# G3VM-61PR□/71PR/81PR/101PR

**MOS FET Relays USOP, Small and High-load-voltage Type**

## USOP Package with High Load voltage

- **Load voltage: 60 V, 75 V, 80 V, or 100 V**
- **G3VM-61PR1: Low C × R = 7 pF·Ω, $C_{OFF}$ (standard) = 0.7 pF, $R_{ON}$ (standard) = 10 Ω**

**RoHS Compliant**


NEW

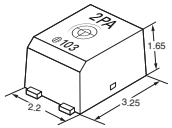
**Note:** The actual product is marked differently from the image shown here.

## ■Application Examples

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

## ■Package (Unit : mm, Average)

USOP 4-pin




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

## ■Model Number Legend

**G3VM-□ □ □ □ □**
1 2 3 4 5

**1. Load Voltage**
6: 60 V
7: 75 V
8: 80 V
10: 100 V

**2. Contact form**
1: 1a (SPST-NO)

**3. Package**
P: USOP 4-pin

**4. Additional functions**
R: Low On-resistance

**5. Other informations**
When specifications overlap, serial code is added in the recorded order.

## ■Ordering Information

| Package | Contact form | Terminals | Load voltage (peak value) ✻ | Continuous load current (peak value) ✻ | Tape cut packaging | | Tape packaging | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Model | Minimum package quantity | Model | Minimum package quantity |
| USOP4 | 1a (SPST-NO) | Surface-mounting Terminals | 60 V | 120 mA | G3VM-61PR1 | 1 pc. | G3VM-61PR1(TR05) | 500 pcs. |
| | | | | 400 mA | G3VM-61PR | | G3VM-61PR(TR05) | |
| | | | 75 V | | G3VM-71PR | | G3VM-71PR(TR05) | |
| | | | 80 V | 120 mA | G3VM-81PR | | G3VM-81PR(TR05) | |
| | | | 100 V | 100 mA | G3VM-101PR | | G3VM-101PR(TR05) | |

**Note:** To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut USOPs are packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.

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

# G3VM-61PR□/71PR/81PR/101PR



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

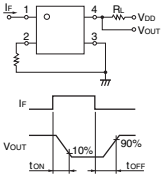
| Item | | Symbol | G3VM-61PR1 | G3VM-61PR | G3VM-71PR | G3VM-81PR | G3VM-101PR | Unit | Measurement conditions |
|---|---|---|---|---|---|---|---|---|---|
| Input | LED forward current | IF | 50 | | | | | mA | |
| | LED forward current reduction rate | ΔIF/°C | −0.5 | | | | | mA/°C | Ta≥25°C |
| | LED reverse voltage | VR | 5 | | | | | V | |
| | Connection temperature | TJ | 125 | | | | | °C | |
| Output | Load voltage (AC peak/DC) | VOFF | 60 | | 75 | 80 | 100 | V | |
| | Continuous load current (AC peak/DC) | IO | 120 | 400 | | 120 | 100 | mA | |
| | ON current reduction rate | ΔIO/°C | −1.2 | −4 | | −1.2 | −1 | mA/°C | Ta≥25°C |
| | Pulse ON current | Iop | 360 | 1,200 | | 360 | 300 | mA | t=100 ms, Duty=1/10 |
| | Connection temperature | TJ | 125 | | | | | °C | |
| Dielectric strength between I/O (See note 1.) | | VI-O | 500 | | | | | Vrms | AC for 1 min |
| Ambient operating temperature | | Ta | −40 to +85 | | | | | °C | With no icing or condensation |
| Ambient storage temperature | | Tstg | −40 to +125 | | | | | °C | |
| 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 | | G3VM-61PR1 | G3VM-61PR | G3VM-71PR | G3VM-81PR | G3VM-101PR | Unit | Measurement conditions |
|---|---|---|---|---|---|---|---|---|---|---|
| Input | LED forward voltage | VF | Minimum | 1.0 | | | | | V | IF=10 mA |
| | | | Typical | 1.15 | | | | | | |
| | | | Maximum | 1.3 | | | | | | |
| | Reverse current | IR | Maximum | 10 | | | | | μA | VR=5 V |
| | Capacitance between terminals | CT | Typical | 15 | | | | | pF | V=0, f=1 MHz |
| | Trigger LED forward current | IFT | Typical | 1.0 | 0.5 | | 0.6 | 0.5 | mA | IO=100 mA |
| | | | Maximum | 3 | | | | | | |
| | Release LED forward current | IFC | Minimum | 0.1 | 0.2 | 0.1 | | | mA | IOFF=10 μA |
| Output | Maximum resistance with output ON | RON | Typical | 10 | 1 | | 7 | 8 | Ω | G3VM-61PR : IF=5 mA, IO=400 mA<br>Others : IF=5 mA, IO=Continuous load current ratings, t<1 s |
| | | | Maximum | 15 | 1.5 | | 12 | 14 | | |
| | Current leakage when the relay is open | ILEAK | Maximum | 1 | | | 0.02 | 0.2 | nA | VOFF=Load voltage ratings |
| | Capacitance between terminals | COFF | Typical | 0.7 | 20 | 30 | 5 | 6 | pF | G3VM-61PR : V=0, f=1 MHz, t<1 s<br>Others : V=0, f=100 MHz, t<1 s |
| | | | Maximum | 1.3 | 30 | – | 7 | 8 | | |
| Capacitance between I/O terminals | | CI-O | Typical | 0.4 | 0.3 | 0.4 | | | pF | f=1 MHz, VS=0 V |
| Insulation resistance between I/O terminals | | RI-O | Maximum | 1000 | | | | | MΩ | VI-O=500 VDC, RoH≤60% |
| | | | Typical | $10^8$ | | | | | | |
| Turn-ON time | | tON | Typical | 0.04 | 0.3 | 0.4 | 0.14 | 0.12 | ms | IF=5 mA, RL=200 Ω, VDD=20 V (See note 2.) |
| | | | Maximum | 0.2 | 0.5 | 2 | 0.5 | 0.3 | | |
| Turn-OFF time | | tOFF | Typical | 0.12 | 0.3 | 0.2 | 0.16 | 0.18 | | |
| | | | Maximum | 0.2 | 0.5 | 1 | 0.2 | 0.3 | | |

