

## MOS FET Relays

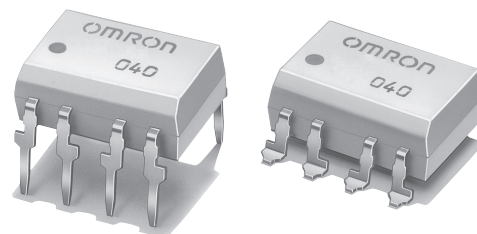
## G3VM-355C/CR/F/FR

**MOS FET Relay with Both SPST-NO and SPST-NC Contacts Incorporated in a Single DIP Package. General-purpose Models Added.**

- SPST-NO/SPST-NC models included in the 350-V load series.
- Continuous load current of 120 mA.
- Dielectric strength of 2,500 Vrms between I/O.
- General-purpose models (high ON resistance) added.
- RoHS Compliant.

### Application Examples

- Measurement devices
- Security systems
- Amusement machines



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

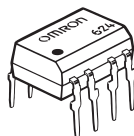
### List of Models

| Contact form        | Terminals                     | Load voltage (peak value) | Model          | Number per stick | Number per tape |
|---------------------|-------------------------------|---------------------------|----------------|------------------|-----------------|
| SPST-NO/<br>SPST-NC | PCB terminals                 | 350 VAC                   | G3VM-355CR     | 50               | ---             |
|                     | Surface-mounting<br>terminals |                           | G3VM-355C      |                  |                 |
|                     |                               |                           | G3VM-355FR     |                  |                 |
|                     |                               |                           | G3VM-355F      |                  |                 |
|                     |                               |                           | G3VM-355FR(TR) | ---              | 1,500           |
|                     |                               |                           | G3VM-355F(TR)  |                  |                 |

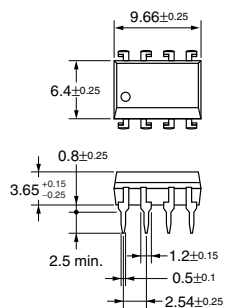
### Dimensions

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

#### G3VM-355C/CR

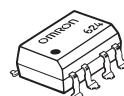


**Note:** The actual product is marked differently from the image shown here.

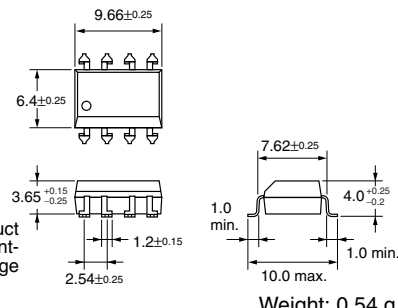


Weight: 0.54 g

#### G3VM-355F/FR



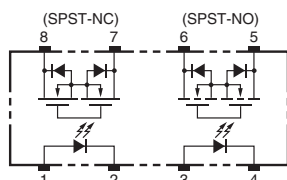
**Note:** The actual product is marked differently from the image shown here.



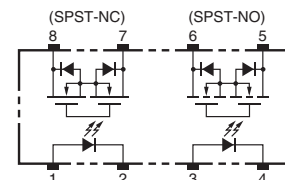
Weight: 0.54 g

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

#### G3VM-355C/CR

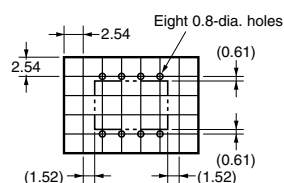


#### G3VM-355F/FR



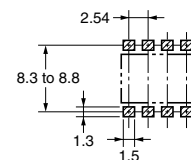
### PCB Dimensions (Bottom View)

#### G3VM-355C/CR



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

#### G3VM-355F/FR



## 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                      |
|                                                            | LED forward current reduction rate   | $\Delta I_F/^\circ\text{C}$    | -0.5        | 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) | $I_O$                          | 120 (100)   | mA                     |
|                                                            | ON current reduction rate            | $\Delta I_{ON}/^\circ\text{C}$ | -1.2 (-1)   | mA/°C                  |
|                                                            | Connection temperature               | $T_j$                          | 125         | °C                     |
| Dielectric strength between input and output (See note 1.) |                                      | $V_{I-O}$                      | 2,500       | $V_{rms}$              |
| Operating temperature                                      |                                      | $T_a$                          | -40 to +85  | °C                     |
| Storage temperature                                        |                                      | $T_{slg}$                      | -55 to +125 | °C                     |
| 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.

