

G3VM-601BY/EY

MOS FET Relays

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

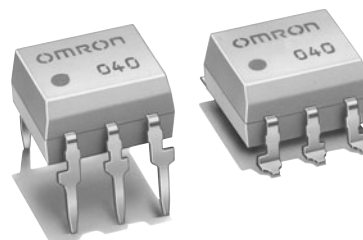
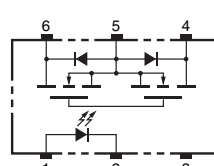
- Switches minute analog signals.
- Switching AC and DC.
- Peak load voltage of 600 V.
- Dielectric strength of 5 kVAC between I/O.

RoHS compliant

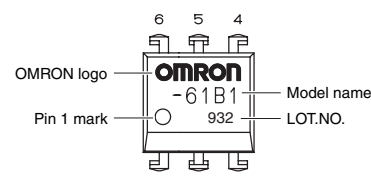
Application Examples

- Communication equipment
- Test & Measurement equipment
- Industrial equipment
- Security equipment

Terminal Arrangement/Internal Connections



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



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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	600 V	G3VM-601BY	50	-
		Surface-mounting Terminals		G3VM-601EY		
				G3VM-601EY (TR)	-	1,500

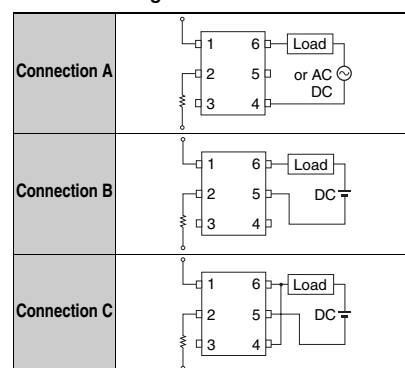
* The AC peak and DC value are given for the load voltage.

Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rating	Unit	Measurement conditions	
Input	LED forward current	I _F	50	mA		
	Repetitive peak LED forward current	I _{FP}	1	A	100 μs pulses, 100 pps	
	LED forward current reduction rate	ΔI _F /°C	−0.5	mA/°C	Ta ≥ 25°C	
	LED reverse voltage	V _R	5	V		
	Connection temperature	T _J	125	°C		
Output	Load voltage (AC peak/DC)		V _{OFF}	600	V	
	Continuous load current	Connection A	I _O	100	mA	Connection A: AC peak/DC Connection B and C: DC
		Connection B		100		
		Connection C		200		
	ON current reduction rate	Connection A	ΔI _O /°C	−1.0	mA/°C	Ta ≥ 25°C
		Connection B		−1.0		
		Connection C		−2.0		
	Connection temperature		T _J	125	°C	
	Dielectric strength between I/O (See note 1.)		V _{I-O}	5000	V _{RMS}	AC for 1 min
Ambient operating temperature		T _a	−40 to +85	°C	With no icing or condensation	
Ambient storage temperature		T _{stg}	−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.

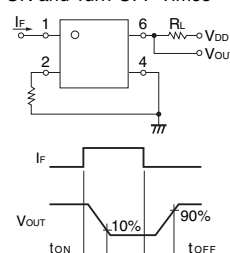
Connection Diagram



Electrical Characteristics (Ta = 25°C)

Item		Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions
Input	LED forward voltage	V _F	1.0	1.15	1.3	V	I _F = 10 mA
	Reverse current	I _R	-	-	10	μA	V _R = 5 V
	Capacity between terminals	C _T	-	30	-	pF	V = 0, f = 1 MHz
	Trigger LED forward current	I _{FT}	-	1.6	5	mA	I _o = 100 mA
Output	Maximum resistance with output ON	R _{ON}	-	25	35	Ω	I _F = 10 mA, I _o = 100 mA, t < 1 s
			-	30	45	Ω	I _F = 10 mA, I _o = 100 mA
			-	23	35	Ω	I _F = 10 mA, I _o = 100 mA
			-	12	18	Ω	I _F = 10 mA, I _o = 200 mA
	Current leakage when the relay is open	I _{LEAK}	-	-	1.0	μA	V _{OFF} = 600 V
Capacity between terminals		C _{OFF}	-	120	-	pF	V = 0, f = 1 MHz
Capacity between I/O terminals		C _{I-O}	-	0.8	-	pF	f = 1 MHz, V _s = 0 V
Insulation resistance between I/O terminals		R _{I-O}	1000	-	-	MΩ	V _{I-O} = 500 VDC, RoH ≤ 60%
Turn-ON time		t _{ON}	-	0.2	1.5	ms	I _F = 10 mA, R _L = 200 Ω, V _{DD} = 20 V (See note 2.)
Turn-OFF time		t _{OFF}	-	0.2	1.0	ms	

