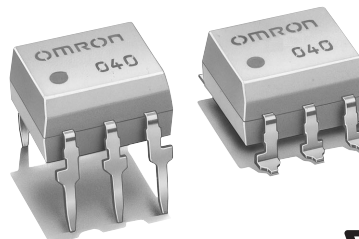


Analog-switching MOS FET Relay with a Dielectric Strength of 5 kVAC between I/O Using Optical Isolation

- Switches minute analog signals.
- Switching AC and DC.
- Peak load voltage of 600 V.
- Dielectric strength of 5 kVAC between I/O.



■ Application Examples

- Electronic automatic exchange systems
- FA systems
- Measurement devices
- Security systems

Note: The actual product is marked differently from the image shown here.

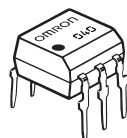
■ List of Models

| Contact form | Terminals | Load voltage (peak value) | Model | Number per stick | Number per tape |
|--------------|----------------------------|---------------------------|----------------|------------------|-----------------|
| SPST-NO | PCB terminals | 600 VAC | G3VM-601BY | 50 | --- |
| | Surface-mounting terminals | | G3VM-601EY | | |
| | | | G3VM-601EY(TR) | --- | 1,500 |

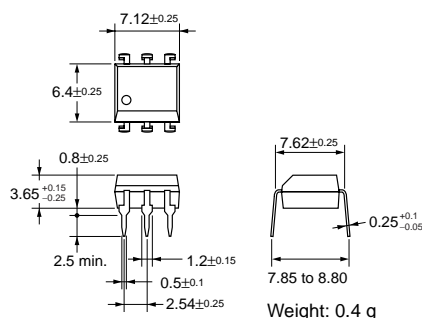
■ Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-601BY

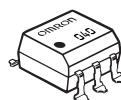


Note: The actual product is marked differently from the image shown here.

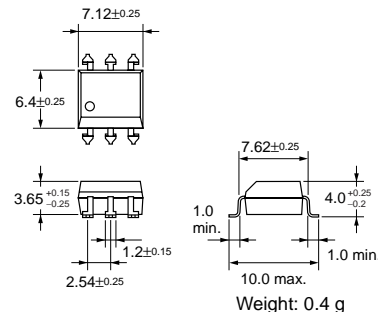


Weight: 0.4 g

G3VM-601EY



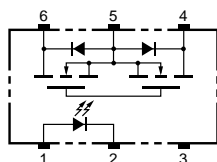
Note: The actual product is marked differently from the image shown here.



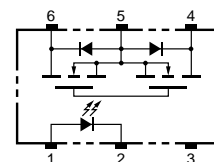
Weight: 0.4 g

■ Terminal Arrangement/Internal Connections (Top View)

G3VM-601BY

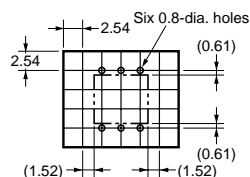


G3VM-601EY



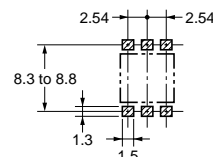
■ PCB Dimensions (Bottom View)

G3VM-601BY



■ Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-601EY

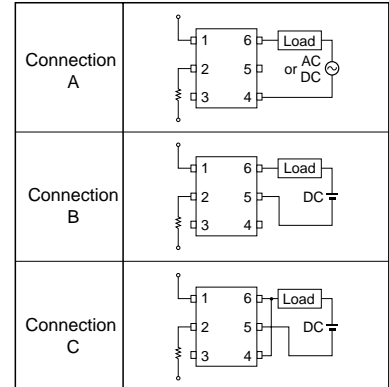


Absolute Maximum Ratings (Ta = 25°C)