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




## ■Recommended Operating Conditions

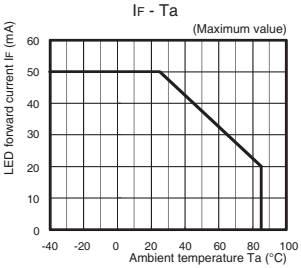
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

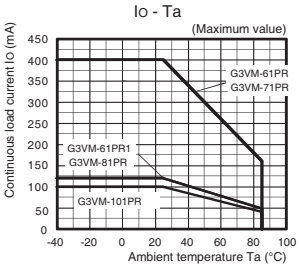
| Item | Symbol | | G3VM-61PR1 | G3VM-61PR | G3VM-71PR | G3VM-81PR | G3VM-101PR | Unit |
|---|---|---|---|---|---|---|---|---|
| Load voltage (AC peak/DC) | VDD | Maximum | 48 | | 60 | 64 | 80 | V |
| Operating LED forward current | IF | Minimum | 5 | | | | | mA |
| | | Typical | 7.5 | | | | | |
| | | Maximum | 20 | | | | | |
| Continuous load current (AC peak/DC) | IO | Maximum | 120 | 400 | | 120 | 100 | |
| Ambient operating temperature | Ta | Minimum | −20 | | | | | °C |
| | | Maximum | 65 | | | | | |

## ■Engineering Data

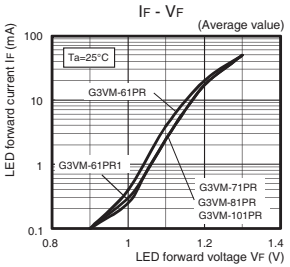
**●LED forward current vs. Ambient temperature**




