

## MOS FET Relays

G3VM-601AY/DY

**Compact, General-purpose, Analog-switching MOS FET Relays, with Dielectric Strength of 5 kVAC between I/O Using Optical Isolation.**

- Trigger LED forward current of 2 mA (maximum) facilitates power saving designs.
- Switches minute analog signals.
- Continuous load current of 90 mA.



**NEW**

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

**RoHS compliant**

⚠ Refer to "Common Precautions".

### Application Examples

- Power meter
- Measurement devices
- Security systems
- Industrial equipment

### List of Models

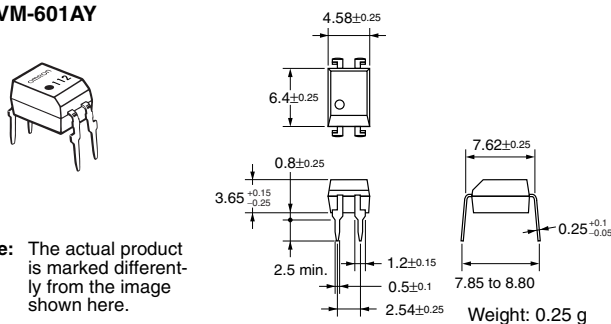
Contact form	Terminals	Load voltage (peak value) (See the note.)	Model	Number per stick	Number per tape
SPST-NO	PCB terminals	600 V	G3VM-601AY	100	---
	Surface-mounting terminals		G3VM-601DY		
			G3VM-601DY(TR)	---	1,500

**Note:** The AC peak and DC value are given for the load voltage.

### Dimensions

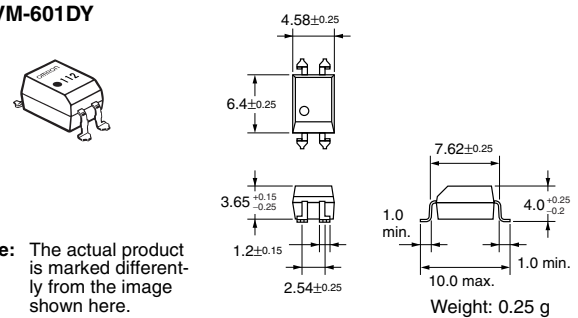
**Note:** All units are in millimeters unless otherwise indicated.

#### G3VM-601AY



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

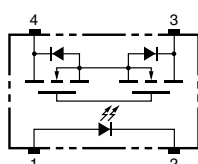
#### G3VM-601DY



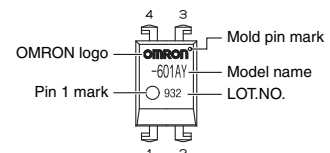
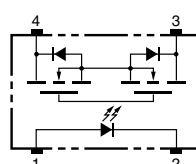
**Note:** The actual product is marked differently from the image shown here.

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

#### G3VM-601AY



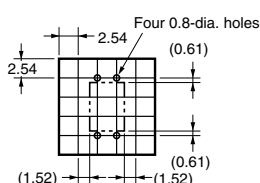
#### G3VM-601DY



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

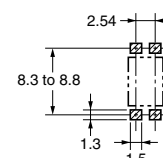
### PCB Dimensions (Bottom View)

#### G3VM-601AY



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

#### G3VM-601DY



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

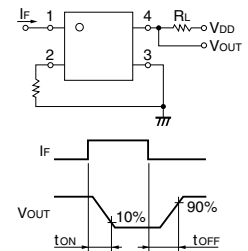
Item	Symbol	Rating	Unit	Measurement Conditions	
Input	LED forward current	$I_F$	30	mA	
	Repetitive peak LED forward current	$I_{FP}$	1	A	100 $\mu$ s pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.3	mA/ $^\circ\text{C}$	Ta $\geq$ 25 $^\circ\text{C}$
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_j$	125	$^\circ\text{C}$	
Output	Load voltage (AC peak/DC)	$V_{OFF}$	600	V	
	Continuous load current (AC peak/DC)	$I_O$	90	mA	
	ON current reduction rate	$\Delta I_O/^\circ\text{C}$	-0.9	mA/ $^\circ\text{C}$	Ta $\geq$ 25 $^\circ\text{C}$
	Pulse ON current	$I_{op}$	0.27	A	t = 100 ms, Duty = 1/10
	Connection temperature	$T_j$	125	$^\circ\text{C}$	
Dielectric strength between input and output (See note 1.)		$V_{I-O}$	5,000	Vrms	AC for 1 min
Operating temperature		$T_a$	-40 to +85	$^\circ\text{C}$	With no icing or condensation
Storage temperature		$T_{stg}$	-55 to +125	$^\circ\text{C}$	With no icing or condensation
Soldering temperature (10 s)		---	260	$^\circ\text{C}$	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	$V_F$	1.45	1.63	1.75	V	$I_F = 10$ mA
	Reverse current	$I_R$	---	---	10	$\mu\text{A}$	$V_R = 5$ V
	Capacity between terminals	$C_T$	---	40	---	pF	V = 0, f = 1 MHz
	Trigger LED forward current	$I_{FT}$	---	0.3	2	mA	$I_O = 90$ mA
Output	Maximum resistance with output ON	$R_{ON}$	---	30	40	$\Omega$	$I_F = 5$ mA, $I_O = 90$ mA, t < 1 s
			45	60		$I_F = 5$ mA, $I_O = 90$ mA	
	Current leakage when the relay is open	$I_{LEAK}$	---	---	1.0	$\mu\text{A}$	$V_{OFF} = 600$ V
Capacity between terminals		$C_{OFF}$	---	75	---	pF	V = 0, f = 1 MHz
Capacity between I/O terminals		$C_{I-O}$	---	0.8	---	pF	f = 1 MHz, Vs = 0 V
Insulation resistance		$R_{I-O}$	1,000	---	---	M $\Omega$	$V_{I-O} = 500$ VDC, RoH $\leq$ 60%
Turn-ON time		tON	---	0.2	1	ms	$I_F = 5$ mA, $R_L = 200$ $\Omega$ , $V_{DD} = 10$ V (See note 2.)
Turn-OFF time		tOFF	---	0.2	1	ms	

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



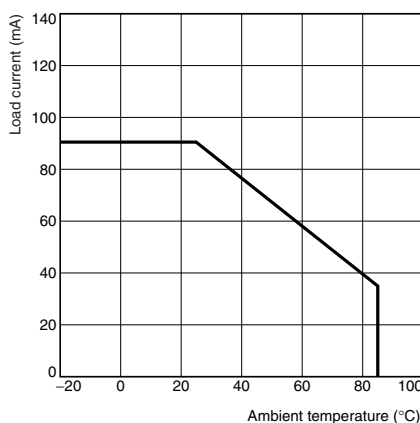
### Recommended Operating Conditions

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)	$V_{DD}$	---	---	480	V
Operating LED forward current	$I_F$	3	5	20	mA
Continuous load current (AC peak/DC)	$I_O$	---	---	90	mA
Operating temperature	$T_a$	-20	---	65	$^\circ\text{C}$

### Engineering Data

#### Load Current vs. Ambient Temperature G3VM-601AY(DY)



### Safety Precautions

Refer to "Common Precautions" for all G3VM models.