

# Solid State Relays G3M

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

- 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-203PL 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	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			
	5.08 mm	Yes		No	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			
5.08 mm	Yes	No	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					
5.08 mm	No	No	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 for 3 amp versions with reinforced insulation by inserting “-UTU” in place of “-US” in the part number  
Example: G3M-203P-UTU-1-4 DC12
  3. G3M-205P(L)-VD-1, with reinforced insulation, is approved by UL, CSA and VDE

# 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-203P(L)(-4)	100 to 240 VAC	75 to 264 VAC	0.1 to 3 A	45 A (60 Hz, 1 cycle)
G3M-205P(L)(-4)			0.1 to 5 A	

## ■ Characteristics

Item	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-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	1.5 mA (at 200 VAC)	
Insulation resistance	1,000 MΩ min. (at 500 VDC)	
Dielectric strength	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 <sup>2</sup> (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 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

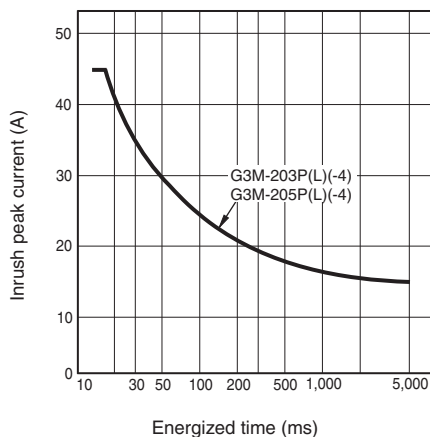
# Engineering Data

## 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.

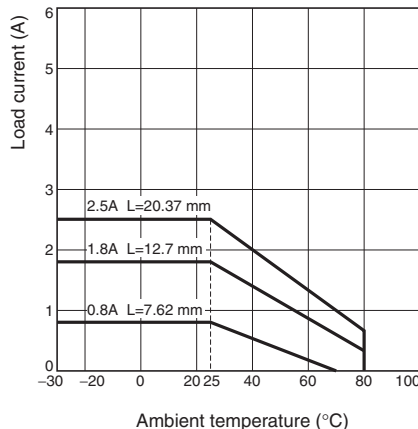


## Load Current vs. Ambient Temperature (Close Mounting) G3M-205 Series (5-A Load)

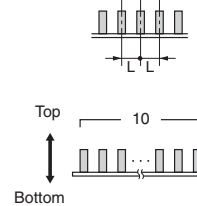
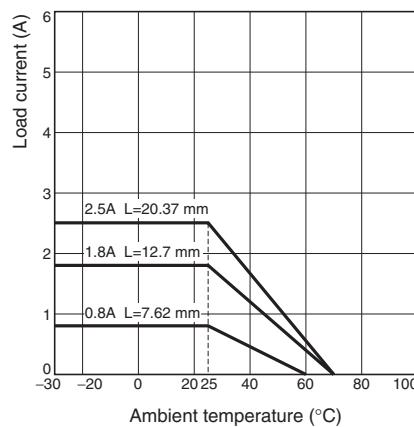
X direction



Y direction



Z direction



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

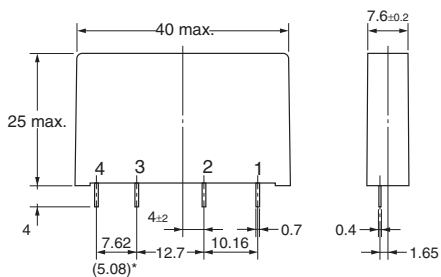
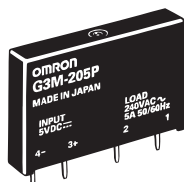
# Dimensions

Note: All units are in millimeters unless otherwise indicated.

## G3M-203P(L)-4

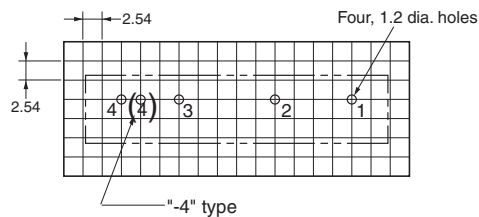


## G3M-205P(L)-4

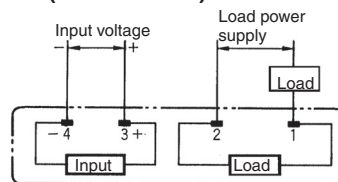


\*Input terminal pitch for models ending in "-4" is 5.08 mm.

## 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.



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**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

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

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**OMRON ELECTRONIC  
COMPONENTS LLC**

55 E. Commerce Drive, Suite B  
Schaumburg, IL 60173

**847-882-2288**

**OMRON ON-LINE**

Global - <http://www.omron.com>

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Cat. No. X301-E-1b

09/11

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Printed in USA

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Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)