

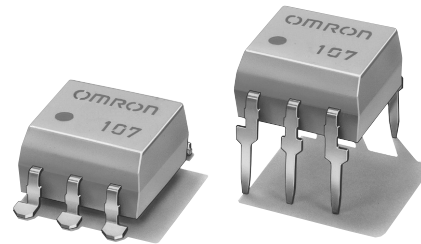
MOS FET Relays G3VM-401BY/EY

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

- Switches minute analog signals.
- Leakage current of 1 μA max. when output relay is open.
- RoHS Compliant.

■ **Application Examples**

- Electronic automatic exchange systems
- Measurement devices
- FA systems



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

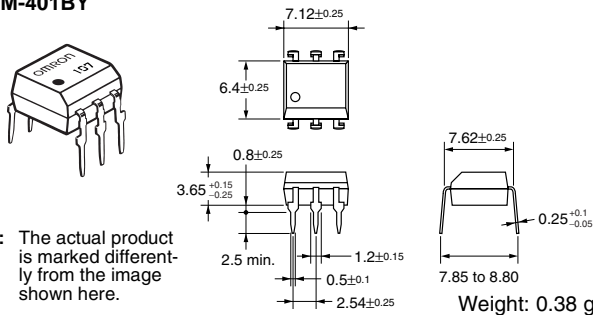
■ **List of Models**

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NO	PCB terminals	400 VAC	G3VM-401BY	50	---
	Surface-mounting terminals		G3VM-401EY		
				G3VM-401EY (TR)	---

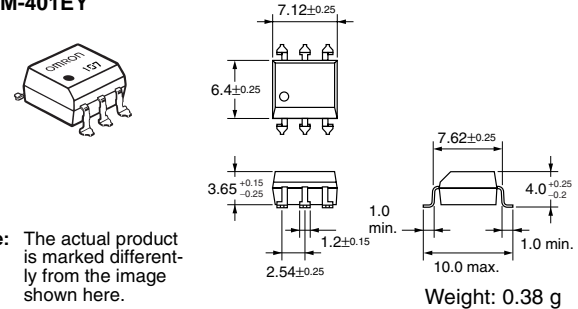
■ **Dimensions**

Note: All units are in millimeters unless otherwise indicated.

G3VM-401BY

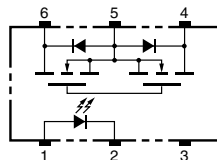


G3VM-401EY

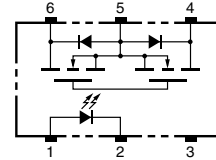


■ **Terminal Arrangement/Internal Connections (Top View)**

G3VM-401BY

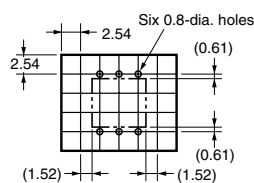


G3VM-401EY



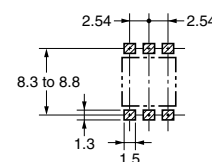
■ **PCB Dimensions (Bottom View)**

G3VM-401BY



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

G3VM-401EY

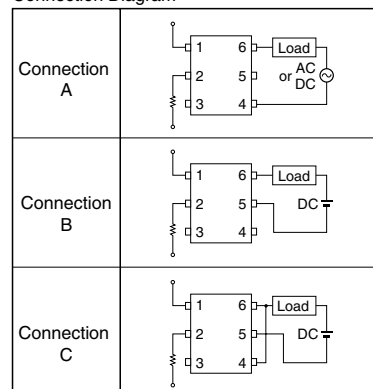


■ Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	Unit	Measurement conditions	
Input	LED forward current	I_F	50	mA	
	Repetitive peak LED forward current	I_{FP}	1	A	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	
	LED reverse voltage	V_R	5	V	
	Connection temperature	T_J	125	°C	
Output	Output dielectric strength	V_{OFF}	400	V	
	Continuous load current	Connection A	120	mA	
		Connection B	120		
		Connection C	240		
	ON current reduction rate	Connection A	$\Delta I_{ON}/^\circ\text{C}$	-1.2	mA/°C
Connection B			-1.2		
Connection C			-2.4		
Connection temperature	T_J	125	°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	°C	With no icing or condensation
Storage temperature		T_{stg}	-55 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.

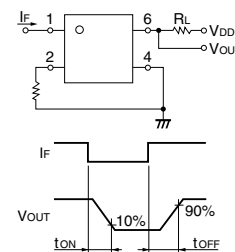
Connection Diagram



■ 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}	---	---	3	mA	$I_O = 120 \text{ mA}$	
Output	Maximum resistance with output ON	Connection A	R_{ON}	---	17	35	Ω	$I_F = 5 \text{ mA}, I_O = 120 \text{ mA}$
		Connection B		---	11	20	Ω	$I_F = 5 \text{ mA}, I_O = 120 \text{ mA}$
		Connection C		---	6	10	Ω	$I_F = 5 \text{ mA}, I_O = 240 \text{ mA}$
Current leakage when the relay is open		I_{LEAK}	---	---	1.0	μA	$V_{OFF} = 400 \text{ V}$	
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 Ω	$V_{I-O} = 500 \text{ VDC}, \text{RoH} \leq 60\%$	
Turn-ON time		t_{ON}	---	0.3	1.0	ms	$I_F = 5 \text{ mA}, R_L = 200 \Omega, V_{DD} = 20 \text{ V}$ (See note 2.)	
Turn-OFF time		t_{OFF}	---	0.1	1.0	ms		

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



■ Recommended Operating Conditions

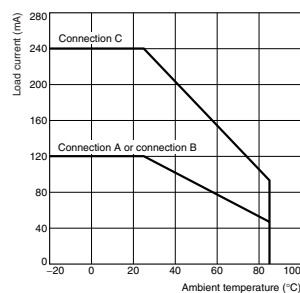
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	V_{DD}	---	---	320	V
Operating LED forward current	I_F	5	7.5	25	mA
Continuous load current	I_O	---	---	120	mA
Operating temperature	T_a	-20	---	65	°C

■ Engineering Data

Load Current vs. Ambient Temperature

G3VM-401BY(EY)



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