

# MOS FET Relays G3VM-61VY

## Special SOP4-pin package with Dielectric Strength of 3.75 kVAC

- Trigger LED forward current of 2 mA (maximum) facilitates power saving design and prolonged battery life.
- Continuous load current of 70 mA.
- RoHS Compliant.

### Application Examples

- Battery-driven devices
- Measurement devices and Industrial equipment
- Communication equipment and Security systems
- Amusement equipment



**NEW**

**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	Number per stick	Number per tape
SOP4 (Special)	SPST-NO	Surface-mounting terminals	60 VAC or VDC	G3VM-61VY	150	---
				G3VM-61VY(TR)	---	3,000

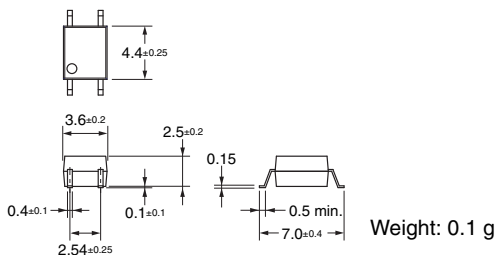
### Dimensions

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

#### G3VM-61VY

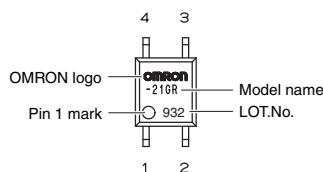
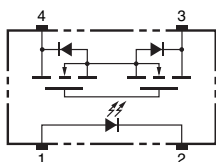


**Note:** The actual product is marked differently from the image shown here.



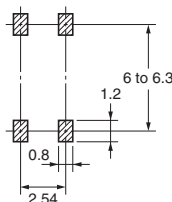
### Terminal Arrangement/Internal Connections (Top View)

#### G3VM-61VY



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

#### G3VM-61VY



■ Absolute Maximum Ratings (Ta = 25°C)

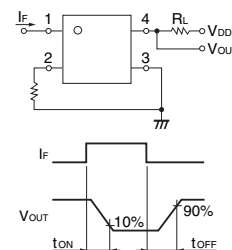
Item		Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	$I_F$	50	mA	
	Repetitive peak LED forward current	$I_{FP}$	1	A	100 $\mu$ s pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/ $^\circ\text{C}$	$T_a \geq 25^\circ\text{C}$
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_J$	125	$^\circ\text{C}$	
Output	Load voltage (AC peak/DC)	$V_{OFF}$	60	V	
	Continuous load current	$I_O$	70	mA	
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-0.7	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.)		$V_{I-O}$	3,750	$V_{rms}$	AC for 1 min
Ambient Operating temperature		$T_a$	-40 to +85	$^\circ\text{C}$	With no icing or condensation
Ambient Storage temperature		$T_{stg}$	-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 (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	$I_{FT}$	---	0.6	2	mA	$I_O = 70\text{ mA}$
Output	Maximum resistance with output ON	$R_{ON}$	---	25	50	$\Omega$	$I_F = 3\text{ mA}, I_O = 70\text{ mA}$
	Current leakage when the relay is open	$I_{LEAK}$	---	1	1,000	nA	$V_{OFF} = 60\text{ V}$
	Capacity between terminals	$C_{OFF}$	---	10	---	pF	$V = 0, f = 1\text{ MHz}$
Capacity between I/O terminals		$C_{I-O}$	---	0.4	---	pF	$f = 1\text{ MHz}, V_s = 0\text{ V}$
Insulation resistance		$R_{I-O}$	1,000	---	---	$\text{M}\Omega$	$V_{I-O} = 500\text{ VDC}, R_{oh} \leq 60\%$
Turn-ON time		$t_{ON}$	---	1	5	ms	$I_F = 3\text{ mA}, R_L = 200\ \Omega, V_{DD} = 10\text{ V}$ (See note 2.)
Turn-OFF time		$t_{OFF}$	---	0.5	5	ms	

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



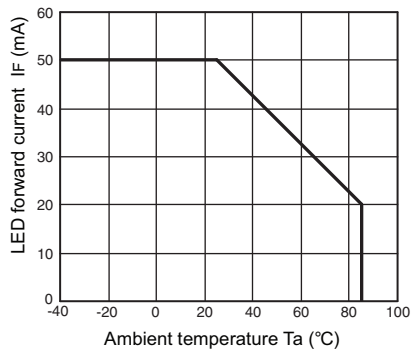
■ Recommended Operating Conditions

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

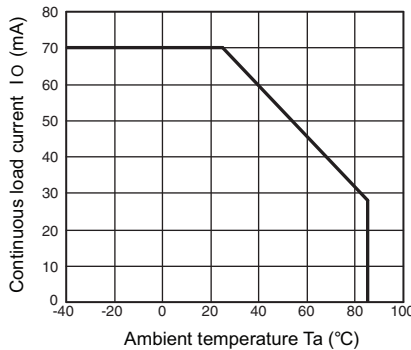
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	$V_{DD}$	---	---	48	V
Operating LED forward current	$I_F$	---	3	25	mA
Continuous load current (AC peak/DC)	$I_O$	---	---	60	mA
Operating temperature	$T_a$	-20	---	65	$^\circ\text{C}$

