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.





- 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).



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

Ordering Information

List of Models

Models with Built-in Heat Sinks

Number of phases	Insulation method	Operation indicator	Rated input voltage	Zero cross function	Туре	Applicable load *1	Number of poles	Model
						15 A 100 to 040 VAC	3	G3PE-215B-3N DC12-24
						15 A, 100 to 240 VAC	2	G3PE-215B-2N DC12-24
						25 A, 100 to 240 VAC	3	G3PE-225B-3N DC12-24
						25 A, 100 to 240 VAC	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
					DIN track	45 A, 100 to 240 VAC	2	G3PE-245B-2N DC12-24
					mounting *2	15 A, 200 to 480 VAC	3	G3PE-515B-3N DC12-24
						15 A, 200 to 400 VAC	2	G3PE-515B-2N DC12-24
						25 A, 200 to 480 VAC	3	G3PE-525B-3N DC12-24
						25 A, 200 to 400 VAC	2	G3PE-525B-2N DC12-24
						35 A, 200 to 480 VAC	3	G3PE-535B-3N DC12-24
		Yes (yellow)				33 A, 200 to 400 VAC	2	G3PE-535B-2N DC12-24
			12 to 24 VDC			45 A, 200 to 480 VAC	3	G3PE-545B-3N DC12-24
Three-phase	Phototriac			Yes		43 A, 200 to 400 VAO	2	G3PE-545B-2N DC12-24
Tillee-pilase	coupler					15 A, 100 to 240 VAC	3	G3PE-215B-3 DC12-24
						13 A, 100 to 240 VAO	2	G3PE-215B-2 DC12-24 *3
						25 A, 100 to 240 VAC	3	G3PE-225B-3 DC12-24
						23 A, 100 to 240 VAO	2	G3PE-225B-2 DC12-24
						35 A, 100 to 240 VAC	3	G3PE-235B-3 DC12-24
						00 A, 100 to 240 VAO	2	G3PE-235B-2 DC12-24
						45 A, 100 to 240 VAC	3	G3PE-245B-3 DC12-24
					Screw	45 A, 100 to 240 VAO	2	G3PE-245B-2 DC12-24
					mounting	15 A, 200 to 480 VAC	3	G3PE-515B-3 DC12-24
						13 A, 200 to 400 VAO	2	G3PE-515B-2 DC12-24 * 3
						25 A, 200 to 480 VAC	3	G3PE-525B-3 DC12-24
						20 A, 200 10 400 VAC	2	G3PE-525B-2 DC12-24
						35 A, 200 to 480 VAC	3	G3PE-535B-3 DC12-24
						55 A, 200 10 400 VAC	2	G3PE-535B-2 DC12-24
						45 A, 200 to 480 VAC	3	G3PE-545B-3 DC12-24
						70 A, 200 10 400 VAC	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	Туре	Applicable load *	Number of poles	Model
						15 A 100 to 040 VAC	3	G3PE-215B-3H DC12-24
						15 A, 100 to 240 VAC	2	G3PE-215B-2H DC12-24
						05 A 100 to 040 VAC	3	G3PE-225B-3H DC12-24
						25 A, 100 to 240 VAC	2	G3PE-225B-2H DC12-24
						35 A, 100 to 240 VAC	3	G3PE-235B-3H DC12-24
						33 A, 100 to 240 VAC	2	G3PE-235B-2H DC12-24
		Yes (yellow)	12 to 24 VDC	Yes	Externally attached heat sinks	45 A, 100 to 240 VAC	3	G3PE-245B-3H DC12-24
Three-phase	Phototriac					45 A, 100 to 240 VAC	2	G3PE-245B-2H DC12-24
rniee-pnase	coupler					15 A, 200 to 480 VAC	3	G3PE-515B-3H DC12-24
						15 A, 200 to 460 VAC	2	G3PE-515B-2H DC12-24
						25 A, 200 to 480 VAC	3	G3PE-525B-3H DC12-24
						25 A, 200 to 460 VAC	2	G3PE-525B-2H DC12-24
						25 A 200 to 400 VAC	3	G3PE-535B-3H DC12-24
						35 A, 200 to 480 VAC	2	G3PE-535B-2H DC12-24
						45 A 200 to 490 VAC	3	G3PE-545B-3H DC12-24
						45 A, 200 to 480 VAC	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)

