

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



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

RoHS Compliant

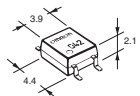
Application Examples

- 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

- Load Voltage**
60 : 600 V
- Contact form**
1 : 1a (SPST-NO)
- Package**
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)	2,500 pcs.
				90 mA	G3VM-601G		G3VM-601G(TR)	

* 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 (Ta = 25°C)

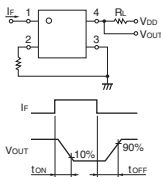
	Item	Symbol	G3VM-601G1	G3VM-601G	Unit	Measurement conditions
Input	LED forward current	IF	30	50	mA	
	Repetitive peak LED forward current	IFP		1	A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔIf/°C	-0.3	-0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	VR		5	V	
	Connection temperature	TJ		125	°C	
Output	Load voltage (AC peak/DC)	Voff		600	V	
	Continuous load current (AC peak/DC)	Io	70	90	mA	
	ON current reduction rate	ΔIo/°C	-0.7	-0.9	mA/°C	Ta ≥ 25°C
	Pulse ON current	Iop	210	270	mA	t=100 ms, Duty=1/10
	Connection temperature	TJ		125	°C	
	Dielectric strength between I/O (See note 1.)	Vio		1500	Vrms	AC for 1 min
	Ambient operating temperature	Ta		-40 to +85	°C	With no icing or condensation
Ambient storage temperature	Tstg		-55 to +125	°C		
Soldering temperature	-		260	°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	
Input	LED forward voltage	V _F	Minimum	1.1	1.0	V I _F =10 mA	
			Typical	1.27	1.15		
			Maximum	1.4	1.3		
Reverse current	I _R	Maximum	10		μA	V _R =5 V	
Capacitance between terminals	C _T	Typical	30		pF	V=0, f=1 MHz	
Input	Trigger LED forward current	I _{FT}	Typical	–	0.4	mA	G3VM-601G1 : I _o =70 mA G3VM-601G : I _o =90 mA
			Maximum	0.2	1		
Output	Release LED forward current	I _{FC}	Minimum	–	0.1	mA	I _{OFF} =100 μA
			Typical	0.001	–		
Output	Maximum resistance with output ON	R _{ON}	Typical	35	45	Ω	G3VM-601G1 : I _F =0.5 mA, I _o =70 mA, t < 1 s G3VM-601G : I _F =2 mA, I _o =90 mA
			Maximum	60			
Output	Current leakage when the relay is open	I _{LEAK}	Typical	1	–	nA	V _{OFF} =600 V
			Maximum	1,000			
Capacitance between terminals	C _{OFF}	Typical	75		pF	V=0, f=1 MHz	
Capacitance between I/O terminals	C _{I-O}	Typical	0.8		pF	f=1 MHz, V _s =0 V	
Insulation resistance between I/O terminals	R _{I-O}	Minimum	1000		MΩ	V _{I-O} =500 VDC, RoH±60%	
		Typical	10 ⁸				
Turn-ON time	t _{ON}	Typical	2		ms	G3VM-601G1 : I _F =0.5 mA, R _L =200 Ω, V _{DD} =10 V (See note 2.) G3VM-601G : I _F =2 mA, R _L =200 Ω, V _{DD} =10 V (See note 2.)	
		Maximum	10	8			
Turn-OFF time	t _{OFF}	Typical	1	0.5	ms	G3VM-601G1 : I _F =0.5 mA, R _L =200 Ω, V _{DD} =10 V (See note 2.) G3VM-601G : I _F =2 mA, R _L =200 Ω, V _{DD} =10 V (See note 2.)	
		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.