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



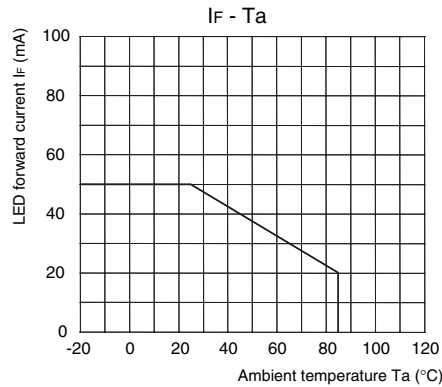
Recommended Operating Conditions

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

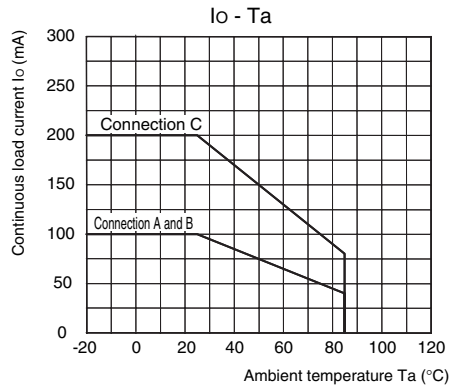
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	-	-	480	V
Operating LED forward current	I_F	7.5	15	25	mA
Continuous load current (AC peak/DC)	I_O	-	-	100	mA
Ambient operating temperature	T_a	-20	-	65	°C

Engineering Data

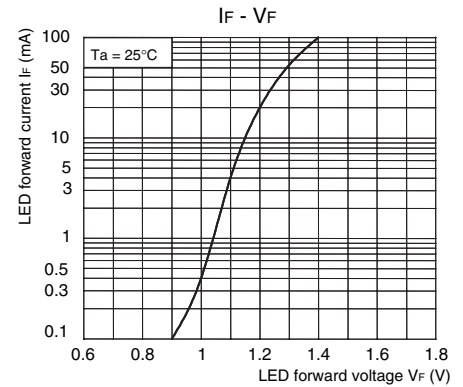
LED forward current vs. Ambient temperature



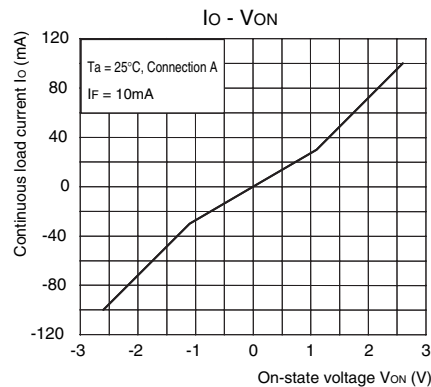
Continuous load current vs. Ambient temperature



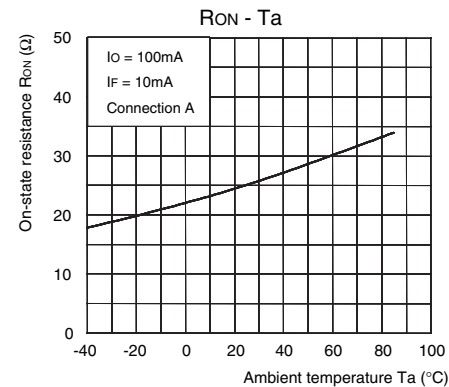
LED forward current vs. LED forward voltage



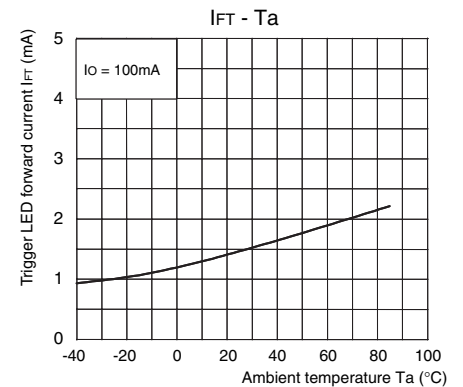
Continuous load current vs. On-state voltage



