

G3VM-601G

MOS FET Relays SOP 4-pin, High-load-voltage Type

MOS FET Relays in SOP 4-pin packages for high load voltages

- Load voltage: 600 V



RoHS Compliant

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

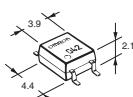
Application Examples

• Semiconductor test equipment	• Various battery-driven devices	• Power circuit
• Test & Measurement equipment	• Security equipment	• Amusement equipment
• Communication equipment	• Industrial equipment	

■ Package

(Unit : mm, Average)

SOP 4-pin



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

■ Model Number Legend

G3VM-□ □ □ □ □
1 2 3 4

1. Load Voltage	2. Contact form	3. Package
60 : 600 V	1 : 1a (SPST-NO)	G : SOP 4-pin

4. Other informations

When specifications overlap, serial code is added in the recorded order.

■ Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) *	Continuous load current (peak value) *	Stick packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SOP4	1a (SPST-NO)	Surface-mounting Terminals	600 V	70 mA	G3VM-601G1	100 pcs.	G3VM-601G1(TR) G3VM-601G(TR)	2,500 pcs.
				90 mA	G3VM-601G			

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

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

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

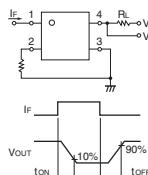
Item	Symbol	G3VM-601G1	G3VM-601G	Unit	Measurement conditions
Input	LED forward current	IF	30	50	mA
	Repetitive peak LED forward current	IFP	1		A 100 μs pulses, 100 pps
	LED forward current reduction rate	$\Delta If/C$	-0.3	-0.5	mA/ $^\circ\text{C}$ $T_a \geq 25^\circ\text{C}$
	LED reverse voltage	Vr	5		V
	Connection temperature	T _J	125		$^\circ\text{C}$
	Load voltage (AC peak/DC)	V _{OFF}	600		V
	Continuous load current (AC peak/DC)	I _O	70	90	mA
Output	ON current reduction rate	$\Delta I_o/C$	-0.7	-0.9	mA/ $^\circ\text{C}$ $T_a \geq 25^\circ\text{C}$
	Pulse ON current	I _{OP}	210	270	mA $t=100\text{ ms, Duty}=1/10$
	Connection temperature	T _J	125		$^\circ\text{C}$
	Dielectric strength between I/O (See note 1.)	V _{I-O}	1500	Vrms	AC for 1 min
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.					
Ambient operating temperature					$^\circ\text{C}$ With no icing or condensation
Ambient storage temperature					$^\circ\text{C}$
Soldering temperature					$^\circ\text{C}$ 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	G3VM-601G1		G3VM-601G		Unit	Measurement conditions
LED forward voltage	VF	Minimum	1.1	1.0		V	If=10 mA Vr=5 V V=0, f=1 MHz
		Typical	1.27	1.15			
		Maximum	1.4	1.3			
Reverse current	Ir	Maximum		10		μA	
Capacitance between terminals	Ct	Typical		30		pF	
Trigger LED forward current	IfT	Typical	—	0.4		mA	G3VM-601G1 : Io=70 mA G3VM-601G : Io=90 mA
		Maximum	0.2	1			
Release LED forward current	IfC	Minimum	—	0.1		mA	IoFF=100 μA
		Typical	0.001	—			
Maximum resistance with output ON	Ron	Typical	35	45		Ω	G3VM-601G1 : If=0.5 mA, Io=70 mA, t < 1 s G3VM-601G : If=2 mA, Io=90 mA
		Maximum		60			
Current leakage when the relay is open	Ileak	Typical	1	—		nA	Voff=600 V
		Maximum		1,000			
Capacitance between terminals	Coff	Typical		75		pF	V=0, f=1 MHz
Capacitance between I/O terminals	Ci-o	Typical		0.8		pF	f=1 MHz, Vs=0 V
Insulation resistance between I/O terminals	Ri-o	Minimum	1000			MΩ	Vi-o=500 VDC, RoH≤60%
		Typical	10 ⁸				
Turn-ON time	ton	Typical		2		ms	G3VM-601G1 : If=0.5 mA, RL=200 Ω, Vdd=10 V (See note 2.) G3VM-601G : If=2 mA, RL=200 Ω, Vdd=10 V (See note 2.)
		Maximum	10	8			
Turn-OFF time	toff	Typical	1	0.5			
		Maximum	5	3			

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.

