

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 ² (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)

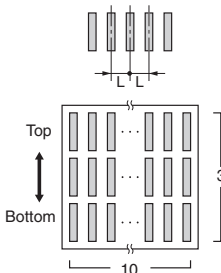
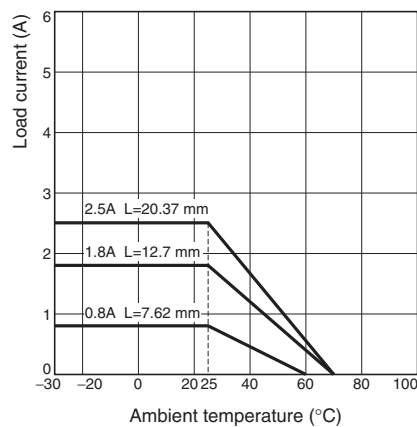
X direction



Y direction



Z direction



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

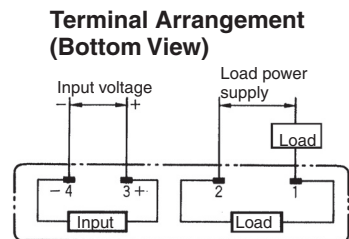
Dimensions

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.

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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