

Introduction
General-purpose
High-voltage
Multi-channel
High-current and Low-ON-resistance
Small and High-impedance
High-voltage
Current-limiting
Low-voltage
Small and High-impedance
Standard verification
DIP
SOP
SSOP
USOP
VSON

G3VM-41GR8/61GR1

MOS FET Relays SOP 4-pin, High-current and Low-ON-resistance Type

MOS FET Relays in SOP 4-pin packages that achieve the low ON resistance and high switching capacitance of a mechanical relay

- Load voltage: 40 V or 60 V
- 40-V Relay: Continuous load current of 1 A max.
- 60-V Relay: Continuous load current of 1 A max.

RoHS Compliant

■Application Examples

- Semiconductor test equipment
- Security equipment
- Amusement equipment
- Test & Measurement equipment
- Industrial equipment
- Communication equipment
- Power circuit

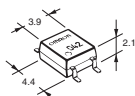


Note: The actual product is marked differently from the image shown here.

■Package

(Unit : mm, Average)

SOP 4-pin



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■Model Number Legend

G3VM-□□□□
1 2 3 4 5

1. Load Voltage
4 : 40 V
6 : 60 V
2. Contact form
1 : 1a (SPST-NO)
3. Package
G : SOP 4-pin
4. Additional function
R: Low ON resistance
5. 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	40 V	1000 mA	G3VM-41GR8	100 pcs.	G3VM-41GR8(TR)	2,500 pcs.
			60 V		G3VM-61GR1		G3VM-61GR1(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)

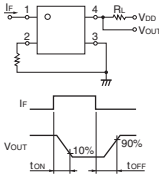
Item		Symbol	G3VM-41GR8	G3VM-61GR1	Unit	Measurement conditions
Input	LED forward current	IF	30	50	mA	
	LED forward current reduction rate	$\Delta I_F / ^\circ C$	-0.3	-0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	VR		5	V	
	Connection temperature	TJ		125	°C	
Output	Load voltage (AC peak/DC)	V _{OFF}	40	60	V	
	Continuous load current (AC peak/DC)	I _O		1000	mA	
	ON current reduction rate	$\Delta I_O / ^\circ C$		-13.3	mA/°C	Ta ≥ 50°C
	Pulse ON current	I _{OP}	2	3	A	t=100 ms, Duty=1/10
	Connection temperature	TJ		125	°C	
	Dielectric strength between I/O (See note 1.)	V _{IO}		1500	V _{RMS}	AC for 1 min
	Ambient operating temperature	Ta	-40 to +85	-20 to +85	°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125	-40 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-41GR8		G3VM-61GR1	Unit	Measurement conditions
Input	LED forward voltage	V _F	Minimum	1.18	1.0	V	I _F =10 mA
			Typical	1.33	1.15		
			Maximum	1.48	1.3		
	Reverse current	I _R	Maximum	10		μA	V _R =5 V
	Capacitance between terminals	C _T	Typical	70	15	pF	V=0, f=1 MHz
Output	Trigger LED forward current	I _{FT}	Typical	1		mA	I _o =100 mA
			Maximum	3			
	Release LED forward current	I _{FC}	Minimum	0.1		mA	I _{OFF} =100 μA
			Typical	0.1	0.25		
	Maximum resistance with output ON	R _{ON}	Typical	0.1	0.25	Ω	I _F =5 mA, I _o =1 A
Maximum			0.13	0.7			
	Current leakage when the relay is open	I _{LEAK}	Typical	—		nA	G3VM-41GR8 : V _{OFF} =30 V G3VM-61GR1 : V _{OFF} =60 V
			Maximum	1			
	Capacitance between terminals	C _{OFF}	Typical	300	90	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 ⁹				
Turn-ON time	t _{ON}	Typical	1.2	1.4	ms	I _F =5 mA, R _L =200 Ω, V _{OD} =20 V (See note 2.)	
		Maximum	3				
Turn-OFF time	t _{OFF}	Typical	0.2	0.6	ms		
		Maximum	0.5	1			

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.

