Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!


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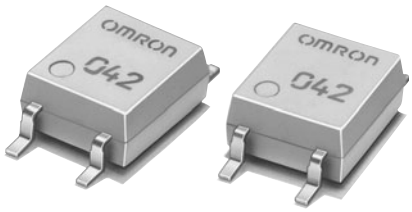
# G3VM-81GR1

**MOS FET Relays**

## MOS FET Relays Designed for Switching Minute Signals and Analog Signals.

- **Low Output Capacitance and ON Resistance (C × R = 32.5 pF • Ω)**

**RoHS compliant**

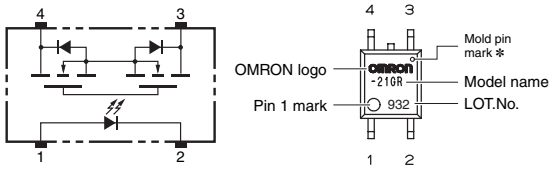



Note: The actual product is marked differently from the image shown here.

## ■ Application Examples

- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Data loggers**

## ■ Terminal Arrangement/Internal Connections




Note: The actual product is marked differently from the image shown here.
✻ The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

## ■ List of Models

| Package type | Contact form | Terminals | Load voltage (peak value) ✻ | Model | Minimum package quantity | |
|---|---|---|---|---|---|---|
| | | | | | Number per tube | Number per tape and reel |
| SOP4 | 1a (SPST-NO) | Surface-mounting Terminals | 80 V | **G3VM-81GR1** | 100 | - |
| | | | | **G3VM-81GR1 (TR)** | - | 2,500 |

✻ The AC peak and DC value are given for the load voltage.

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

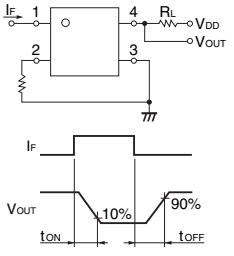
| Item | | Symbol | Rating | Unit | Measurement conditions |
|---|---|---|---|---|---|
| Input | **LED forward current** | $I_F$ | 50 | mA | |
| | Repetitive peak LED forward current | $I_{FP}$ | 1 | A | 100 μs pulses, 100 pps |
| | LED forward current reduction rate | $\Delta I_F$/°C | –0.5 | mA/°C | Ta ≥ 25°C |
| | **LED reverse voltage** | $V_R$ | 5 | V | |
| | **Connection temperature** | $T_J$ | 125 | °C | |
| Output | **Load voltage (AC peak/DC)** | $V_{OFF}$ | 80 | V | |
| | Continuous load current (AC peak/DC) | $I_O$ | 200 | mA | |
| | **ON current reduction rate** | $\Delta I_O$/°C | –2.0 | mA/°C | Ta ≥ 25°C |
| | **Connection temperature** | $T_J$ | 125 | °C | |
| **Dielectric strength between I/O (See note 1.)** | | $V_{I-O}$ | 1500 | Vrms | AC for 1 min |
| **Ambient operating temperature** | | Ta | –20 to +85 | °C | With no icing or condensation |
| **Ambient storage temperature** | | Tstg | –40 to +125 | °C | With no icing or condensation |
| **Soldering temperature** | | - | 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** | $V_F$ | 1.0 | 1.15 | 1.3 | V | $I_F$ = 10 mA |
| | **Reverse current** | $I_R$ | - | - | 10 | μA | $V_R$ = 5 V |
| | **Capacity between terminals** | $C_T$ | - | 15 | - | pF | V = 0, f = 1 MHz |
| | **Trigger LED forward current** | $I_{FT}$ | - | - | 3 | mA | $I_O$ = 200 mA |
| Output | Maximum resistance with output ON | $R_{ON}$ | - | 5 | 8 | Ω | $I_F$ = 5 mA, $I_O$ = 200 mA |
| | Current leakage when the relay is open | $I_{LEAK}$ | - | - | 1 | nA | $V_{OFF}$ = 80 V, Ta = 50 °C |
| | **Capacity between terminals** | $C_{OFF}$ | - | 6.5 | 11 | pF | V = 0, f = 100 MHz, t < 10 s |
| **Capacity between I/O terminals** | | $C_{I-O}$ | - | 0.7 | - | pF | f = 1 MHz, $V_S$ = 0 V |
| Insulation resistance between I/O terminals | | $R_{I-O}$ | 1000 | - | - | MΩ | $V_{I-O}$ = 500 VDC, RoH ≤ 60 % |
| **Turn-ON time** | | $t_{ON}$ | - | 0.13 | 0.5 | ms | $I_F$ = 5 mA, $R_L$ = 200 Ω, $V_{DD}$ = 10 V (See note 2.) |
| **Turn-OFF time** | | $t_{OFF}$ | - | 0.17 | 0.5 | ms | |

