

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.)

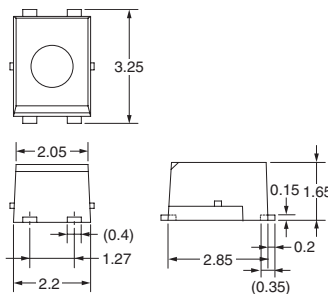
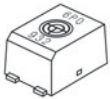
Contact form	Terminals	Load voltage (peak value) (See note)	Model	Minimum packaging unit
				Number per tape
SPST-NO	Surface-mounting terminals	60 V	G3VM-61PR	---
			G3VM-61PR(TR)	1,500

- 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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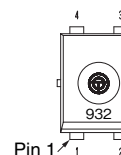
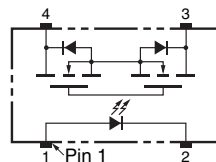


Note: The actual product is marked differently from the image shown here.

Weight: 0.03 g

Terminal Arrangement/Internal Connections (Top View)

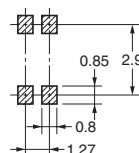
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The actual product is marked differently from the image shown here. Beveled side is input side.

Actual Mounting Pad Dimensions (Recommended Value, Top View)

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Absolute Maximum Ratings (Ta = 25°C)

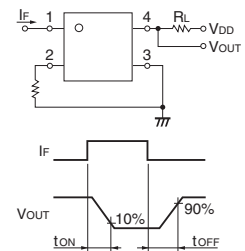
Item	Symbol	Rating	Unit	Measurement Conditions	
Input	LED forward current	I_F	50	mA	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5	V	
	Connection temperature	T_j	125	°C	
Output	Load voltage (AC peak / DC)	V_{OFF}	60	V	
	Continuous load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

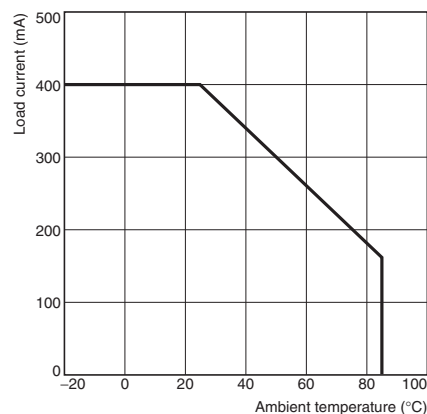
Use the G3VM under the following conditions so that the Relay will operate properly.

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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