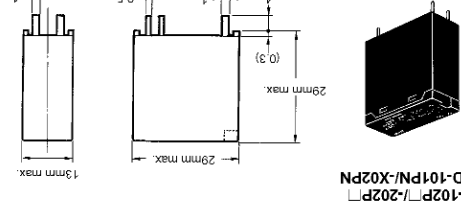


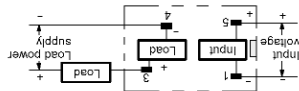
Solid-State Relay – G3R/G3RD

Dimensions

Note: All units are in millimeters unless otherwise indicated.

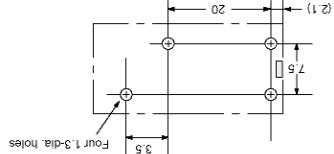


Terminal Arrangement/ Internal Connections (Bottom View)



Note: The plus and minus symbols shown in the parentheses are for DC loads.

Mounting Holes



Precautions

The SSR for DC switching a surge can connect to a load regardless of the polarity of the positive and negative output terminals. For AC inductive loads, connect the load terminals of the SSR to a surge absorber (varistor).

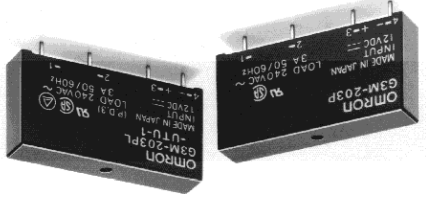
Protective Terminal

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimetres into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Solid-State Relay – G3M

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

- This design for high-density PCB applications.
- DC input-AC output for up to 5-A load.
- Approved by UL and CSA.



Solid State Relays

Ordering Information

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

Note: 1. TUV marking is available with "-UTU" in place of "-US" on the part number.
2. G3M-205P(L)-VD is approved by UL, CSA and VDE.

Solid-State Relay - G3M **OMRON**

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

Note: TUV marking is available with "-UTU" in place of "-US" on the part number.

Specifications

■ Ratings

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, 19.2-VDC, and 24-VDC input versions.

Output

Model	Rated voltage	Applicable load	
		Load voltage	Load current
G3M-102P(L)-US (-4)	100 to 120 VAC	75 to 132 VAC	0.1 to 2 A
G3M-202P(L)-US (-4)	100 to 240 VAC	75 to 264 VAC	0.1 to 3 A
G3M-205P(L) (-4)			0.1 to 5 A

Solid-State Relay - G3M **OMRON**

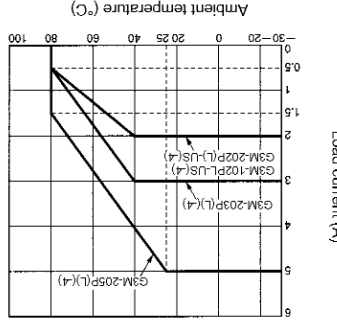
■ Characteristics	
Item	Value
Operate time	1 ms max. (1/2 of load power source cycle + 1 ms max. for G3M-102P(L)-US (-4), G3M-202P(L)-US (-4), G3M-203P(L)-4), G3M-205P(L) (-4)
Release time	1/2 of load power source cycle + 1 ms max.
Output ON voltage drop	1.6 V (RMS) max.
Leakage current	2 mA max. (at 100 VAC)
	5 mA max. (at 200 VAC)
Insulation resistance	1,000 MΩ min. (at 500 VDC)
	2,000 VAC, 50/60 Hz for 1 min
Dielectric strength	2,500 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 ms 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. 15 g

■ Approved Standards

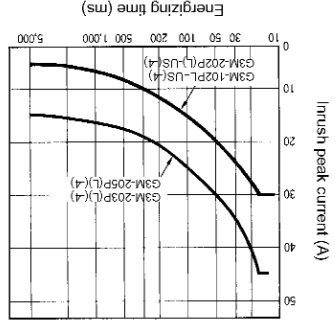
Approved by UL (Report No. E64562)	Approved by CSA (Report No. LR35535)	Approved by TÜV
G3M-202P(L)-US(-4) G3M-203P(L)-4	G3M-202P(L)-US(-4) G3M-203P(L)-4	G3M-202P(L)-UTU(-4) G3M-203P(L)-UTU(-4)

Engineering Data

Load Current vs. Ambient Temperature



Inrush Current Immunity



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

Solid-State Relay - G3M

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

Note: TUV marking is available with "-UTU" in place of "-US" on the part number.

Specifications

■ Ratings

Rated voltage	Operating voltage	Impedance	Voltage levels		
			Must operate voltage	Must release voltage	1 VDC min.
5 VDC	4 to 6 VDC	300 Ω ±20%	4 VDC max.		
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	Load current
G3M-102P(L)-US (-4)	100 to 120 VAC	75 to 132 VAC	0.1 to 2 A
G3M-202P(L)-US (-4)	100 to 240 VAC	75 to 264 VAC	0.1 to 3 A
G3M-205P(L) (-4)			0.1 to 5 A

