



## MOS FET Relay

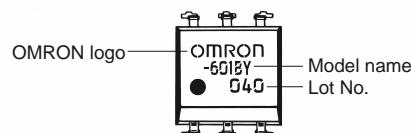
G3VM-601BY/EY

**MOS FET Relay for Switching Analog Signals, with an I/O Dielectric Strength of 5 kVAC Using Optical Isolation**

- Switches minute analog signals.
- Switches AC and DC.
- Load voltage: 600 V.
- I/O dielectric strength: 5 kVAC.
- UL/CSA approval pending.



### ■ Appearance



**Note:** "G3VM" is not printed on the actual product.

## Ordering Information

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Taping quantity
SPST-NO	PCB terminals	600 VAC	G3VM-601BY	50	---
	Surface-mounting terminals		G3VM-601EY		
			G3VM-601EY(TR)	---	1,500

## Application Examples

- Electronic automatic exchange systems
- Measuring systems
- FA
- Security systems

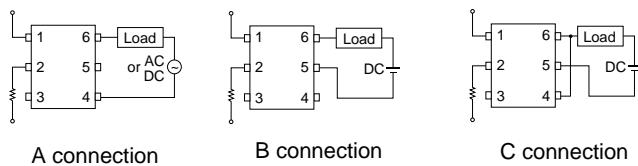
## Specifications

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

Item		Symbol	Rating	Conditions
Input	LED forward current	I <sub>F</sub>	50 mA	---
	LED forward current reduction rate	ΔI <sub>F</sub> /°C	-0.5 mA/°C	Ta ≥ 25°C
	Repetitive peak LED forward current	I <sub>FP</sub>	1 A	100-μs pulses, 100 pps
	LED reverse voltage	V <sub>R</sub>	5 V	---
	Permissible loss	P <sub>in</sub>	50 mW	---
	Connection temperature	T <sub>J</sub>	125°C	---
Output	Output dielectric strength	V <sub>OFF</sub>	600 V	AC peak value
	Continuous load current	I <sub>O</sub>	100 mA	---
			100 mA	---
			200 mA	---
	Peak load current	I <sub>pead</sub>	0.3 A	---
	Output loss	P <sub>out</sub>	454 mW	---
	ON current reduction rate	ΔI <sub>ON</sub> /°C	-1 mA/°C	Ta ≥ 25°C
			-1 mA/°C	
			-2 mA/°C	
	Total permissible loss	P <sub>T</sub>	504 mW	---
	Dielectric strength between I/O terminals (See note.)	V <sub>I-O</sub>	5,000 Vrms	AC, 1 min
Insulation resistance		R <sub>I-O</sub>	5 × 10 <sup>10</sup> Ω	V <sub>S</sub> = 500 V, ambient operating humidity ≤ 60%
Storage temperature		T <sub>stg</sub>	-55 to 125°C	---
Ambient operating temperature		T <sub>a</sub>	-40 to 85°C	---

**Note** The dielectric strength between I/O terminals was measured with voltage applied to pins 1, 2, and 3 together, and to pins 4, 5, and 6 together.

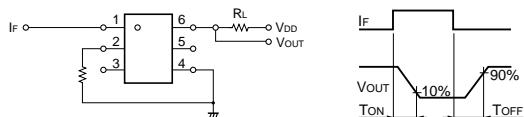
### Connection Circuit Diagram



### ■ Electrical Performance (Ta = 25°C)

Item		Symbol	Minimum	Standard	Maximum	Conditions
Input	LED forward current	V <sub>F</sub>	1.0 V	1.15 V	1.3 V	I <sub>F</sub> = 10 mA
	Reverse current	I <sub>R</sub>	---	---	10 μA	V <sub>R</sub> = 5 V
	Capacity between terminals	C <sub>T</sub>	---	30 pF	---	V = 0, f = 1 MHz
Output	Maximum resistance with output ON	R <sub>ON</sub>	---	22 Ω	35 Ω	I <sub>ON</sub> = 100 mA, I <sub>F</sub> = 10 mA
			---	17 Ω	27 Ω	I <sub>ON</sub> = 100 mA, I <sub>F</sub> = 10 mA
			---	8.5 Ω	13.5 Ω	I <sub>ON</sub> = 200 mA, I <sub>F</sub> = 10 mA
	Current leakage when the relay is closed	I <sub>LEAK</sub>	---	---	10 μA	V <sub>OFF</sub> = 600 V
Turn-ON time		T <sub>ON</sub>	---	0.5 ms	1.5 ms	R <sub>L</sub> = 200 Ω (See note.) V <sub>DD</sub> = 20 V, I <sub>F</sub> = 5 mA
Turn-OFF time		T <sub>OFF</sub>	---	0.1 ms	1.0 ms	
Floating capacity between I/O terminals		C <sub>I-O</sub>	---	0.8 pF	---	V <sub>S</sub> = 0 V, f = 1 MHz