ItemModel	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

Model		3PE-	G3PE-	G3PE-	G3PE-	G3PE-	G3PE-	G3PE-	G3PE-	G3PE-	G3PE-	G3PE-		G3PE-	G3PE-	G3PE-
Item	-	15B- 2(N)	225B- 3(N)	225B- 2(N)	235B- 3(N)	235B- 2(N)	245B- 3(N)	245B- 2(N)	515B- 3(N)	515B- 2(N)	525B- 3(N)	525B- 2(N)	535B- 3(N)	535B- 2(N)	545B- 3(N)	545B- 2(N)
Rated load voltage				100 to 2	40 VAC							200 to 4	80 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)		t 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 2		t 25°C)			
Minimum load current		0.2	A			0.5 A										
Inrush current resistance (peak value)	150 A (60 Hz, 1 cy		220 (60 Hz,		440 A (60 Hz, 1 cycle)					220 (60 Hz,			440 A (60 Hz, 1 cycle)			
Permissible I ² t (reference value)	121A²s 260A²s		A 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 VA	5.1 kW 8.6 kW (at 200 VAC)		12.1 (at 200			15.5 kW (at 200 VAC)		kW VAC)	20.7 (at 480		29.0 (at 480		37.4 (at 480		

^{*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.

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 \times Load voltage $\times \sqrt{3}$

Example: 15 A × 200 V × $\sqrt{3}$ = 5,196 W \cong 5.1 kW Example: 15 A × 400 V × $\sqrt{3}$ = 10,392 W \cong 10.3 kW

Main Circuit of Models with Externally Attached Heat Sinks

Model	G3PE-					G3PE-	G3PE-	G3PE-	G3PE-	G3PE-	G3PE-		G3PE-	G3PE-	G3PE-	G3PE-
Item	215B- 3H	215B- 2H	225B- 3HH	225B- 2H	235B- 3H	235B- 2H	245B- 3H	245B- 2H	515B- 3H	515B- 2H	525B- 3H	525B- 2H	535B- 3H	535B- 2H	545B- 3H	545B- 2H
Rated load voltage				100 to 2	40 VAC							200 to 4	80 VAC			
Operating voltage range				75 to 26	64 VAC				180 to 528 VAC							
Rated load current *	15 A (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 (a	t 25°C)	45 A (a	t 25°C)	
Minimum load current		0.2	2 A							0.5	5 A					
Inrush current resistance (peak value)	-	0 A 1 cycle)	220 (60 Hz,	-	440 A (60 Hz, 1 cycle)				220 A (60 Hz, 1 cycle) (60 Hz, 1 cycle)							
Permissible l ² t (reference value)	121	A ² s	260	A ² s		1,26	0A ² s		260A ² s 1,260A ² s							
Applicable load (resistive load: AC1 class)	Refer to Engineering Data 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.

^{*2.} Applicable Load

Characteristics

Models with Built-in Heat Sinks

Model Item	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 loa	d power s	ource cyc	e + 1 ms r	nax.											
Release time	1/2 of loa	ad power s	ource cycl	e + 1 ms r	nax.											
Output ON voltage drop	1.6 V (RI	MS) max.							1.8 V (RI	MS) max.						
Leakage current *	10 mA m	ax. (at 200	O VAC)						20 mA m	ax. (at 48	0 VAC)					
Insulation resistance	100 MΩ	min. (at 50	00 VDC)													
Dielectric strength	2,500 VA	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 ²	(reverse r	mounting:	98 m/s2)												
Ambient storage temperature	-30 to 10	00°C (with	no icing o	r condens	ation)											
Ambient operating temperature	-30 to 80	–30 to 80°C (with no icing or condensation)														
Ambient operating humidity	45% to 85%															
Weight	Approx.		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.		Approx. 1.45 kg	Approx. 1.25 kg	Approx. 1.65 kg	Approx. 1.45 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 Item	G3PE- 215B- 3H	215B- 215B- 225B- 225B- 235B- 235B- 245B- 245B- 245B- 515B- 515B- 525B- 535B- 535B- 545B- 545B- 3H 2H 3H 3H 2H 3H 3H									525B-	525B-	535B-	545B-			
Operate time	1/2 of loa	1/2 of load power source cycle + 1 ms max.															
Release time	1/2 of loa	d power s	ource cycl	le + 1 ms r	nax.												
Output ON voltage drop	1.6 V (RI	ИS) max.							1.8 V (RMS) max.								
Leakage current *	10 mA m	ax. (at 200	VAC)						20 mA m	nax. (at 48	0 VAC)						
Insulation resistance	100 ΜΩ ι	min. (at 50	0 VDC)														
Dielectric strength	2,500 VA	2,500 VAC, 50/60 Hz for 1 min															
Vibration resistance	10 to 55	10 to 55 to 10 Hz, 0.375-mm single amplitude (0.75-mm double amplitude)															
Shock resistance	Destructi	on: 294 m	/s²														
Ambient storage temperature	-30 to 10	00°C (with	no icing o	r condens	ation)												
Ambient operating temperature	-30 to 80°C (with no icing or condensation)																
Ambient operating humidity	45% to 85%																
Weight	Арргох. 300 g																

