

# MOS FET Relays G3VM-61G2

## Ultrasensitive MOS FET Relays in 60 V Load series for power savings, SOP Package.

- Trigger LED forward current of 1 mA (maximum) facilitates power saving designs and prolonged battery life.
- Continuous load current of 400 mA.
- RoHS Compliant

### Application Examples

- Broadband systems and Measurement devices
- Security systems
- Industrial equipment
- Battery powered equipment and Amusement machines



**NEW**

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

### List of Models

Contact form	Terminals	Load voltage (peak value) (See the note.)	Model	Number per stick	Number per tape
SPST-NO	Surface-mounting terminals	60 V	G3VM-61G2	100	---
			G3VM-61G2(TR)	---	2,500

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

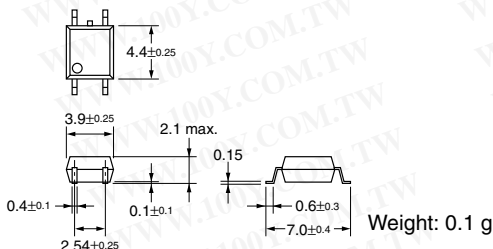
### Dimensions

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

#### G3VM-61G2

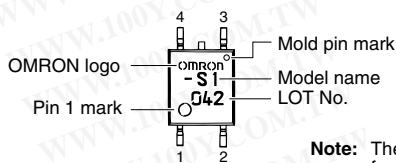
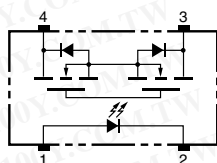


**Note:** The actual product is marked differently from the image shown here.



### Terminal Arrangement/Internal Connections (Top View)

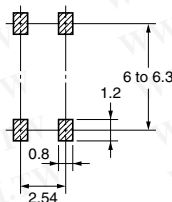
#### G3VM-61G2



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

### Actual Mounting Pad Dimensions (Recommended Value, Top View)

#### G3VM-61G2



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■ Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

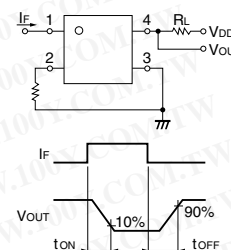
Item		Symbol	Rating	Unit	Measurement Conditions
Input	LED forward current	$I_F$	50	mA	
	Repetitive peak LED forward current	$I_{FP}$	1	A	100 $\mu\text{s}$ pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	$\text{mA}/^\circ\text{C}$	$T_a \geq 25^\circ\text{C}$
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_j$	125	$^\circ\text{C}$	
Output	Load voltage (AC peak/DC)	$V_{OFF}$	60	V	
	Continuous load current (AC peak/DC)	$I_O$	400	mA	
	ON current reduction rate	$\Delta I_O/^\circ\text{C}$	-4.0	$\text{mA}/^\circ\text{C}$	$T_a \geq 25^\circ\text{C}$
	Connection temperature	$T_j$	125	$^\circ\text{C}$	
Dielectric strength between input and output (See note 1.)		$V_{I-O}$	1,500	$V_{\text{rms}}$	AC for 1 min
Operating temperature		$T_a$	-40 to +85	$^\circ\text{C}$	With no icing or condensation
Storage temperature		$T_{\text{stg}}$	-55 to +125	$^\circ\text{C}$	With no icing or condensation
Soldering temperature (10 s)		---	260	$^\circ\text{C}$	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.

■ Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

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	$I_{FT}$	---	0.4	1	mA	$I_O = 400 \text{ mA}$
Output	Maximum resistance with output ON	$R_{ON}$	---	1	2	$\Omega$	$I_F = 2 \text{ mA}, I_O = 400 \text{ mA}$
	Current leakage when the relay is open	$I_{LEAK}$	---	1	1000	nA	$V_{OFF} = 60 \text{ V}$
	Capacity between terminals	$C_{OFF}$	---	130	---	pF	$V = 0, f = 1 \text{ MHz}$
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	---	---	$\text{M}\Omega$	$V_{I-O} = 500 \text{ VDC}, R_{\text{OH}} \leq 60\%$
Turn-ON time		$t_{ON}$	---	3	8	ms	$I_F = 2 \text{ mA}, R_L = 200 \Omega, V_{DD} = 20 \text{ V}$ (See note 2.)
Turn-OFF time		$t_{OFF}$	---	1	3	ms	

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



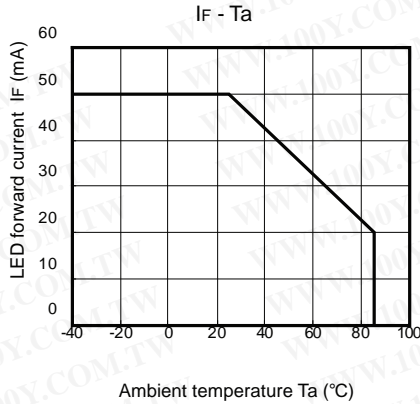
■ Recommended Operating Conditions

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

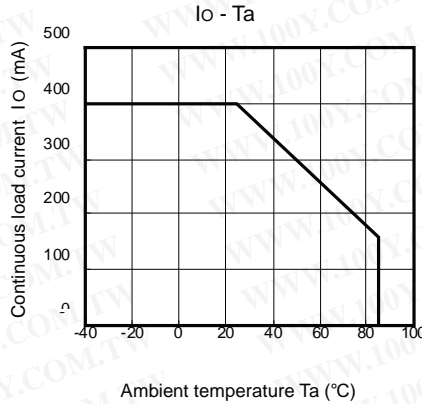
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	$V_{DD}$	---	---	48	V
Operating LED forward current	$I_F$	---	2	25	mA
Continuous load current (AC peak/DC)	$I_O$	---	---	320	mA
Operating temperature	$T_a$	-20	---	65	$^\circ\text{C}$

