

## Solid-state Relay

## G3M

### Zero-cross Type Add to Compact, Low-cost G3M Series

- Thin design for high-density PCB applications.
- DC input-AC output for 2-A load.



## Ordering Information

Isolation	Zero cross function	Indicator	Applicable output load	Rated input voltage	Model
Phototriac	Yes	No	2 A at 75 to 264 VAC	5 VDC	G3M-202P-US
				12 VDC	
				24 VDC	
	No		2 A at 75 to 132 VAC	5 VDC	G3M-102PL-US
				12 VDC	
				24 VDC	
			2 A at 75 to 264 VAC	5 VDC	G3M-202PL-US
				12 VDC	
				24 VDC	

**Note:** For SSR with an input terminal pitch of 5.08 mm, add a "-4" after the model number (e.g., G3M-202P-4).

## Specifications

### ■ Ratings

#### Input

Rated voltage	Operating voltage	Impedance	Voltage levels	
			Must operate voltage	Must dropout voltage
5 VDC	4 to 6 VDC	300 W +20%	4 VDC max.	1 VDC min.
12 VDC	9.6 to 14.4 VDC	800 W +20%	9.6 VDC max.	
24 VDC	19.2 to 28.8 VDC	1.6 kW +20%	19.2 VDC max.	

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

#### Output

Model	Applicable load		
	Load voltage	Load current	Inrush current
G3M-102PL	75 to 132 VAC	0.1 to 2 A	30 A (60 Hz, 1 cycle)
G3M-202P(L)	75 to 264 VDC		

## ■ Characteristics

Item	G3M-102PL	G3M-202P(L)
Operate time	1 ms max. (1/2 of load power source cycle + 1 ms max. for G3M-202P)	
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)
Insulation resistance	100 MW min. (at 500 VDC)	
Dielectric strength	2,000 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% to 80% C (with no icing) Storage: -30% to 100% C (with no icing)	
Ambient humidity	Operating: 45% to 85%	
Weight	Approx. 15 g	

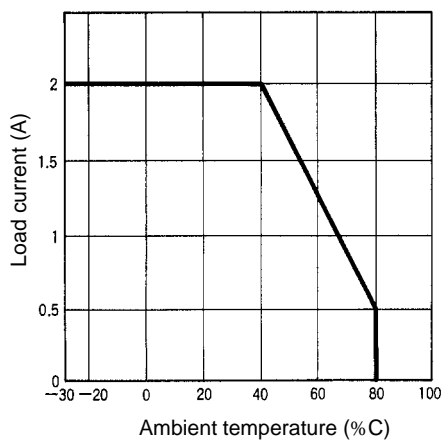
## ■ Approved Standards

UL508 File No.E64562/CSA C22.2 (No.0, No.14) File No. LR35535/TÜV R80269 (VDE0806)

Model	Ratings
G3M-102PL-US-(4)	2 A at 120 VAC
G3M-202P(L)-US-(4)	2 A at 240 VAC

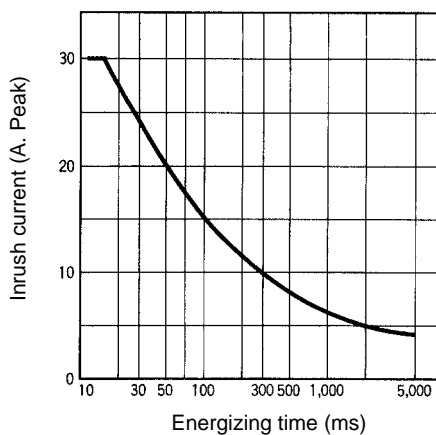
## Engineering Data

### Load Current vs. Ambient Temperature Characteristics



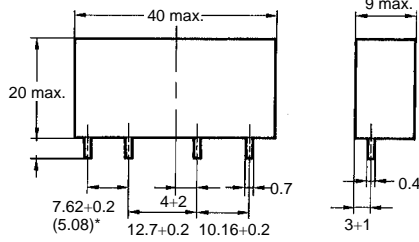
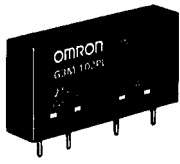
### Inrush Current Resistivity

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

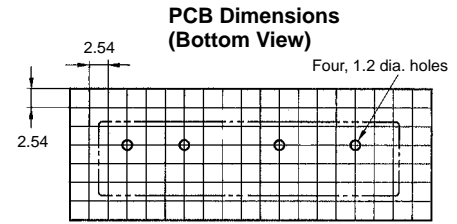


# Dimensions

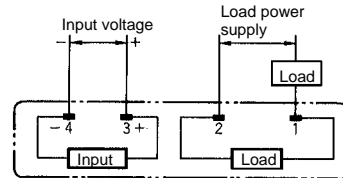
**Note:** All units are in millimeters unless otherwise indicated.



\*Input terminal pitch of 5.08 mm is also available.



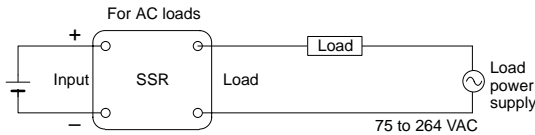
## Terminal Arrangement (Bottom View)



# Precautions

Refer to pages 5 to 13 for general precautions.

Connect the Relay as shown below.



Use the following elements for inrush absorption:

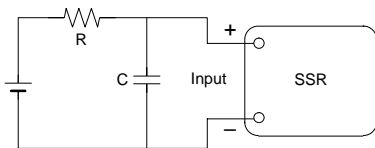
Operating voltage	Varistor voltage	Inrush resistance
100 to 120 VAC	240 to 270 V	1,000 A min.
200 to 240 VAC	440 to 470 V	1,000 A min.

Soldering must be completed in 10 seconds or less at 260°C or less. Excessive heat will damage the SSR.

The load terminals are internally connected to a snubber circuit that absorbs noise. However, if wiring from these terminals is laid with or placed in the same duct as high-voltage or power lines, noise may be induced, causing the SSR to operate irregularly or malfunction.

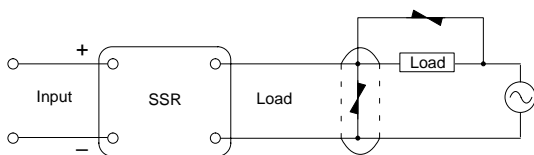
To repeatedly switch a load that generates a high inrush current, such as a motor, design the circuit so that the value of the inrush current falls within half the values shown in *Inrush Current Resistivity* in *Engineering Data*.

Because the operating time of the SSR is extremely short, take measures to suppress noise induced in the input terminals. If the generation of strong noise is expected, connect an external noise absorber, such as an RC circuit.



The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.

When using for AC inductive loads, connect the load terminals of the SSR to a inrush absorber (varistor).



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