

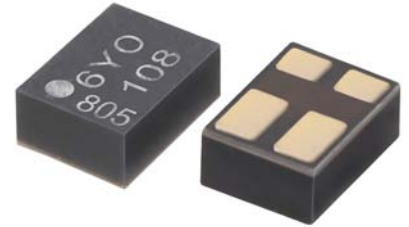
# G3VM-61YR

MOS FET Relays WSON 4-pin, Low-output-capacitance and Low-ON-resistance Type (with Low C × R)

## Compact WSON package

## MOS FET Relay Suitable for High-frequency Signal Switches

- A compact, lightweight 0.8 × 2.0 × 1.45 mm package with a weight of just 0.01 g helps to reduce the space required by circuit boards
- Low C × R = 13.2 pF/Ω, C<sub>OFF</sub> (standard) = 12 pF, R<sub>ON</sub> (standard) = 1.1 Ω, providing excellent output characteristics in the high-frequency domain
- High-temperature capable (usable ambient operating temperature range: -40°C to 110°C)



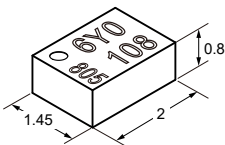
**Note:** The actual product is marked differently from the image shown here.

## Application Examples

- Semiconductor test equipment
- Test & measurement equipment
- Communication equipment
- Data loggers

## Package (Unit: mm, Average)

WSON4 pin



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

## Model Number Legend

G3VM-

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- 1. Load Voltage**  
6: 60 V
- 2. Contact form Package type**  
1: SPST-NO (1a)
- 3. Package type**  
Y: WSON4 pin
- 4. Additional functions**  
R: Low On-resistance
- 5. Other informations**  
When specifications overlap, serial code is added in the recorded order.

## Ordering Information

Package type	Contact form	Terminals	Load voltage (peak value) *1	Continuous load current (peak value) *1	Packing/Tape cut		Packing/Tape & reel	
					Model	Minimum package quantity	Model	Minimum package quantity
WSON4	SPST-NO (1a)	Surface-mounting Terminals	60 V	400 mA	G3VM-61YR	1 pc.	G3VM-61YR (TR05)	500 pcs.

\*1. The AC peak and DC value are given for the load voltage and continuous load current.

**Note:** When ordering tape packing, add "(TR05)" (500 pcs/reel) to the model number. Tape-cut S-VSON is packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

# G3VM-61YR

## Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	G3VM-61YR	Unit	Measurement conditions
Input	LED forward current	$I_F$	30	mA	
	LED forward current reduction rate	$\Delta I_F / ^\circ\text{C}$	-0.3	mA/ $^\circ\text{C}$	Ta $\geq$ 25°C
	LED reverse voltage	$V_R$	6	V	
	Junction 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	mA/ $^\circ\text{C}$	Ta $\geq$ 25°C
	Pulse ON current	$I_{OP}$	1.2	A	t = 100 ms, Duty = 1/10
	Junction temperature	$T_J$	125	$^\circ\text{C}$	
Dielectric strength between I/O *1		$V_{I-O}$	300	Vrms	AC for 1 min
Ambient operating temperature		$T_a$	-40 to +110	$^\circ\text{C}$	With no icing or condensation
Ambient storage temperature		$T_{stg}$	-40 to +125	$^\circ\text{C}$	
Soldering temperature		---	260	$^\circ\text{C}$	10 s

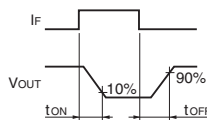
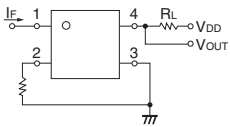
\*1. The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

**Note:** In terms of its structure, this product is sensitive to static electricity. Therefore, be sure to take measures against static electricity for the workbenches, people, soldering iron, solder mounting equipment, etc.

