

## MOS FET Relays

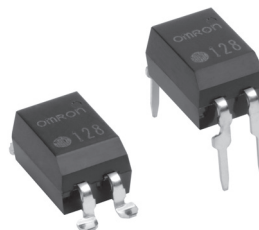
## G3VM-351AY/DY

**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.

### Application Examples

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



**NEW**

**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.

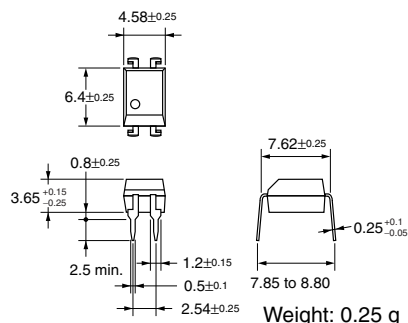
### Dimensions

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

#### G3VM-351AY



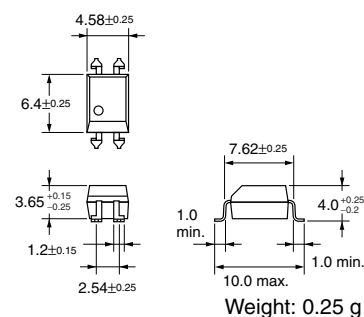
**Note:** The actual product is marked differently from the image shown here.



#### G3VM-351DY

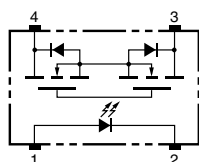


**Note:** The actual product is marked differently from the image shown here.

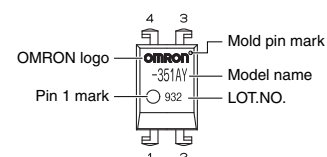
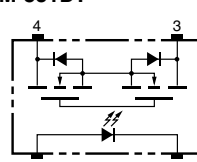


### Terminal Arrangement/Internal Connections (Top View)

#### G3VM-351AY



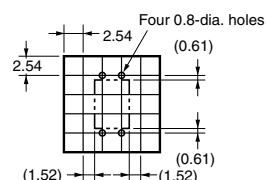
#### G3VM-351DY



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

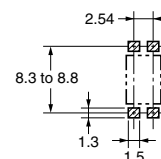
### PCB Dimensions (Bottom View)

#### G3VM-351AY



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

#### G3VM-351DY



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

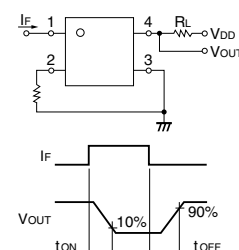
| Item   | Symbol                               | Rating                         | Unit        | Measurement conditions |
|--|--------------------------------------|--------------------------------|-------------|------------------------|
| Input  | LED forward current                  | $I_F$                          | 30          | mA                     |
|  | Repetitive peak LED forward current  | $I_{FP}$                       | 1           | A                      |
|  | LED forward current reduction rate   | $\Delta I_F/^\circ\text{C}$    | -0.3        | mA/°C                  |
|  | LED reverse voltage                  | $V_R$                          | 5           | V                      |
|  | Connection temperature               | $T_J$                          | 125         | °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            | $\Delta I_{ON}/^\circ\text{C}$ | -1.0        | mA/°C                  |
|  | Pulse ON current                     | $I_{OP}$                       | 0.3         | A                      |
|  | Connection temperature               | $T_J$                          | 125         | °C                     |
| Dielectric strength between input and output (See note 1.) |                                      | $V_{I-O}$                      | 5,000       | $V_{rms}$              |
| Operating temperature                                      |                                      | $T_a$                          | -40 to +85  | °C                     |
| Storage temperature  |                                      | $T_{stg}$                      | -55 to +125 | °C                     |
| Soldering temperature (10 s)                               |                                      | ---                            | 260         | °C                     |

**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                      |
|                                | Reverse current                        | $I_R$      | ---     | ---     | 10   | $\mu\text{A}$          |
|                                | Capacity between terminals             | $C_T$      | ---     | 40      | ---  | pF                     |
|                                | Trigger LED forward current            | $I_{FT}$   | ---     | 0.3     | 2    | mA                     |
| Output                         | Maximum resistance with output ON      | $R_{ON}$   | ---     | 25      | 35   | $\Omega$               |
|                                |  |            | ---     | 35      | 50   | $\Omega$               |
|                                | Current leakage when the relay is open | $I_{LEAK}$ | ---     | ---     | 1.0  | $\mu\text{A}$          |
|                                | Capacity between terminals             | $C_{OFF}$  | ---     | 30      | ---  | pF                     |
| Capacity between I/O terminals |  | $C_{I-O}$  | ---     | 0.8     | ---  | pF                     |
| Insulation resistance          |  | $R_{I-O}$  | 1,000   | ---     | ---  | M $\Omega$             |
| Turn-ON time                   |  | $t_{ON}$   | ---     | 0.1     | 1.0  | ms                     |
| Turn-OFF time                  |  | $t_{OFF}$  | ---     | 0.2     | 1.0  | ms                     |

