註：採水平安裝方式時，必須在額定負載電流為 50% 的條件下使用。採用密合安裝方式時，請參閱特性資料中密合安裝資料之相關內容。必須將產品以能夠正確檢視標記的方向安裝。

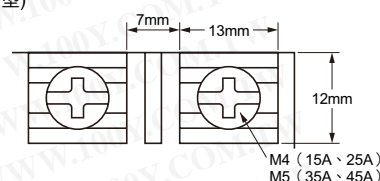
- G3PE-2N/-3N型(DIN軌道安裝型)可安裝於下列DIN軌道(TR35-15Fe (IEC60715))。

製造商名稱	板厚	1.5mm	2.3mm
Schneider	AM1-DE200	—	—
WAGO	210-114、210-197	210-118	—
PHOENIX	NS35/15	NS35/15-2.3	—

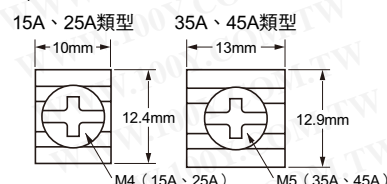
### ● 配線方式

- 使用壓接端子時，請參考下圖所示的端子空間。

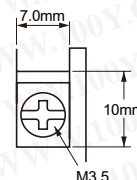
輸出端子部(三相型)



輸出端子部(單相型)



輸入端子部



- 請使用線徑能夠符合電流值的纜線。
- 即使3元件、2元件皆為OFF狀態，仍有可能因為輸出端子充電而導致觸電的情形。請在上層裝置設置斷路器，以便將電源切離。
- 另外，在進行配線作業時，請務必先將電源切斷。
- 由於2元件型已經在L2-T2之間將內部短路，因此請將L2連接至電源的接地端。
- 將L2連接至接地端以外的位置時，必須加裝外蓋，以避免造成加熱器端子等充電區發生觸電、接地的情形。

### ● 保險絲

- 為避免發生短路的意外，請將速斷保險絲連接至輸出端子側，並參閱下表內容，使用同等或是性能更佳之保險絲。

建議使用之保險絲容量

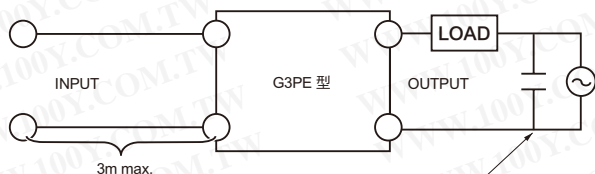
G3PE型之額定輸出電流	適用之SSR	保險絲 (IEC60269-4)
15A	G3PE□15B型系列	32A
25A	G3PE□25B型系列	
35A	G3PE□35B型系列	63A
45A	G3PE□45B型系列	

## 正確使用須知

### ●符合EMC規格之連接方式

請依照下圖所示，採用符合 EMC 規格之連接方式。

- 請將電容器連接至負載電源。
- 連接至輸入端的纜線，必須小於3m。



建議使用之電容器 (薄膜電容 (Film Capacitor))  
G3PE-2□□B 型系列:  $1\mu\text{F}$ 、250VAC  
G3PE-5□□B 型系列:  $0.5\mu\text{F}$ 、500VAC

### ●EMI

本產品屬於「class A」(工業環境產品)，若將其用於住宅環境中，有可能會妨礙無線電波之傳導。此時必須採取適當的對策，以解決前述之電波干擾問題。

### ●干擾、突波所造成之影響

對 G3PE 型輸出電路施加的干擾，若超過錯誤動作所容許之極限範圍，則本產品最多會將 0.5 週期的輸出 ON，以吸收干擾及突波。

請利用 G3PE 型之裝置及系統，確認 0.5 週期的輸出 ON 完全沒有問題後，再使用 G3PE 型。

此外，G3PE型的錯誤動作干擾之容許範圍(參考值)如下：

- 錯誤動作干擾之容許範圍(參考值)：500V

註.測量條件如下：

干擾幅度：100ns及 $1\mu\text{s}$

反覆週期：100Hz

施加干擾的時間：3分鐘

### ●外接型散熱器的安裝

- 將外接型散熱器安裝於散熱器及散熱板時，必須將散熱專用的散熱膏(Silicon Grease) (Toshiba Silicon YG6260、Shinetsu Silicon G746等)塗佈於安裝面。
- 安裝組件與散熱器、散熱板時，請依規定的扭力加以鎖合，否則有可能會讓本產品出現異常發熱的情形。

鎖合扭力： $2.0\text{N}\cdot\text{m}$

### ●安裝於控制盤時

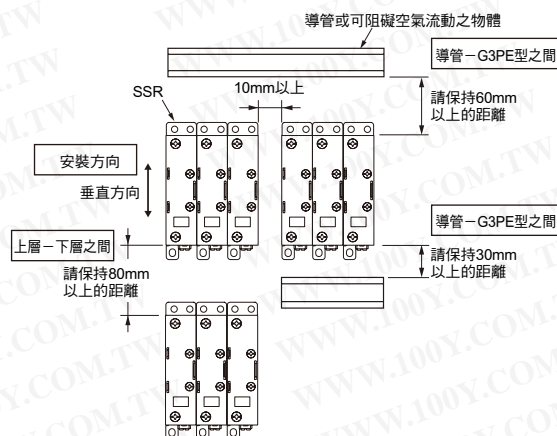
由於本產品的重量較重，因此必須使用 DIN 軌道安裝型。穩固地安裝 DIN 軌道後，再用端板 (End Plate) 來固定兩端。採用垂直安裝方式時，也同樣必須將本產品穩固地安裝於面板上。

