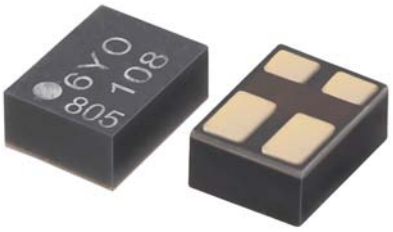
G3VM-61YR

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



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

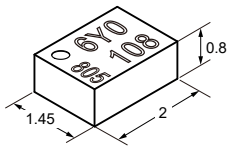
- A compact, lightweight 0.8 × 2.0 × 1.45 mm package with a weight of just 0.01 g helps to reduce the space required by circuit boards
- Low C × R = 13.2 pF/Ω, C_{OFF} (standard) = 12 pF, R_{ON} (standard) = 1.1 Ω, providing excellent output characteristics in the high-frequency domain
- High-temperature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

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-□ □ □ □ □
1 2 3 4 5

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	ΔI_F/°C	-0.3	mA/°C	Ta≥25°C
	LED reverse voltage	V_R	6	V	
	Junction temperature	T_J	125	°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	ΔI_O/°C	-4	mA/°C	Ta≥25°C
	Pulse ON current	I_{OP}	1.2	A	t = 100 ms, Duty = 1/10
	Junction temperature	T_J	125	°C	
Dielectric strength between I/O *1		V_{I-O}	300	Vrms	AC for 1 min
Ambient operating temperature		T_a	-40 to +110	°C	With no icing or condensation
Ambient storage temperature		T_{stg}	-40 to +125	°C	
Soldering temperature		---	260	°C	10 s

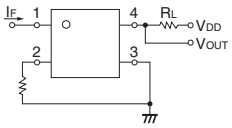
∗1. The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

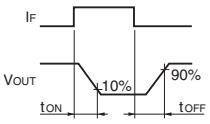
Note: In terms of its structure, this product is sensitive to static electricity. Therefore, be sure to take measures against static electricity for the workbenches, people, soldering iron, solder mounting equipment, etc.

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 mA
			Typical	1.24		
			Maximum	1.4		
	Reverse current	I_R	Maximum	10	μA	V_R = 5 V
	Capacitance between terminals	C_T	Typical	90	pF	V = 0 V, f = 1 MHz
	Trigger LED forward current	I_{FT}	Maximum	3	mA	I_O = 100 mA
	Release LED forward current	I_{FC}	Minimum	0.1	mA	I_{OFF} = 10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	1.1	Ω	I_F = 5 mA, t<1 s, I_O = 400 mA
			Maximum	1.5		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1000 (1)	nA	V_{OFF} = 60 V (V_{OFF} = 50 V)
	Capacitance between terminals	C_{off}	Typical	12	pF	V = 0 V, f = 1 MHz, t<1 s
			Maximum	20		
Capacitance between I/O terminals		C_{I-O}	Typical	0.9	pF	V_S = 0 V, f = 1 MHz
Insulation resistance between I/O terminals		R_{I-O}	Typical	10^8	MΩ	V_{I-O} = 300 VDC, RoH≤60%
Turn-ON time		t_{ON}	Typical	0.1 (0.05)	ms	I_F = 5 mA, R_L = 200 Ω, V_{DD} = 20 V *1 (I_F = 10 mA, R_L = 200 Ω, V_{DD} = 20 V) *1
			Maximum	0.25 (0.2)		
Turn-OFF time		t_{OFF}	Typical	0.05 (0.06)	ms	
			Maximum	0.2 (0.2)		

∗1. Turn-ON and Turn-OFF Times





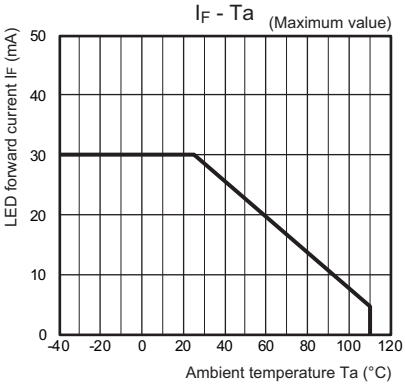
Recommended Operating Conditions

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.

