

Solid State Relays

G3M

Zero Cross Models Added to Compact, Low-cost G3M Series

- 2, 3 and 5A single in-line package SSR
- Thin design for high-density PCB applications.
- DC input-AC output for up to a 5-A load.
- Certified by UL, CSA, and VDE.



Ordering Information

To order: Select the part number and add the desired input voltage rating. (e.g., G3M-202P-US DC5)

Isolation	Input terminal pitch	Zero cross function	Indicator	Rated output load (Applicable output load)	Rated input voltage	Model
Phototriac	7.62 mm	Yes	No	2 A at 100 to 240 VAC (2 A at 75 to 264 VAC)	5 VDC	G3M-202P-US
					12 VDC	
					24 VDC	
				3 A at 100 to 240 VAC (3 A at 75 to 264 VAC)	5 VDC	G3M-203P
					12 VDC	
					24 VDC	
				5 A at 100 to 240 VAC (5 A at 75 to 264 VAC)	5 VDC	G3M-205P
					12 VDC	
					24 VDC	
		No		2 A at 100 to 120 VAC (2 A at 75 to 132 VAC)	5 VDC	G3M-102PL-US
					12 VDC	
					24 VDC	
				2 A at 100 to 240 VAC (2 A at 75 to 264 VAC)	5 VDC	G3M-202PL-US
					12 VDC	
					24 VDC	
				3 A at 100 to 240 VAC (3 A at 75 to 264 VAC)	5 VDC	G3M-203PL
					12 VDC	
					24 VDC	
				5 A at 100 to 240 VAC (5 A at 75 to 264 VAC)	5 VDC	G3M-205PL
					12 VDC	
					24 VDC	

(This table continues on the next page)

- Note:**
1. All models have UL and CSA approvals.
 2. TÜV Marking is available with “-UTU” in place of “-US” on the part number
 3. G3M-205P(L)-VD is approved by UL, CSA and VDE

Ordering information continued

Isolation	Input terminal pitch	Zero cross function	Indicator	Rated output load (Applicable output load)	Rated input voltage	Model
Phototriac	5.08 mm	Yes	No	2 A at 100 to 240 VAC (2 A at 75 to 264 VAC)	5 VDC	G3M-202P-US-4
					12 VDC	
					24 VDC	
				3 A at 100 to 240 VAC (3 A at 75 to 264 VAC)	5 VDC	G3M-203P-4
					12 VDC	
					24 VDC	
				5 A at 100 to 240 VAC (5 A at 75 to 264 VAC)	5 VDC	G3M-205P-4
					12 VDC	
					24 VDC	
		No		2 A at 100 to 120 VAC (2 A at 75 to 132 VAC)	5 VDC	G3M-102PL-US-4
					12 VDC	
					24 VDC	
				2 A at 100 to 240 VAC (2 A at 75 to 264 VAC)	5 VDC	G3M-202PL-US-4
					12 VDC	
					24 VDC	
				3 A at 100 to 240 VAC (3 A at 75 to 264 VAC)	5 VDC	G3M-203PL-4
					12 VDC	
					24 VDC	
				5 A at 100 to 240 VAC (5 A at 75 to 264 VAC)	5 VDC	G3M-205PL-4
					12 VDC	
					24 VDC	

Note: 1. All models have UL and CSA approvals.

2. TÜV Marking is available with “-UTU” in place of “-US” on the part number

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Specifications

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

Input

Rated voltage	Operating voltage	Impedance	Voltage levels	
			Must operate voltage	Must release voltage
5 VDC	4 to 6 VDC	300 Ω ±20%	4 VDC max.	1 VDC min.
12 VDC	9.6 to 14.4 VDC	800 Ω ±20%	9.6 VDC max.	
24 VDC	19.2 to 28.8 VDC	1.6 kΩ ±20%	19.2 VDC max.	

Note: Each model has 5-VDC, 12-VDC, and 24-VDC input versions.

