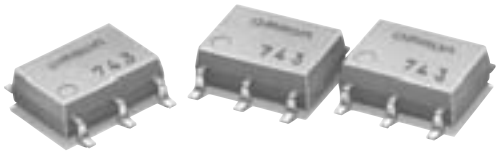
G3VM-61HR1

MOS FET Relays

Higher power, 3.3-A switching with a 60-V load voltage, SOP package. Low 30-mΩ ON Resistance.

- **Continuous load current of 3.3 A. (Connection C: 6.6 A)**



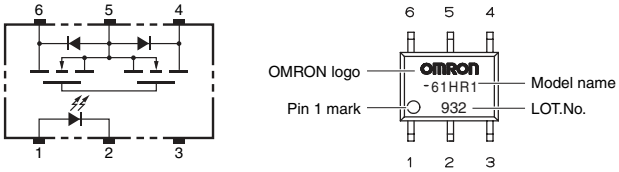
Note: The actual product is marked differently from the image shown here.

RoHS compliant

■ Application Examples

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

■ Terminal Arrangement/Internal Connections



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

■ List of Models

Package type	Contact form	Terminals	Load voltage (peak value) ✻	Model	Minimum package quantity	
					Number per tube	Number per tape and reel
SOP6	1a (SPST-NO)	Surface-mounting Terminals	60 V	**G3VM-61HR1**	75	-
				G3VM-61HR1 (TR05)	-	500

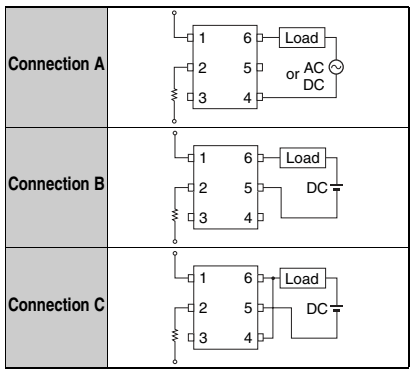
✻ The AC peak and DC value are given for the load voltage.

■ Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	Rating	Unit	Measurement conditions
Input	LED forward current		IF	30	mA	
	LED forward current reduction rate		ΔIF/°C	−0.3	mA/°C	Ta ≥ 25°C
	LED reverse voltage		VR	5	V	
	Connection temperature		TJ	125	°C	
Output	Load voltage (AC peak/DC)		VOFF	60	V	
	Continuous load current	Connection A	IO	3.3	A	Connection A: AC peak/DC Connection B and C: DC
		Connection B		3.3		
		Connection C		6.6		
	ON current reduction rate	Connection A	ΔIO/°C	−33	mA/°C	Ta ≥ 25°C
		Connection B		−33		
		Connection C		−66		
	Pulse ON current		Iop	10	A	t = 100 ms, Duty = 1/10
	Connection temperature		TJ	125	°C	
Dielectric strength between I/O (See note 1.)			VI-O	1500	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.

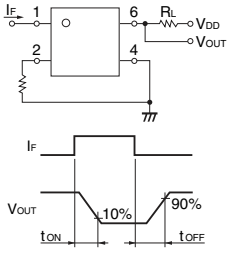
Connection Diagram



■ Electrical Characteristics (Ta = 25°C)

Item			Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions
Input	LED forward voltage		VF	1.18	1.33	1.48	V	IF = 10 mA
	Reverse current		IR	-	-	10	μA	VR = 5 V
	Capacity between terminals		CT	-	70	-	pF	V = 0, f = 1 MHz
	Trigger LED forward current		IFT	-	0.2	3	mA	IO = 2 A
	Turn-OFF LED forward current		IFC	0.1	-	-	mA	IOFF = 10 μA
Output	Maximum resistance with output ON	Connection A	RON	-	30	60	mΩ	IF = 5 mA, IO = 2 A, t < 1 s
		Connection B		-	15	-		IF = 5 mA, IO = 2 A, t < 1 s
		Connection C		-	8	-		IF = 5 mA, IO = 4 A, t < 1 s
	Current leakage when the relay is open		ILEAK	-	-	20	nA	VOFF = 60 V
	Capacity between terminals		Coff	-	700	1500	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	10^8	-	MΩ	VI-O = 500 VDC, RoH ≤ 60 %
Turn-ON time			tON	-	0.6	5	ms	IF = 5 mA, RL = 200 Ω, VDD = 20 V (See note 2.)
Turn-OFF time			tOFF	-	0.2	1	ms	

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



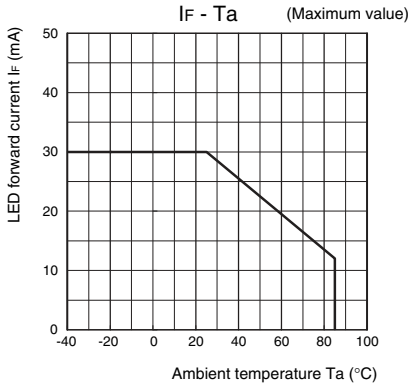
■ Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics. Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

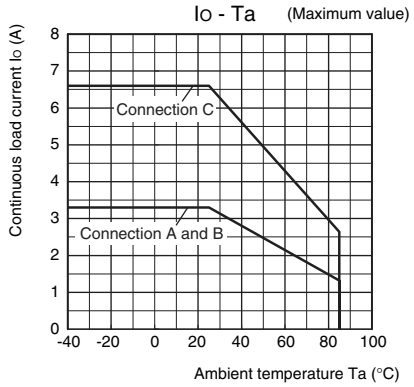
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	-	-	48	V
Operating LED forward current	I_F	5	10	25	mA
Continuous load current (AC peak/DC)	I_O	-	-	3.3	A
Ambient operating temperature	Ta	–20	-	65	°C