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



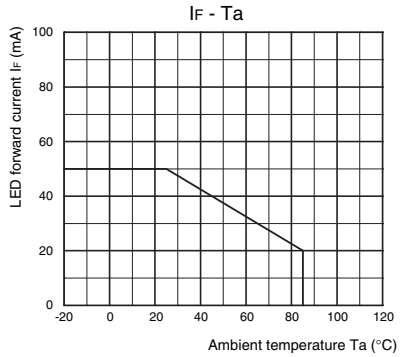
## ■ Recommended Operating Conditions

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

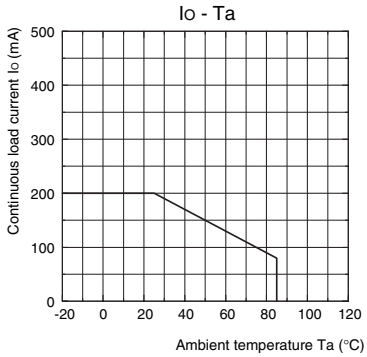
| Item | Symbol | Minimum | Typical | Maximum | Unit |
|---|---|---|---|---|---|
| Load voltage (AC peak/DC) | $V_{DD}$ | - | - | 64 | V |
| Operating LED forward current | $I_F$ | 5 | - | 30 | mA |
| Continuous load current (AC peak/DC) | $I_O$ | - | - | 200 | mA |
| Ambient operating temperature | Ta | 25 | - | 60 | °C |

## ■ Engineering Data

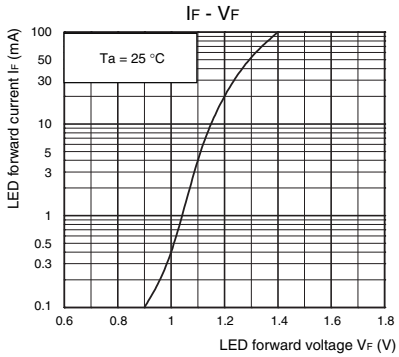
### LED forward current vs. Ambient temperature



