

## MOS FET Relays

G3VM-61AY/DY

**Compact, General-purpose, Analog-switching MOS FET Relays, with Dielectric Strength of 5 kVAC between I/O Using Optical Isolation.**

- Trigger LED forward current of 2 mA (maximum) facilitates power saving designs.
- Switches minute analog signals.
- Continuous load current of 500 mA.

**RoHS compliant**

⚠ Refer to "Common Precautions".

### Application Examples

- Power meter
- Measurement devices
- Security systems
- Industrial equipment

### List of Models

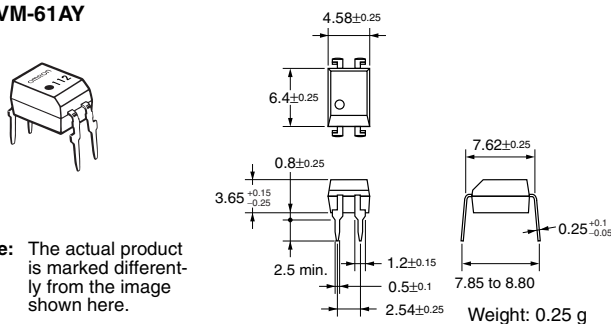
| Contact form | Terminals                  | Load voltage (peak value)<br>(See the note.) | Model         | Number per stick | Number per tape |
|--------------|----------------------------|----------------------------------------------|---------------|------------------|-----------------|
| SPST-NO      | PCB terminals              | 60 V                                         | G3VM-61AY     | 100              | ---             |
|              | Surface-mounting terminals |                                              | G3VM-61DY     |                  |                 |
|              |                            |                                              | G3VM-61DY(TR) | ---              | 1,500           |

**Note:** The AC peak and DC value are given for the load voltage.

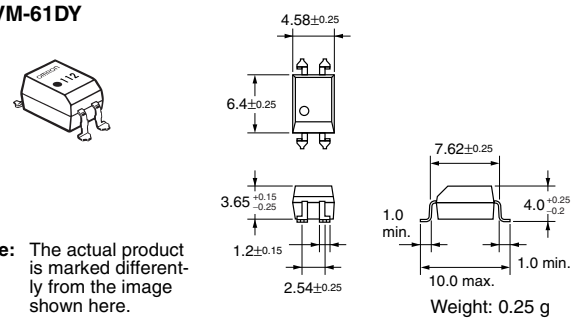
### Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

#### G3VM-61AY

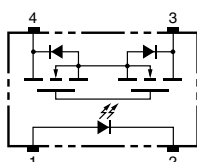


#### G3VM-61DY

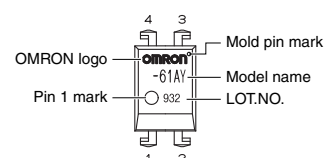
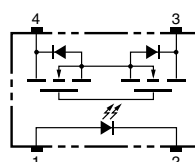


### Terminal Arrangement/Internal Connections (Top View)

#### G3VM-61AY



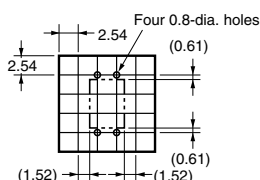
#### G3VM-61DY



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

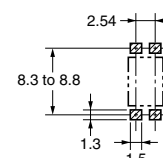
### PCB Dimensions (Bottom View)