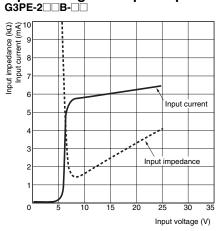
^{*}The leakage current of phase S will be approximately $\sqrt{3}$ times larger if the 2-element model is used.

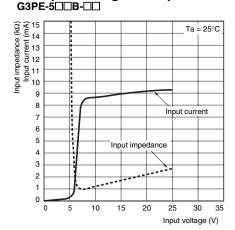
Heat Sinks

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

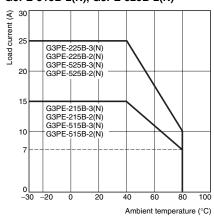
Input Voltage vs. Input Impedance and Input Voltage vs. Input Current



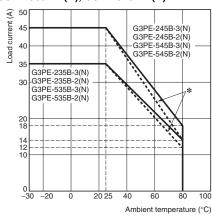


Load Current vs. Ambient Temperature

Models with Built-in Heat Sinks G3PE-215B-3(N), G3PE-225B-3(N) G3PE-215B-2(N), G3PE-225B-2(N) G3PE-515B-3(N), G3PE-525B-3(N) G3PE-515B-2(N), G3PE-525B-2(N)



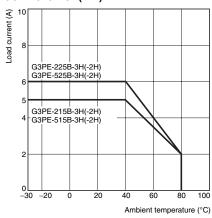
G3PE-235B-3(N), G3PE-245B-3(N) G3PE-235B-2(N), G3PE-245B-2(N) G3PE-535B-3(N), G3PE-545B-3(N) G3PE-535B-2(N), G3PE-545B-2(N)



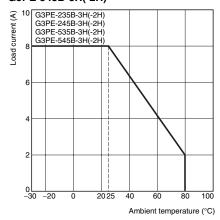
*The dotted lines in the charts are the UL derating curves for the G3PE-235B-3(N), G3PE-245B-3(N), G3PE-235B-2(N), G3PE-245B-2(N), G3PE-535B-3(N), G3PE-545B-3(N), G3PE-535B-2(N), G3PE-545B-2(N).

Models with Externally Attached Heat Sinks

G3PE-215B-3H(-2H) G3PE-225B-3H(-2H) G3PE-515B-3H(-2H) G3PE-525B-3H(-2H)



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

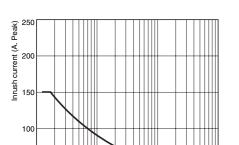


Inrush Current Resistance: Non-repetitive

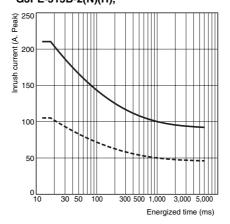
Keep the inrush current to below the inrush current resistance value (i.e., below the broken line) if it occurs repetitively G3PE-215B-3(N)(H) G3PE-525B-3(N)(H) G3PE-235B-3(N)(H)

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

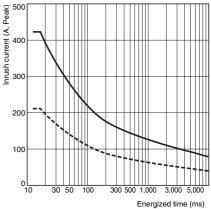
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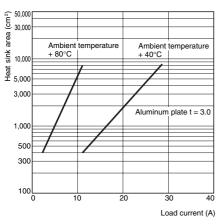
G3PE-225B-3(N)(H), G3PE-525B-3(N)(H) G3PE-225B-2(N)(H), G3PE-525B-2(N)(H) G3PE-515B-3(N)(H), G3PE-515B-2(N)(H),

