

## MOS FET Relays

### G3VM-61PR

**Smallest Class in market, USOP Package MOS FET Relays ( $C_{OFF}$  (typical): 20 pF,  $R_{ON}$  (typical): 1  $\Omega$ ) 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  $\Omega$  (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.)

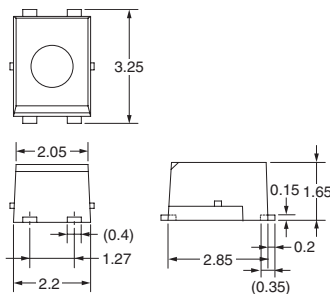
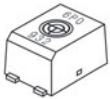
Contact form	Terminals	Load voltage (peak value) (See note)	Model	Minimum packaging unit
				Number per tape
SPST-NO	Surface-mounting terminals	60 V	G3VM-61PR	---
			G3VM-61PR(TR)	1,500

- 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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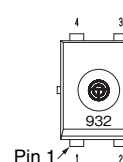
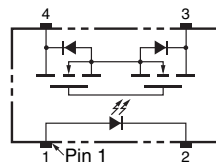
**Note:** A tolerance of  $\pm 0.2$  mm applies to all dimensions unless otherwise specified.

Weight: 0.03 g

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

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

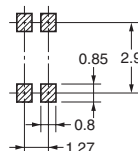
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The actual product is marked differently from the image shown here. Beveled side is input side.

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

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

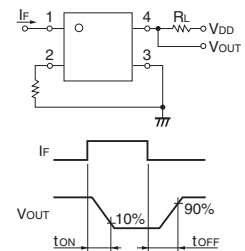
Item	Symbol	Rating	Unit	Measurement Conditions	
Input	LED forward current	$I_F$	50	mA	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_j$	125	°C	
Output	Load voltage (AC peak / DC)	$V_{OFF}$	60	V	
	Continuous 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

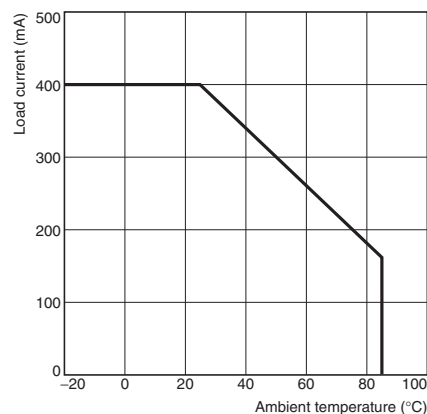
Use the G3VM under the following conditions so that the Relay will operate properly.

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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