

MOS FET Relays

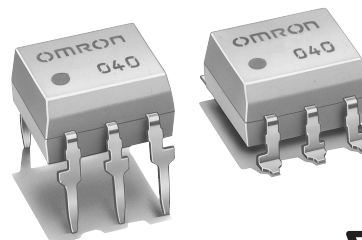
G3VM-601BY/EY

Analog-switching MOS FET Relay with a Dielectric Strength of 5 kVAC between I/O Using Optical Isolation

- Switches minute analog signals.
- Switching AC and DC.
- Peak load voltage of 600 V.
- Dielectric strength of 5 kVAC between I/O.
- RoHS Compliant.

Application Examples

- Electronic automatic exchange systems
- FA systems
- Measurement devices
- Security systems



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

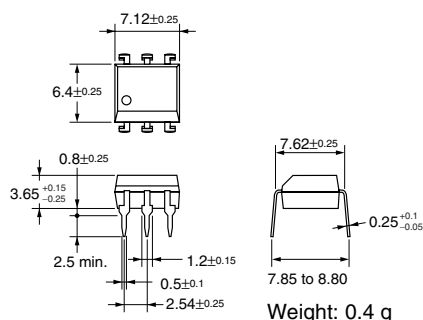
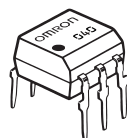
List of Models

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

Dimensions

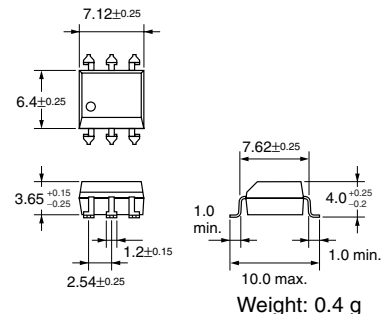
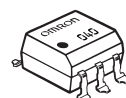
Note: All units are in millimeters unless otherwise indicated.

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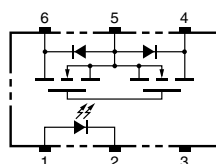
G3VM-601EY



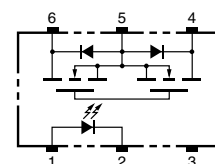
Note: The actual product is marked differently from the image shown here.

Terminal Arrangement/Internal Connections (Top View)

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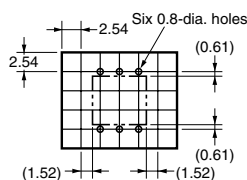


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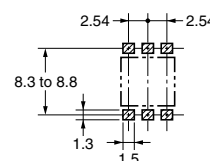
PCB Dimensions (Bottom View)

G3VM-601BY



Actual Mounting Pad Dimensions (Recommended Value, Top View)

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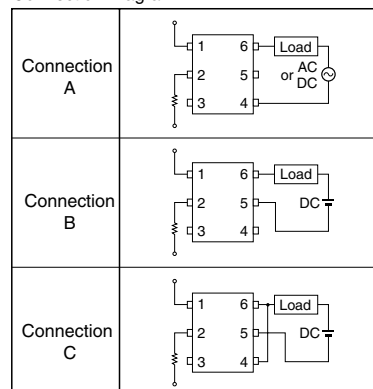


Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	Rating	Unit	Measurement conditions
Input	LED forward current		I_F	50	mA	
	Repetitive peak LED forward current		I_{FP}	1	A	100 μ s pulses, 100 pps
	LED forward current reduction rate		$\Delta I_F/^{\circ}\text{C}$	-0.5	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	Output dielectric strength		V_{OFF}	600	V	
	Continuous load current	Connection A	I_O	100	mA	
		Connection B		100		
		Connection C		200		
	ON current reduction rate	Connection A	$\Delta I_{ON}/^{\circ}\text{C}$	-1.0	mA/ $^{\circ}\text{C}$	Ta $\geq 25^{\circ}\text{C}$
		Connection B		-1.0		
		Connection C		-2.0		
	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_{sig}	-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.

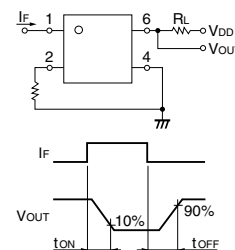
Connection Diagram



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	---	30	---	pF	$V = 0, f = 1 \text{ MHz}$
	Trigger LED forward current	I_{FT}	---	1.6	5	mA	$I_O = 100 \text{ mA}$
Output	Maximum resistance with output ON	Connection A	R_{ON}	---	25	Ω	$I_F = 10 \text{ mA}, I_O = 100 \text{ mA}$
		---	---	30	45	Ω	$I_F = 10 \text{ mA}, I_O = 100 \text{ mA}$
		Connection B	---	23	35	Ω	$I_F = 10 \text{ mA}, I_O = 100 \text{ mA}$
		Connection C	---	12	18	Ω	$I_F = 10 \text{ mA}, I_O = 200 \text{ mA}$
	Current leakage when the relay is open	I_{LEAK}	---	---	1.0	μA	$V_{OFF} = 600 \text{ V}$
Capacity between I/O terminals		C_{IO}	---	0.8	---	pF	$f = 1 \text{ MHz}, V_s = 0 \text{ V}$
Insulation resistance		R_{IO}	1,000	---	---	M Ω	$V_{IO} = 500 \text{ VDC}, \text{RoH} \leq 60\%$
Turn-ON time		t_{ON}	---	0.2	1.5	ms	$I_F = 5 \text{ mA}, R_L = 200 \Omega, V_{DD} = 20 \text{ V}$ (See note 2.)
Turn-OFF time		t_{OFF}	---	0.2	1.0	ms	

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



Recommended Operating Conditions

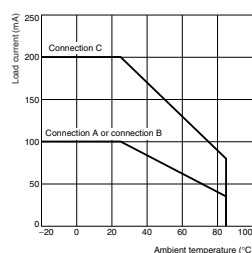
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	V_{DD}	---	---	480	V
Operating LED forward current	I_F	7.5	15	25	mA
Continuous load current	I_O	---	---	100	mA
Operating temperature	T_a	-20	---	65	$^\circ\text{C}$

Engineering Data

Load Current vs. Ambient Temperature

G3VM-601BY(EY)



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