

## MOS FET Relays

# G3VM-351AY/DY

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

- Trigger LED forward current of 2 mA (max.)
- Switches minute analog signals
- Continuous load current of 100 mA
- RoHS Compliant.

**NEW****■ Application Examples**

- Measurement devices
- Security systems and Power meters
- Industrial equipment

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

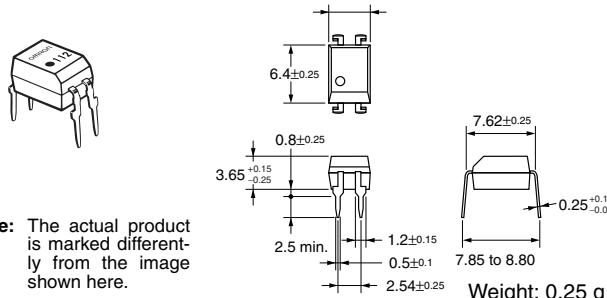
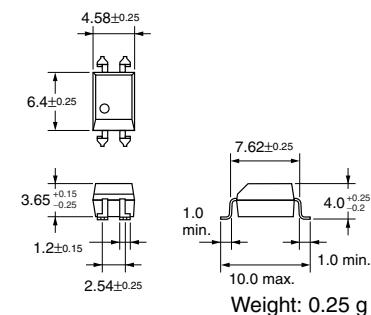
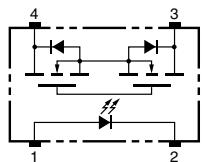
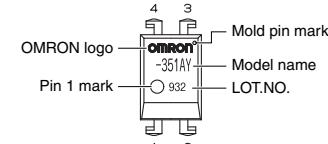
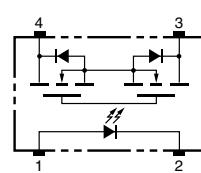
**■ List of Models**

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

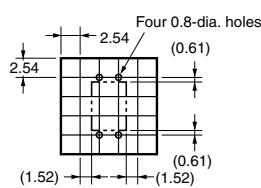
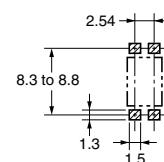
**Note:** The AC peak and DC value are given for the load voltage.

**■ 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)

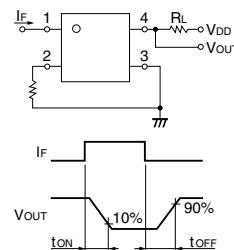
| Item   | Symbol                               | Rating                | Unit             | Measurement conditions        |
|--|--------------------------------------|-----------------------|------------------|-------------------------------|
| Input  | LED forward current                  | I <sub>F</sub>        | 30               | mA                            |
|  | Repetitive peak LED forward current  | I <sub>FP</sub>       | 1                | A                             |
|  | LED forward current reduction rate   | Δ I <sub>F</sub> /°C  | -0.3             | mA/°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>      | 350              | V                             |
|  | Continuous load current (AC peak/DC) | I <sub>O</sub>        | 100              | mA                            |
|  | ON current reduction rate            | Δ I <sub>ON</sub> /°C | -1.0             | mA/°C                         |
|  | Pulse ON current                     | I <sub>OP</sub>       | 0.3              | A                             |
|  | 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>   | ---     | 25      | 35   | Ω   |
|                                |  |                   |         | 35      | 50   |   |
|                                | Current leakage when the relay is open | I <sub>LEAK</sub> | ---     | ---     | 1.0  | μA  |
|                                | Capacity between terminals             | C <sub>OFF</sub>  | ---     | 30      | ---  | pF  |
| Capacity between I/O terminals | C <sub>I-O</sub>                       | ---               | 0.8     | ---     | pF   | f = 1 MHz, V <sub>s</sub> = 0 V   |
| Insulation resistance          | R <sub>I-O</sub>                       | 1,000             | ---     | ---     | MΩ   | V <sub>I-O</sub> = 500 VDC, R <sub>oH</sub> ≤ 60%                                   |
| Turn-ON time                   | t <sub>ON</sub>                        | ---               | 0.1     | 1.0     | ms   | I <sub>F</sub> = 5 mA, R <sub>L</sub> = 200 Ω, V <sub>DD</sub> = 20 V (See note 2.) |
| Turn-OFF time                  | t <sub>OFF</sub>                       | ---               | 0.2     | 1.0     | ms   |   |