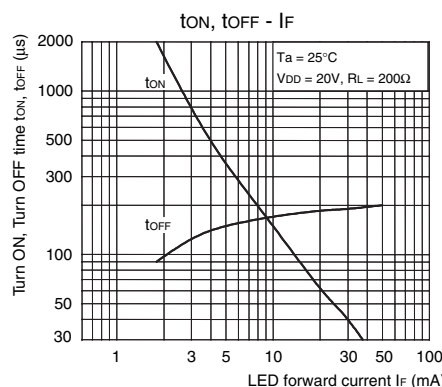
On-state resistance vs. Ambient temperature



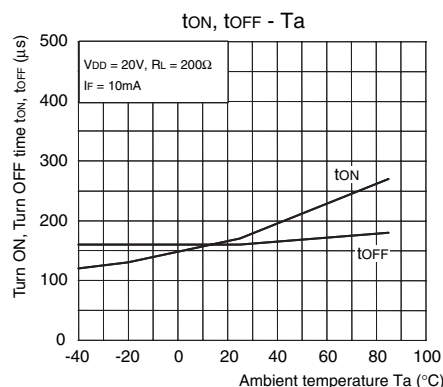
Trigger LED forward current vs. Ambient temperature



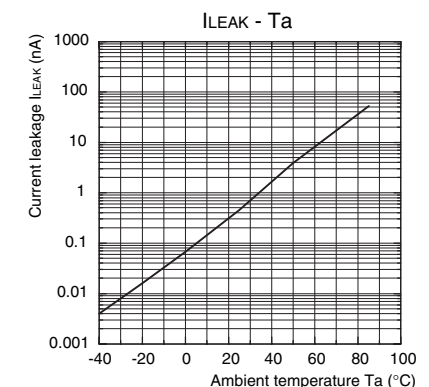
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Ambient temperature

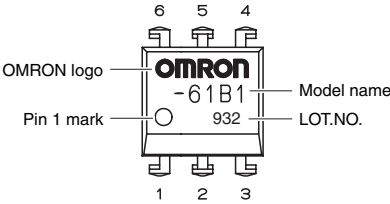


Safety Precautions

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

■ Appearance

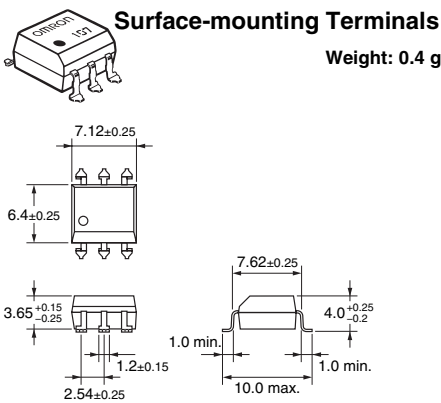
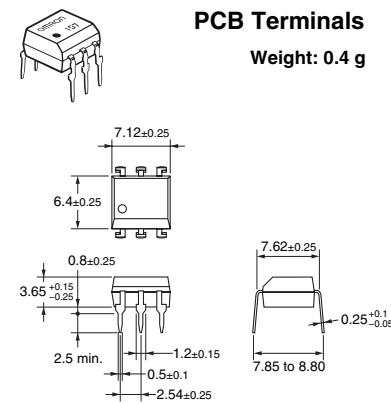
DIP (Dual Inline Package) DIP6



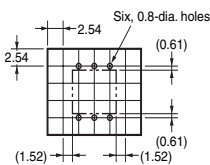
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■ Dimensions

(Unit:mm)

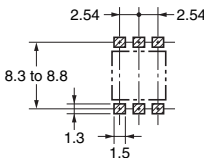


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



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- Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
- Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Note: Do not use this document to operate the Unit.

OMRON Corporation

ELECTRONIC AND MECHANICAL COMPONENTS COMPANY

Contact: www.omron.com/ecb

Cat. No. **K231-E1-01**
0412(0412)(O)

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