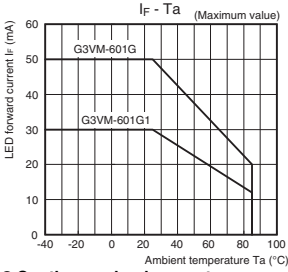
Item	Symbol		G3VM-601G1	G3VM-601G	Unit
Load voltage (AC peak/DC)	V _{DD}	Maximum	480		V
Operating LED forward current	I _F	Typical	0.5	2	mA
		Maximum	25		
Continuous load current (AC peak/DC)	I _o	Maximum	60	70	
Ambient operating temperature	T _a	Minimum	-20		°C
		Maximum	65		

■Spacing and Insulation

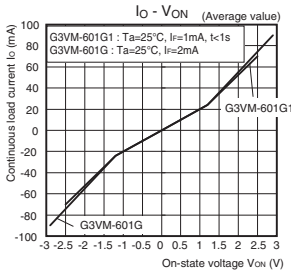
Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

Engineering Data

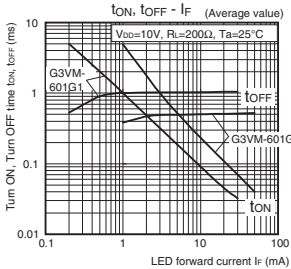
LED forward current vs. Ambient temperature



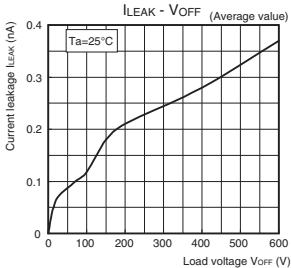
Continuous load current vs. On-state voltage



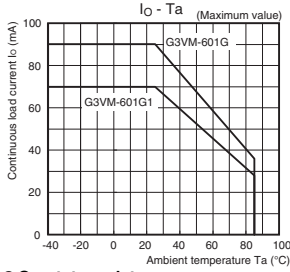
Turn ON, Turn OFF time vs. LED forward current



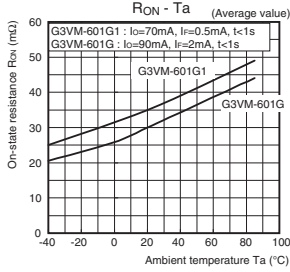
Current leakage vs. Load voltage G3VM-601G1



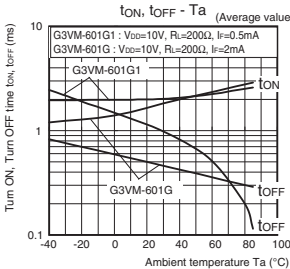
Continuous load current vs. Ambient temperature



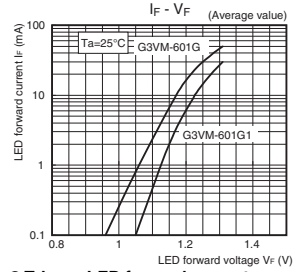
On-state resistance vs. Ambient temperature



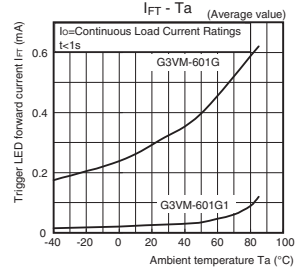
Turn ON, Turn OFF time vs. Ambient temperature



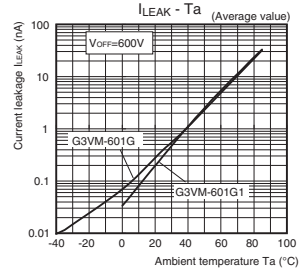
LED forward current vs. LED forward voltage



Trigger LED forward current vs. Ambient temperature



Current leakage vs. Ambient temperature



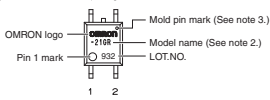
Introduction
 General purpose
 High-voltage
 Multi-contact pair
 High-current and
 Low-V_{ON} resistance
 Small and high-
 dielectric-
 strength
 High-dielectric-
 strength
 Current-limiting
 Low-voltage-resistance
 and low-V_{ON} resistance
 Small and High-
 voltage
 Certified Models with
 Standard Derivation
 DIP
 SOP
 SSOP
 USOP
 VSON
 G3VM-601G□

Appearance / Terminal Arrangement / Internal Connections

Appearance

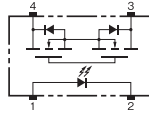
SOP (Small Outline Package)

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)

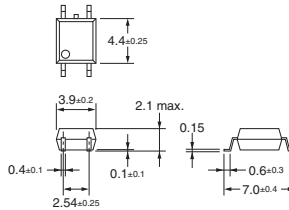


Dimensions (Unit: mm)



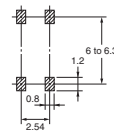
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



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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.