## Electrical Characteristics (Ta = 25°C)

Item		Symbol	G3VM-61YR	Unit	Measurement conditions	
Input	LED forward voltage	$V_F$	Minimum	1.1	V $I_F = 10 \text{ mA}$	
			Typical	1.24		
			Maximum	1.4		
	Reverse current	$I_R$	Maximum	10	$\mu\text{A}$	$V_R = 5 \text{ V}$
	Capacitance between terminals	$C_T$	Typical	90	pF	$V = 0 \text{ V}, f = 1 \text{ MHz}$
Trigger LED forward current	$I_{FT}$	Maximum	3	mA	$I_o = 100 \text{ mA}$	
Release LED forward current	$I_{FC}$	Minimum	0.1	mA	$I_{OFF} = 10 \mu\text{A}$	
Output	Maximum resistance with output ON	$R_{ON}$	Typical	1.1	$\Omega$	$I_F = 5 \text{ mA}, t < 1 \text{ s}, I_o = 400 \text{ mA}$
			Maximum	1.5		
	Current leakage when the relay is open	$I_{LEAK}$	Maximum	1000 (1)	nA	$V_{OFF} = 60 \text{ V}$ ( $V_{OFF} = 50 \text{ V}$ )
Capacitance between terminals	$C_{off}$	Typical	12	pF	$V = 0 \text{ V}, f = 1 \text{ MHz}, t < 1 \text{ s}$	
		Maximum	20			
Capacitance between I/O terminals		$C_{I-O}$	Typical	0.9	pF	$V_S = 0 \text{ V}, f = 1 \text{ MHz}$
Insulation resistance between I/O terminals		$R_{I-O}$	Typical	$10^8$	M $\Omega$	$V_{I-O} = 300 \text{ VDC}, R_oH \leq 60\%$
Turn-ON time	$t_{ON}$	Typical	0.1 (0.05)	ms	$I_F = 5 \text{ mA}, R_L = 200 \Omega,$ $V_{DD} = 20 \text{ V} *1$	
		Maximum	0.25 (0.2)			
Turn-OFF time	$t_{OFF}$	Typical	0.05 (0.06)	ms	$(I_F = 10 \text{ mA}, R_L = 200 \Omega,$ $V_{DD} = 20 \text{ V}) *1$	
		Maximum	0.2 (0.2)			

\*1. Turn-ON and Turn-OFF Times



## Recommended Operating Conditions

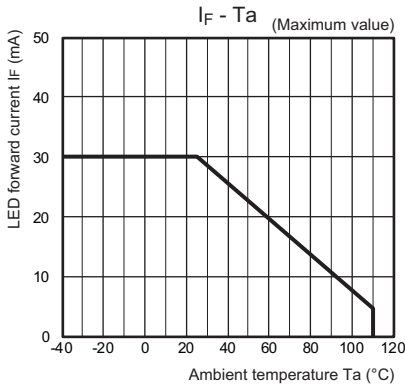
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

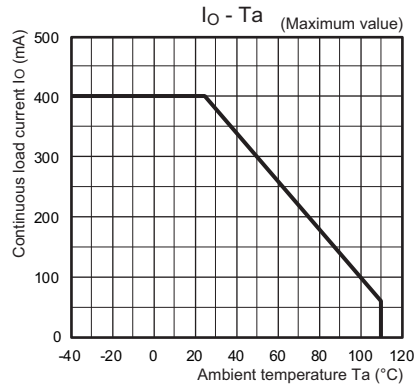
Item	Symbol	G3VM-61YR	Unit
Load voltage (AC peak/DC)	$V_{DD}$	Maximum 48	V
Operating LED forward current	$I_F$	Minimum	5
		Typical	7.5
		Maximum	20
Continuous load current (AC peak/DC)	$I_o$	Maximum	400
Ambient operating temperature	$T_a$	Minimum	-20
		Maximum	100

## Engineering Data

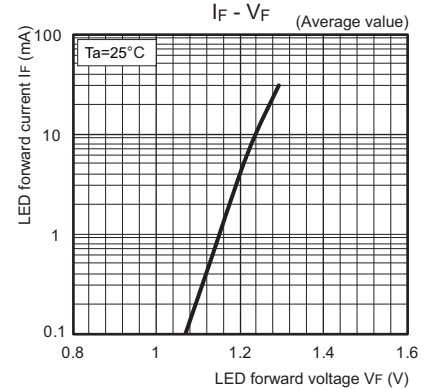
### ● LED forward current vs. Ambient temperature



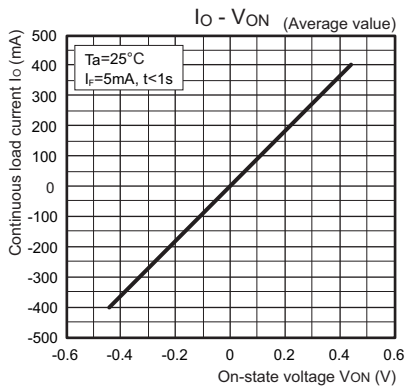
### ● Continuous load current vs. Ambient temperature



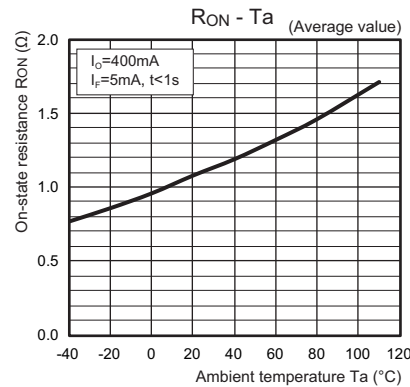
### ● LED forward current vs. LED forward voltage



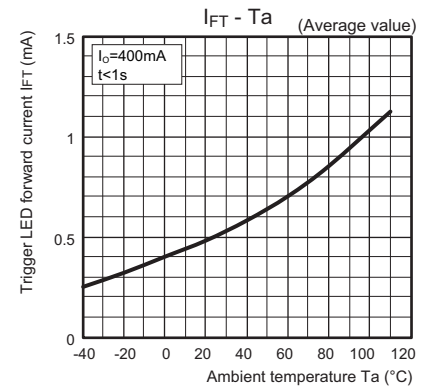
### ● Continuous load current vs. On-state voltage