| Item | | Symbol | Rating | Unit | Measurement Conditions |
|--|-------------------------------------|-----------------------------|-------------|----------------------|-------------------------------|
| Input | LED forward current | I_F | 50 | mA | |
| | Repetitive peak LED forward current | I_{FP} | 1 | A | 100 μ s pulses, 100 pps |
| | LED forward current reduction rate | $\Delta I_F/^\circ\text{C}$ | -0.5 | mA/ $^\circ\text{C}$ | Ta $\geq 25^\circ\text{C}$ |
| | LED reverse voltage | V_R | 5 | V | |
| | Connection temperature | T_j | 125 | $^\circ\text{C}$ | |
| Output | Output dielectric strength | V_{OFF} | 600 | V | |
| | Continuous load current | Connection A | 100 | mA | |
| | | Connection B | 100 | | |
| | | Connection C | 200 | | |
| | ON current reduction rate | Connection A | -1.0 | mA/ $^\circ\text{C}$ | Ta $\geq 25^\circ\text{C}$ |
| | | Connection B | -1.0 | | |
| | | Connection C | -2.0 | | |
| | Connection temperature | T_j | 125 | $^\circ\text{C}$ | |
| Dielectric strength between input and output (See note 1.) | | V_{I-O} | 5,000 | Vrms | AC for 1 min |
| Operating temperature | | T_a | -40 to +85 | $^\circ\text{C}$ | With no icing or condensation |
| Storage temperature | | T_{stg} | -55 to +125 | $^\circ\text{C}$ | With no icing or condensation |
| Soldering temperature (10 s) | | --- | 260 | $^\circ\text{C}$ | 10 s |

Note: 1. The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

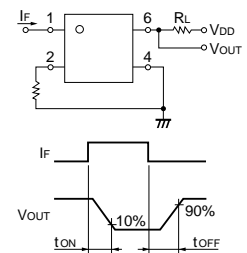
Connection Diagram



Electrical Characteristics (Ta = 25°C)

| Item | | | Symbol | Mini- mum | Typical | Maxi- mum | Unit | Measurement conditions |
|-----------------------|---|--------------|-------------------|------------------|---------|--------------|------|--|
| Input | LED forward voltage | | V _F | 1.0 | 1.15 | 1.3 | V | I _F = 10 mA |
| | Reverse current | | I _R | --- | --- | 10 | μA | V _R = 5 V |
| | Capacity between terminals | | C _T | --- | 30 | --- | pF | V = 0, f = 1 MHz |
| | Trigger LED forward current | | I _{FT} | --- | 1.6 | 5 | mA | I _O = 100 mA |
| Output | Maximum resistance with output ON | Connection A | R _{ON} | --- | 25 | 35 | Ω | I _F = 10 mA, I _O = 100 mA |
| | | | | --- | 30 | 45 | Ω | I _F = 10 mA, I _O = 100 mA |
| | | Connection B | | --- | 23 | 35 | Ω | I _F = 10 mA, I _O = 100 mA |
| | | Connection C | | --- | 12 | 18 | Ω | I _F = 10 mA, I _O = 200 mA |
| | Current leakage when the relay is open | | I _{LEAK} | --- | --- | 1.0 | μA | V _{OFF} = 600 V |
| | Capacity between I/O terminals | | | C _{I-O} | --- | 0.8 | --- | pF |
| Insulation resistance | | | R _{I-O} | 1,000 | --- | --- | MΩ | V _{I-O} = 500 VDC, RoH ≤ 60% |
| Turn-ON time | | | t _{ON} | --- | 0.2 | 1.5 | ms | I _F = 5 mA, R _L = 200 Ω, V _{DD} = 20 V (See note 2.) |
| Turn-OFF time | | | t _{OFF} | --- | 0.2 | 1.0 | ms | |

Note: 2. Turn-ON and Turn-OFF Times



Recommended Operating Conditions

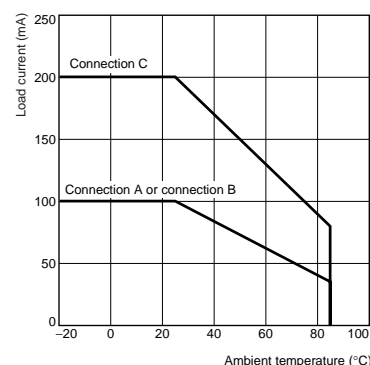
Use the G3VM under the following conditions so that the Relay will operate properly.

| Item | Symbol | Minimum | Typical | Maximum | Unit |
|-------------------------------|----------|---------|---------|---------|------------------|
| Output dielectric strength | V_{DD} | --- | --- | 480 | V |
| Operating LED forward current | I_F | 7.5 | 15 | 25 | mA |
| Continuous load current | I_O | --- | --- | 100 | mA |
| Operating temperature | T_a | -20 | --- | 65 | $^\circ\text{C}$ |

Engineering Data

Load Current vs. Ambient Temperature

G3VM-601BY(EY)



Safety Precautions

Refer to page 6 for precautions common to all G3VM models.