Output

Model	Rated voltage	Applicable load		
		Load voltage range	Load current	Inrush current
G3M-102PL-US(-4)	100 to 120 VAC	75 to 132 VAC	0.1 to 2 A	30 A (60 Hz, 1 cycle)
G3M-202P(L)-US(-4)	100 to 240 VAC	75 to 264 VAC		
G3M-203P(L)(-4)			0.1 to 3 A	45 A (60 Hz, 1 cycle)
G3M-205P(L)(-4)			0.1 to 5 A	

■ Characteristics

Item	G3M-102PL-US(-4)	G3M-202P(L)-US(-4)	G3M-203P(L)(-4)	G3M-205P(L)(-4)
Operate time	1 ms max. (1/2 of load power source cycle + 1 ms max. for G3M-202P, G3M-203P, G3M-205P)			
Release time	1/2 of load power source cycle + 1 ms max.			
Output ON voltage drop	1.6 V (RMS) max.			
Leakage current	2 mA max. (at 100 VAC)	2 mA max. (at 100 VAC) 5 mA max. (at 200 VAC)	1.5 mA (at 200 VAC)	
Insulation resistance	1,000 MΩ min. (at 500 VDC)			
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min		2,500 VAC, 50/60 Hz for 1 min	
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude			
Shock resistance	Malfunction: 1,000 m/s ² (approx. 100G)			
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. 15 g			Approx. 25 g

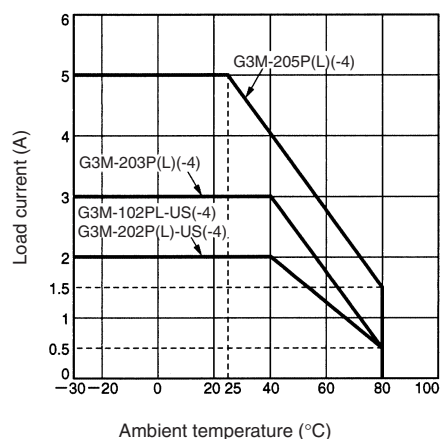
■ Approvals

UL Recognized (File No. E64562) / CSA Certified (File No. LR35535) - - Ambient Temp. = 40°C

Input Voltage	SSR Type	Load Rating
5, 12, 24 VDC	With Suffixes 102 and US or UTU	2 A, 125 VAC, Resistive 250 W, 125 VAC Tungsten 2 A FLA / 12 A LRA, 125 VAC
	With Suffixes 202 and US	2 A, 250 VAC, Resistive 500 W, 250 VAC Tungsten 2 A FLA / 12 A LRA, 250 VAC
	With Suffixes 202 and UTU	2 A, 250 VAC, Resistive 250 W, 250 VAC Tungsten 1 A FLA / 6 A LRA, 250 VAC
	With Suffixes 203 and US or UTU	3 A, 250 VAC, Resistive 750 W, 250 VAC Tungsten 1.5 A FLA / 9 A LRA, 250 VAC
	With Suffix 205	5 A, 250 VAC, Resistive 1,250 W, 250 VAC Tungsten 2.5 A FLA / 15 A LRA, 250 VAC

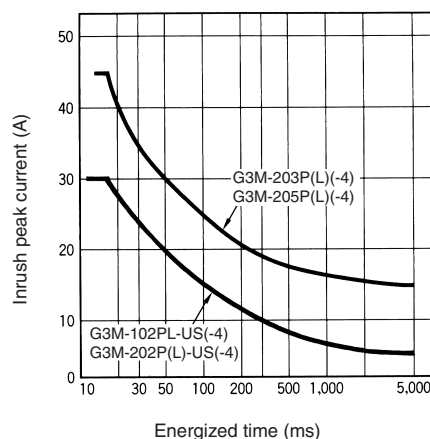
Engineering Data

Load Current vs. Ambient Temperature



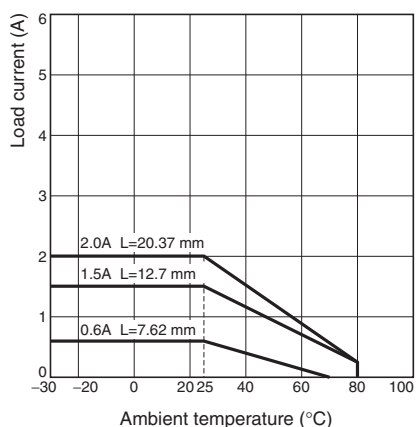
Inrush Current Immunity

Non-repetitive
Reduce the current to 1/2 or less if the G3M is in repetitive operation.