Values in parentheses are for the G3VM-355C/F

## 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                                                                                 |
|                                | Reverse current                        | $I_R$      | ---     | ---                                    | 10        | $\mu\text{A}$                                                                     |
|                                | Capacity between terminals             | $C_T$      | ---     | 30                                     | ---       | pF                                                                                |
|                                | Trigger LED forward current            | $I_{FT}$   | ---     | 1                                      | 3         | mA                                                                                |
| Output                         | Maximum resistance with output ON      | $R_{ON}$   | 15 (40) | 25 (50)                                | $\Omega$  | SPST-NO: $I_F = 5 \text{ mA}$ , $I_O = 120 \text{ mA}$ (100 mA)                   |
|                                |                                        |            |         |                                        |           | SPST-NC: $I_F = 10 \mu\text{A}$                                                   |
|                                |                                        |            |         |                                        |           | SPST-NC: $I_F = 0 \text{ mA}$ , $I_O = 120 \text{ mA}$ (100 mA)                   |
|                                | Current leakage when the relay is open | $I_{LEAK}$ | ---     | 0.0015 NO (0.006)<br>0.0105 NC (0.003) | 1.0       | $\mu\text{A}$                                                                     |
|                                |                                        |            |         |                                        |           | $V_{OFF} = 350 \text{ V}$                                                         |
| Capacity between terminals     |                                        | $C_{OFF}$  | ---     | 65 (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                   |                                        | $t_{ON}$   | ---     | 0.18 (0.3)                             | 1.0 (1.0) | ms                                                                                |
| Turn-OFF time                  |                                        | $t_{OFF}$  | ---     | 0.11 (0.15)                            | 1.0 (1.0) | ms                                                                                |
|                                |                                        |            |         |                                        |           | $I_F = 5 \text{ mA}$ , $R_L = 200 \Omega$ , $V_{DD} = 20 \text{ V}$ (See note 2.) |

Values in parentheses are for the G3VM-355C/F

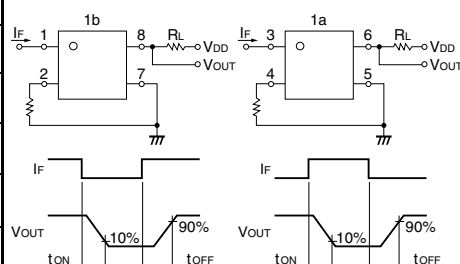
## Recommended Operating Conditions

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        | $I_F$    | 5       | ---     | 25        | mA   |
| Continuous load current (AC peak/DC) | $I_O$    | ---     | ---     | 120 (100) | mA   |
| Operating temperature                | $T_a$    | -20     | ---     | 65        | °C   |