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



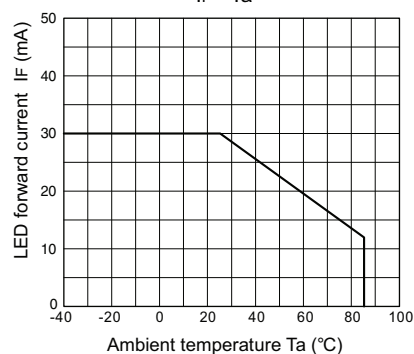
## ■ Recommended Operating Conditions

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

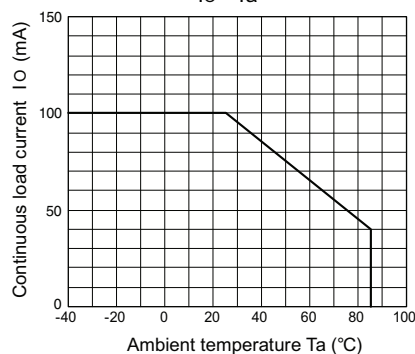
| Item                                 | Symbol   | Minimum | Typical | Maximum | Unit |
|--------------------------------------|----------|---------|---------|---------|------|
| Load voltage (AC peak/DC)            | $V_{DD}$ | ---     | ---     | 280     | V    |
| Operating LED forward current        | $I_F$    | 3       | 5       | 20      | mA   |
| Continuous load current (AC peak/DC) | $I_O$    | ---     | ---     | 100     | mA   |
| Operating temperature                | $T_a$    | -20     | ---     | 65      | °C   |

# ■ Engineering Data

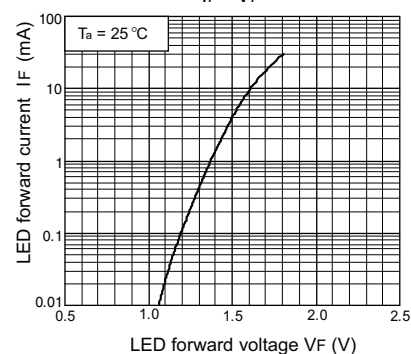
**LED forward current vs. Ambient temperature**  
 $I_F - T_a$



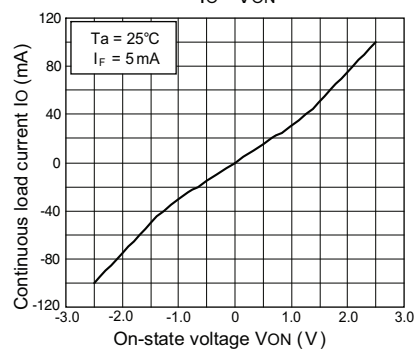
**Continuous load current vs. Ambient temperature**  
 $I_O - T_a$



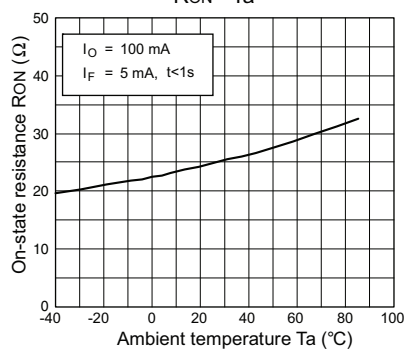
**LED forward current vs. LED forward voltage**  
 $I_F - V_F$



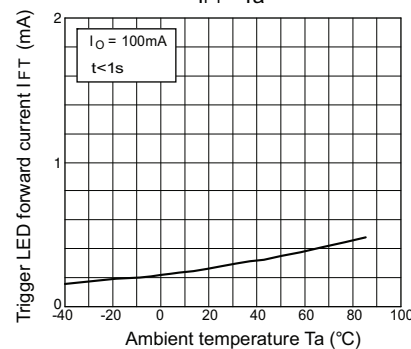
**Continuous load current vs. On-state voltage**  
 $I_O - V_{ON}$



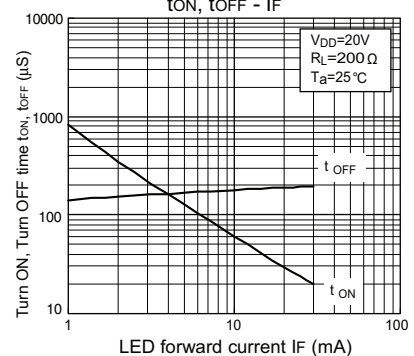
**On-state resistance vs. Ambient temperature**  
 $R_{ON} - T_a$



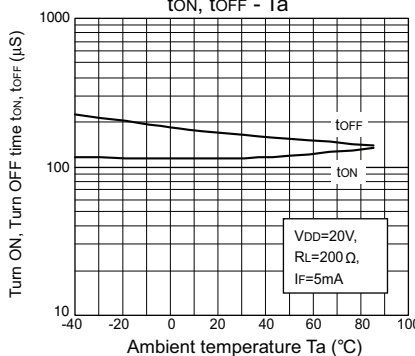
**Trigger LED forward current vs. Ambient temperature**  
 $I_{FT} - T_a$



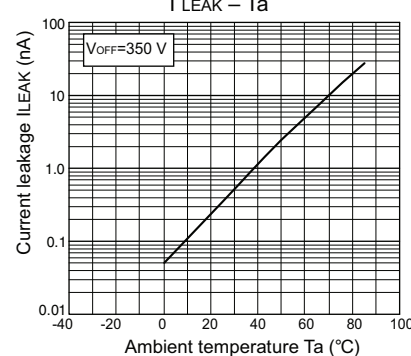
**Turn ON, Turn OFF time vs. LED forward current**  
 $t_{ON}, t_{OFF} - I_F$



**Turn ON, Turn OFF time vs. Ambient temperature**  
 $t_{ON}, t_{OFF} - T_a$



**Current leakage vs. Ambient temperature**  
 $I_{LEAK} - T_a$



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To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.



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