

# G3PE-Single-phase

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

- SCCR of 10kA (UL 508)
- RoHS compliant.
- Models also available with no zero cross
- Surge pass protection improved surge dielectric strength for output currents. (OMRON testing)
- Compact with a slim profile.
- Mount to DIN Track or with screws.
- Conforms to cULus standards and EN standards (TÜV certification).



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

 Refer to Safety Precautions for All G3PE Models.

## 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	G3PE-215B DC12-24
					25 A, 100 to 240 VAC	G3PE-225B DC12-24
					35 A, 100 to 240 VAC	G3PE-235B DC12-24
					45 A, 100 to 240 VAC	G3PE-245B DC12-24
				No	15 A, 100 to 240 VAC	G3PE-215BL DC12-24
					25 A, 100 to 240 VAC	G3PE-225BL DC12-24
					35 A, 100 to 240 VAC	G3PE-235BL DC12-24
					45 A, 100 to 240 VAC	G3PE-245BL DC12-24
				Yes	15 A, 200 to 480 VAC	G3PE-515B DC12-24
					25 A, 200 to 480 VAC	G3PE-525B DC12-24
					35 A, 200 to 480 VAC	G3PE-535B DC12-24
					45 A, 200 to 480 VAC	G3PE-545B DC12-24
				No	15 A, 200 to 480 VAC	G3PE-515BL DC12-24
					25 A, 200 to 480 VAC	G3PE-525BL DC12-24
					35 A, 200 to 480 VAC	G3PE-535BL DC12-24
					45 A, 200 to 480 VAC	G3PE-545BL DC12-24

\* The applicable load current depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in *Engineering Data* on page 4.

# Specifications

## Certification

cULus (File No.E64562) and TÜV (File No.R50124433, 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 Item	G3PE-215B(L)	G3PE-225B(L)	G3PE-235B(L)	G3PE-245B(L)	G3PE-515B(L)	G3PE-525B(L)	G3PE-535B(L)	G3PE-545B(L)
<b>Rated load voltage</b>	100 to 240 VAC (50/60 Hz)					200 to 480 VAC (50/60 Hz)		
<b>Load voltage range</b>	75 to 264 VAC (50/60 Hz)					180 to 528 VAC (50/60 Hz)		
<b>Applicable load current * *</b>	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)
<b>Inrush current resistance</b>	150 A (60 Hz, 1 cycle)					150 A (60 Hz, 1 cycle)	220 A (60 Hz, 1 cycle)	440 A (60 Hz, 1 cycle)
<b>Permissible <math>I^2t</math> (reference value)</b>	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
<b>Applicable load (resistive load)</b>	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 4.

## Characteristics

Model	G3PE -215B	G3PE -225B	G3PE -235B	G3PE -245B	G3PE -215BL	G3PE -225BL	G3PE -235BL	G3PE -245BL
Operate time	1/2 of load power source cycle + 1 ms max.				1 ms max.			
Release time	1/2 of load power source cycle + 1 ms max.							
Output ON voltage drop	1.6 V (RMS) max.							
Leakage current	10 mA max. (at 200 VAC)							
Insulation resistance	100 MΩ min. (at 500 VDC)							
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min							
Vibration resistance	10 to 55 to 10 Hz, 0.375-mm single amplitude (0.75-mm double amplitude) (Mounted to DIN track)							
Shock resistance	Destruction: 294 m/s <sup>2</sup> (Mounted to DIN track)							
Ambient storage temperature	−30 to 100°C (with no icing or condensation)							
Ambient operating temperature	−30 to 80°C (with no icing or condensation)							
Ambient operating humidity	45% to 85%							
Sealing	IP20							
Weight	Approx. 240 g	Approx. 400 g		Approx. 240 g		Approx. 400 g		
SCCR (UL508) *	Harmonized protection fuse	50 kA						
	Harmonized protection MCCB	10 kA						
MTTFd (Reference value)	1,000 years min.							

Model	G3PE -515B	G3PE -525B	G3PE -535B	G3PE -545B	G3PE -515BL	G3PE -525BL	G3PE -535BL	G3PE -545BL
Operate time	1/2 of load power source cycle + 1 ms max.				1 ms max.			
Release time	1/2 of load power source cycle + 1 ms max.							
Output ON voltage drop	1.8 V (RMS) max.							
Leakage current	20 mA max. (at 480 VAC)							
Insulation resistance	100 MΩ min. (at 500 VDC)							
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min							
Vibration resistance	10 to 55 to 10 Hz, 0.375-mm single amplitude (0.75-mm double amplitude) (Mounted to DIN track)							
Shock resistance	Destruction: 294 m/s <sup>2</sup> (Mounted to DIN track)							
Ambient storage temperature	−30 to 100°C (with no icing or condensation)							
Ambient operating temperature	−30 to 80°C (with no icing or condensation)							
Ambient operating humidity	45% to 85%							
Sealing	IP20							
Weight	Approx. 240 g	Approx. 400 g		Approx. 240 g		Approx. 400 g		
SCCR (UL508) *	Harmonized protection fuse	50 kA						
	Harmonized protection MCCB	--	10 kA		--		10 kA	
MTTFd (Reference value)	1,000 years min.							

