

# MOS FET Relays

## G3VM-355JR

### New MOS FET Relay with Both SPST-NO and SPST-NC Contacts Incorporated in a Single SOP Package

- SPST-NO/SPST-NC models with an 8-pin SOP package now available in the 350-V load voltage series.
- Continuous load current of 120 mA.
- Dielectric strength of 1,500 Vrms between I/O.
- RoHS Compliant.

#### ■ Application Examples

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



**NEW** 

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

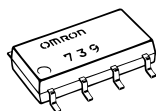
#### ■ List of Models

| Contact form        | Terminals                     | Load voltage (peak value) | Model          | Number per stick | Number per tape |
|---------------------|-------------------------------|---------------------------|----------------|------------------|-----------------|
| SPST-NO/<br>SPST-NC | Surface-mounting<br>terminals | 350 VAC                   | G3VM-355JR     | 50               | ---             |
|                     |                               |                           | G3VM-355JR(TR) | ---              | 2,500           |

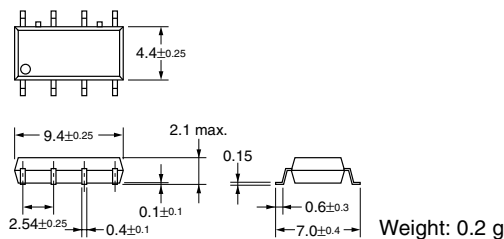
#### ■ Dimensions

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

##### G3VM-355JR

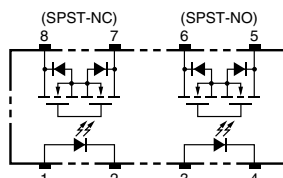


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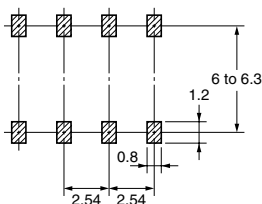
#### ■ Terminal Arrangement/Internal Connections (Top View)

##### G3VM-355JR



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

##### G3VM-355JR



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

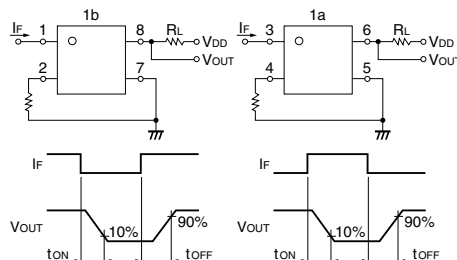
| Item                                                       | Symbol                              | Rating                           | Unit        | Measurement conditions |
|------------------------------------------------------------|-------------------------------------|----------------------------------|-------------|------------------------|
| 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/ $^{\circ}\text{C}$ |
|                                                            | LED reverse voltage                 | $V_R$                            | 5           | V                      |
|                                                            | Connection temperature              | $T_J$                            | 125         | $^{\circ}\text{C}$     |
| Output                                                     | Output dielectric strength          | $V_{OFF}$                        | 350         | V                      |
|                                                            | Continuous load current             | $I_O$                            | 120         | mA                     |
|                                                            | ON current reduction rate           | $\Delta I_{ON}/^{\circ}\text{C}$ | -1.2        | mA/ $^{\circ}\text{C}$ |
|                                                            | Connection temperature              | $T_J$                            | 125         | $^{\circ}\text{C}$     |
| Dielectric strength between input and output (See note 1.) |                                     | $V_{I-O}$                        | 1,500       | Vrms                   |
| Operating temperature                                      |                                     | $T_a$                            | -40 to +85  | $^{\circ}\text{C}$     |
| Storage temperature                                        |                                     | $T_{stg}$                        | -55 to +125 | $^{\circ}\text{C}$     |
| Soldering temperature (10 s)                               |                                     | ---                              | 260         | $^{\circ}\text{C}$     |

**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               | $V_F$      | 1.0     | 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                                                                                                               |
|                                        |                                   | $I_{FC}$   | ---     | ---     | ---  | SPST-NC: $I_{OFF} = 10 \mu\text{A}$                                                                              |
| Output                                 | Maximum resistance with output ON | $R_{ON}$   | ---     | 15      | 25   | $\Omega$                                                                                                         |
|                                        |                                   |            |         |         |      | SPST-NO: $I_F = 5 \text{ mA}$ , $I_O = 120 \text{ mA}$<br>SPST-NC: $I_F = 0 \text{ mA}$ , $I_O = 120 \text{ mA}$ |
| Current leakage when the relay is open |                                   | $I_{LEAK}$ | ---     | ---     | 1.0  | $\mu\text{A}$                                                                                                    |
| Capacity between I/O terminals         |                                   | $C_{I-O}$  | ---     | 0.8     | ---  | pF                                                                                                               |
| Insulation resistance                  |                                   | $R_{I-O}$  | 1,000   | ---     | ---  | M $\Omega$                                                                                                       |
| Turn-ON time                           |                                   |            |         |         |      | $f = 1 \text{ MHz}$ , $V_S = 0 \text{ V}$                                                                        |
|                                        | SPST-NO                           | $t_{ON}$   | ---     | ---     | 1.0  | ms                                                                                                               |
|                                        | SPST-NC                           |            | ---     | ---     | 1.0  | ms                                                                                                               |
| Turn-OFF time                          | SPST-NO                           | $t_{OFF}$  | ---     | ---     | 1.0  | ms                                                                                                               |
|                                        | SPST-NC                           |            | ---     | ---     | 3.0  | ms                                                                                                               |

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



## Recommended Operating Conditions

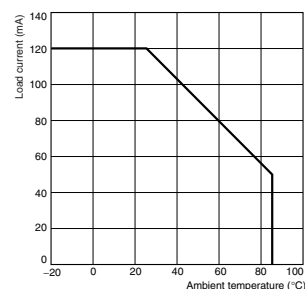
Use the G3VM under the following conditions so that the Relay will operate properly.

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

## Engineering Data

### Load Current vs. Ambient Temperature

G3VM-355JR



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