OMRON

Solid-state Contactor | G3PB

Compact, Low-cost SSR Contactor of an Innovative Construction is Ideal for Three-phase Heaters

- Slim Unit with three-phase output.
- Optimum heat sinks attach to models without built-in heat sinks.
- Low-cost element module of an innovative construction.
- Compact design achieved by optimizing radiator shape.
- DIN track mounting possible (G3PB-215B-2-VD, G3PB-415B-2-VD) in addition to screw mounting.
- Meets EN60947-4-3 (IEC947-4-3) UL508, and CSA22.2 No. 14.
- CE marking

Ordering Information

■ Models with Built-in Heat Sinks

Number of phases	Number of elements	Zero-cross function	Main circuit voltage	Applicable heater capacity (with Class-1 AC resistive load)	Model
3	3	Yes	100 to 240 VAC	5.1 kW max. (15 A)	G3PB-215B-3-VD
	2				G3PB-215B-2-VD
	3			8.6 kW max. (25 A)	G3PB-225B-3-VD
	2				G3PB-225B-2-VD
	3			12.1 kW max. (35 A)	G3PB-235B-3-VD
	2				G3PB-235B-2-VD
	3			15.5 kW max. (45 A)	G3PB-245B-3-VD
	2				G3PB-245B-2-VD
	3		200 to 400 VAC	10.3 kW max. (15 A)	G3PB-415B-3-VD
	2				G3PB-415B-2-VD
	3			17.3 kW max. (25 A)	G3PB-425B-3-VD
	2				G3PB-425B-2-VD
	3			24.2 kW max. (35 A)	G3PB-435B-3-VD
	2				G3PB-435B-2-VD
	3			31.1 kW max. (45 A)	G3PB-445B-3-VD
	2				G3PB-445B-2-VD

■ Models without Built-in Heat Sinks

Number of phases	Number of elements	Zero-cross function	Main circuit voltage	Rated carry current	Model
3	3	Yes	100 to 240 VAC	15 A max.	G3PB-215B-3H-VD
	2				G3PB-215B-2H-VD
	3			25 A max.	G3PB-225B-3H-VD
	2				G3PB-225B-2H-VD
	3			35 A max.	G3PB-235B-3H-VD
	2				G3PB-235B-2H-VD
	3			45 A max.	G3PB-245B-3H-VD
	2				G3PB-245B-2H-VD
	3		200 to 400 VAC	15 A max.	G3PB-415B-3H-VD
	2				G3PB-415B-2H-VD
	3			25 A max.	G3PB-425B-3H-VD
	2				G3PB-425B-2H-VD
	3			35 A max.	G3PB-435B-3H-VD
	2				G3PB-435B-2H-VD
	3			45 A max.	G3PB-445B-3H-VD
	2				G3PB-445B-2H-VD

Note: The load current vs. ambient temperature characteristics of the Unit vary with the heat radiation of the Unit. Refer to page 120, *Engineering Data* for details.

■ Heat Sinks

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

■ Accessories (Order Separately)

Mounting Track	50 cm (1) x 7.3 mm (t)	PFP-50N
	1 m (1) x 7.3 mm (t)	PFP-100N
	1 m (1) x 16 mm (t)	PFP-100N2

Specifications

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

Operating Circuit (Common)

Item	Common
Rated operating voltage	12 to 24 VDC
Operating voltage range	9.6 to 30 VDC
Rated input current	10 mA max. (at 24 VDC)
Must-operate voltage	9.6 VDC max.
Reset voltage	1 VDC min.
Insulation method	Phototriac
Operation indicator	Yellow LED

Main Circuit of Models with Built-in Heat Sinks

Item	G3PB-215B-3-VD	G3PB-215B-2-VD	G3PB-225B-3-VD	G3PB-225B-2-VD	G3PB-235B-3-VD	G3PB-235B-2-VD	G3PB-245B-3-VD	G3PB-245B-2-VD
Rated voltage	100 to 240 VAC							
Operating voltage range	75 to 264 VAC							
Rated carry current	15 A		25 A		35 A		45 A	
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)			
Permissible I^2t (half 60-Hz wave)	121 A^2s		260 A^2s		1,260 A^2s			
Applicable load (with Class-1 AC resistive load)	5.1 kW max.		8.6 kW		12.1 kW max.		15.5 kW max.	

Item	G3PB-415B-3-VD	G3PB-415B-2-VD	G3PB-425B-3-VD	G3PB-425B-2-VD	G3PB-435B-3-VD	G3PB-435B-2-VD	G3PB-445B-3-VD	G3PB-445B-2-VD
Rated voltage	200 to 400 VAC							
Operating voltage range	180 to 440 VAC							
Rated carry current (see note)	15 A		25 A		35 A		45 A	
Minimum load current	0.5 A							
Inrush current resistance (peak value)	220 A (60 Hz, 1 cycle)				440 A (60 Hz, 1 cycle)			
Permissible I^2t (half 60-Hz wave)	260 A^2s				1,260 A^2s			
Applicable load (with Class-1 AC resistive load)	10.3 kW max.		17.3 kW max.		24.2 kW max.		31.1 kW max.	

