

G3PE-Single-phase


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



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



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 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

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

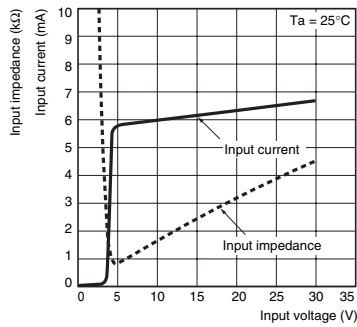
Item	Model	G3PE-215B	G3PE-225B	G3PE-235B	G3PE-245B	G3PE-215BL	G3PE-225BL	G3PE-235BL	G3PE-245BL
Operate time		1/2 of load power source cycle + 1 ms max.				1 ms max.			
Release time		1/2 of load power source cycle + 1 ms max.							
Output ON voltage drop		1.6 V (RMS) max.							
Leakage current		10 mA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

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

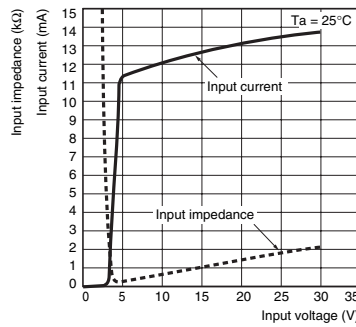
Engineering Data

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

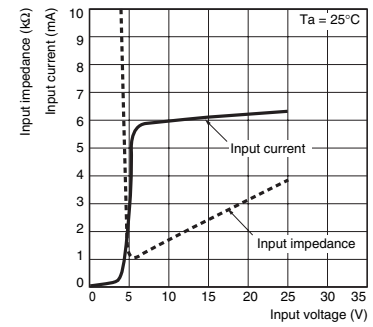
G3PE-2□□B



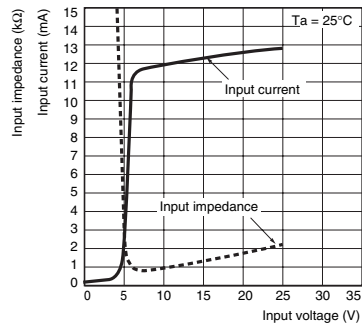
G3PE-2□□BL



G3PE-5□□B

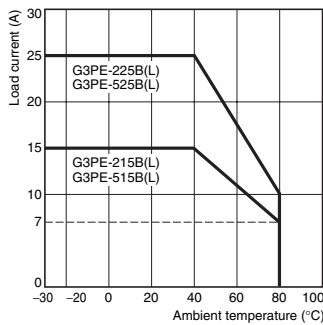


G3PE-5□□BL

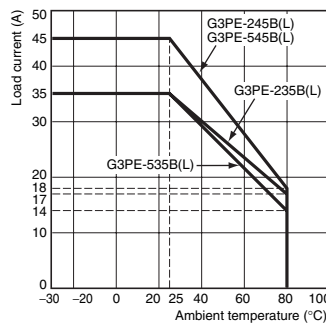


Load Current vs. Ambient Temperature

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



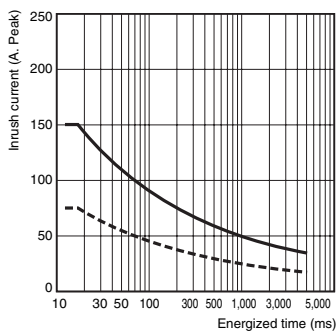
G3PE-235B(L), G3PE-245B(L)
G3PE-535B(L), G3PE-545B(L)



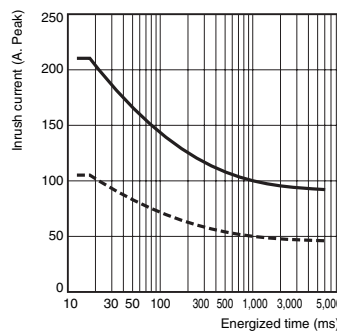
Inrush Current Resistance: Non-repetitive

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

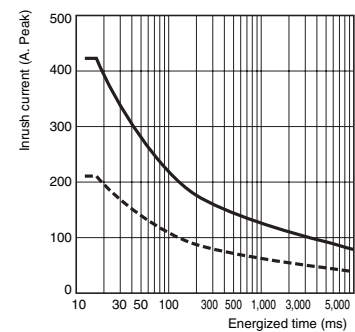
G3PE-215B(L), G3PE-515B(L)



