

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.

PCB Dimensions (Bottom View)



Terminal Arrangement (Bottom View)



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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