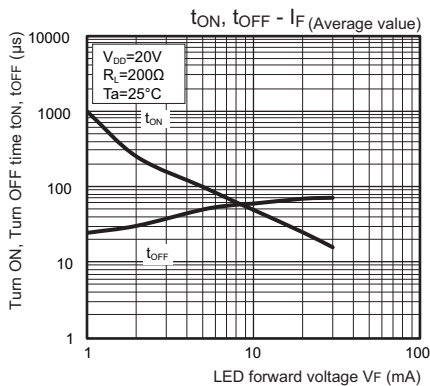
### ● On-state resistance vs. Ambient temperature



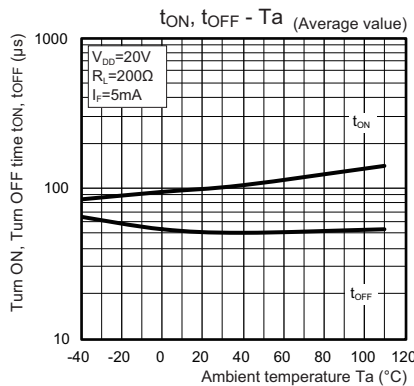
### ● Trigger LED forward current vs. Ambient temperature



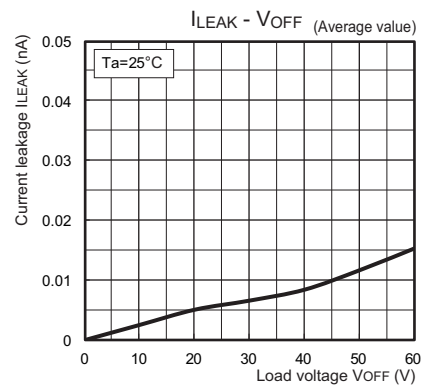
### ● Turn ON, Turn OFF time vs. LED forward current



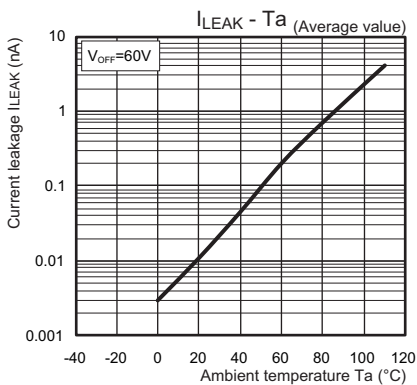
### ● Turn ON, Turn OFF time vs. Ambient temperature



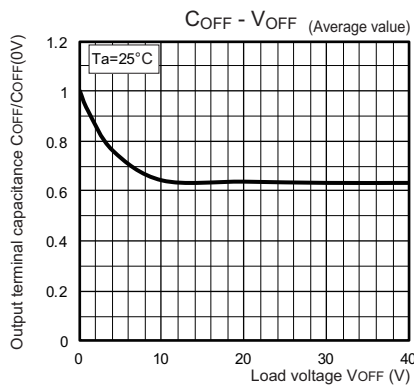
### ● Current leakage vs. Load voltage



### ● Current leakage vs. Ambient temperature



### ● Output terminal capacitance vs. Load voltage

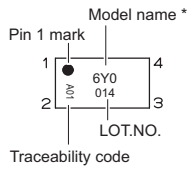


# G3VM-61YR

## Appearance / Terminal Arrangement / Internal Connections

### ●Appearance

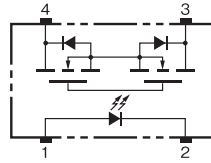
WSON (Very Very Small Outline Non-leaded)  
WSON4 pin



\* Actual model name marking for each model

Model	Marking
G3VM-61YR	6Y0

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



**Note 1:** The actual product is marked differently from the image shown here.

**Note 2:** "G3VM" does not appear in the model number on the Relay.

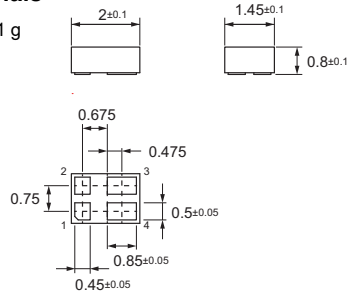
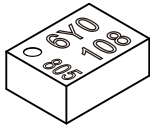
## Dimensions

**CAD Data** marked products, 2D drawings and 3D CAD models are available.  
For CAD information, please visit our website, which is noted on the last page.

(Unit: mm)

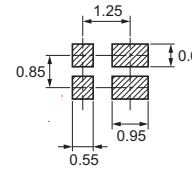
### Surface-mounting Terminals

Weight: 0.01 g



### Actual Mounting Pad Dimensions

(Recommended Value, Top View)



**Note:** Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

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

**CAD Data**

## Safety Precautions

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



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