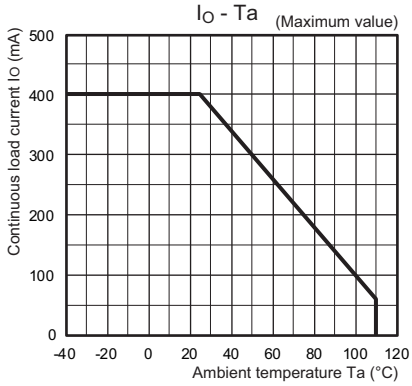
Item	Symbol		G3VM-61YR	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	48	V
Operating LED forward current	I_F	Minimum	5	mA
		Typical	7.5	
		Maximum	20	
Continuous load current (AC peak/DC)	I_O	Maximum	400	
Ambient operating temperature	T_a	Minimum	-20	°C
		Maximum	100	

Engineering Data

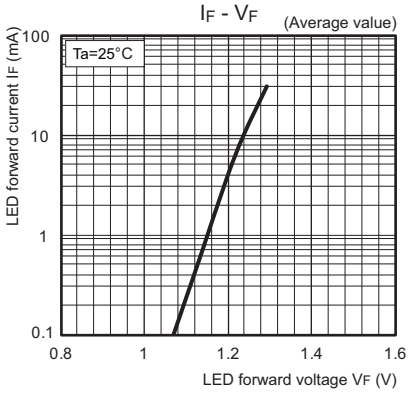
●LED forward current vs. Ambient temperature



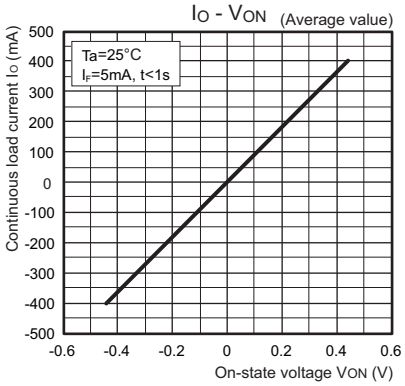
●Continuous load current vs. Ambient temperature



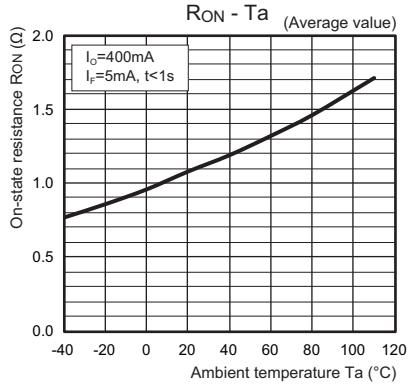
●LED forward current vs. LED forward voltage



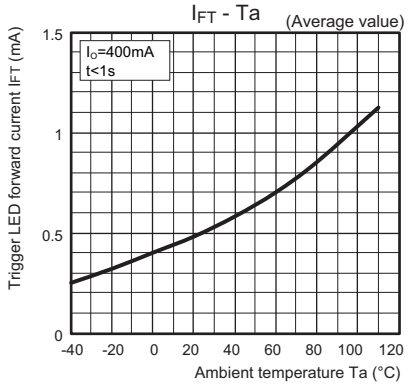
●Continuous load current vs. On-state voltage



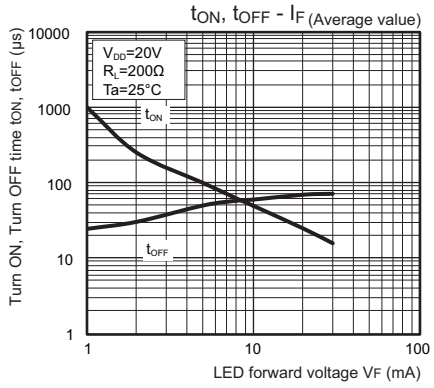
●On-state resistance vs. Ambient temperature