**●Continuous load current vs. Ambient temperature**

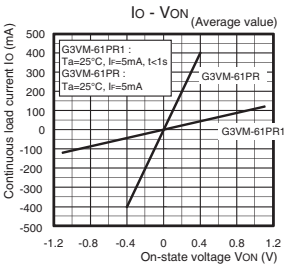



**●LED forward current vs. LED forward voltage**

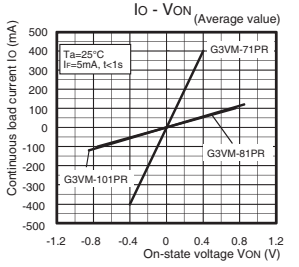



**●Continuous load current vs. On-state voltage**

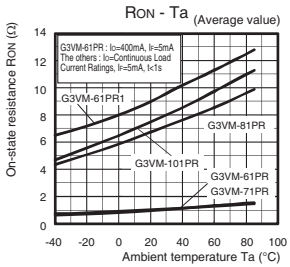
G3VM-61PR1/61PR




G3VM-71PR/81PR/101PR

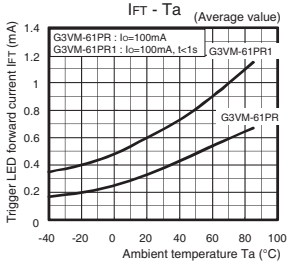



**●On-state resistance vs. Ambient temperature**

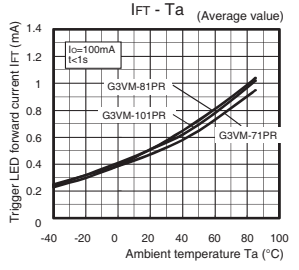



**●Trigger LED forward current vs. Ambient temperature**

G3VM-61PR1/61PR

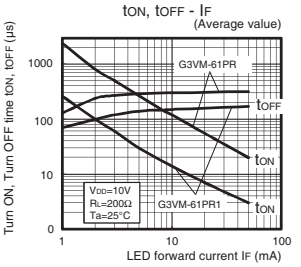



G3VM-71PR/81PR/101PR

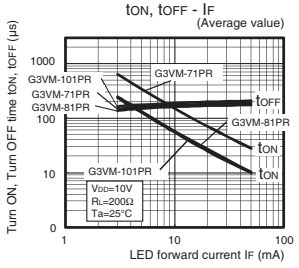



**●Turn ON, Turn OFF time vs. LED forward current**

G3VM-61PR1/61PR



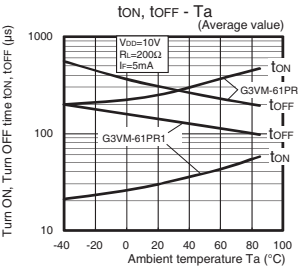

G3VM-71PR/81PR/101PR



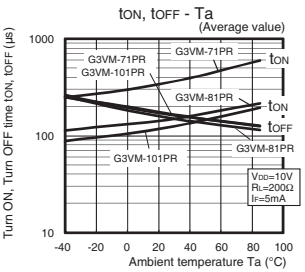
## ■Engineering Data

**●Turn ON, Turn OFF time vs. Ambient temperature**

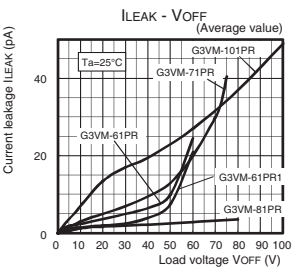
G3VM-61PR1/61PR




G3VM-71PR/81PR/101PR

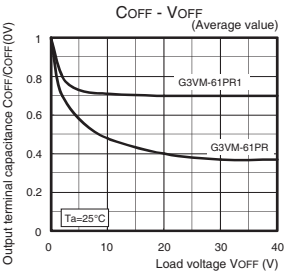



**●Current leakage vs. Load voltage**

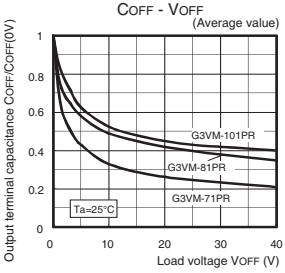



**●Output terminal capacitance vs. Load voltage**

G3VM-61PR1/61PR

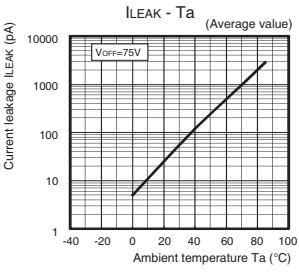



G3VM-71PR/81PR/101PR




**●Current leakage vs. Ambient temperature**

G3VM-71PR

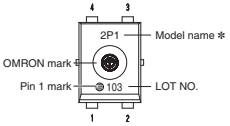


## ■Appearance / Terminal Arrangement / Internal Connections

### ●Appearance

**USOP (Ultra Small Outline Package)**

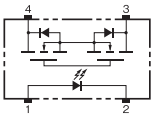
USOP 4-pin




✻ Actual model name marking for each model

| Model | Marking |
|---|---|
| G3VM-61PR1 | 6P1 |
| G3VM-61PR | 6P0 |
| G3VM-71PR | 7P0 |
| G3VM-81PR | 8P0 |
| G3VM-101PR | AP0 |

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

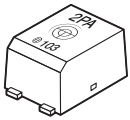


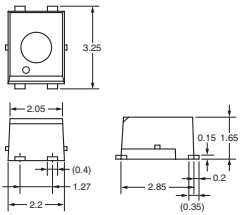

**Note: 1.** The actual product is marked differently from the image shown here.
**Note: 2.** "G3VM" does not appear in the model number on the Relay.

## ■Dimensions (Unit: mm)

### Surface-mounting Terminals

**Weight: 0.03 g**

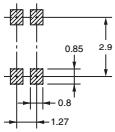



Unless otherwise specified, the dimensional tolerance is ±0.2 mm.

### Actual Mounting Pad Dimensions

(Recommended Value, Top View)




Unless otherwise specified, the dimensional tolerance is ±0.2 mm.

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

## ■Approved Standards

UL recognized

| Approved Standards | Contact form | File No. |
|---|---|---|
| UL recognized | 1a (SPST-NO) | E80555 |

## ■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.