Values in parentheses are for the G3VM-355C/F

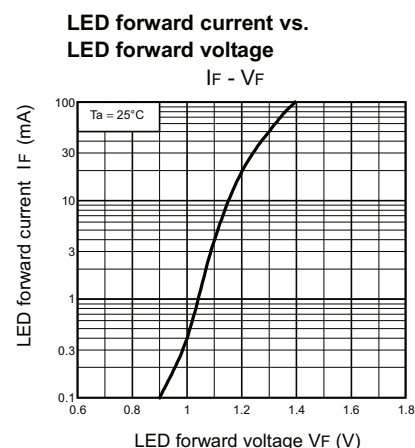
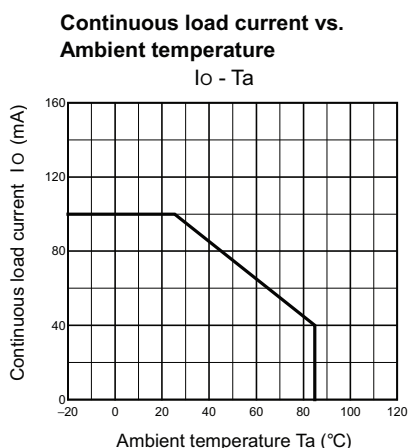
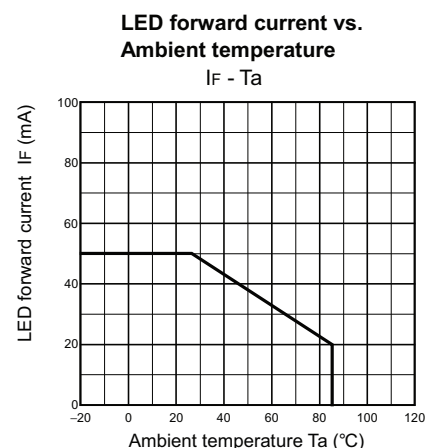
**Note:** 2. Turn-ON and Turn-OFF Times



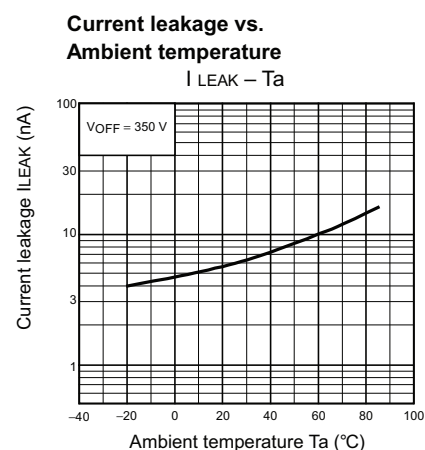
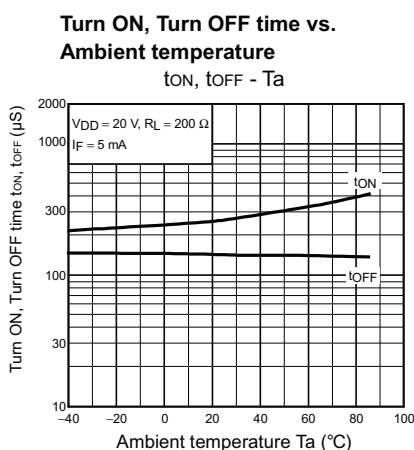
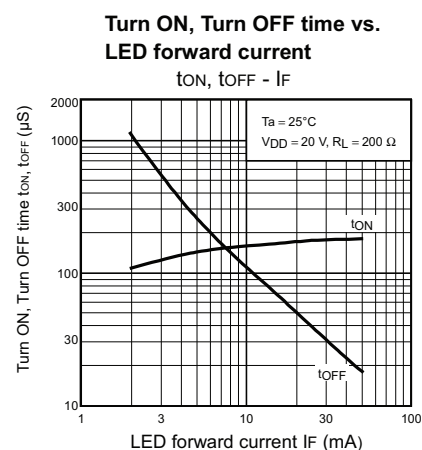
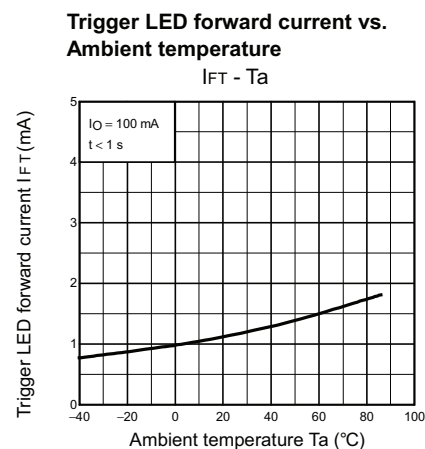
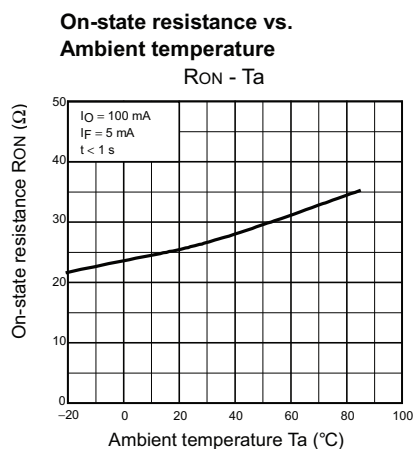
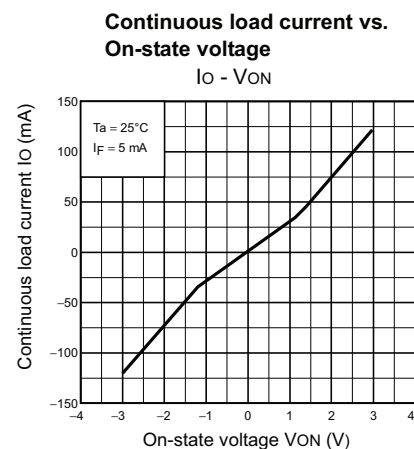
# Engineering Data

