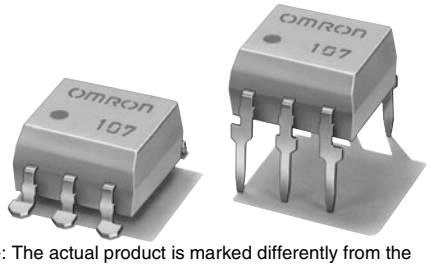
G3VM-401BY/EY

MOS FET Relays

Analog-switching MOS FET Relays with a 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

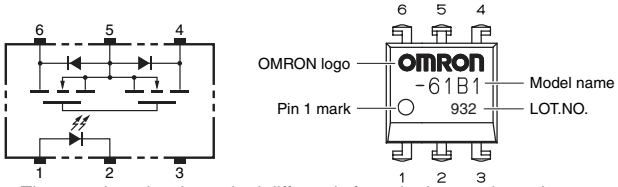


Note: The actual product is marked differently from the image shown here.

■ Application Examples

- **Communication equipment**
- **Test & Measurement equipment**
- **Industrial equipment**

■ Terminal Arrangement/Internal Connections



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■ List of Models

Package type	Contact form	Terminals	Load voltage (peak value) ✻	Model	Minimum package quantity	
					Number per tube	Number per tape and reel
DIP6	1a (SPST-NO)	PCB Terminals	400 V	**G3VM-401BY**	50	-
		Surface-mounting Terminals		**G3VM-401EY**		
				G3VM-401EY (TR)	-	1,500

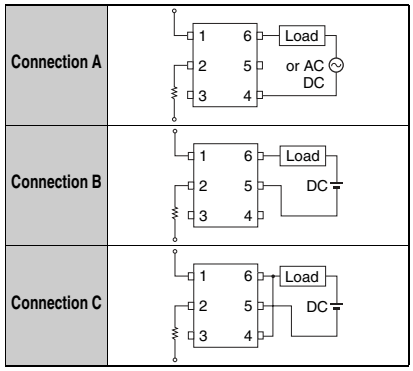
✻ The AC peak and DC value are given for the load voltage.

■ Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	Rating	Unit	Measurement conditions
Input	LED forward current		IF	50	mA	
	Repetitive peak LED forward current		IFP	1	A	100 μs pulses, 100 pps
	LED forward current reduction rate		ΔIF/°C	−0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage		VR	5	V	
	Connection temperature		TJ	125	°C	
Output	Load voltage (AC peak/DC)		VOFF	400	V	
	Continuous load current	Connection A	IO	120	mA	Connection A: AC peak/DC Connection B and C: DC
		Connection B		120		
		Connection C		240		
	ON current reduction rate	Connection A	ΔIO/°C	−1.2	mA/°C	Ta ≥ 25°C
		Connection B		−1.2		
		Connection C		−2.4		
	Connection temperature		TJ	125	°C	
Dielectric strength between I/O (See note 1.)			VI-O	5000	Vrms	AC for 1 min
Ambient operating temperature			Ta	−40 to +85	°C	With no icing or condensation
Ambient storage temperature			Tstg	−55 to +125	°C	With no icing or condensation
Soldering temperature			-	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.

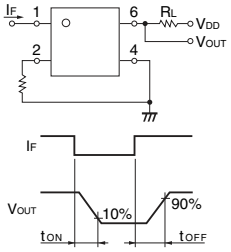
Connection Diagram



■ Electrical Characteristics (Ta = 25°C)