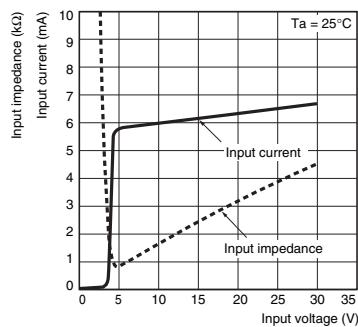
\* Obtained through coordination with fuses and MCCB under the conditions below.

Applicable SSR	SCCR Value	Fuse	Applicable SSR	SCCR Value	MCCB (UL certified)
G3PE-215B (L)	50 kA	30 A (Class CC) 600 V 60A (Class J, T, CD) 600 V 100 A (Class J) 300 V	G3PE-215B (L)	10 kA	60 kA
G3PE-225B (L)		30 A (Class J, T, CC) 600 V	G3PE-225B (L)		
G3PE-235B (L)		30A (Class CC) 600 V 60A (Class J, T, CD) 600 V	G3PE-235B (L)		
G3PE-245B (L)			G3PE-245B (L)		
G3PE-515B (L)			G3PE-515B (L)		
G3PE-525B (L)			G3PE-525B (L)		
G3PE-535B (L)			G3PE-535B (L)		
G3PE-545B (L)			G3PE-545B (L)		30 kA

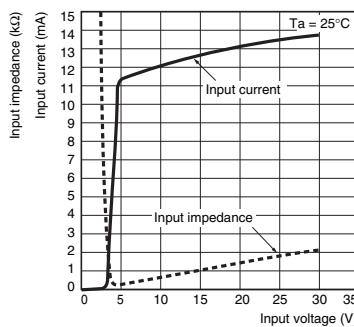
## Engineering Data

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

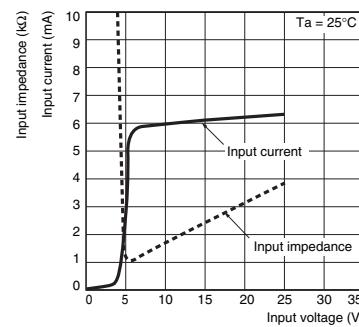
G3PE-2□□B



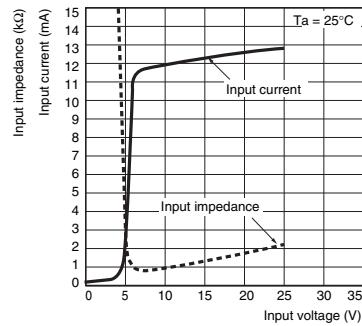
G3PE-2□□BL



G3PE-5□□B



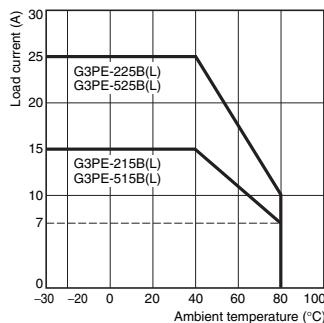
G3PE-5□□BL



### Load Current vs. Ambient Temperature

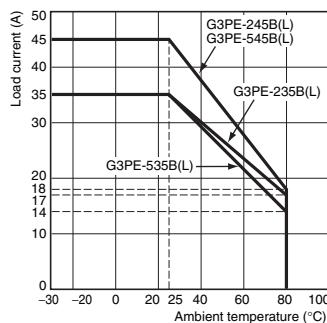
G3PE-215B(L), G3PE-225B(L)

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



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

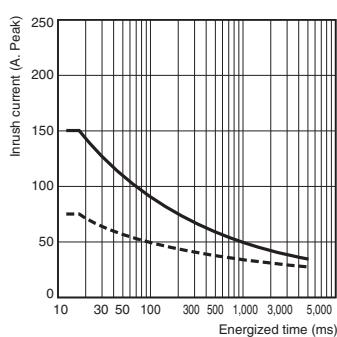
G3PE-535B(L), G3PE-545B(L)



