

# Solid State Relay

## G3MB

### Low cost Subminiature PCB mounting 2 amp Single in-line package (SIP) SSR

- Bottom is approximately 3 times smaller than G3M.
- Low cost "SIP" package switches up to 2A loads.
- Built in Snubber circuit and input resistor as option.
- Two footprints available for design flexibility.
- The G3MB-202PEG-4-DC20MA crosses directly to the Motorola MOC2A-60 series power triac.



## Ordering Information

To Order: Specify input voltage at end of part number. Example: G3MB-202P-DC24

Isolation	Output terminal pitch	Zero cross	Input resistor	Built-in snubber circuit	Rated output load	Rated input voltage	Model		
Phototriac	7.62 mm	Yes	Yes	Yes	2 A at 100 to 240 VAC	5 VDC	G3MB-202P		
						12 VDC			
						24 VDC			
					2 A at 100 to 240 VAC	5 VDC	G3MB-202PL		
						12 VDC			
						24 VDC			
	5.08 mm		Yes			2 A at 100 to 240 VAC	5 VDC		G3MB-202P-4
			12 VDC						
			24 VDC						
			2 A at 100 to 240 VAC			5 VDC		G3MB-202PL-4	
						12 VDC			
						24 VDC			
			Yes			No		No	2 A at 100 to 240 VAC
		No	2 A at 100 to 240 VAC				N/A *(See Note)		G3MB-202PLEG-4-DC20MA

**Note: 1.** For versions without input voltage specified, a current limiting resistor must be placed in series with the input. See LED drive specifications and recommendations below.

**2.** TUV versions available. Contact your local Omron representative.

# Specifications

## ■ Input Rating

### Models with Input Resistor

Rated voltage	Operating range	Input impedance
5 VDC	4 to 6 VDC	440 $\Omega$ $\pm$ 20%
12 VDC	9.60 to 14.40 VDC	1k $\Omega$ $\pm$ 20%
24 VDC	19.20 to 28.80 VDC	2.20k $\Omega$ $\pm$ 20%

## ■ Output Rating

Model	Rated load voltage	Load voltage range	Load current	Surge current
G3MB-202	100 to 240 VAC	75 to 264 VAC	0.10 to 2 A	30 A (60 Hz, 1 cycle)

## ■ LED Drive Data

### Models without Input Resistor

LED forward current	50 mA max.
Repetitive peak LED forward current	1 A max.
LED reverse voltage	5 V max.

## ■ Recommended LED Operating Conditions

### Models without Input Resistor

	Min.	Standard	Max.
LED forward current	5 mA	10 mA	20 mA
Must drop voltage	0	—	1 V

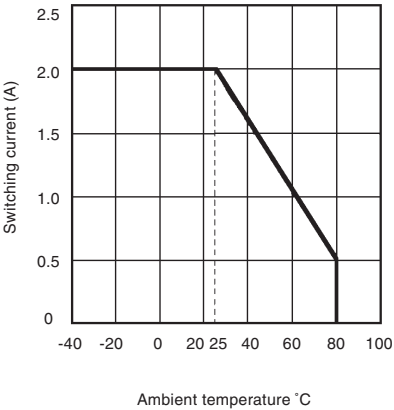
## ■ Characteristics

Type		G3MB-202P G3MB-202PEG	G3MB-202PL G3MB-202PLEG
Operate time		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		1.60 V (RMS) max.	
Leakage current		1 mA max. at 100 VAC, 1.50 mA at 200 VAC	
Non-repetitive peak surge		30 A	
Output	PIV ( $V_{DRM}$ )	600 V	
	di/dt	40 A/ $\mu$ s	
	dv/dt	100 V/ $\mu$ s	
	$I^2t$	4 A <sup>2</sup> s	
Junction temperature (Tj)		125°C (257°F) max.	
Insulation resistance		1,000 M $\Omega$ min. at 500 VDC	
Dielectric strength		2500 VAC, 50/60 Hz for 1 minute; 3750 VAC max., 1 second	
Vibration	Malfunction	10 to 55 Hz, 0.75 mm (0.03 in) double amplitude, approx. 5 G	
Shock	Malfunction	Approx. 100 G	
Ambient temperature	Operating	-30° to 80°C (-22° to 176°F) with no icing	
	Storage	-30° to 100°C (-22° to 212°F) with no icing	
Humidity	Operating	45% to 85% RH	
Weight		Approx. 5 g (0.18 oz)	