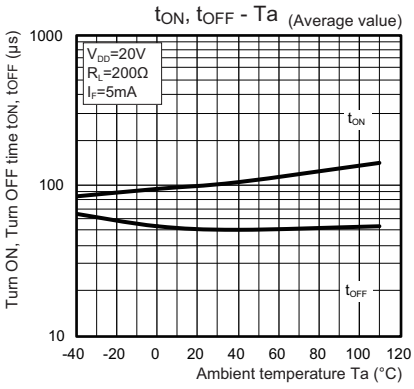
●Trigger LED forward current vs. Ambient temperature



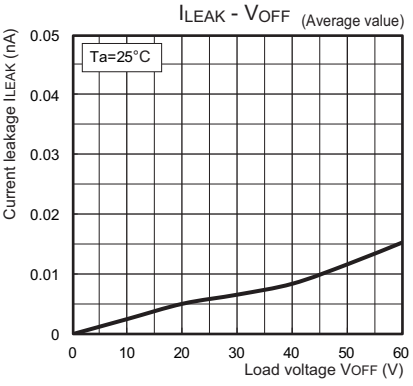
●Turn ON, Turn OFF time vs. LED forward current



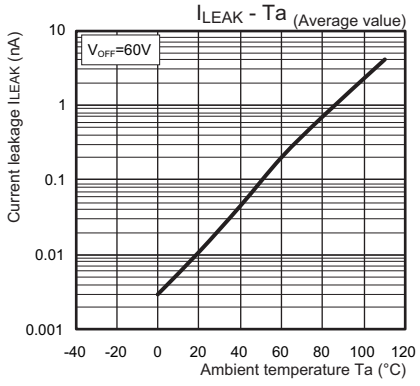
●Turn ON, Turn OFF time vs. Ambient temperature



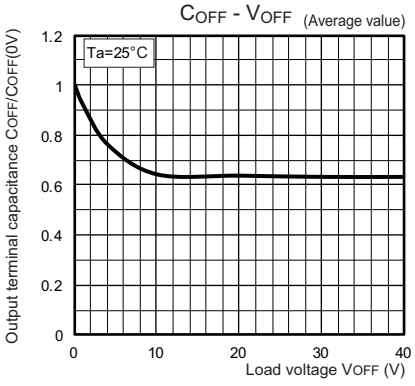
●Current leakage vs. Load voltage



●Current leakage vs. Ambient temperature



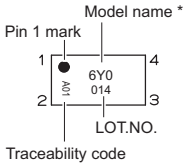
●Output terminal capacitance vs. Load voltage



Appearance / Terminal Arrangement / Internal Connections

●Appearance

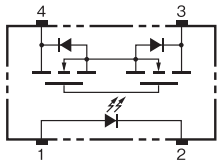
WSON (Very Very Small Outline Non-leaded)
WSON4 pin



✻ 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.

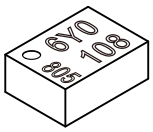
Dimensions

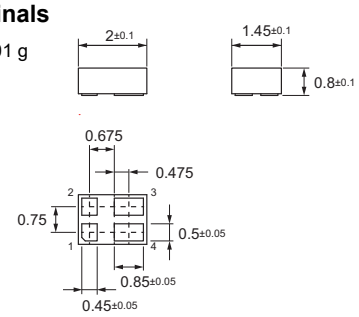
CAD Data marked products, 2D drawings and 3D CAD models are available.
For CAD information, please visit our website, which is noted on the last page.

(Unit: mm)

Surface-mounting Terminals

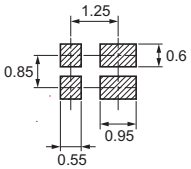
Weight: 0.01 g





Actual Mounting Pad Dimensions

(Recommended Value, Top View)



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

CAD Data

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

Safety Precautions

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

MEMO

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