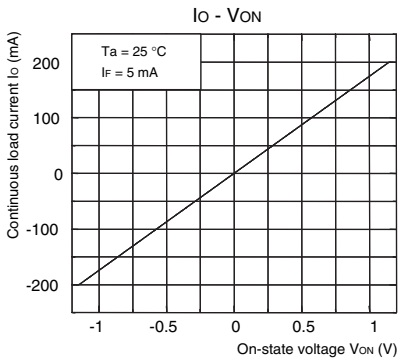

### Continuous load current vs. Ambient temperature



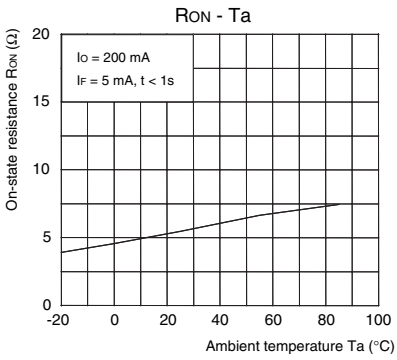

### LED forward current vs. LED forward voltage



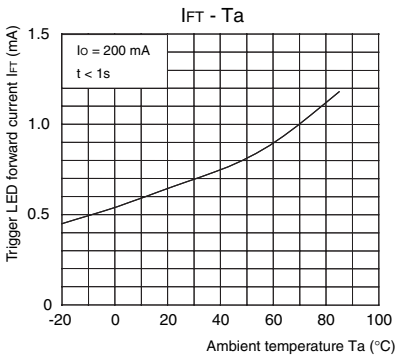

### Continuous load current vs. On-state voltage



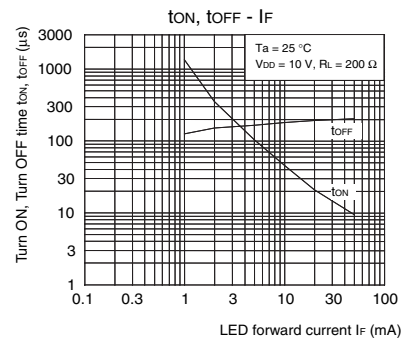

### On-state resistance vs. Ambient temperature



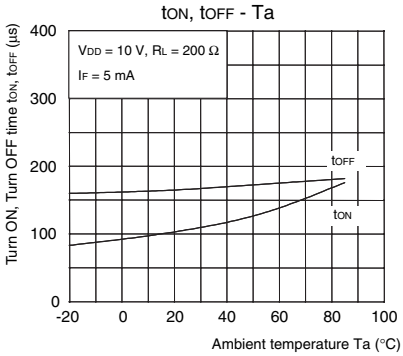

### Trigger LED forward current vs. Ambient temperature



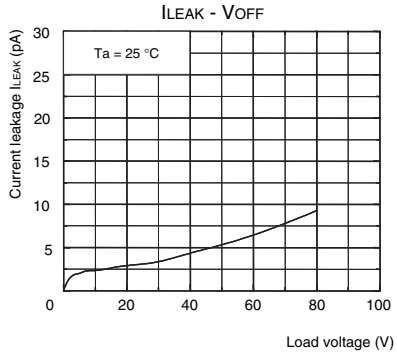

### Turn ON, Turn OFF time vs. LED forward current



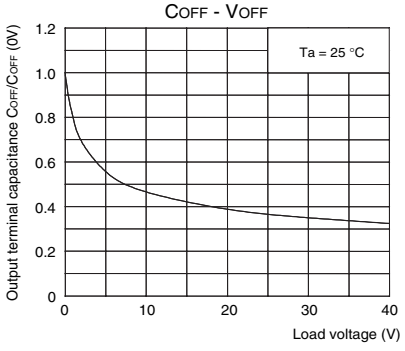

### Turn ON, Turn OFF time vs. Ambient temperature




### Current leakage vs. Load voltage




### Output terminal capacitance vs. Load voltage




## ■ Safety Precautions

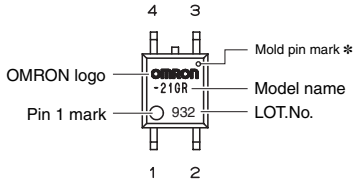
- Refer to **"Common Precautions"** for all G3VM models.

# Appearance/Dimensions SOP4 type

## ■ Appearance

**SOP (Small Outline Package)**

SOP4

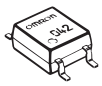



Note: The actual product is marked differently from the image shown here.

✻ The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

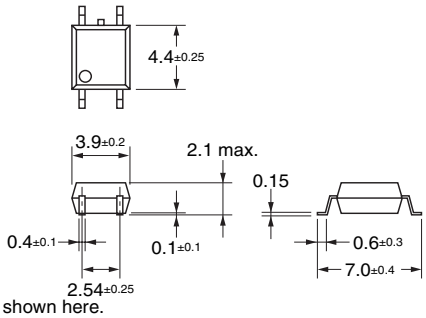
## ■ Dimensions

**(Unit: mm)**



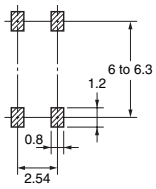
**Surface-mounting Terminals**

**Weight: 0.1 g**




**Actual Mounting Pad Dimensions**

(Recommended Value, TOP VIEW)

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