

## MOS FET Relays

G3VM-351AY/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 100 mA.



**NEW**

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

**RoHS compliant**

⚠ Refer to "Common Precautions".

### Application Examples

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

### List of Models

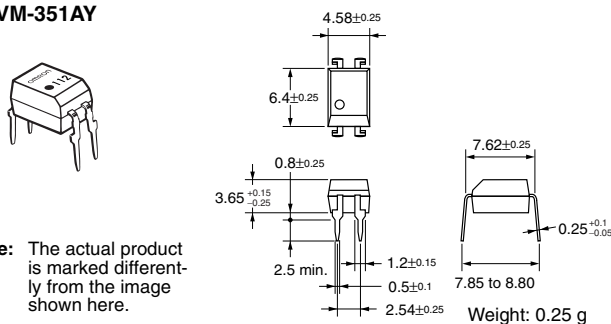
| Contact form | Terminals                  | Load voltage (peak value)<br>(See the note.) | Model          | Number per stick | Number per tape |
|--------------|----------------------------|--|----------------|------------------|-----------------|
| SPST-NO      | PCB terminals              | 350 V  | G3VM-351AY     | 100              | ---             |
|              | Surface-mounting terminals |  | G3VM-351DY     |                  |                 |
|              |                            |  | G3VM-351DY(TR) | ---              | 1,500           |

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

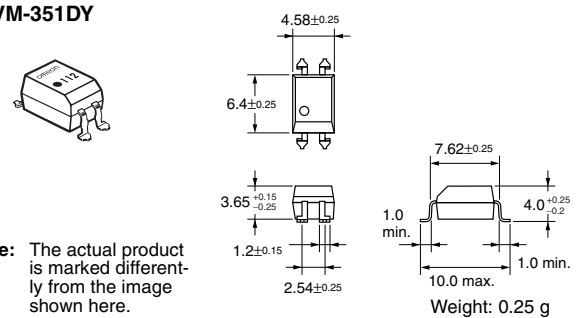
### Dimensions

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

#### G3VM-351AY

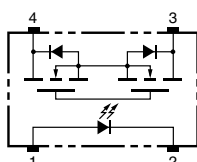


#### G3VM-351DY

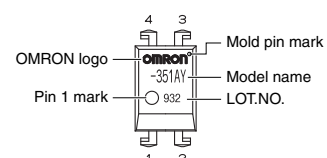
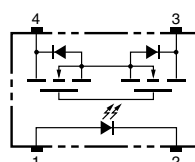


### Terminal Arrangement/Internal Connections (Top View)

#### G3VM-351AY



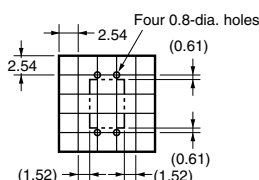
#### G3VM-351DY



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

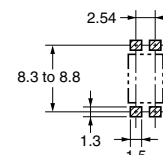
### PCB Dimensions (Bottom View)

#### G3VM-351AY



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

#### G3VM-351DY



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

| Item   |                                      | Symbol                      | Rating      | Unit                 | Measurement Conditions        |
|--|--------------------------------------|-----------------------------|-------------|----------------------|-------------------------------|
| Input  | LED forward current                  | $I_F$                       | 30          | mA                   |                               |
|  | Repetitive peak LED forward current  | $I_{FP}$                    | 1           | A                    | 100 $\mu$ s pulses, 100 pps   |
|  | LED forward current reduction rate   | $\Delta I_F/^\circ\text{C}$ | -0.3        | mA/ $^\circ\text{C}$ | Ta $\geq$ 25°C                |
|  | LED reverse voltage                  | $V_R$                       | 5           | V                    |                               |
|  | Connection temperature               | $T_j$                       | 125         | $^\circ\text{C}$     |                               |
| Output   | Load voltage (AC peak/DC)            | $V_{OFF}$                   | 350         | V                    |                               |
|  | Continuous load current (AC peak/DC) | $I_O$                       | 100         | mA                   |                               |
|  | ON current reduction rate            | $\Delta I_O/^\circ\text{C}$ | -1.0        | mA/ $^\circ\text{C}$ | Ta $\geq$ 25°C                |
|  | Pulse ON current                     | $I_{op}$                    | 0.3         | A                    | t = 100 ms, Duty = 1/10       |
|  | 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.

## Electrical Characteristics (Ta = 25°C)

| Item                           |  | Symbol     | Minimum | Typical | Maximum | Unit          | Measurement conditions  |
|--------------------------------|--|------------|---------|---------|---------|---------------|---|
| Input                          | LED forward voltage                    | $V_F$      | 1.45    | 1.63    | 1.75    | V             | $I_F = 10$ mA   |
|                                | Reverse current                        | $I_R$      | ---     | ---     | 10      | $\mu\text{A}$ | $V_R = 5$ V   |
|                                | Capacity between terminals             | $C_T$      | ---     | 40      | ---     | pF            | V = 0, f = 1 MHz  |
|                                | Trigger LED forward current            | $I_{FT}$   | ---     | 0.3     | 2       | mA            | $I_O = 100$ mA  |
| Output                         | Maximum resistance with output ON      | $R_{ON}$   | ---     | 25      | 35      | $\Omega$      | $I_F = 5$ mA,<br>$I_O = 100$ mA, t < 1 s                              |
|                                |  |            | ---     | 35      | 50      |               | $I_F = 5$ mA,<br>$I_O = 100$ mA                                       |
|                                | Current leakage when the relay is open | $I_{LEAK}$ | ---     | ---     | 1.0     | $\mu\text{A}$ | $V_{OFF} = 350$ V   |
| Capacity between terminals     |  | $C_{OFF}$  | ---     | 30      | ---     | pF            | V = 0, f = 1 MHz  |
| 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                   |  | tON        | ---     | 0.1     | 1       | ms            | $I_F = 5$ mA, $R_L = 200$ $\Omega$ ,<br>$V_{DD} = 20$ V (See note 2.) |
| Turn-OFF time                  |  | tOFF       | ---     | 0.2     | 1       | ms            |   |

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



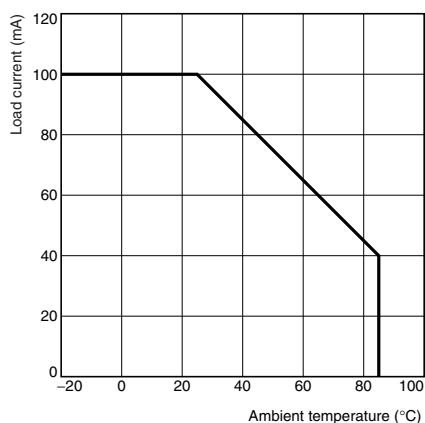
## Recommended Operating Conditions

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)            | $V_{DD}$ | ---     | ---     | 280     | V                |
| Operating LED forward current        | $I_F$    | 3       | 5       | 20      | mA               |
| Continuous load current (AC peak/DC) | $I_O$    | ---     | ---     | 100     | mA               |
| Operating temperature                | $T_a$    | -20     | ---     | 65      | $^\circ\text{C}$ |

## Engineering Data

### Load Current vs. Ambient Temperature G3VM-351AY(DY)



## Safety Precautions

Refer to "Common Precautions" for all G3VM models.



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