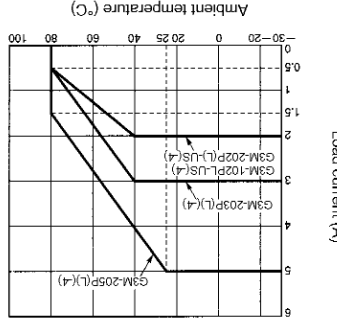
Inrush current

Solid-State Relay - G3M

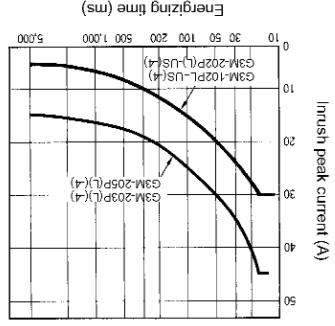
■ Characteristics	
Item	Characteristics
Operate time	1 ms max. (1/2 of load power source cycle + 1 ms max. for G3M-202P, G3M-203P, G3M-205P)
Release time	1/2 of load power source cycle + 1 ms max.
Output ON voltage drop	1.6 V (RMS) max.
Leakage current	2 mA max. (at 100 VAC) 5 mA max. (at 200 VAC) 1.5 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	Multifunction: 10 to 55 Hz, 1.5-mm double amplitude Shock resistance: 1,000 ms ²
Shock resistance	Operating: -30°C to 80°C (with no icing or condensation) Storage: -30°C to 100°C (with no icing or condensation)
Ambient temperature	Ambient humidity: 45% to 85%
Ambient humidity	Weight: Approx. 15 g
Weight	Approved Standards
	Approved by UL (Report No. E6452) Approved by CSA (Report No. LR35535) Approved by TÜV (G3M-202P(L)-UTU(-4), G3M-203P(L)-UTU(-4), G3M-205P(L)-UTU(-4))

Engineering Data

Load Current vs. Ambient Temperature



Inrush Current Immunity



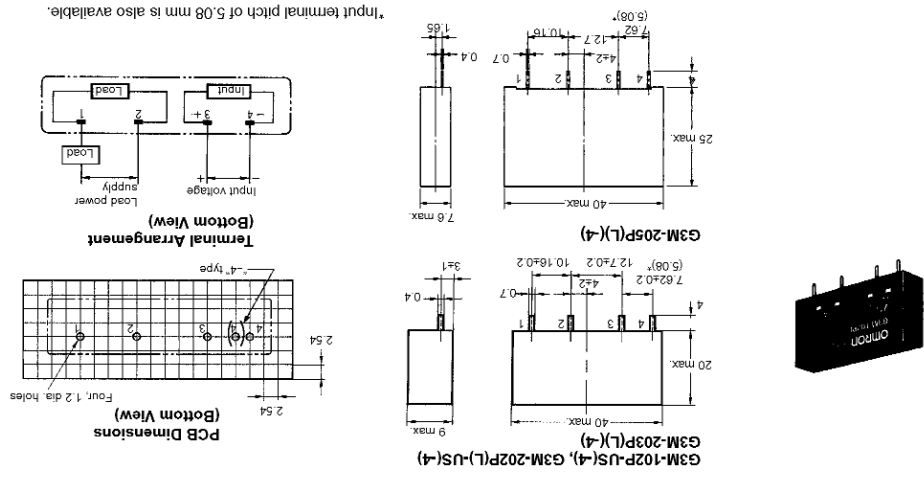
Non-repetitive
G3M is in repetitive operation.
Reduce the current to 1/2 or less if the G3M is in repetitive operation.

Solid-State Relay – G3M



Dimensions

Note: All units are in millimeters unless otherwise indicated.



Precautions

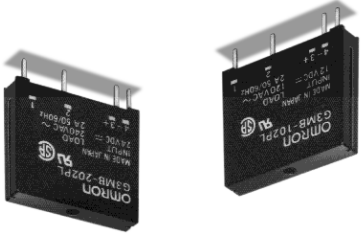
Protective Element
 No overvoltage absorption element is built in. Therefore, if the G3M is connected to an inductive load, be sure to connect the overvoltage absorption element.

Solid-State Relay – G3MB



Low-cost, Subminiature PCB-mounting SSR Switching 2 A

- Bottom is approximately three times as small as that of the G3M and ideal for high-density PCB applications.
- DC input-AC output for 2-A load at 25°C.
- Mono-block lead frame incorporating terminals, heat sink, and a PCB directly mounted with bare chips made it possible to miniaturize the relay.
- Standard models approved by UL, CSA and -UTU models by VDE (TUV).



Solid State Relays



Ordering Information

Model	Rated input voltage	Applicable output load	Snubber resistor circuit	Indicator	Zero cross function	Isolation
G3MB-102PL (-UTU)	5 VDC	2 A at 100 to 120 VAC (rated load voltage)	Yes	No	No	No
G3MB-202P (-UTU)	5 VDC	2 A at 100 to 240 VAC	No	No	Yes	Yes
G3MB-202P-4 (-UTU)	12 VDC	(rated load voltage)				
G3MB-202PL (-UTU)	24 VDC					
G3MB-202PL-4 (-UTU)	5 VDC					
G3MB-202PL-4 (-UTU)	12 VDC					
G3MB-202PL-4 (-UTU)	24 VDC					
G3MB-202PEG-4 (-UTU)	24 VDC					Yes
G3MB-202PEG-4 (-UTU)	1					No
G3MB-202PEG-4 (-UTU)	1					No

Note: When ordering models conforming to TUV, add "-UTU" to the model number.

Item	Min.	Standard	Max.
Forward current	5 mA	10 mA	20 mA
Must release voltage	0	---	1 V

Specifications

■ Ratings

Input Resistor Contact

Rated voltage	Operating voltage	Impedance	Must operate voltage	Must release voltage
5 VDC	4 to 6 VDC	440 Ω ±20%	4 VDC max.	1 VDC min.
12 VDC	9.6 to 14.4 VDC	1 kΩ ±20%	9.6 VDC max.	
24 VDC	19.2 to 28.8 VDC	2.2 kΩ ±20%	19.2 VDC max.	

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

321

320

CAT. No. K073-E2-04A

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

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