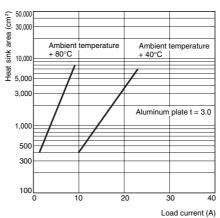


G3PE-235B-3(N)(H), G3PE-535B-3(N)(H) G3PE-235B-2(N)(H), G3PE-535B-2(N)(H) G3PE-245B-3(N)(H), G3PE-545B-3(N)(H) G3PE-245B-2(N)(H), G3PE-545B-2(N)(H)



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 cm² 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 (√2,500 (cm²)/2 = 36 cm (rounded to a whole number)).

Models with Externally Attached Heat Sinks Heat Resistance Rth (Junction/SSR Back Surface)

Model	Rth (°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	Rth (°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

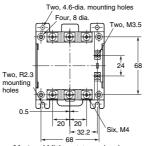
Note: All units are in millimeters unless otherwise indicated.

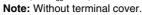
Solid State Relays

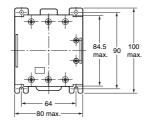
Models with **DIN Track Mounting**

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

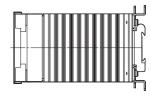
G3PE-525B-2N



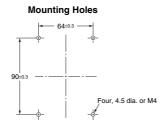


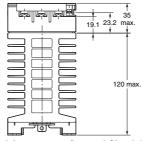


Note: With terminal cover.

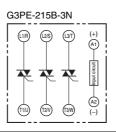


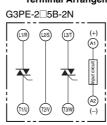


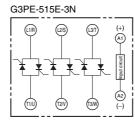


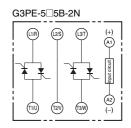


Terminal Arrangement/Internal Circuit Diagram



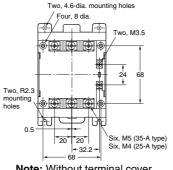




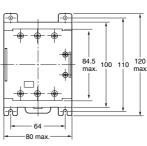


Models with DIN Track Mounting G3PE-225B-3N G3PE-235B-2N G3PE-525B-3N G3PE-535B-2N

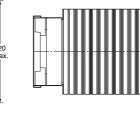


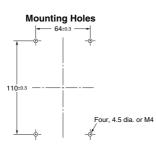


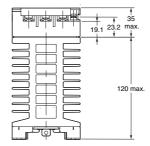
Note: Without terminal cover.



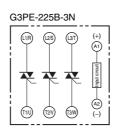
Note: With terminal cover.

