

### 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.



## Ordering Information

### Model Number Legend:

G3MB -       
           1      2      3      4

#### 1. Load Supply Voltage

- 1: Between 100 and less than 200 VAC
- 2: Between 200 and less than 300 VAC

#### 2. Load Current

- 02: 2 A

#### 3. Terminal

- P: PCB terminal

#### 4. Zero Cross Function

- None: With zero cross function
- L: Without zero cross function

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

## Specifications

### ■ Ratings

#### Input

Rated voltage	Operating voltage	Impedance	Voltage levels	
			Must operate voltage	Must dropout voltage
5 VDC	4 to 6 VDC	440 W +20%	4 VDC max.	1 VDC min.
12 VDC	9.6 to 14.4 VDC	1 kW +20%	9.6 VDC max.	
24 VDC	19.2 to 28.8 VDC	2.2 kW +20%	19.2 VDC max.	

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

#### Output

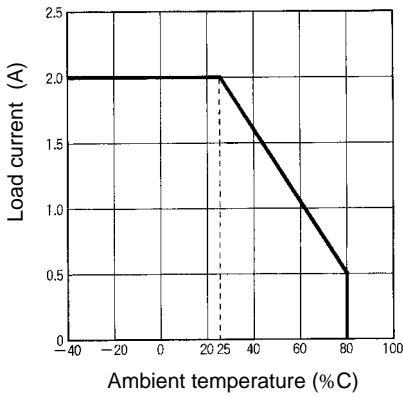
Model	Applicable load			
	Rated load voltage	Load voltage range	Load current	Inrush current
G3MB-102PL	100 to 120 VAC, 50/60 Hz	75 to 132 VAC, 50/60 Hz	0.1 to 2 A	30 A (60 Hz, 1 cycle)
G3MB-202P G3MB-202PL	100 to 240 VAC, 50/60 Hz	75 to 264 VAC, 50/60 Hz		

■ Characteristics

Item	G3MB-102PL	G3MB-202P	G3MB-202PL
Operate time	1 ms max.	1/2 of load power source cycle + 1 ms max.	1 ms max.
Release time	1/2 of load power source cycle + 1 ms max.		
Output ON voltage drop	1.6 V (RMS) max.		
Leakage current	1 mA max. (at 100 VAC)	1.5 mA max. (at 200 VAC)	
Insulation resistance	1,000 MW min. (at 500 VDC)		
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min		
Vibration resistance	Malfunction: 10 to 55 Hz, 0.75-mm double amplitude (approx. 5G)		
Shock resistance	Malfunction: 1,000 m/s <sup>2</sup> (approx. 100G)		
Ambient temperature	Operating: -30°C to 80°C (with no icing) Storage: -30°C to 100°C (with no icing)		
Ambient humidity	Operating: 45% to 85%		
Weight	Approx. 5 g		

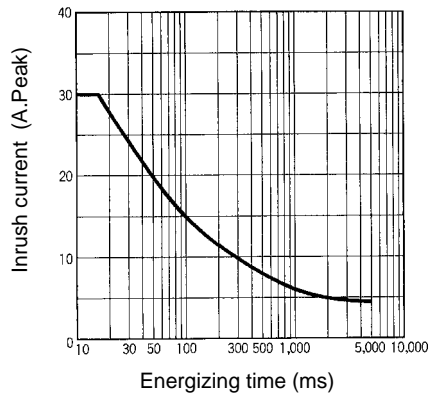
Engineering Data

Load Current vs. Ambient Temperature Characteristics



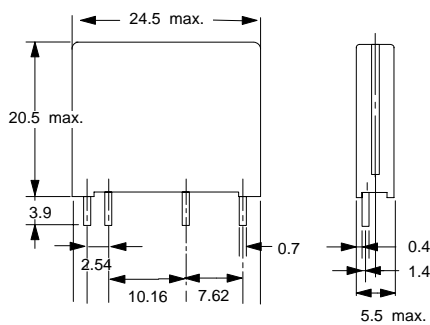
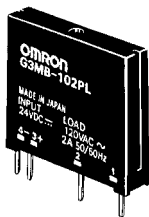
Inrush Current Resistivity

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

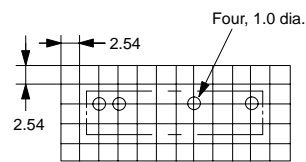


Dimensions

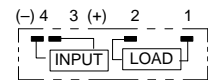
Note: All units are in millimeters unless otherwise indicated



PCB Dimensions (Bottom View)



Terminal Arrangement/ Internal Connections (Bottom View)



## Precautions

Soldering must be completed within 10 seconds at 260°C or less or within 5 seconds at 350°C or less.

Make sure that the space between the bottom of the relay and the PCB is 0.1 mm or less. When making holes on the PCB for the relay's edge terminals, the hole diameters should be slightly smaller than the actual diameters of the edge terminals. This will reduce unnecessary space between the bottom of the relay and the PCB.

To use the SSR output for phase control, select a model that does not incorporate a zero-cross function.

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.

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.

The input circuitry does not incorporate a circuit protecting the SSR from being damaged due to a reversed connection. Make sure that the polarity is correct when connecting the input lines.

When using the G3MB-102PL for an AC load with a peak voltage of more than 250 V or the G3MB-202P(L) for an AC load with a peak voltage of more than 450 V, connect the load terminals of the relay to an inrush absorber (varistor) as shown in the following circuit diagram.

