

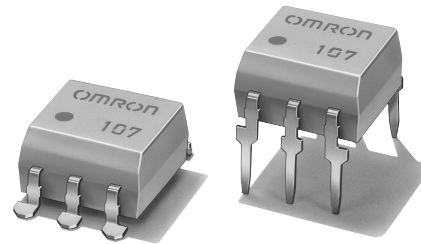
# MOS FET Relays G3VM-401BY/EY

**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  $\mu$ A 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.

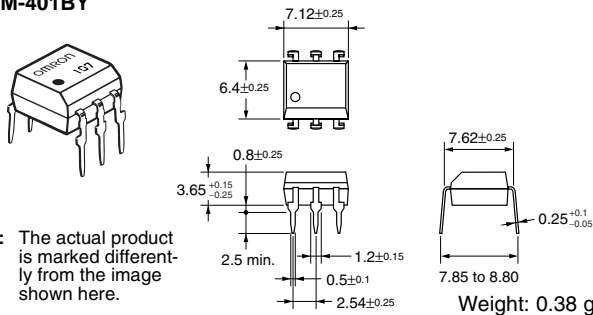
■ **List of Models**

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**

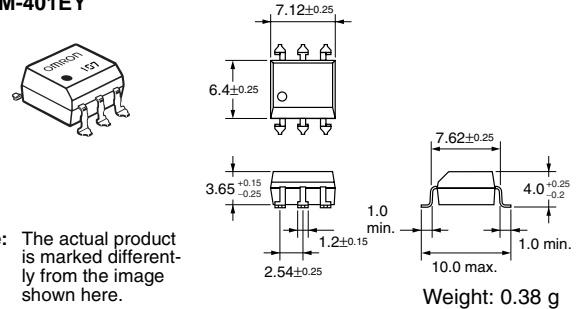
**Note:** All units are in millimeters unless otherwise indicated.

**G3VM-401BY**



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

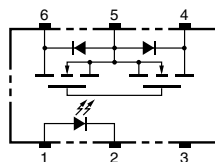
**G3VM-401EY**



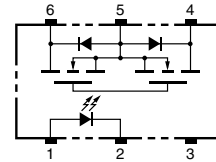
**Note:** The actual product is marked differently from the image shown here.

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

**G3VM-401BY**

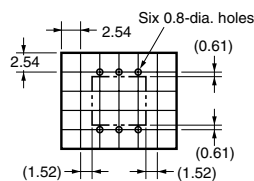


**G3VM-401EY**



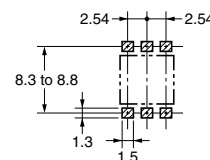
■ **PCB Dimensions (Bottom View)**

**G3VM-401BY**



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

**G3VM-401EY**

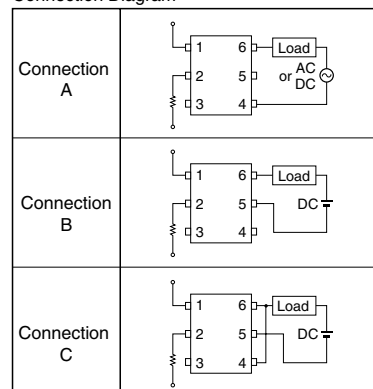


■ Absolute Maximum Ratings (Ta = 25°C)

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.

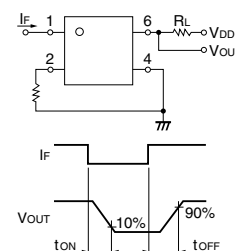
Connection Diagram



■ 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	$\mu\text{A}$	$V_R = 5 \text{ V}$	
	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	$\Omega$	$I_F = 5 \text{ mA}, I_O = 120 \text{ mA}$
		Connection B		---	11	20	$\Omega$	$I_F = 5 \text{ mA}, I_O = 120 \text{ mA}$
		Connection C		---	6	10	$\Omega$	$I_F = 5 \text{ mA}, I_O = 240 \text{ mA}$
	Current leakage when the relay is open	$I_{LEAK}$	---	---	1.0	$\mu\text{A}$	$V_{OFF} = 400 \text{ V}$	
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 $\Omega$	$V_{I-O} = 500 \text{ VDC}, \text{RoH} \leq 60\%$	
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

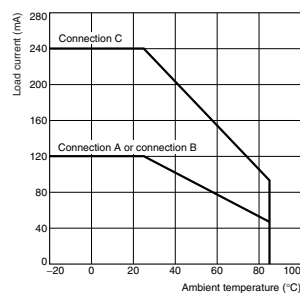
Use the G3VM under the following conditions so that the Relay will operate properly.

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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