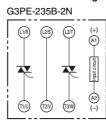


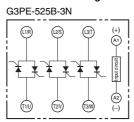


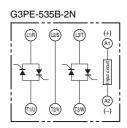


Terminal Arrangement/Internal Circuit Diagram

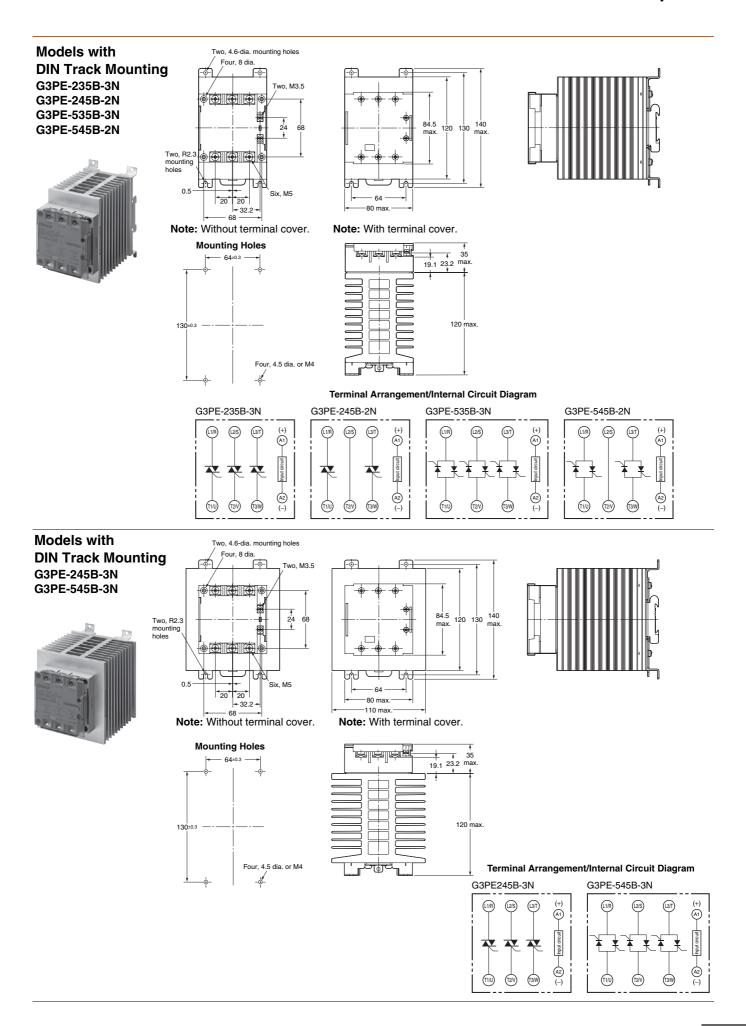








G3PE-Three-phase

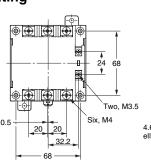


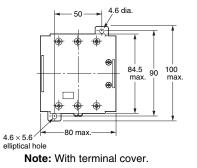
Models with Screw Mounting

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



DIN Track or screw mounting

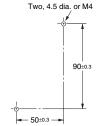


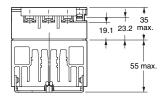


• **⊚** □

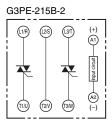
Note: Without terminal cover.

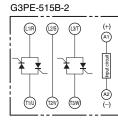
Mounting Holes





Terminal Arrangement/Internal Circuit Diagram



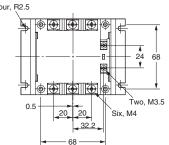


Models with Screw Mounting

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



For screw mounting only



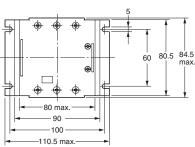
Note: Without terminal cover.

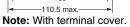
Four, 4.5 dia. or M4

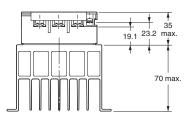
60±0.3

Mounting Holes

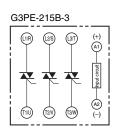
100±0.3

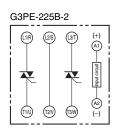


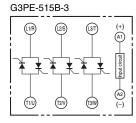


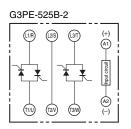


Terminal Arrangement/Internal Circuit Diagram









G3PE-Three-phase

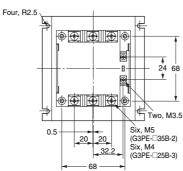
Models with Screw Mounting G3PE-225B-3

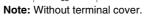
G3PE-235B-2 G3PE-525B-3

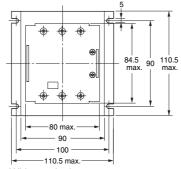
G3PE-535B-2



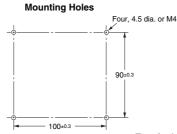
For screw mounting only

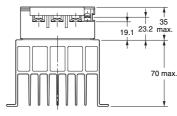




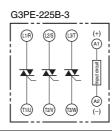


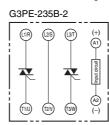
Note: With terminal cover.

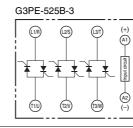


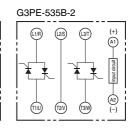


Terminal Arrangement/Internal Circuit Diagram





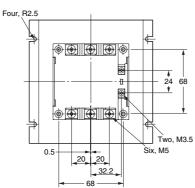


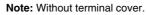


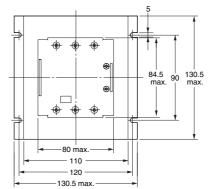
Models with **Screw Mounting** G3PE-235B-3 G3PE-245B-2 G3PE-535B-3 G3PE-545B-2



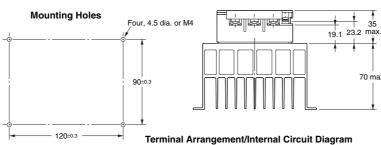
For screw mounting only



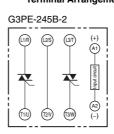


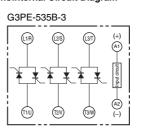


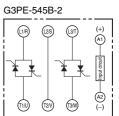
Note: With terminal cover.