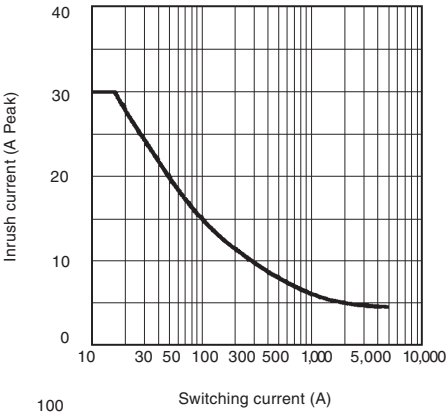
Note: Data shown are of initial value.

■ Characteristic Data

Load current vs. ambient temperature characteristics



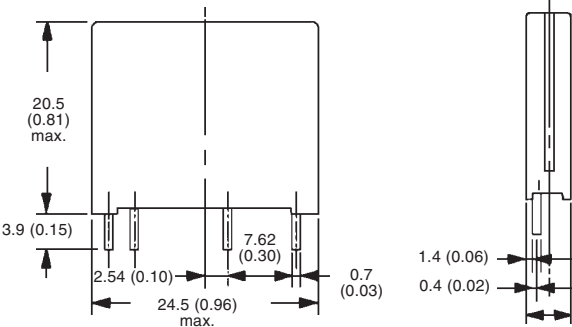
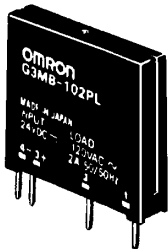
Inrush current resistivity  
Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)



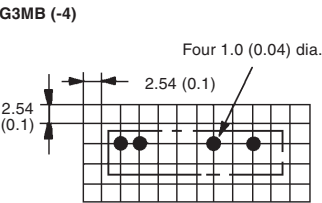
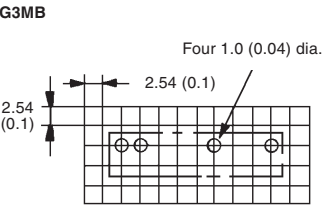
Dimensions

Unit: mm (inch)

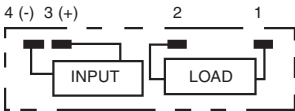
■ Relays



PCB Dimensions  
(Bottom view)



Terminal Arrangement/  
Internal Connections  
(Bottom view)



## ■ Approvals

UL (File No. E64562)

SSR Type	Input voltage	Load type	Load ratings
G3MB-102P	5 to 24 VDC	General purpose	2 A, 120 VAC
		Tungsten	1 A, 120 VAC
		Motor	1.60 FLA/9.60 LRA, 120 VAC
G3MB-202P		General purpose	2 A, 240 VAC
G3MB-202PL		Tungsten	1 A, 240 VAC
G3MB-202PEG G3MB-202PLEG		Motor	1.60 FLA/9.60 LRA, 240 VAC

CSA (File No. LR35535)

SSR Type	Input voltage	Load type	Load ratings
G3MB-102P	5 to 24 VDC	General purpose	2 A, 120 VAC
		Tungsten	1 A, 120 VAC
		Motor	1.60 FLA/8.60 LRA, 120 VAC
G3MB-202P		General purpose	2 A, 240 VAC
G3MB-202PL		Tungsten	1 A, 240 VAC
		Motor	1.60 FLA/8.60 LRA, 240 VAC

- Note:** 1. The rated values approved by each of the safety standards (e.g., UL and CSA) may be different from the performance characteristics individually defined in this catalog.  
 2. In the interest of product improvement, specifications are subject to change.

## Precautions

See General Information Section near the back of this catalog for Solid State Precautions.

Soldering must be completed within 10 seconds at 260°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. When mounting more than three SSRs as a group, pay attention to the ambient temperature rise and install the Relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.

### Protective Component

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.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, divide by 25.4

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