## G3VM-355C/F

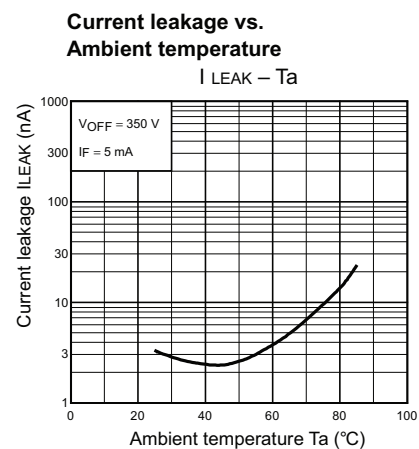
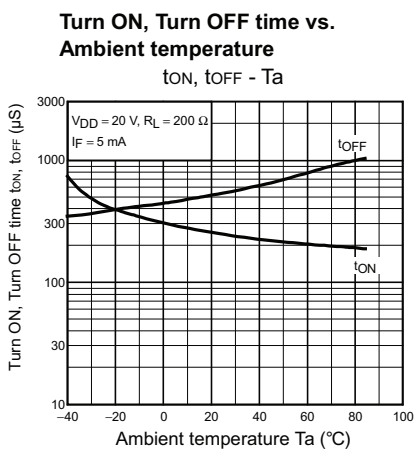
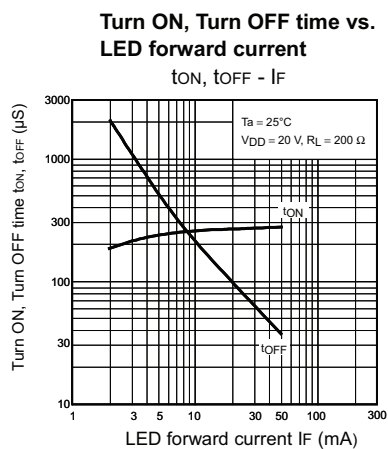
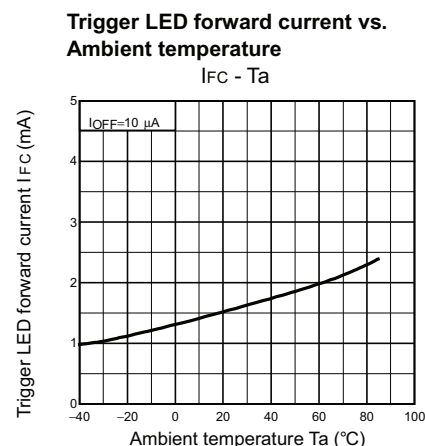
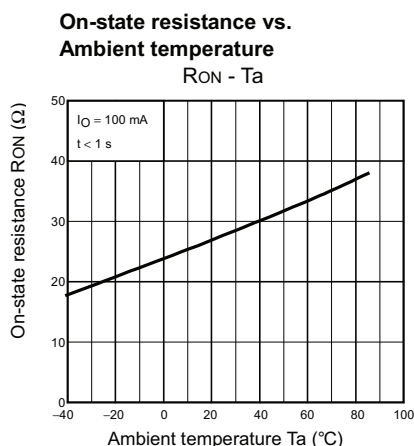
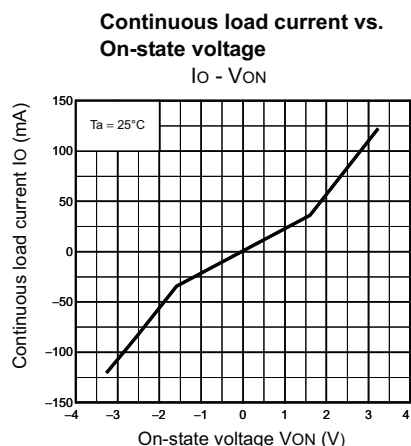
### Common Characteristics; SPST-NO / SPST-NC