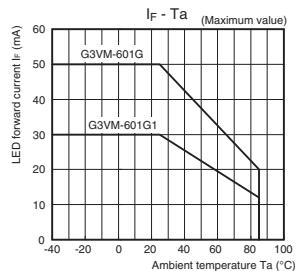
Item	Symbol	G3VM-601G1		G3VM-601G		Unit
Load voltage (AC peak/DC)	Vdd	Maximum		480		V
Operating LED forward current	If	Typical	0.5	2		mA
		Maximum		25		
Continuous load current (AC peak/DC)	Io	Maximum	60	70		
Ambient operating temperature	Ta	Minimum		-20		°C
		Maximum		65		

■Spacing and Insulation

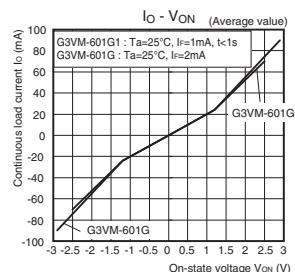
Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

Engineering Data

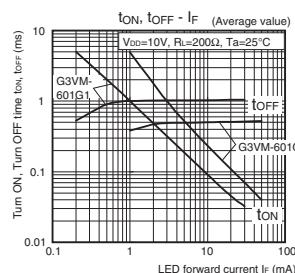
● LED forward current vs. Ambient temperature



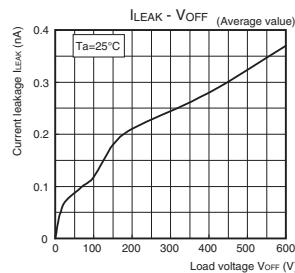
● Continuous load current vs. On-state voltage



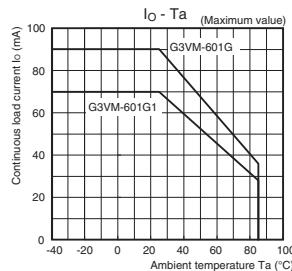
● Turn ON, Turn OFF time vs. LED forward current



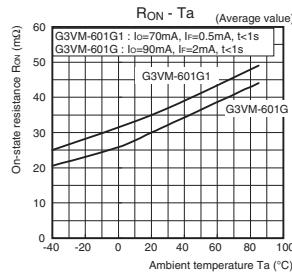
● Current leakage vs. Load voltage G3VM-601G1



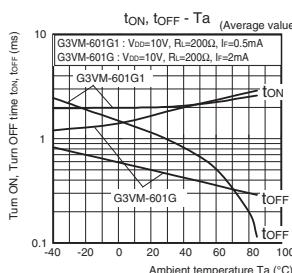
● Continuous load current vs. Ambient temperature



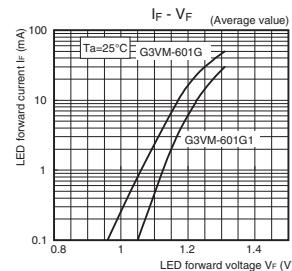
● On-state resistance vs. Ambient temperature



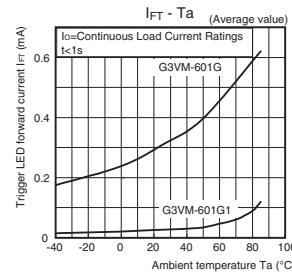
● Turn ON, Turn OFF time vs. Ambient temperature



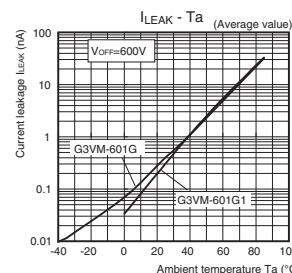
● LED forward current vs. LED forward voltage



● Trigger LED forward current vs. Ambient temperature



● Current leakage vs. Ambient temperature

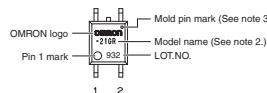


■Appearance / Terminal Arrangement / Internal Connections

●Appearance

SOP (Small Outline Package)

SOP 4-pin

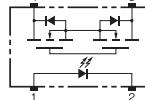


Note: 1. The actual product is marked differently from the image shown here.

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

Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

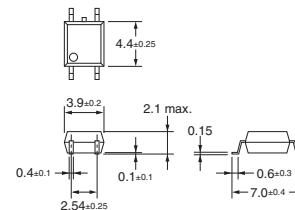


■Dimensions (Unit: mm)



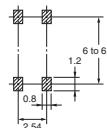
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



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

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

- Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

Mouser Electronics

Authorized Distributor

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[G3VM-601G\(TR\)](#)