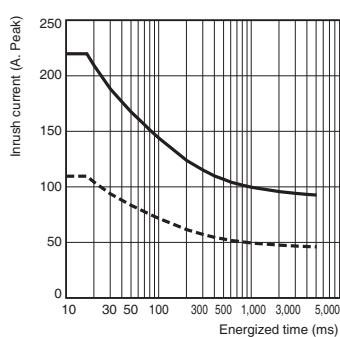
### Inrush Current Resistance: Non-repetitive

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

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

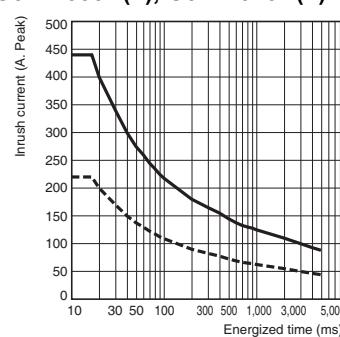


G3PE-225B(L), G3PE-525B(L)



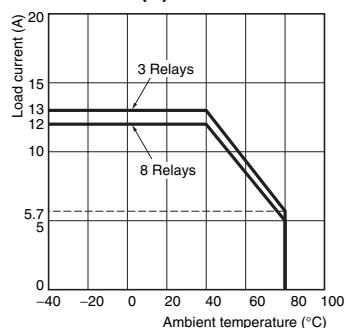
G3PE-235B(L), G3PE-245B(L)

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

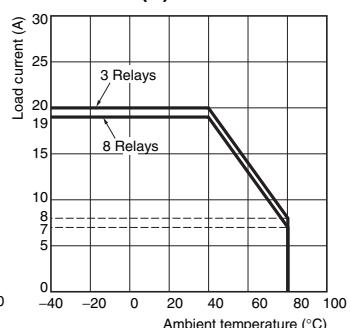


## Close Mounting (3 or 8 SSRs)

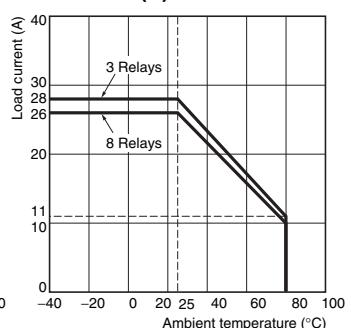
**G3PE-215B(L)**



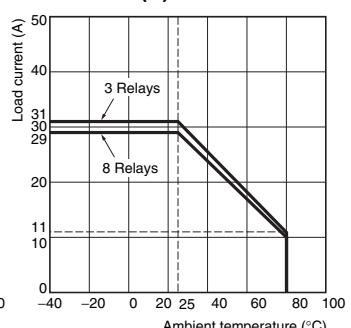
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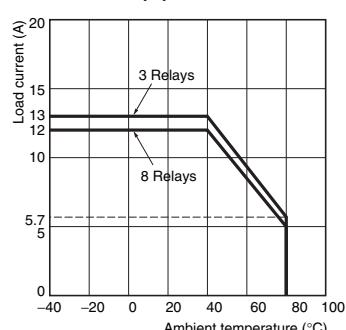
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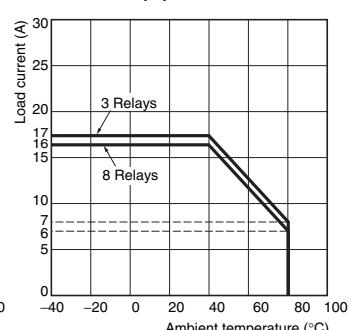
**G3PE-245B(L)**



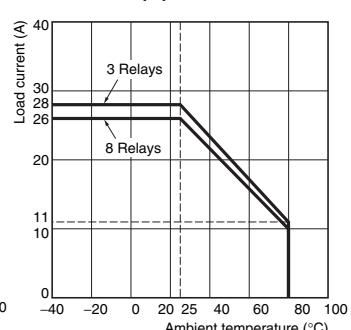
**G3PE-515B(L)**



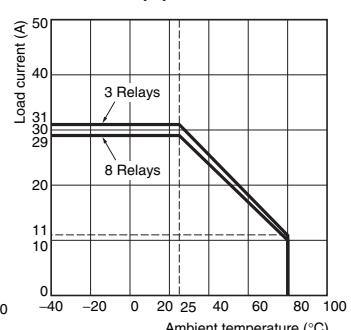
**G3PE-525B(L)**



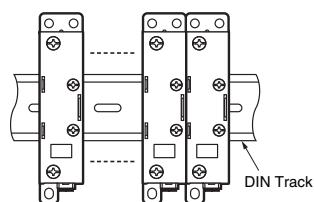
**G3PE-535B(L)**



**G3PE-545B(L)**



## Close Mounting Example



## Dimensions

Note: All units are in millimeters unless otherwise indicated.