當控制盤為密閉空間時，SSR 所產生的熱能將會積存在產品內部，而導致 SSR 通電能力下降，甚至對其他的電子裝置造成不良的影響。

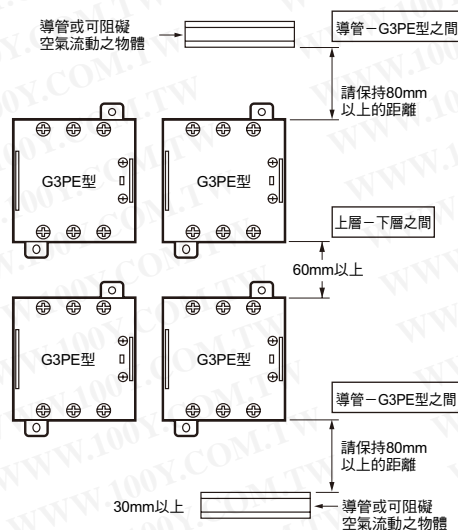
因此，請務必先在控制盤的上方及下方設置通風孔後，再開始使用本產品。

### <SSR之安裝間隔(控制盤內之安裝條件)>

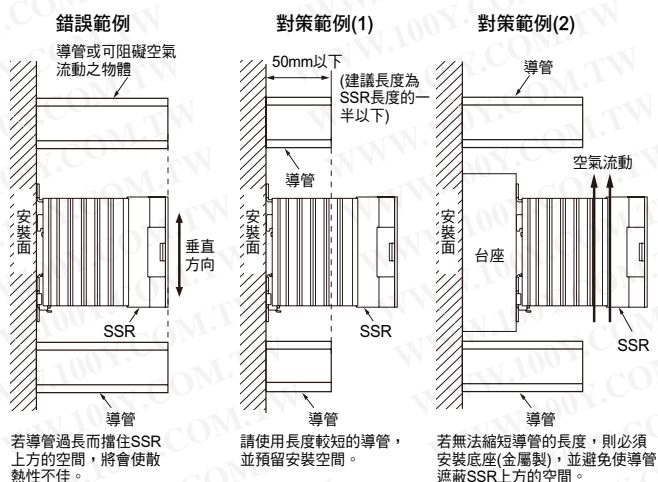
#### ・單相型



#### ・三相型

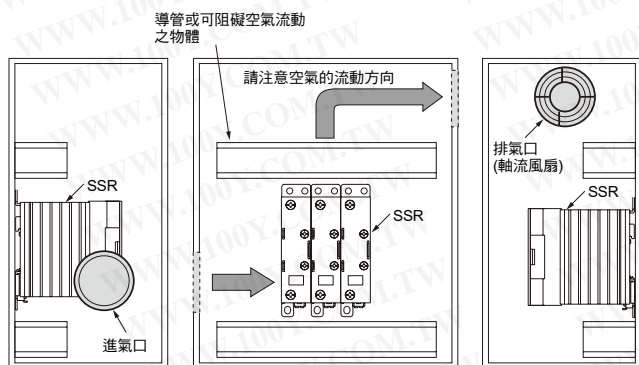


## ● G3PE型與導管(或可阻礙空氣流動之物體)之間的關係



勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-34970699  
勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

## ● 換氣至控制盤外部之方法



- 註1. 若進氣口或排氣口已有安裝過濾器，則請定期進行清潔工作，以避免因為過濾器阻塞而降低產品效率。  
2. 請勿在進氣口或排氣口的內部、外部等周圍放置有可能會妨礙進氣或排氣動作之物品。  
3. 將熱交換器安裝於G3PE型前方的位置，可使其發揮較好的效果。

## ● G3PE型之環境溫度

額定電流係為G3PE型在環境溫度為40°C時所得之數值。由於G3PE型是利用半導體來開關負載，因此通電後便會發熱，同時使控制盤內部溫度上升。若能在控制盤上加裝風扇來提升通風效果，即可降低G3PE型的環境溫度，並提高產品的可靠性。

(根據阿倫尼烏斯定律(Arrhenius law)，溫度每降低10°C，預期使用壽命便能增長2倍)

SSR之額定電流(A)	15A	25A	35A	45A
每台SSR1之風扇使用數量	0.23台	0.39台	0.54台	0.70台

範例：使用10台15A的SSR時，  
需加裝的風扇數量為 $0.23 \times 10 = 2.3$ ，  
也就是3台風扇。

- 註1. 風扇大小：92mm x 92mm、風量：0.7m³/min、控制盤周圍溫度：以30°C計算。  
2. 若同一個控制盤內尚有其他會產生熱能之機型，則需要另外採取通風措施。  
3. 環境溫度：利用對流等方式冷卻SSR後之SSR環境溫度。