G3PE-235B-3 (+) (A1) (L2/S) (L3/T) (-) (T2/V) (T3/W)



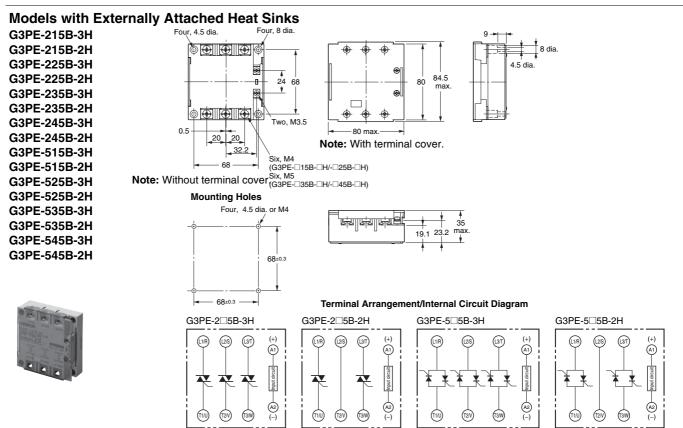




35

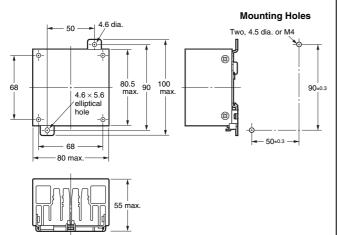
70 max

Models with Screw Mounting Four, R2.5 G3PE-245B-3 G3PE-545B-3 84.5 max. 150 max. ⊛ Two, M3.5 Six, M5 0.5 -80 max. 20 20 - 110 32.2 120 -130.5 max. 68 Note: With terminal cover. Note: Without terminal cover. **Mounting Holes** 35 19.1 23.2 max. فهاهاها Four, 4.5 dia. or M4 For screw mounting only 70 max. 150±0.3 Terminal Arrangement/Internal Circuit Diagram G3PE-245B-3 G3PE-545B-3 (+) (A1) (+) (A1) (L1/R) (L2/S) (L3/T) 120±0.3 (A2) (-) (-) (T2/V) (T3/W) (T1/U) (T2/V) (T3/W)

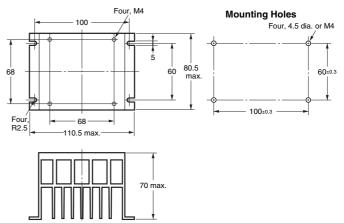


Accessories (Order Separately)

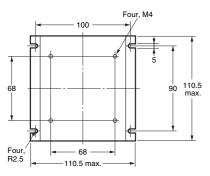
Heat Sink Y92B-P50 (Mounts to DIN Track.) For G3PE-215B-2H and G3PE-515B-2H

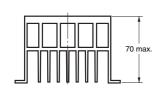


Heat Sink Y92B-P100 For G3PE-215B-3H, G3PE-225B-2H, G3PE-515B-3H, and G3PE-525B-2H



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

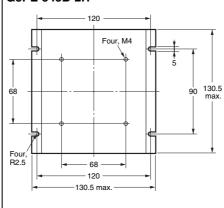


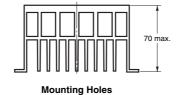


Mounting Holes

Four, 4.5 dia. or M4

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

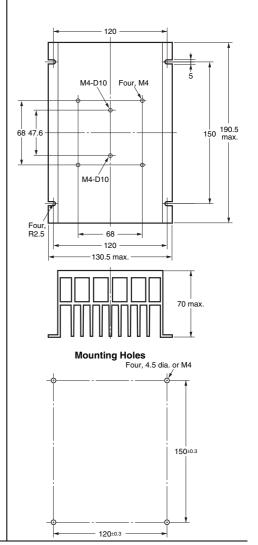




Four, 4.5 dia. or M4

120±0.3

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



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