■ Engineering Data

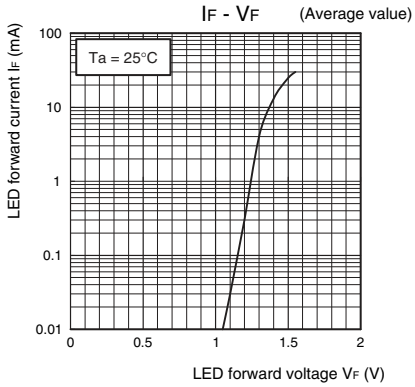
LED forward current vs. Ambient temperature



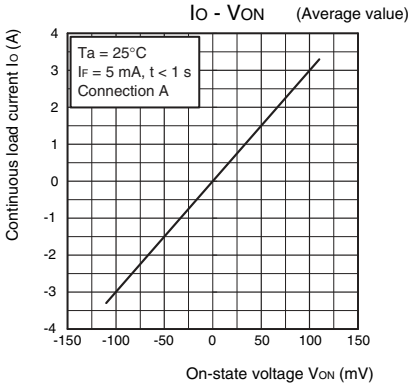
Continuous load current vs. Ambient temperature



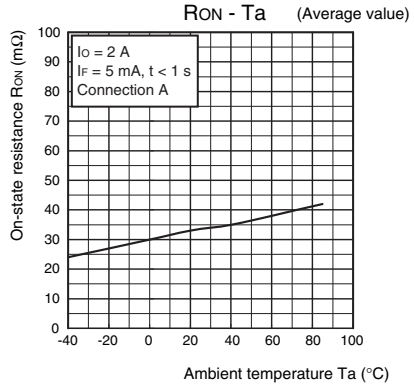
LED forward current vs. LED forward voltage



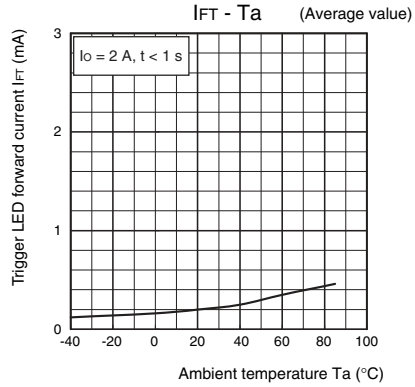
Continuous load current vs. On-state voltage



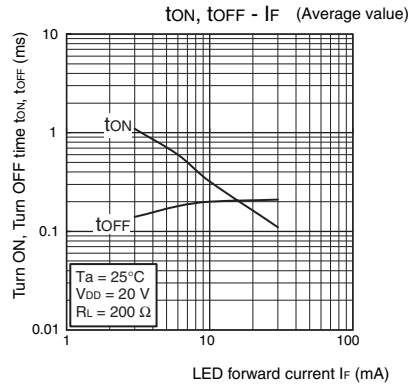
On-state resistance vs. Ambient temperature



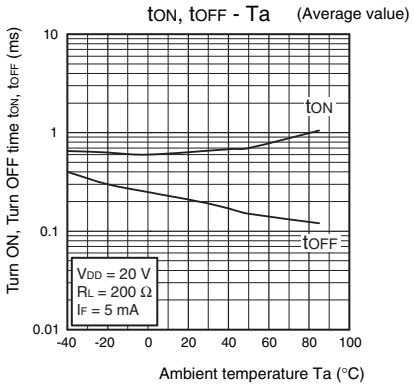
Trigger LED forward current vs. Ambient temperature



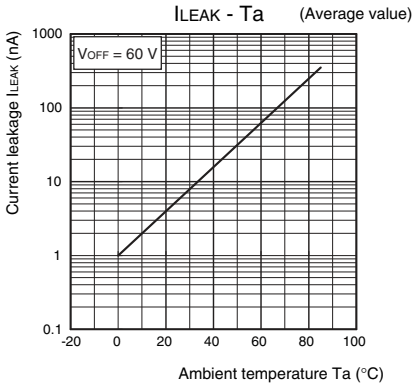
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Ambient temperature



■ Safety Precautions

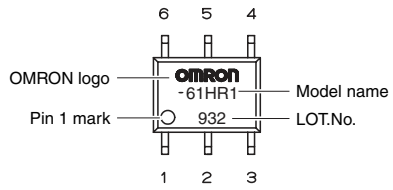
- Refer to **"Common Precautions"** for all G3VM models.

Appearance/Dimensions SOP6 type

■ Appearance

SOP (Small Outline Package)

SOP6



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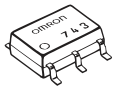
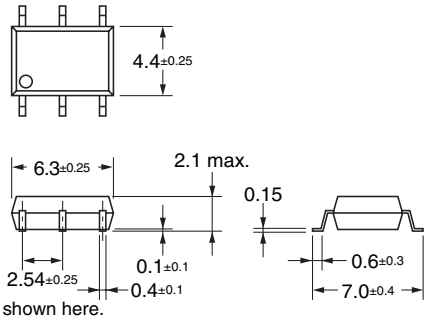
■ Dimensions

(Unit: mm)



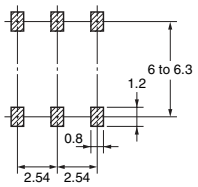
Surface-mounting Terminals

Weight: 0.13 g



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**

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