### Characteristics; SPST-NO



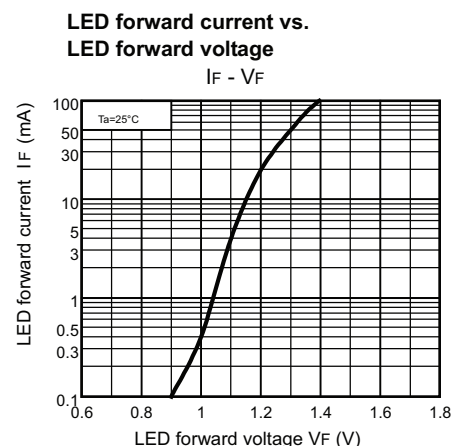
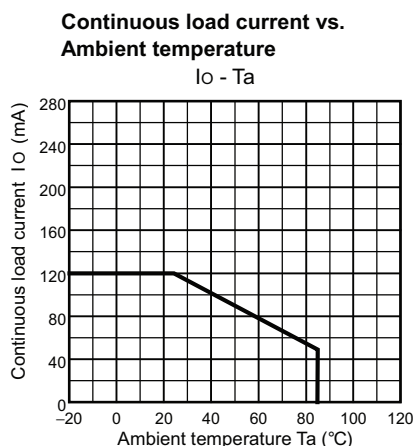
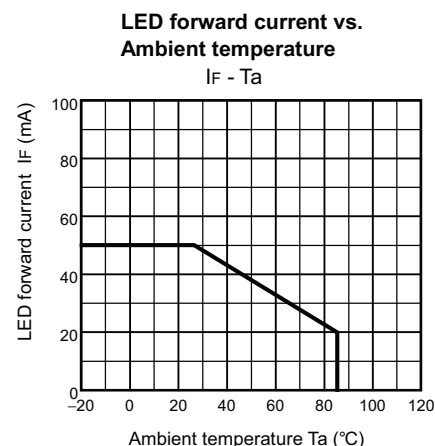
■ Engineering Data  
G3VM-355C/F (continued)  
Characteristics; SPST-NC



