

## MOS FET Relays

G3VM-61BR/ER

### New, High-capacity (2.5-A) MOS FET Relay, Ideal for Analog Signal Switching

- Switches minute analog signals.
- Low ON-resistance of 0.1 Ω max.
- Continuous load current of 2.5 A.

#### ⚠ Caution

Refer to "Common Precautions" on page 2.

#### ■ Application Examples

- Measurement devices
- Security systems
- I/O for alarm

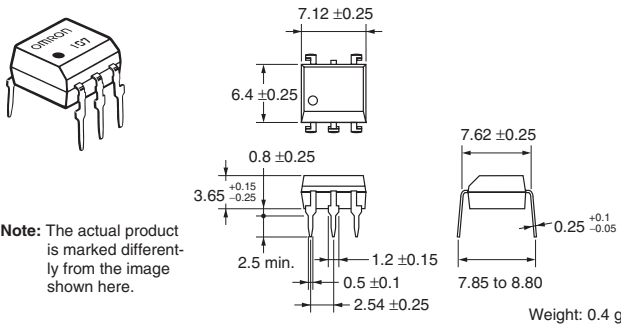
#### ■ List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Minimum packaging unit	
				Number per stick	Number per tape
SPST-NO	PCB terminals	60 V AC	G3VM-61BR	50	---
	Surface-mounting terminals		G3VM-61ER		
				G3VM-61ER(TR)	---

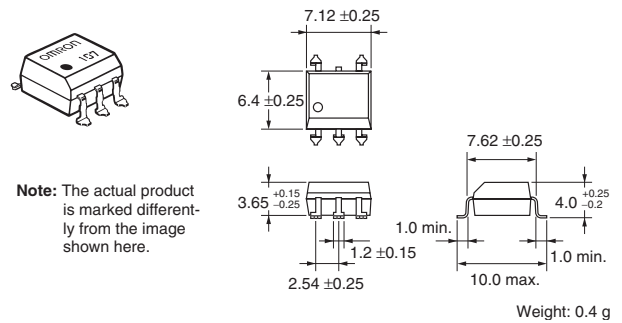
#### ■ Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

##### G3VM-61BR

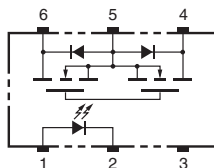


##### G3VM-61ER

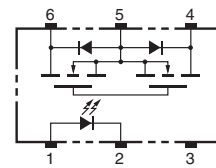


#### ■ Terminal Arrangement/Internal Connections (Top View)

##### G3VM-61BR

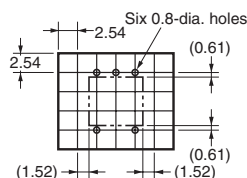


##### G3VM-61ER



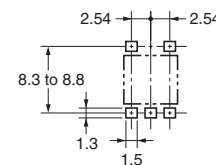
#### ■ PCB Dimensions (Bottom View)

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

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■ Absolute Maximum Ratings (Ta = 25°C)

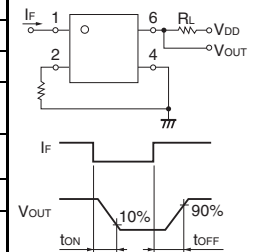
Item	Symbol	Rating	Unit	Measurement Conditions	
Input	LED forward current	$I_F$	30	mA	
	Repetitive peak LED forward current	$I_{FP}$	1	A	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.3	mA/°C	
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_J$	125	°C	
Output	Output dielectric strength	$V_{OFF}$	60	V	
	Continuous load current	$I_O$	2,500	mA	
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-22	mA/°C	
	Connection temperature	$T_J$	125	°C	
Dielectric strength between input and output (See note 1.)		$V_{I-O}$	2,500	Vrms	AC for 1 min
Operating temperature		$T_a$	-20 to 85	°C	With no icing or condensation
Storage temperature		$T_{stg}$	-40 to 125	°C	With no icing or condensation
Soldering temperature (10 s)		---	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	$V_F$	1.18	1.33	1.48	V	$I_F = 10 \text{ mA}$
	Reverse current	$I_R$	---	---	10	$\mu\text{A}$	$V_R = 5 \text{ V}$
	Capacity between terminals	$C_T$	---	70	---	pF	$V = 0, f = 1 \text{ MHz}$
	Trigger LED forward current	$I_{FT}$	---	1.0	3	mA	$I_O = 1 \text{ A}$
Output	Maximum resistance with output ON	---	0.065	0.1	$\Omega$	$I_F = 10 \text{ mA}, I_O = 2 \text{ A}$	
	Current leakage when the relay is open	$I_{LEAK}$	---	1.0	10	nA	$V_{OFF} = 60 \text{ V}$
Capacity between I/O terminals		$C_{I-O}$	---	0.8	---	pF	$f = 1 \text{ MHz}, V_s = 0 \text{ V}$
Insulation resistance		$R_{I-O}$	1,000	---	---	M $\Omega$	$V_{I-O} = 500 \text{ V DC}, R_{OH} \leq 60\%$
Turn-ON time		$t_{ON}$	---	1.0	1.5	ms	$I_F = 10 \text{ mA}, R_L = 200 \Omega, V_{DD} = 20 \text{ V}$ (See note 2.)
Turn-OFF time		$t_{OFF}$	---	0.2	0.4	ms	

Note 2. Turn-ON and Turn-OFF Times



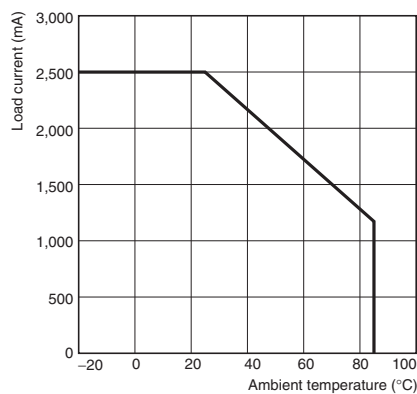
■ Recommended Operating Conditions

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

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	$V_{DD}$	---	---	48	V
Operating LED forward current	$I_F$	10	---	20	mA
Continuous load current	$I_O$	---	---	2,500	mA
Operating temperature	$T_a$	25	---	60	°C

■ Engineering Data

Load Current vs. Ambient Temperature  
G3VM-61BR/ER



■ Safety Precautions

Refer to page 2 for precautions common to all G3VM models.