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

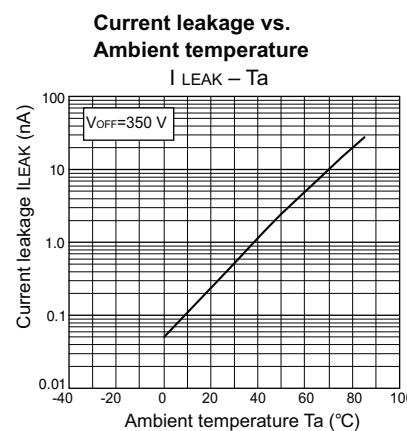
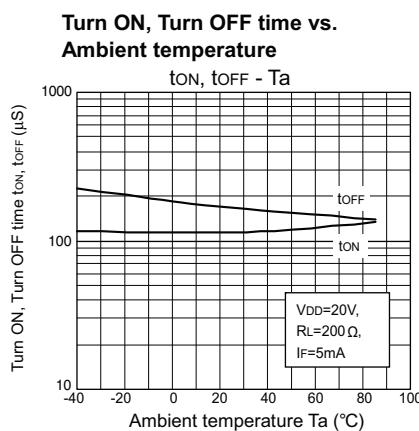
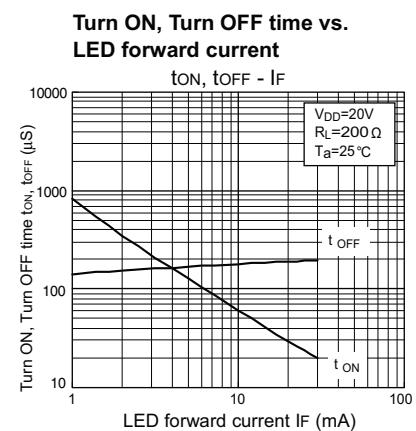
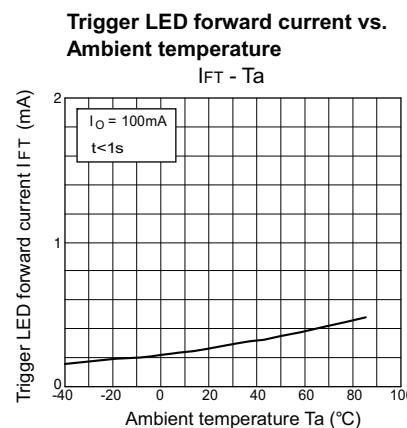
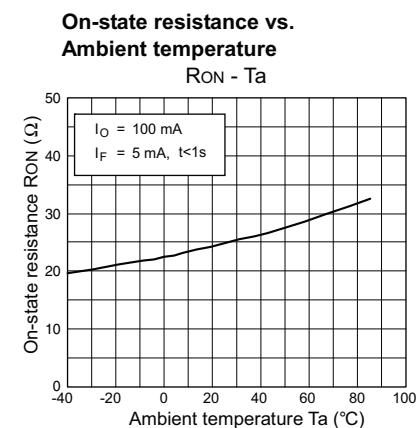
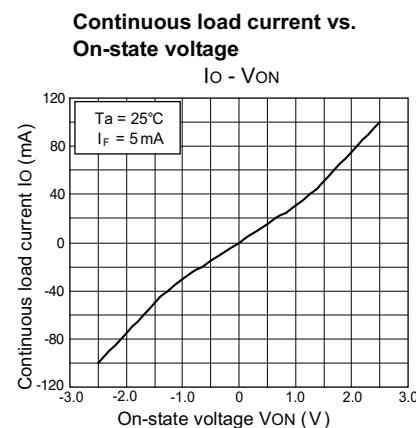
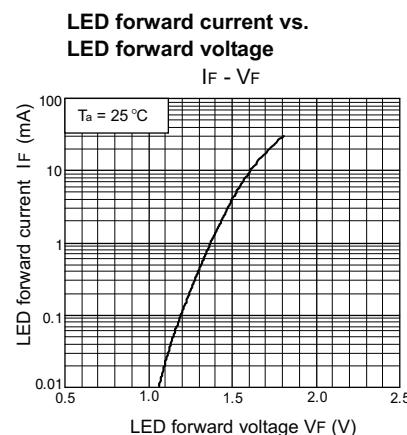
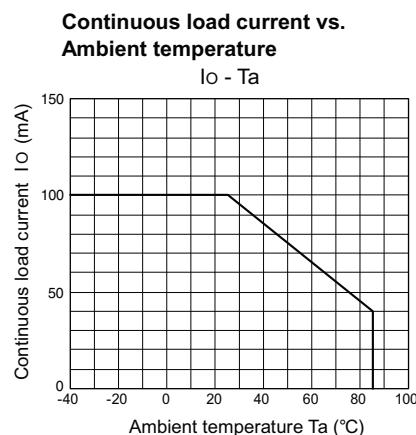
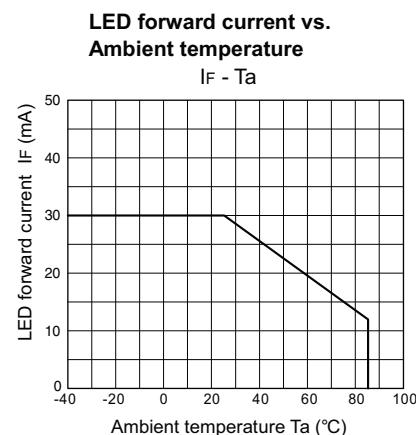


## ■ Recommended Operating Conditions

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

| Item                                 | Symbol          | Minimum | Typical | Maximum | Unit |
|--------------------------------------|-----------------|---------|---------|---------|------|
| Load voltage (AC peak/DC)            | V <sub>DD</sub> | ---     | ---     | 280     | V    |
| Operating LED forward current        | I <sub>F</sub>  | 3       | 5       | 20      | mA   |
| Continuous load current (AC peak/DC) | I <sub>O</sub>  | ---     | ---     | 100     | mA   |
| Operating temperature                | T <sub>a</sub>  | -20     | ---     | 65      | °C   |

## ■ Engineering Data



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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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