#### G3VM-61AY



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

#### G3VM-61DY



## Absolute Maximum Ratings (Ta = 25°C)

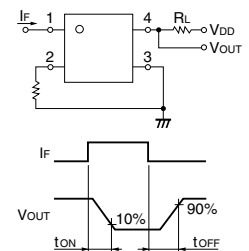
| Item                                                       |                                      | Symbol               | Rating      | Unit             | Measurement Conditions        |
|------------------------------------------------------------|--------------------------------------|----------------------|-------------|------------------|-------------------------------|
| Input                                                      | LED forward current                  | I <sub>F</sub>       | 30          | mA               |                               |
|                                                            | Repetitive peak LED forward current  | I <sub>FP</sub>      | 1           | A                | 100 μs pulses, 100 pps        |
|                                                            | LED forward current reduction rate   | Δ I <sub>F</sub> /°C | −0.3        | mA/°C            | T <sub>a</sub> ≥ 25°C         |
|                                                            | LED reverse voltage                  | V <sub>R</sub>       | 5           | V                |                               |
|                                                            | Connection temperature               | T <sub>j</sub>       | 125         | °C               |                               |
| Output                                                     | Load voltage (AC peak/DC)            | V <sub>OFF</sub>     | 60          | V                |                               |
|                                                            | Continuous load current (AC peak/DC) | I <sub>O</sub>       | 500         | mA               |                               |
|                                                            | ON current reduction rate            | Δ I <sub>O</sub> /°C | −5.0        | mA/°C            | T <sub>a</sub> ≥ 25°C         |
|                                                            | Pulse ON current                     | I <sub>op</sub>      | 1.5         | A                | t = 100 ms, Duty = 1/10       |
|                                                            | Connection temperature               | T <sub>j</sub>       | 125         | °C               |                               |
| Dielectric strength between input and output (See note 1.) |                                      | V <sub>I-O</sub>     | 5,000       | V <sub>rms</sub> | AC for 1 min                  |
| Operating temperature                                      |                                      | T <sub>a</sub>       | −40 to +85  | °C               | With no icing or condensation |
| Storage temperature                                        |                                      | T <sub>stg</sub>     | −55 to +125 | °C               | With no icing or condensation |
| Soldering temperature (10 s)                               |                                      | ---                  | 260         | °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.

## Electrical Characteristics (Ta = 25°C)

| Item                           | Symbol                                 | Minimum           | Typical | Maximum | Unit | Measurement conditions |
|--------------------------------|----------------------------------------|-------------------|---------|---------|------|------------------------|
| Input                          | LED forward voltage                    | V <sub>F</sub>    | 1.45    | 1.63    | 1.75 | V                      |
|                                | Reverse current                        | I <sub>R</sub>    | ---     | ---     | 10   | μA                     |
|                                | Capacity between terminals             | C <sub>T</sub>    | ---     | 40      | ---  | pF                     |
|                                | Trigger LED forward current            | I <sub>FT</sub>   | ---     | 0.3     | 2    | mA                     |
| Output                         | Maximum resistance with output ON      | R <sub>ON</sub>   | ---     | 0.6     | 2    | Ω                      |
|                                | Current leakage when the relay is open | I <sub>LEAK</sub> | ---     | ---     | 1.0  | μA                     |
|                                | Capacity between terminals             | C <sub>OFF</sub>  | ---     | 130     | ---  | pF                     |
| Capacity between I/O terminals |                                        | C <sub>I-O</sub>  | ---     | 0.8     | ---  | pF                     |
| Insulation resistance          |                                        | R <sub>I-O</sub>  | 1,000   | ---     | ---  | MΩ                     |
| Turn-ON time                   |                                        | t <sub>ON</sub>   | ---     | 0.5     | 1    | ms                     |
| Turn-OFF time                  |                                        | t <sub>OFF</sub>  | ---     | 0.2     | 1    | ms                     |

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



## Recommended Operating Conditions

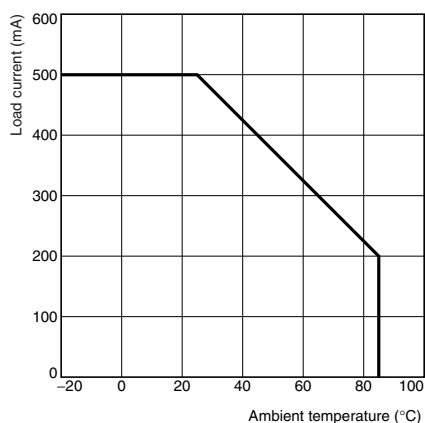
Use the G3VM under the following conditions so that the Relay will operate properly.

| Item                                 | Symbol          | Minimum | Typical | Maximum | Unit |
|--------------------------------------|-----------------|---------|---------|---------|------|
| Load voltage (AC peak/DC)            | V <sub>DD</sub> | ---     | ---     | 48      | V    |
| Operating LED forward current        | I <sub>F</sub>  | 3       | 5       | 15      | mA   |
| Continuous load current (AC peak/DC) | I <sub>O</sub>  | ---     | ---     | 500     | mA   |
| Operating temperature                | T <sub>a</sub>  | -20     | ---     | 65      | °C   |

## Engineering Data

### Load Current vs. Ambient Temperature

G3VM-61AY(DY)



## Safety Precautions

Refer to "Common Precautions" for all G3VM models.