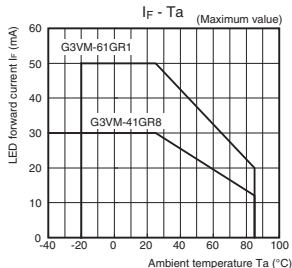
Item	Symbol		G3VM-41GR8	G3VM-61GR1	Unit
Load voltage (AC peak/DC)	V _{DD}	Maximum	32	48	V
Operating LED forward current	I _F	Maximum	5		mA
		Typical	10		
		Maximum	20		
Continuous load current (AC peak/DC)	I _O	Maximum	1000		°C
Ambient operating temperature	T _a	Minimum	-20		
		Maximum	60		

■Spacing and Insulation

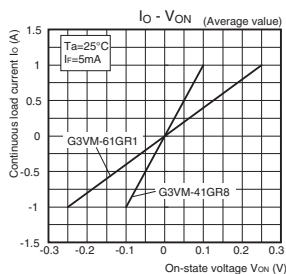
Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

Engineering Data

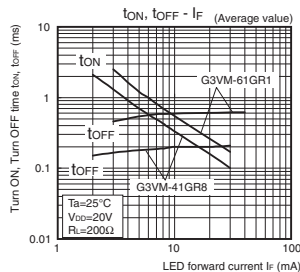
LED forward current vs. Ambient temperature



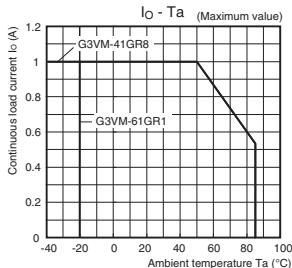
Continuous load current vs. On-state voltage



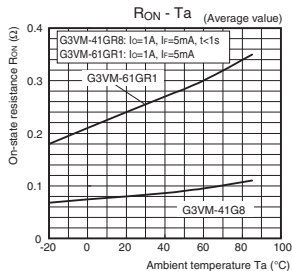
Turn ON, Turn OFF time vs. LED forward current



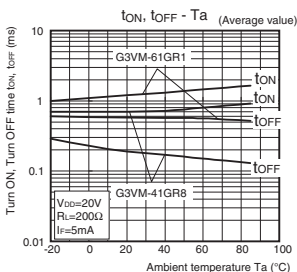
Continuous load current vs. Ambient temperature



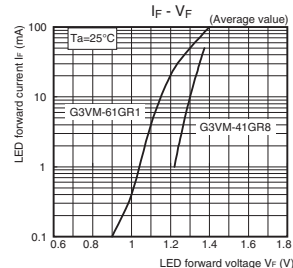
On-state resistance vs. Ambient temperature



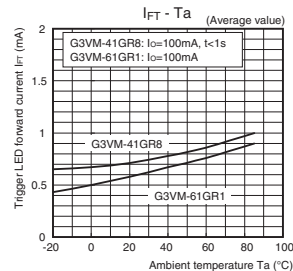
Turn ON, Turn OFF time vs. Ambient temperature



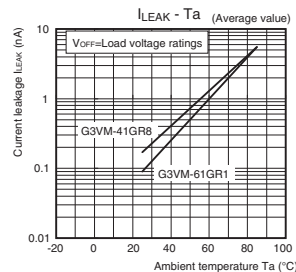
LED forward current vs. LED forward voltage



Trigger LED forward current vs. Ambient temperature



Current leakage vs. Ambient temperature



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General purpose
High-voltage
Multi-contact pair
High-current and low-on-resistance
Small and high-impedance
High-dielectric strength
Current-limiting
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Certified models with standards certification
DIP
SOP
SSOP
USOP
VSON

G3VM-41GR8/61GR1

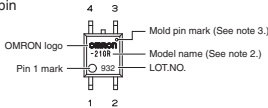
MOS FET Relays

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

SOP (Small Outline Package)

SOP 4-pin

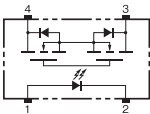


Note: 1. The actual product is marked differently from the image shown here.

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)

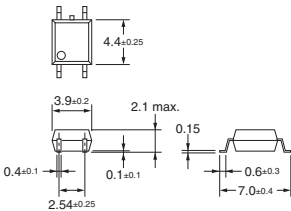


■Dimensions (Unit: mm)



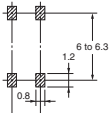
Surface-mounting Terminals

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.

G3VM-41GR8/61GR1