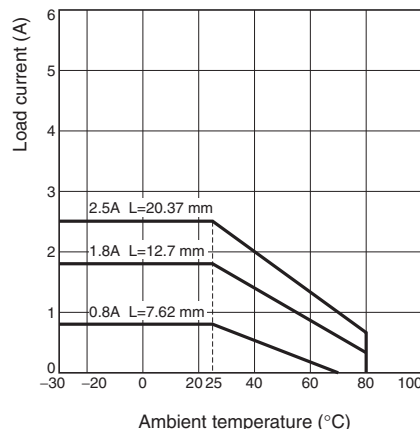


Load Current vs. Ambient Temperature (Close Mounting) G3M-205 Series (5-A Load)

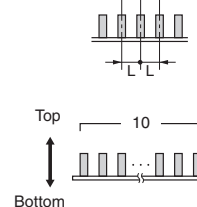
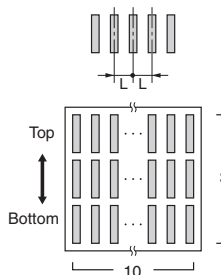
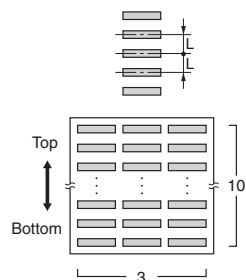
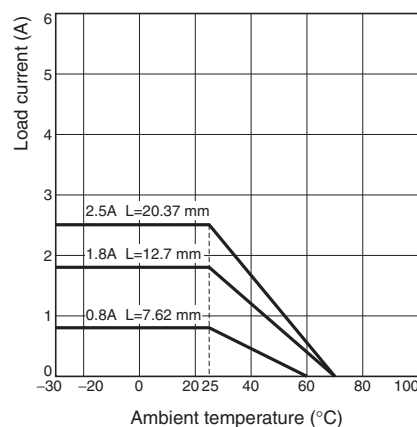
X direction



Y direction



Z direction

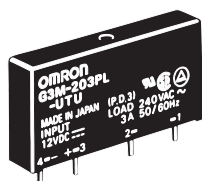


- Thirty Relays are soldered to the PCB at each given spacing.
- Continuous power.

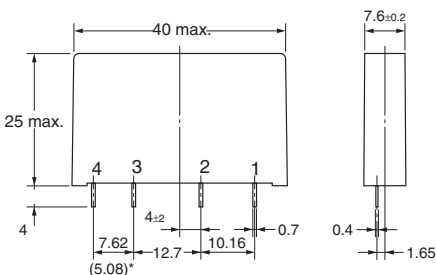
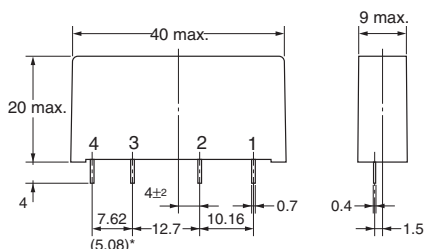
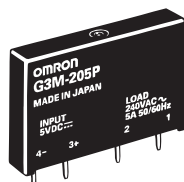
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3M-102PL-US(-4), G3M-202P(L)-4
G3M-203P(L)-4

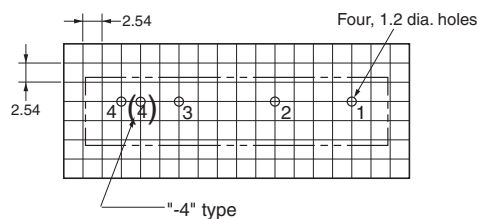


G3M-205P(L)-4

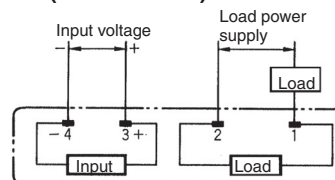


*Input terminal pitch for models ending in "-4" is 5.08 mm.

**PCB Dimensions
(Bottom View)**



**Terminal Arrangement
(Bottom View)**



Precautions

Protective Element

No overvoltage absorption element is built in. Therefore, if the G3M is connected to an inductive load, be sure to connect the overvoltage absorption element.

MEMO

The image displays a 10x10 grid of 100 small squares. Each square contains a unique 4x4 arrangement of symbols. The symbols used are dots (.), horizontal lines (—), vertical lines (|), and crosses (x). The patterns within the squares are complex and varied, with some squares showing more symbols than others. The overall effect is a dense, textured field of geometric shapes.

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To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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