Item			Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions
Input	LED forward voltage		VF	1.0	1.15	1.3	V	IF = 10 mA
	Reverse current		IR	-	-	10	μA	VR = 5 V
	Capacity between terminals		CT	-	30	-	pF	V = 0, f = 1 MHz
	Trigger LED forward current		IFT	-	-	3	mA	IO = 120 mA
Output	Maximum resistance with output ON	Connection A	RON	-	17	35	Ω	IF = 5 mA, IO = 120 mA
		Connection B		-	11	20	Ω	IF = 5 mA, IO = 120 mA
		Connection C		-	6	10	Ω	IF = 5 mA, IO = 240 mA
	Current leakage when the relay is open		ILEAK	-	-	1.0	μA	VOFF = 400 V
	Capacity between terminals		COFF	-	40	-	pF	V = 0, f = 1 MHz
Capacity between I/O terminals			CI-O	-	0.8	-	pF	f = 1 MHz, VS = 0 V
Insulation resistance between I/O terminals			RI-O	1000	-	-	MΩ	VI-O = 500 VDC, RoH ≤ 60%
Turn-ON time			tON	-	0.3	1.0	ms	IF = 5 mA, RL = 200 Ω, VDD = 20 V(See note 2.)
Turn-OFF time			tOFF	-	0.1	1.0	ms	

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



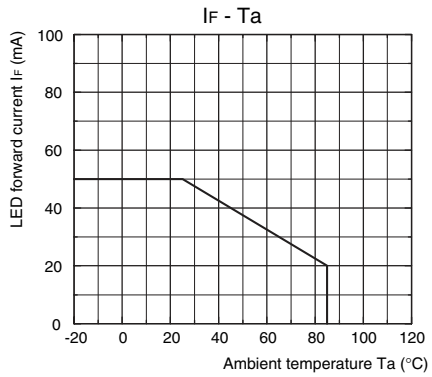
■ Recommended Operating Conditions

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

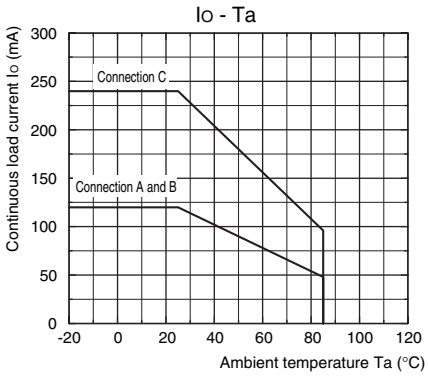
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	-	-	320	V
Operating LED forward current	I_F	5	7.5	25	mA
Continuous load current (AC peak/DC)	I_O	-	-	120	mA
Ambient operating temperature	Ta	–20	-	65	°C

■ Engineering Data

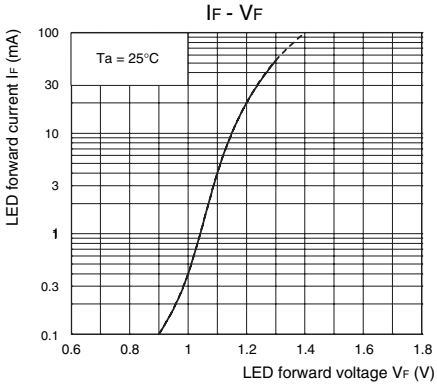
LED forward current vs. Ambient temperature



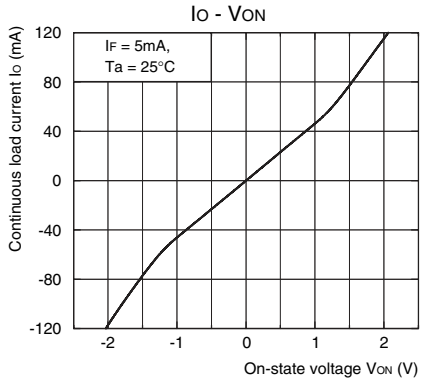
Continuous load current vs. Ambient temperature



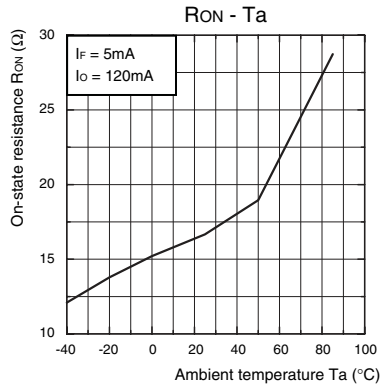
LED forward current vs. LED forward voltage