**Note** The operate and release time were measured in the way shown below.



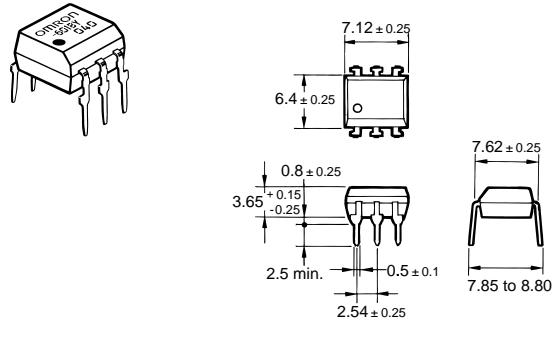
## ■ Recommended Operating Conditions

Item	Symbol	Minimum	Standard	Maximum
Operating voltage	$V_{DD}$	---	---	480 V
Forward current	$I_F$	5 mA	---	25 mA
Continuous load current	$I_O$	---	---	100 mA
Operating temperature	$T_a$	-20°C	---	65°C

## Dimensions

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

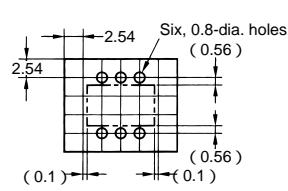
### G3VM-601BY



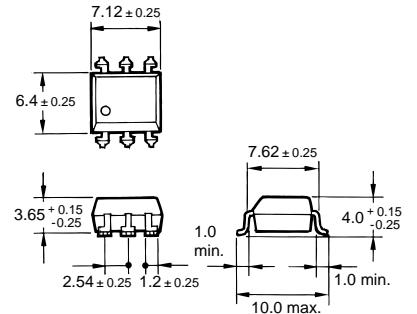
**Note:** "G3VM" is not printed on the actual product.

### ■ PCB Dimensions (Bottom View)

### G3VM-601BY

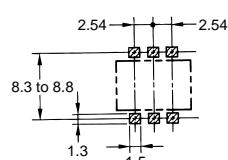


### G3VM-601EY



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

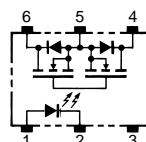
### G3VM-601EY



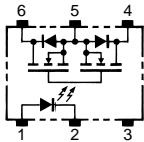
## Installation

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

### G3VM-601BY

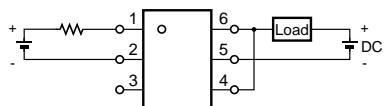


### G3VM-601EY





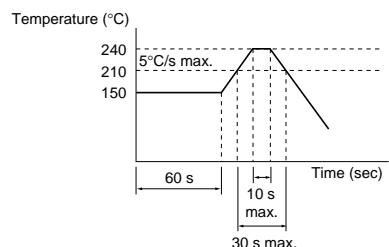
## DC Parallel Connection



## Solder Mounting

Maintain the following conditions during manual or reflow soldering of the relays in order to prevent the temperature of the relays from rising.

1. Pin Soldering  
Solder each pin at a maximum temperature of 260°C within 10 s.
2. Reflow Soldering
  - a. Solder each pin at a maximum temperature of 260°C within 10 s.
  - b. Make sure that the ambient temperature on the surface of the resin casing is 240°C max. for 10 s maximum.
  - c. The following temperature changes are recommendable for soldering.



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**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. K114-E1-1      **In the interest of product improvement, specifications are subject to change without notice.**

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