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

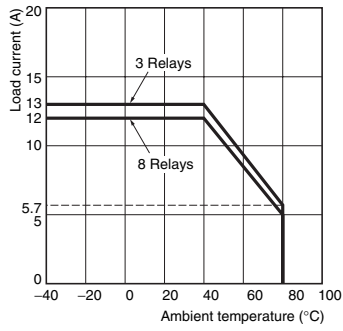


G3PE-235B(L), G3PE-245B(L)
G3PE-535B(L), G3PE-545B(L)

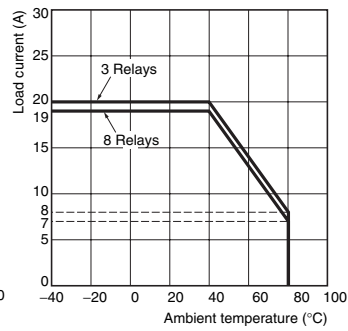


Close Mounting (3 or 8 SSRs)

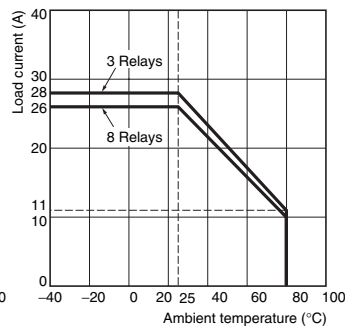
G3PE-215B(L)



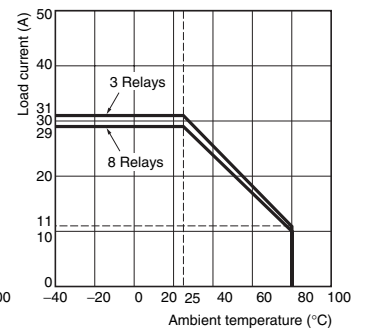
G3PE-225B(L)



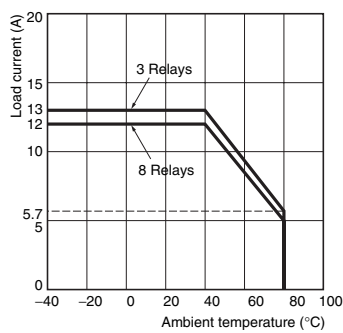
G3PE-235B(L)



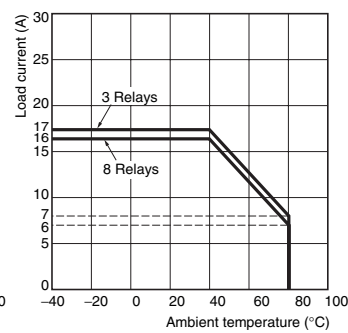
G3PE-245B(L)



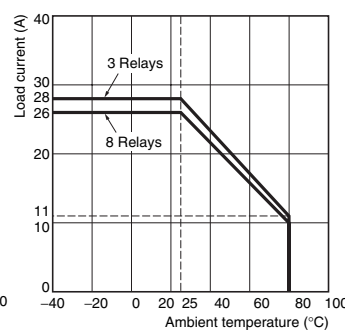
G3PE-515B(L)



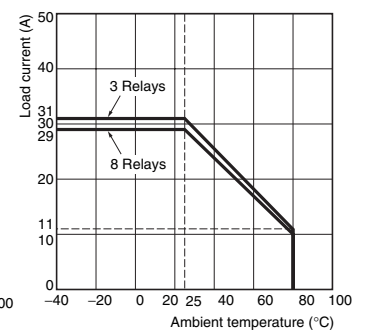
G3PE-525B(L)



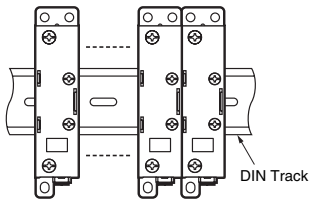
G3PE-535B(L)



G3PE-545B(L)