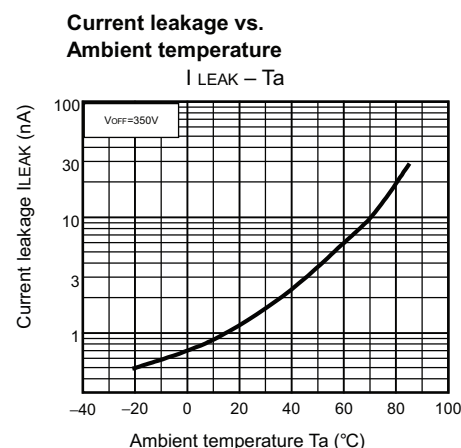
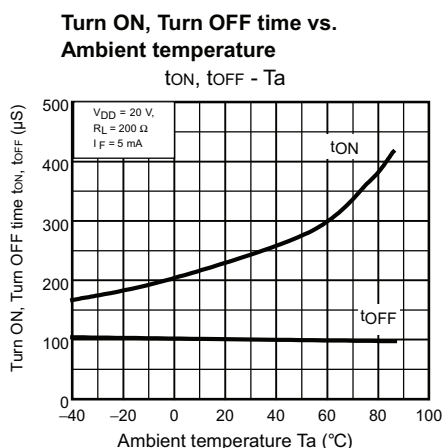
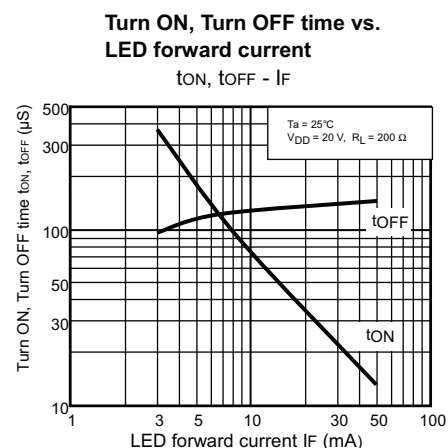
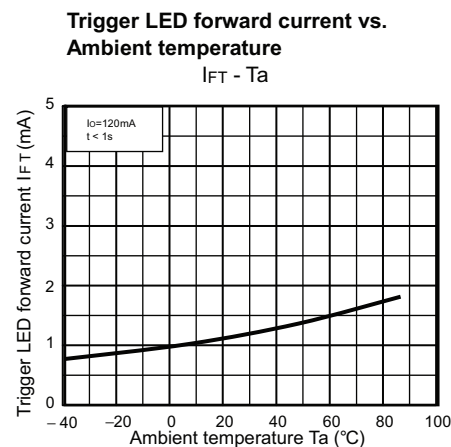
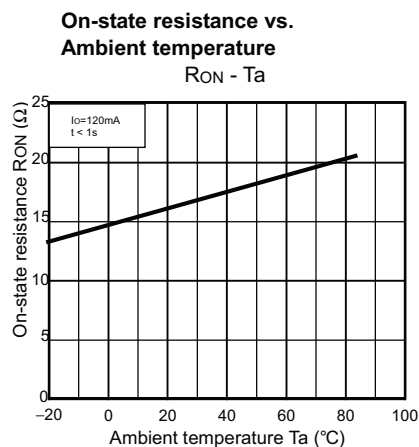
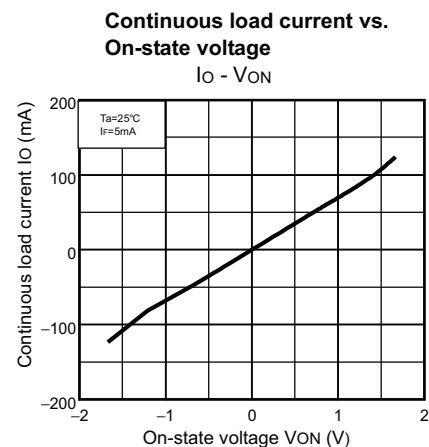
# ■ Engineering Data

## G3VM-355CR/FR

### Common Characteristics; SPST-NO / SPST-NC



### Characteristics; SPST-NO



■ Engineering Data  
G3VM-355CR/FR (continued)  
Characteristics; SPST-NC

