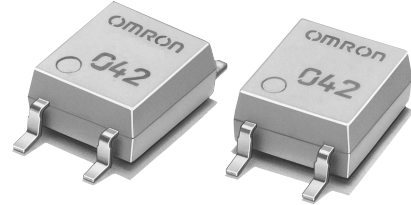


## MOS FET Relays

### G3VM-401G

### Expanded Range of Analog-Switching MOS FET Relays in 400-V Load Voltage Series

- New models with a 4-pin SOP package now included in the 400-V load voltage series.
- Continuous load current of 120 mA.
- Dielectric strength of 1,500 Vrms between I/O.



**NEW**

#### Application Examples

- Broadband systems
- Measurement devices
- Data loggers
- Amusement machines

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

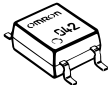
#### List of Models

| Contact form | Terminals                  | Load voltage (peak value) | Model         | Number per stick | Number per tape |
|--------------|----------------------------|---------------------------|---------------|------------------|-----------------|
| SPST-NO      | Surface-mounting terminals | 400 VAC                   | G3VM-401G     | 100              | ---             |
|              |                            |                           | G3VM-401G(TR) | ---              | 2,500           |

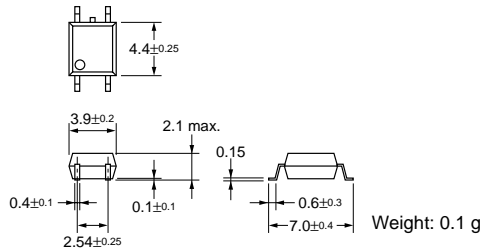
#### Dimensions

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

G3VM-401G

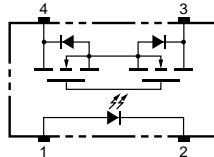


**Note:** The actual product is marked differently from the image shown here.



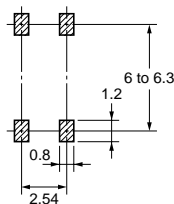
#### Terminal Arrangement/Internal Connections (Top View)

G3VM-401G



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

G3VM-401G



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

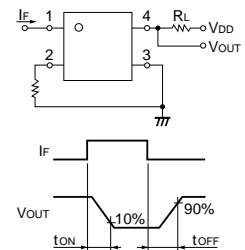
| Item   | Symbol                              | Rating                         | Unit        | Measurement Conditions |                               |
|--|-------------------------------------|--------------------------------|-------------|------------------------|-------------------------------|
| Input  | LED forward current                 | $I_F$                          | 50          | mA                     |                               |
|  | Repetitive peak LED forward current | $I_{FP}$                       | 1           | A                      | 100 $\mu$ s pulses, 100 pps   |
|  | LED forward current reduction rate  | $\Delta I_F/^\circ\text{C}$    | -0.5        | mA/°C                  | Ta $\geq$ 25°C                |
|  | LED reverse voltage                 | $V_R$                          | 5           | V                      |                               |
|  | Connection temperature              | $T_j$                          | 125         | °C                     |                               |
| Output   | Output dielectric strength          | $V_{OFF}$                      | 400         | V                      |                               |
|  | Continuous load current             | $I_O$                          | 120         | mA                     |                               |
|  | ON current reduction rate           | $\Delta I_{ON}/^\circ\text{C}$ | -1.2        | mA/°C                  | Ta $\geq$ 25°C                |
| Dielectric strength between input and output (See note 1.) |                                     | $V_{I-O}$                      | 1,500       | Vrms                   | AC for 1 min                  |
| Operating temperature                                      |                                     | $T_a$                          | -40 to +85  | °C                     | With no icing or condensation |
| Storage temperature  |                                     | $T_{sig}$                      | -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                    | $V_F$      | 1.0     | 1.15    | 1.3  | V                      | $I_F = 10$ mA   |
|                                | Reverse current                        | $I_R$      | ---     | ---     | 10   | $\mu$ A                | $V_R = 5$ V   |
|                                | Capacity between terminals             | $C_T$      | ---     | 30      | ---  | pF                     | $V = 0$ , $f = 1$ MHz   |
|                                | Trigger LED forward current            | $I_{FT}$   | ---     | 1       | 3    | mA                     | $I_O = 120$ mA  |
| Output                         | Maximum resistance with output ON      | $R_{ON}$   | ---     | 17      | 35   | $\Omega$               | $I_F = 5$ mA,<br>$I_O = 120$ mA                                       |
|                                | Current leakage when the relay is open | $I_{LEAK}$ | ---     | ---     | 1.0  | $\mu$ A                | $V_{OFF} = 400$ V   |
| Capacity between I/O terminals |  | $C_{I-O}$  | ---     | 0.8     | ---  | pF                     | $f = 1$ MHz, $V_s = 0$ V  |
| Insulation resistance          |  | $R_{I-O}$  | 1,000   | ---     | ---  | M $\Omega$             | $V_{I-O} = 500$ VDC,<br>$RoH \leq 60\%$                               |
| Turn-ON time                   |  | $t_{ON}$   | ---     | 0.3     | 1    | ms                     | $I_F = 5$ mA, $R_L = 200$ $\Omega$ ,<br>$V_{DD} = 20$ V (See note 2.) |
| Turn-OFF time                  |  | $t_{OFF}$  | ---     | 0.1     | 1    | ms                     |   |

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



## Recommended Operating Conditions

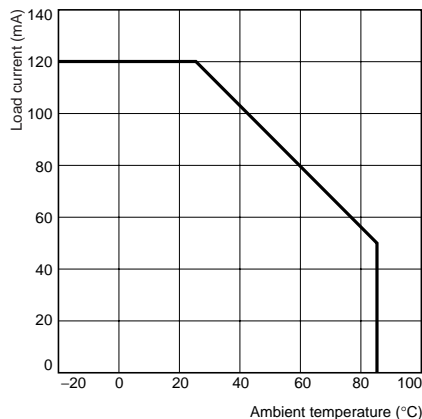
Use the G3VM under the following conditions so that the Relay will operate properly.

| Item                          | Symbol   | Minimum | Typical | Maximum | Unit |
|-------------------------------|----------|---------|---------|---------|------|
| Output dielectric strength    | $V_{DD}$ | ---     | ---     | 320     | V    |
| Operating LED forward current | $I_F$    | 5       | 7.5     | 25      | mA   |
| Continuous load current       | $I_O$    | ---     | ---     | 120     | mA   |
| Operating temperature         | $T_a$    | -20     | ---     | 65      | °C   |

## Engineering Data

### Load Current vs. Ambient Temperature

#### G3VM-401G



## Safety Precautions

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