■ Engineering Data

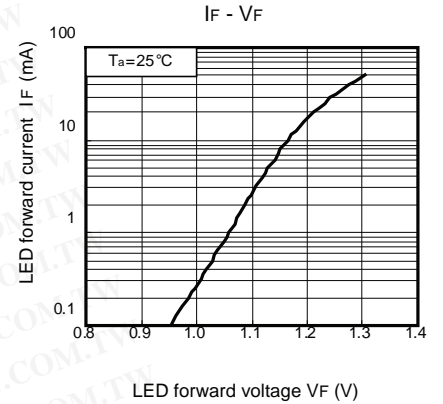
LED forward current vs. Ambient temperature



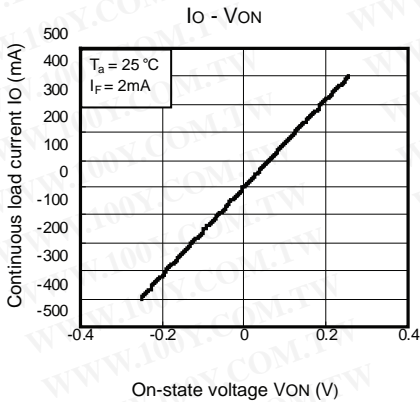
Continuous load current vs. Ambient temperature



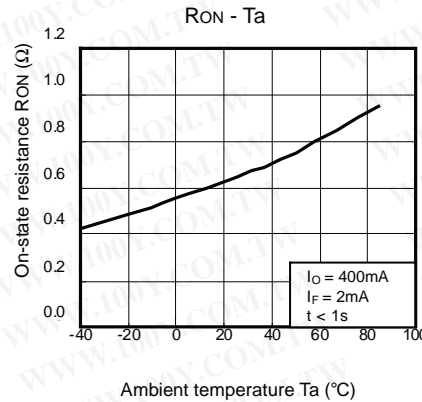
LED forward current vs. LED forward voltage



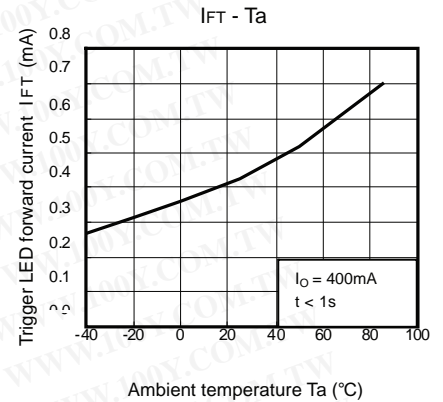
Continuous load current vs. On-state voltage



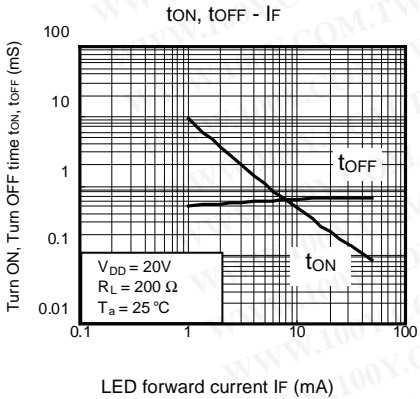
On-state resistance vs. Ambient temperature



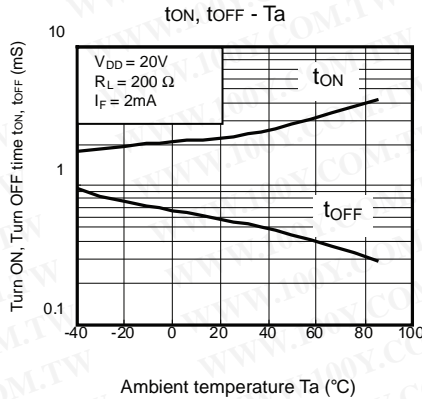
Trigger LED forward current vs. Ambient temperature



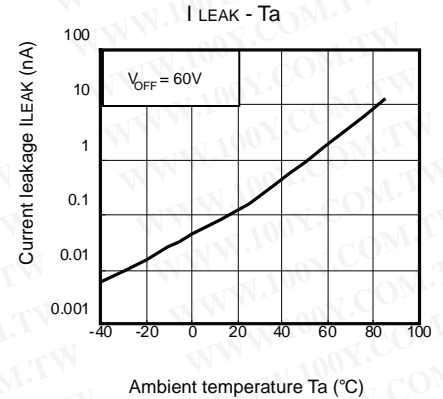
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Ambient temperature



MEMO

# Omron Electronic Components, LLC

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### I. GENERAL

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  - Terms:** These terms and conditions
  - Seller:** Omron Electronic Components LLC and its subsidiaries
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  - Including:** Including without limitation
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- Claims:** Any claim by Buyer against Seller for shortage or damage to the Products occurring before delivery to the carrier or any claim related to pricing or other charges must be presented in detail in writing to Seller within 30 days of receipt of shipment.

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**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

**OMRON**

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