Note: Rated carry current varies depending on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in *Engineering Data.*

Main Circuit of Models without Built-in Heat Sinks

Item	G3PB-215B-3H-VD	G3PB-215B-2H-VD	G3PB-225B-3H-VD	G3PB-225B-2H-VD	G3PB-235B-3H-VD	G3PB-235B-2H-VD	G3PB-245B-3H-VD	G3PB-245B-2H-VD
Rated voltage	100 to 240 VAC							
Operating voltage range	75 to 264 VAC							
Rated carry current (see note)	15 A		25 A		35 A		45 A	
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)			
Permissible I^2t (half 60-Hz wave)	121 A^2s		260 A^2s		1,260 A^2s			
Applicable load (with Class-1 AC resistive load)	The applicable load varies with the heat radiation of the Unit. Refer to page 120, *Engineering Data* for details.							

Item	G3PB-415B-3H-VD	G3PB-415B-2H-VD	G3PB-425B-3H-VD	G3PB-425B-2H-VD	G3PB-435B-3H-VD	G3PB-435B-2H-VD	G3PB-445B-3H-VD	G3PB-445B-2H-VD
Rated voltage	200 to 400 VAC							
Operating voltage range	180 to 440 VAC							
Rated carry current	15 A		25 A		35 A		45 A	
Minimum load current	0.5 A							
Inrush current resistance (peak value)	220 A (60 Hz, 1 cycle)				440 A (60 Hz, 1 cycle)			
Permissible I^2t (half 60-Hz wave)	260 A^2s				1,260 A^2s			
Applicable load (with Class-1 AC resistive load)	Refer to page 120, *Engineering Data* for details.							

Note: The rated carry current varies depending on the radiation device or radiation plate to be connected and the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in *Engineering Data.*

■ Characteristics

Models with Built-in Heat Sinks

Item	G3PB-215B-3-VD	G3PB-215B-2-VD	G3PB-225B-3-VD	G3PB-225B-2-VD	G3PB-235B-3-VD	G3PB-235B-2-VD	G3PB-245B-3-VD	G3PB-245B-2-VD
Operate time	1/2 of load power source cycle + 1 ms max. (DC input)							
Release time	1/2 of load power source cycle + 1 ms max. (DC input)							
Output ON voltage drop	1.6 V (RMS) max.							
Leakage current (see note)	10 mA (at 200 VAC)							
Insulation resistance	100 MΩ min. (at 500 VDC)							
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min							
Vibration resistance	Destruction and malfunction: 10 to 55 Hz, 0.75-mm double amplitude							
Shock resistance	Destruction: 294 m/s^2 Malfunction: 147 m/s^2							
Ambient temperature	Operating: –30°C to 80°C (with no icing or condensation) Storage: –30°C to 100°C (with no icing or condensation)							
Ambient humidity	Operating: 45% to 85%							
Weight	Approx. 750 g	Approx. 750 g	Approx. 900 g	Approx. 750 g	Approx. 1,150 g	Approx. 900 g	Approx. 1,500 g	Approx. 1,150 g
Approved standards	UL508, CSA22.2 No. 14, EN60947-4-3 (IEC947-4-3) (From April 1999)							
EMC	Emission AC mains: EN55011 Group 1 Class B Emission Electromagnetic: EN55011 Group 1 Class B Immunity ESD: IEC947-4-3 4 kV contact discharge 8 kV air discharge Immunity Electromagnetic: IEC947-4-3 10 V/m (80 MHz to 1 GHz) Immunity EFT: IEC947-4-3 2 kV AC power-signal line Immunity Surge transient: IEC947-4-3 2 kV Immunity RF disturbance: IEC947-4-3, EN50082-2 10 V (0.15 to 80 MHz)							

