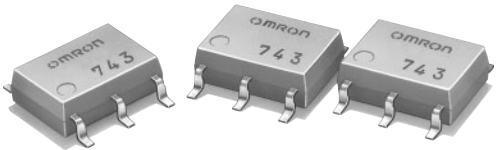


MOS FET Relays

G3VM-353H/H1

Analog-switching MOS FET Relay with SPST-NC (Double-pole, Single-throw, Normally Closed) Contacts  
General-purpose Series Added

- New models with SPST-NC contacts and a 6-pin SOP package now included in 350-V load voltage series.
- Continuous load current of 120 mA (90 mA).
- Dielectric strength of 1,500 Vrms between I/O.
- General-purpose series (high ON-resistance) added.



**NEW**

**Caution**  
Refer to “Common Precautions” on page 2.

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

■ Application Examples

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

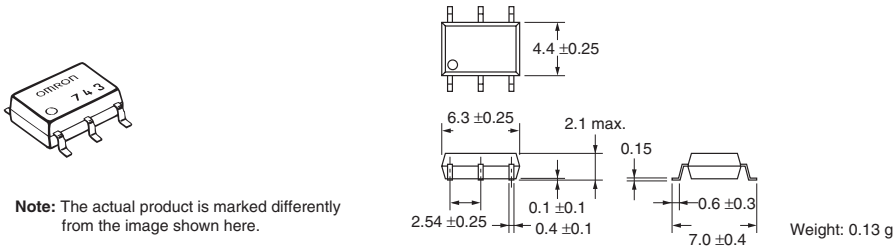
■ List of Models

| Contact form | Terminals                  | Load voltage (peak value) | Model          | Minimum packaging unit |                 |
|--------------|----------------------------|---------------------------|----------------|------------------------|-----------------|
|              |                            |                           |                | Number per stick       | Number per tape |
| SPST-NC      | Surface-mounting terminals | 350 V AC                  | G3VM-353H      | 75                     | ---             |
|              |                            |                           | G3VM-353H1     |                        |                 |
|              |                            |                           | G3VM-353H(TR)  | ---                    | 2,500           |
|              |                            |                           | G3VM-353H1(TR) |                        |                 |

■ Dimensions

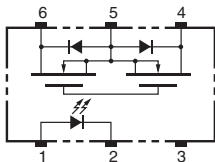
**Note:** All units are in millimeters unless otherwise indicated.

G3VM-353H/H1



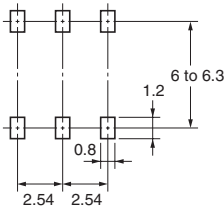
■ Terminal Arrangement/Internal Connections (Top View)

G3VM-353H/H1



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

G3VM-353H/H1



## 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          | $V_{OFF}$                   | 350                            | V           |                               |
|  | Continuous load current             | Connection A                | $I_O$                          | 120 (90)    | mA                            |
|  |                                     | Connection B                |                                | 120 (90)    |                               |
|  |                                     | Connection C                |                                | 240 (180)   |                               |
|  | ON current reduction rate           | Connection A                | $\Delta I_{ON}/^\circ\text{C}$ | -1.2 (-0.9) | mA/°C                         |
|  |                                     | Connection B                |                                | -1.2 (-0.9) |                               |
|  |                                     | Connection C                |                                | -2.4 (-1.8) |                               |
|  | Connection temperature              | $T_J$                       | 125                            | °C          |                               |
| Dielectric strength between input and output (See note 1.) |                                     | $V_{IO}$                    | 1,500                          | Vrms        | AC for 1 min                  |
| Operating temperature                                      |                                     | $T_a$                       | -40 to 85                      | °C          | With no icing or condensation |
| Storage temperature  |                                     | $T_{stg}$                   | -55 to 125                     | °C          | With no icing or condensation |
| Soldering temperature (10 s)                               |                                     | ---                         | 260                            | °C          | 10 s                          |

Values inside parentheses ( ) are for G3VM-353H1.