■ Engineering Data

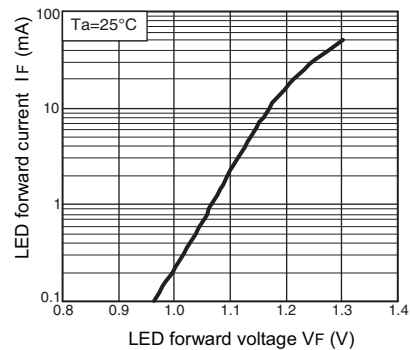
LED forward current vs. Ambient temperature  
I<sub>F</sub> - T<sub>a</sub>



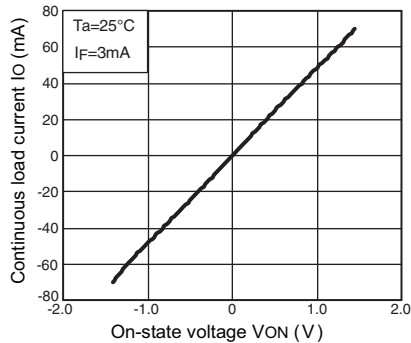
Continuous load current vs. Ambient temperature  
I<sub>O</sub> - T<sub>a</sub>



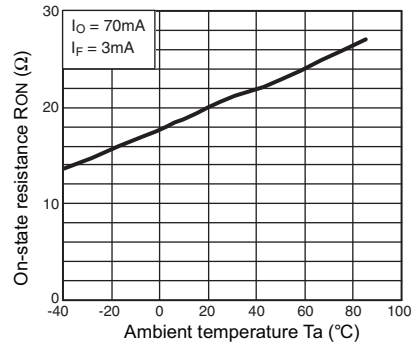
LED forward current vs. LED forward voltage  
I<sub>F</sub> - V<sub>F</sub>



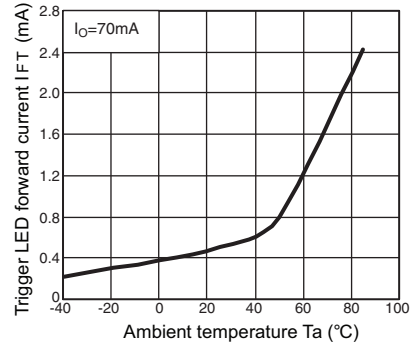
Continuous load current vs. On-state voltage  
I<sub>O</sub> - V<sub>ON</sub>



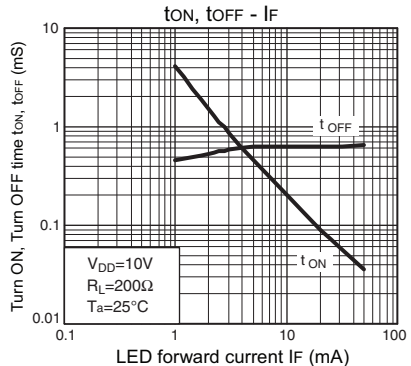
On-state resistance vs. Ambient temperature  
R<sub>ON</sub> - T<sub>a</sub>



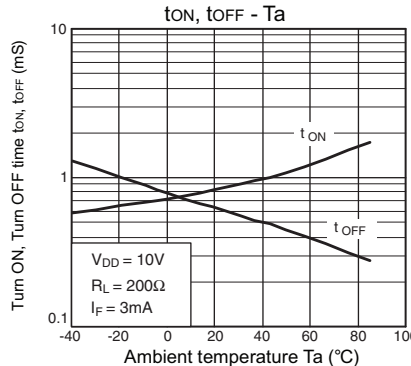
Trigger LED forward current vs. Ambient temperature  
I<sub>FT</sub> - T<sub>a</sub>



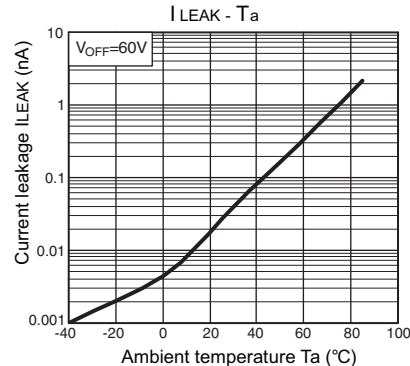
Turn ON, Turn OFF time vs. LED forward current  
t<sub>ON</sub>, t<sub>OFF</sub> - I<sub>F</sub>



Turn ON, Turn OFF time vs. Ambient temperature  
t<sub>ON</sub>, t<sub>OFF</sub> - T<sub>a</sub>



Current leakage vs. Ambient Temperature  
I<sub>LEAK</sub> - T<sub>a</sub>



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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.

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