Close Mounting Example

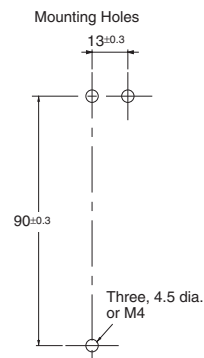
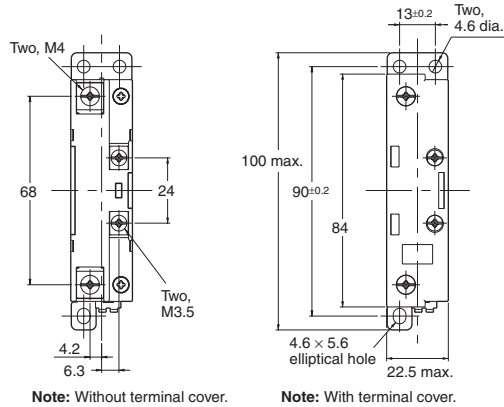


Dimensions

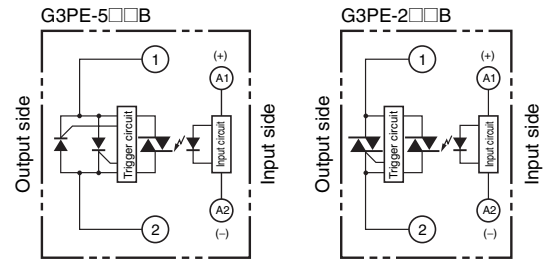
Note: All units are in millimeters unless otherwise indicated.

Solid State Relays

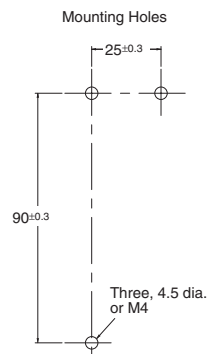
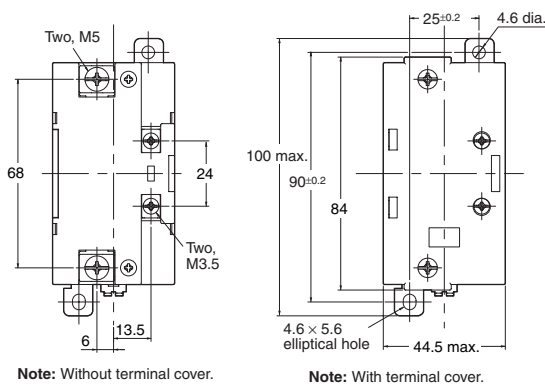
- G3PE-215B(L)
- G3PE-225B(L)
- G3PE-515B(L)
- G3PE-525B(L)



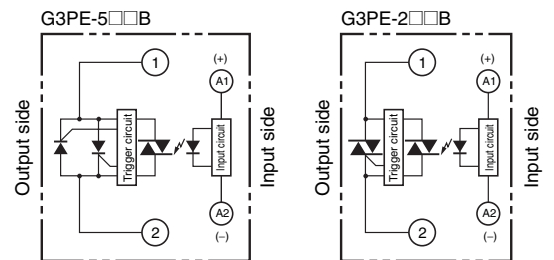
Terminal Arrangement/Internal Circuit Diagram



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



Terminal Arrangement/Internal Circuit Diagram



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NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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2014.7

In the interest of product improvement, specifications are subject to change without notice.

OMRON Corporation
Industrial Automation Company

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G3PE-Three-phase

CSM_G3PE-Three-phase_DS_E_4_2

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



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

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

Refer to *Safety Precautions for All G3PE Models.*

Ordering Information

List of Models

Models with Built-in Heat Sinks

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

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

*3. DIN Track or Screw mounting.