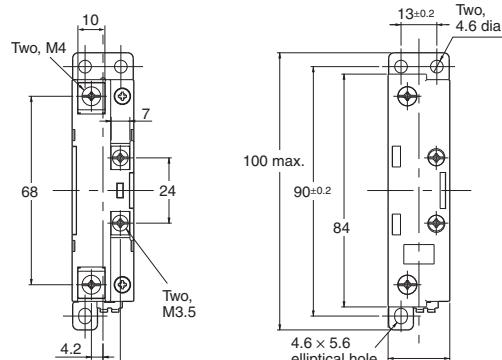
### Solid State Relays

**G3PE-215B(L)**

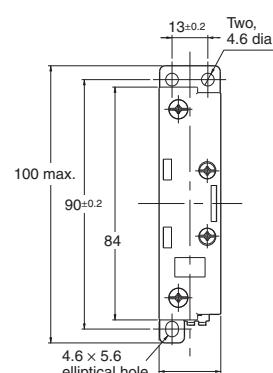
**G3PE-225B(L)**

**G3PE-515B(L)**

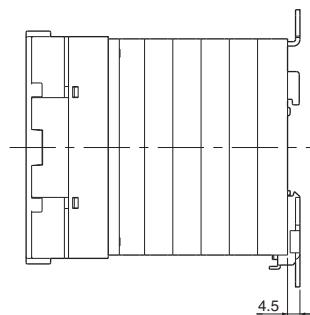
**G3PE-525B(L)**



Note: Without terminal cover.

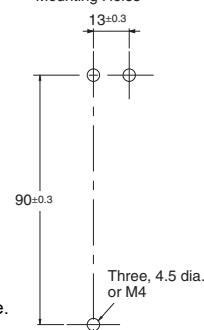


Note: With terminal cover.



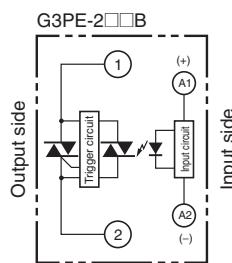
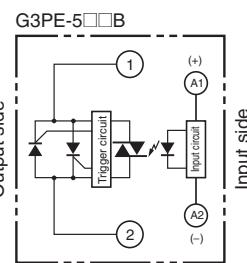
4.5

Mounting Holes



The G3PE-525B is shown above.

### Terminal Arrangement/Internal Circuit Diagram

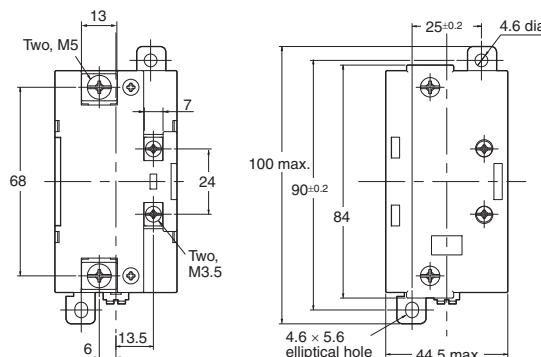


**G3PE-235B(L)**

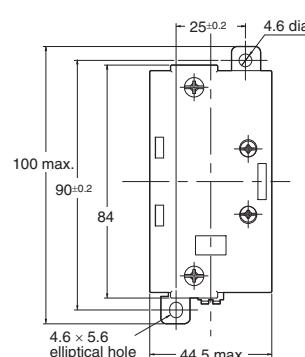
**G3PE-245B(L)**

**G3PE-535B(L)**

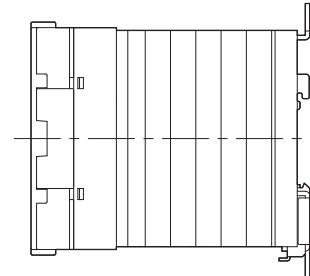
**G3PE-545B(L)**



Note: Without terminal cover.

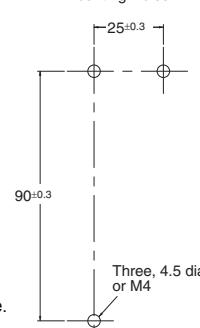


Note: With terminal cover.



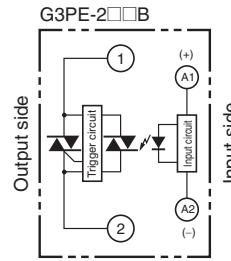
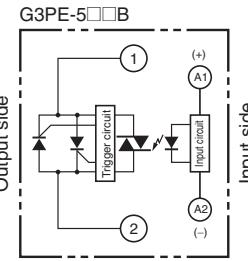
15

Mounting Holes



The G3PE-545B is shown above.

### Terminal Arrangement/Internal Circuit Diagram



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