## 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            | $I_{FC}$     | ---      | 1.0     | 3.0       | mA         | $I_{OFF} = 10$ $\mu$ A   |
| Output                         | Maximum resistance with output ON      | Connection A | $R_{ON}$ | ---     | 15 (27)   | $\Omega$   | $I_O = 120$ mA   |
|                                |  | Connection B |          | ---     | 8 (20)    | $\Omega$   | $I_O = 120$ mA   |
|                                |  | Connection C |          | ---     | 4 (10)    | $\Omega$   | $I_O = 240$ mA   |
|                                | Current leakage when the relay is open | $I_{LEAK}$   | ---      | ---     | 1.0       | $\mu$ A    | $V_{OFF} = 350$ V, $I_F = 5$ mA                                    |
| Capacity between I/O terminals |  | $C_{IO}$     | ---      | 0.8     | ---       | pF         | $f = 1$ MHz, $V_s = 0$ V   |
| Insulation resistance          |  | $R_{IO}$     | 1,000    | ---     | ---       | M $\Omega$ | $V_{IO} = 500$ V DC, $R_{OH} \leq 60\%$                            |
| Turn-ON time                   |  | $t_{ON}$     | ---      | (0.25)  | 1.0 (0.5) | ms         | $I_F = 5$ mA, $R_L = 200$ $\Omega$ , $V_{DD} = 20$ V (See note 2.) |
| Turn-OFF time                  |  | $t_{OFF}$    | ---      | (0.5)   | 3.0 (1)   | ms         |  |

Values inside parentheses ( ) are for G3VM-353H1.

## Recommended Operating Conditions

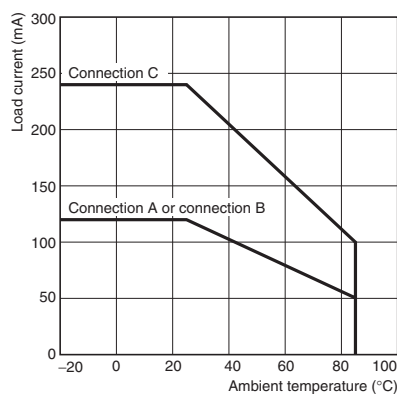
Use the G3VM under the following conditions so that the Relay will operate properly.

| Item                          | Symbol   | Minimum | Typical | Maximum  | Unit |
|-------------------------------|----------|---------|---------|----------|------|
| Output dielectric strength    | $V_{DD}$ | ---     | ---     | 280      | V    |
| Operating LED forward current | $I_F$    | 5       | ---     | 25       | mA   |
| Continuous load current       | $I_O$    | ---     | ---     | 120 (90) | mA   |
| Operating temperature         | $T_a$    | -20     | ---     | 65       | °C   |

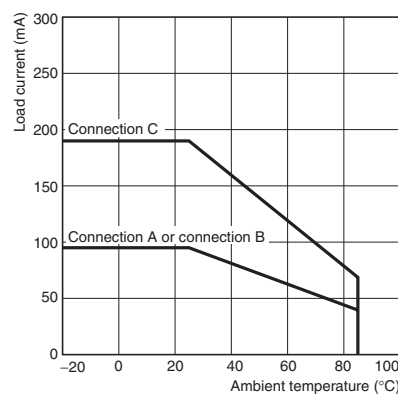
Values inside parentheses ( ) are for G3VM-353H1.

## Engineering Data

### Load Current vs. Ambient Temperature G3VM-353H

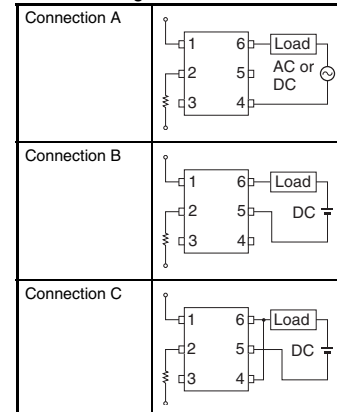


### Load Current vs. Ambient Temperature G3VM-353H1

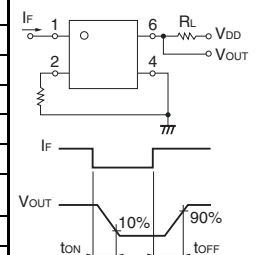


**Note 1.** The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

### Connection Diagram



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



## Safety Precautions

Refer to page 2 for precautions common to all G3VM models.