

MOS FET Relays

G3VM-61PR

Smallest Class in market, USOP Package MOS FET Relays (C_{OFF} (typical): 20 pF, R_{ON} (typical): 1 Ω) with Low Output Capacitance and ON Resistance ($C \times R = 20 \text{ pF} \cdot \Omega$) in a 60-V Load Voltage Model.



NEW

- ON resistance of 1 Ω (typical) suppresses output signal attenuation.

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

RoHS compliant

Application Examples

- Semiconductor inspection tools
- Measurement devices
- Broadband systems
- Data loggers

List of Models (Ask your OMRON representative for delivery times.)

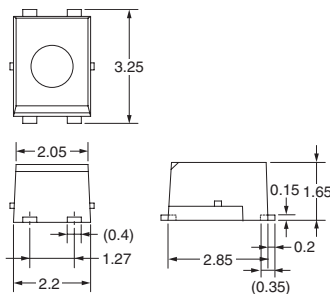
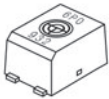
| Contact form | Terminals | Load voltage (peak value) (See note) | Model | Minimum packaging unit |
|--------------|----------------------------|---|---------------|------------------------|
| | | | | Number per tape |
| SPST-NO | Surface-mounting terminals | 60 V | G3VM-61PR | --- |
| | | | G3VM-61PR(TR) | 1,500 |

- Note:**
1. Ask your OMRON representative for orders under 1,500 pcs.
 2. Tape-cut USOPs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.
 3. The AC peak and DC value is given for the load voltages.

Dimensions

Note: All units are in millimeters unless otherwise indicated.

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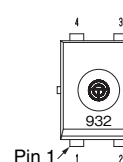
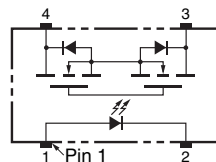


Note: The actual product is marked differently from the image shown here.

Weight: 0.03 g

Terminal Arrangement/Internal Connections (Top View)

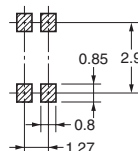
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The actual product is marked differently from the image shown here. Beveled side is input side.

Actual Mounting Pad Dimensions (Recommended Value, Top View)

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Absolute Maximum Ratings (Ta = 25°C)

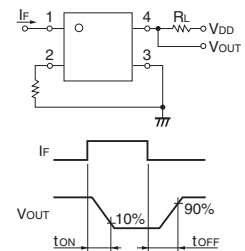
| Item | Symbol | Rating | Unit | Measurement Conditions | |
|--|--|-----------------------------|-------------|------------------------|-------------------------------|
| Input | LED forward current | I_F | 50 | mA | |
| | LED forward current reduction rate | $\Delta I_F/^\circ\text{C}$ | -0.5 | mA/°C | Ta ≥ 25°C |
| | LED reverse voltage | V_R | 5 | V | |
| | Connection temperature | T_j | 125 | °C | |
| Output | Load voltage (AC peak / DC) | V_{OFF} | 60 | V | |
| | Continuous load current (AC peak / DC) | I_O | 400 | mA | |
| | ON current reduction rate | $\Delta I_O/^\circ\text{C}$ | -4.0 | mA/°C | Ta ≥ 25°C |
| | Connection temperature | T_j | 125 | °C | |
| Dielectric strength between input and output (See note 1.) | | V_{I-O} | 500 | Vrms | AC for 1 min |
| Ambient operating temperature | | T_a | -40 to +85 | °C | With no icing or condensation |
| Storage temperature | | T_{stg} | -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 | $I_F = 10 \text{ mA}$ |
| | Reverse current | I_R | --- | --- | 10 | μA | $V_R = 5 \text{ V}$ |
| | Capacity between terminals | C_T | --- | 15 | --- | pF | $V = 0, f = 1 \text{ MHz}$ |
| | Trigger LED forward current | I_{FT} | --- | 0.5 | 3 | mA | $I_O = 100 \text{ mA}$ |
| Output | Maximum resistance with output ON | R_{ON} | --- | 1.0 | 1.5 | Ω | $I_F = 5 \text{ mA}, I_O = 400 \text{ mA}, t < 1 \text{ s}$ |
| | Current leakage when the relay is open | I_{LEAK} | --- | --- | 1 | nA | $V_{OFF} = 60 \text{ V}, T_a = 25^\circ\text{C}$ |
| | Capacity between terminals | C_{OFF} | --- | 20 | 30 | pF | $V = 0, f = 1 \text{ MHz}, t < 1 \text{ s}$ |
| Capacity between I/O terminals | | C_{I-O} | --- | 0.3 | --- | pF | $f = 1 \text{ MHz}, V_s = 0 \text{ V}$ |
| Insulation resistance between I/O terminals | | R_{I-O} | 1,000 | --- | --- | MΩ | $V_{I-O} = 500 \text{ VDC}, \text{RoH} \leq 60\%$ |
| Turn-ON time | | t_{ON} | --- | 0.3 | 0.5 | ms | $I_F = 5 \text{ mA}, R_L = 200 \Omega, V_{DD} = 20 \text{ V}$ (See note 2.) |
| Turn-OFF time | | t_{OFF} | --- | 0.3 | 0.5 | ms | |

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



Recommended Operating Conditions

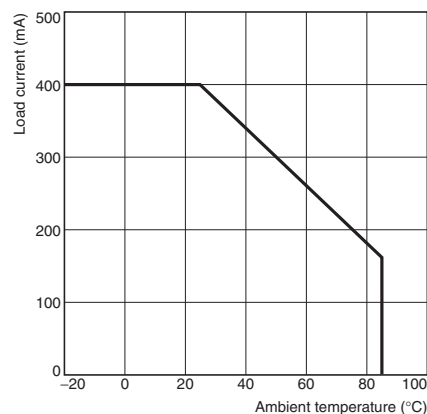
Use the G3VM under the following conditions so that the Relay will operate properly.

| Item | Symbol | Minimum | Typical | Maximum | Unit |
|--|----------|---------|---------|---------|------|
| Load voltage (AC peak / DC) | V_{DD} | --- | --- | 48 | V |
| Operating LED forward current | I_F | 5 | 7.5 | 20 | mA |
| Continuous load current (AC peak / DC) | I_O | --- | --- | 400 | mA |
| Operating temperature | T_a | -20 | --- | 65 | °C |

Engineering Data

Load Current vs. Ambient Temperature

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Safety Precautions

Refer to "Common Precautions" for all G3VM models.

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