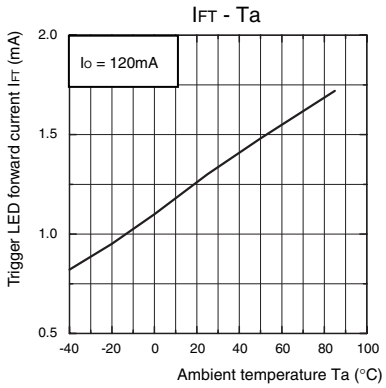
Continuous load current vs. On-state voltage



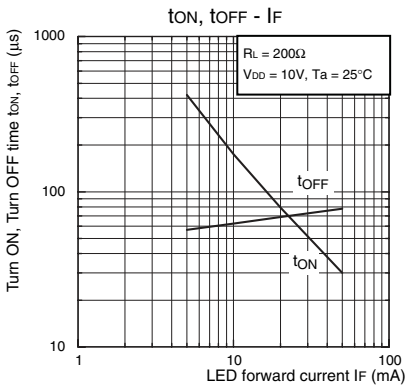
On-state resistance vs. Ambient temperature



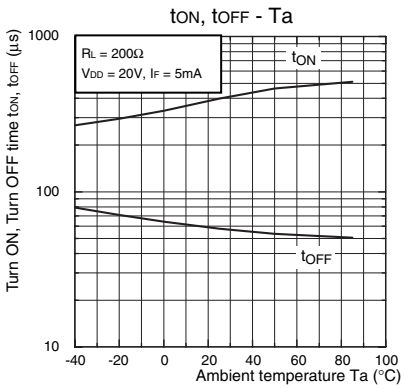
Trigger LED forward current vs. Ambient temperature



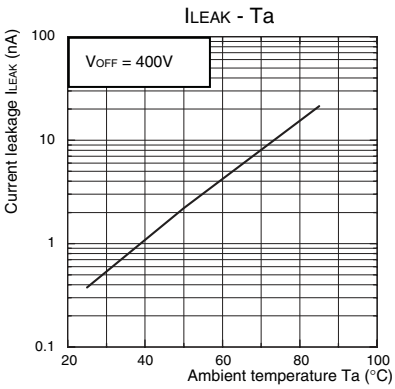
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Ambient temperature



■ Safety Precautions

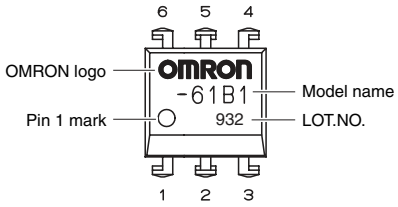
- Refer to **"Common Precautions"** for all G3VM models.

Appearance/Dimensions DIP6 type

■ Appearance

DIP (Dual Inline Package)

DIP6



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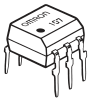
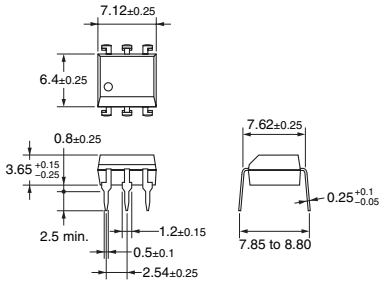
■ Dimensions

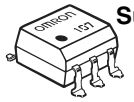
(Unit:mm)



PCB Terminals

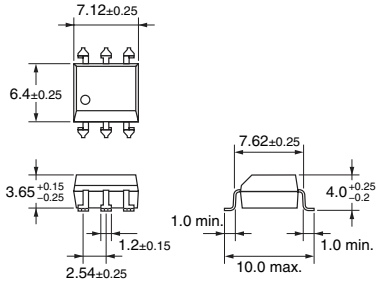
Weight: 0.4 g



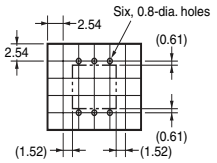


Surface-mounting Terminals

Weight: 0.4 g

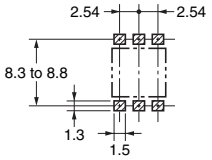


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



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