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

Item	G3PB-415B-3-VD	G3PB-415B-2-VD	G3PB-425B-3-VD	G3PB-425B-2-VD	G3PB-435B-3-VD	G3PB-435B-2-VD	G3PB-445B-3-VD	G3PB-445B-2-VD
Operate time	1/2 of load power source cycle + 1 ms max. (DC input)							
Release time	1/2 of load power source cycle + 1 ms max. (DC input)							
Output ON voltage drop	1.8 V (RMS) max.							
Leakage current (see note)	20 mA (at 400 VAC)							
Insulation resistance	100 MΩ min. (at 500 VDC)							
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min							
Vibration resistance	Destruction and malfunction: 10 to 55 Hz, 0.75-mm double amplitude							
Shock resistance	Destruction: 294 m/s^2 Malfunction: 147 m/s^2							
Ambient temperature	Operating: –30°C to 80°C (with no icing or condensation) Storage: –30°C to 100°C (with no icing or condensation)							
Ambient humidity	Operating: 45% to 85%							
Weight	Approx. 750 g	Approx. 750 g	Approx. 900 g	Approx. 750 g	Approx. 1,150 g	Approx. 900 g	Approx. 1,500 g	Approx. 1,150 g
Approved standards	UL508, CSA22.2 No. 14, EN60947-4-3 (IEC947-4-3) (From April 1999)							
EMC	Emission AC mains: EN55011 Group 1 Class B Emission Electromagnetic: EN55011 Group 1 Class B Immunity ESD: IEC947-4-3 4 kV contact discharge 8 kV air discharge Immunity Electromagnetic: IEC947-4-3 10 V/m (80 MHz to 1 GHz) Immunity EFT: IEC947-4-3 2 kV AC power-signal line Immunity Surge transient: IEC947-4-3 2 kV Immunity RF disturbance: IEC947-4-3, EN50082-2 10 V (0.15 to 80 MHz)							

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

Models without Built-in Heat Sinks

Item	G3PB-215B-3H-VD	G3PB-215B-2H-VD	G3PB-225B-3H-VD	G3PB-225B-2H-VD	G3PB-235B-3H-VD	G3PB-235B-2H-VD	G3PB-245B-3H-VD	G3PB-245B-2H-VD
Operate time	1/2 of load power source cycle + 1 ms max. (DC input)							
Release time	1/2 of load power source cycle + 1 ms max. (DC input)							
Output ON voltage drop	1.6 V (RMS) max.							
Leakage current (see note)	10 mA (at 200 VAC)							
Insulation resistance	100 MΩ min. (at 500 VDC)							
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min							
Vibration resistance	Destruction and malfunction: 10 to 55 Hz, 0.75-mm single amplitude							
Shock resistance	Destruction: 294 m/s^2 Malfunction: 147 m/s^2							
Ambient temperature	Operating: –30°C to 80°C (with no icing or condensation) Storage: –30°C to 100°C (with no icing or condensation)							
Ambient humidity	Operating: 45% to 85%							
Approved standards	UL508, CSA22.2 No. 14, EN60947-4-3 (IEC947-4-3) (From April 1999)							
Weight (Max.)	300 g max.							
EMC	Emission AC mains: EN55011 Group 1 Class B Emission Electromagnetic: EN55011 Group 1 Class B Immunity ESD: IEC947-4-3 4 kV contact discharge 8 kV air discharge Immunity Electromagnetic: IEC947-4-3 10 V/m (80 MHz to 1 GHz) Immunity EFT: IEC947-4-3 2 kV AC power-signal line Immunity Surge transient: IEC947-4-3 2 kV Immunity RF disturbance: IEC947-4-3, EN50082-2 10 V (0.15 to 80 MHz)							

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

Item	G3PB-415B-3H-VD	G3PB-415B-2H-VD	G3PB-425B-3H-VD	G3PB-425B-2H-VD	G3PB-435B-3H-VD	G3PB-435B-2H-VD	G3PB-445B-3H-VD	G3PB-445B-2H-VD
Operate time	1/2 of load power source cycle + 1 ms max. (DC input)							
Release time	1/2 of load power source cycle + 1 ms max. (DC input)							
Output ON voltage drop	1.8 V (RMS) max.							
Leakage current (see note)	20 mA (at 400 VAC)							
Insulation resistance	100 MΩ min. (at 500 VDC)							
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min							
Vibration resistance	Destruction and malfunction: 10 to 55 Hz, 0.75-mm single amplitude							
Shock resistance	Destruction: 294 m/s^2 Malfunction: 147 m/s^2							
Ambient temperature	Operating: –30°C to 80°C (with no icing or condensation) Storage: –30°C to 100°C (with no icing or condensation)							
Ambient humidity	Operating: 45% to 85%							
Approved standards	UL508, CSA22.2 No. 14, EN60947-4-3 (IEC947-4-3) (From April 1999)							
Weight	Approx. 300 g							
EMC	Emission AC mains: EN55011 Group 1 Class B Emission Electromagnetic: EN55011 Group 1 Class B Immunity ESD: IEC947-4-3 4 kV contact discharge 8 kV air discharge Immunity Electromagnetic: IEC947-4-3 10 V/m (80 MHz to 1 GHz) Immunity EFT: IEC947-4-3 2 kV AC power-signal line Immunity Surge transient: IEC947-4-3 2 kV Immunity RF disturbance: IEC947-4-3, EN50082-2 10 V (0.15 to 80 MHz)							

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

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