Models with Externally Attached Heat Sinks

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

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

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)

Operating Circuit (All Models)

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

Main Circuit of Models with Built-in Heat Sinks

Item	Model	G3PE-215B-3(N)	G3PE-215B-2(N)	G3PE-225B-3(N)	G3PE-225B-2(N)	G3PE-235B-3(N)	G3PE-235B-2(N)	G3PE-245B-3(N)	G3PE-245B-2(N)	G3PE-515B-3(N)	G3PE-515B-2(N)	G3PE-525B-3(N)	G3PE-525B-2(N)	G3PE-535B-3(N)	G3PE-535B-2(N)	G3PE-545B-3(N)	G3PE-545B-2(N)
Rated load voltage		100 to 240 VAC								200 to 480 VAC							
Operating voltage range		75 to 264 VAC								180 to 528 VAC							
Rated load current *1		15 A (at 40°C)	25 A (at 40°C)	35 A (at 25°C)	45 A (at 25°C)	15 A (at 40°C)	25 A (at 40°C)	35 A (at 25°C)	45 A (at 25°C)								
Minimum load current		0.2 A								0.5 A							
Inrush current resistance (peak value)		150 A (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 I ² t (reference value)		121A ² s	260A ² s	1,260A ² s				260A ² s				1,260A ² s					
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 × √3

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

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

Main Circuit of Models with Externally Attached Heat Sinks

Item	Model	G3PE-215B-3H	G3PE-215B-2H	G3PE-225B-3HH	G3PE-225B-2H	G3PE-235B-3H	G3PE-235B-2H	G3PE-245B-3H	G3PE-245B-2H	G3PE-515B-3H	G3PE-515B-2H	G3PE-525B-3H	G3PE-525B-2H	G3PE-535B-3H	G3PE-535B-2H	G3PE-545B-3H	G3PE-545B-2H
Rated load voltage		100 to 240 VAC								200 to 480 VAC							
Operating voltage range		75 to 264 VAC								180 to 528 VAC							
Rated load current *		15 A (at 40°C)	25 A (at 40°C)	35 A (at 25°C)	45 A (at 25°C)	15 A (at 40°C)	25 A (at 40°C)	35 A (at 25°C)	45 A (at 25°C)								
Minimum load current		0.2 A								0.5 A							
Inrush current resistance (peak value)		150 A (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 I ² t (reference value)		121A ² s	260A ² s	1,260A ² s				260A ² s				1,260A ² s					
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)
Operate time	1/2 of load power source cycle + 1 ms max.															
Release time	1/2 of load power source cycle + 1 ms max.															
Output ON voltage drop	1.6 V (RMS) max.								1.8 V (RMS) max.							
Leakage current *	10 mA max. (at 200 VAC)								20 mA max. (at 480 VAC)							
Insulation resistance	100 MΩ min. (at 500 VDC)															
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min															
Vibration resistance	<ul style="list-style-type: none"> 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 ² (reverse mounting: 98 m/s ²)															
Ambient storage temperature	-30 to 100°C (with no icing or condensation)															
Ambient operating temperature	-30 to 80°C (with no icing or condensation)															
Ambient operating humidity	45% to 85%															
Weight	Approx. 1.25 kg	Approx. 1.45 kg	Approx. 1.25 kg	Approx. 1.65 kg	Approx. 1.45 kg	Approx. 2.0 kg	Approx. 1.65 kg	Approx. 1.25 kg	Approx. 1.45 kg	Approx. 1.25 kg	Approx. 1.65 kg	Approx. 1.45 kg	Approx. 2.0 kg	Approx. 1.65 kg	Approx. 2.0 kg	Approx. 1.65 kg

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

Models with Externally Attached Heat Sinks

Model	G3PE-215B-3H	G3PE-215B-2H	G3PE-225B-3H	G3PE-225B-2H	G3PE-235B-3H	G3PE-235B-2H	G3PE-245B-3H	G3PE-245B-2H	G3PE-515B-3H	G3PE-515B-2H	G3PE-525B-3H	G3PE-525B-2H	G3PE-535B-3H	G3PE-535B-2H	G3PE-545B-3H	G3PE-545B-2H
Operate time	1/2 of load power source cycle + 1 ms max.															
Release time	1/2 of load power source cycle + 1 ms max.															
Output ON voltage drop	1.6 V (RMS) max.								1.8 V (RMS) max.							
Leakage current *	10 mA max. (at 200 VAC)								20 mA max. (at 480 VAC)							
Insulation resistance	100 MΩ min. (at 500 VDC)															
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min															
Vibration resistance	10 to 55 to 10 Hz, 0.375-mm single amplitude (0.75-mm double amplitude)															
Shock resistance	Destruction: 294 m/s ²															
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