G3VM-61PR□/71PR/81PR/101PR

MOS FET Relays USOP, Small and High-load-voltage Type

USOP Package with High Load voltage

- **Load voltage: 60 V, 75 V, 80 V, or 100 V**
- **G3VM-61PR1: Low C × R = 7 pF·Ω, C_{OFF} (standard) = 0.7 pF, R_{ON} (standard) = 10 Ω**

RoHS Compliant

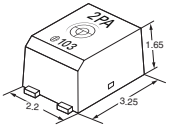
Note: The actual product is marked differently from the image shown here.

■Application Examples

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

■Package (Unit : mm, Average)

USOP 4-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
7: 75 V
8: 80 V
10: 100 V

2. Contact form
1: 1a (SPST-NO)

3. Package
P: USOP 4-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	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
USOP4	1a (SPST-NO)	Surface-mounting Terminals	60 V	120 mA	G3VM-61PR1	1 pc.	G3VM-61PR1(TR05)	500 pcs.
				400 mA	G3VM-61PR		G3VM-61PR(TR05)	
			75 V		G3VM-71PR		G3VM-71PR(TR05)	
			80 V	120 mA	G3VM-81PR		G3VM-81PR(TR05)	
			100 V	100 mA	G3VM-101PR		G3VM-101PR(TR05)	

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut USOPs are packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.
✻ The AC peak and DC value are given for the load voltage and continuous load current.

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G3VM-61PR□/71PR/81PR/101PR

MOS FET Relays

■Absolute Maximum Ratings (Ta = 25°C)

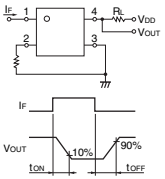
	Item	Symbol	G3VM-61PR1	G3VM-61PR	G3VM-71PR	G3VM-81PR	G3VM-101PR	Unit	Measurement conditions
Input	LED forward current	I_F	50					mA	
	LED forward current reduction rate	ΔI_F/°C	−0.5					mA/°C	Ta≥25°C
	LED reverse voltage	V_R	5					V	
	Connection temperature	T_J	125					°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	60		75	80	100	V	
	Continuous load current (AC peak/DC)	I_O	120	400		120	100	mA	
	ON current reduction rate	ΔI_O/°C	−1.2	−4		−1.2	−1	mA/°C	Ta≥25°C
	Pulse ON current	I_{op}	360	1,200		360	300	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125					°C	
Dielectric strength between I/O (See note 1.)		V_{I-O}	500					Vrms	AC for 1 min
Ambient operating temperature		Ta	−40 to +85					°C	With no icing or condensation
Ambient storage temperature		Tstg	−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-61PR1	G3VM-61PR	G3VM-71PR	G3VM-81PR	G3VM-101PR	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0					V	I_F=10 mA
			Typical	1.15						
			Maximum	1.3						
	Reverse current	I_R	Maximum	10					μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	15					pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	1.0	0.5		0.6	0.5	mA	I_O=100 mA
			Maximum	3						
	Release LED forward current	I_{FC}	Minimum	0.1	0.2	0.1			mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	10	1		7	8	Ω	G3VM-61PR : I_F=5 mA, I_O=400 mA Others : I_F=5 mA, I_O=Continuous load current ratings, t<1 s
			Maximum	15	1.5		12	14		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1			0.02	0.2	nA	V_{OFF}=Load voltage ratings
	Capacitance between terminals	C_{OFF}	Typical	0.7	20	30	5	6	pF	G3VM-61PR : V=0, f=1 MHz, t<1 s Others : V=0, f=100 MHz, t<1 s
			Maximum	1.3	30	–	7	8		
Capacitance between I/O terminals		C_{I-O}	Typical	0.4	0.3	0.4			pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Maximum	1000					MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8						
Turn-ON time		t_{ON}	Typical	0.04	0.3	0.4	0.14	0.12	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V (See note 2.)
			Maximum	0.2	0.5	2	0.5	0.3		
Turn-OFF time		t_{OFF}	Typical	0.12	0.3	0.2	0.16	0.18		
			Maximum	0.2	0.5	1	0.2	0.3		

Note: 2. Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

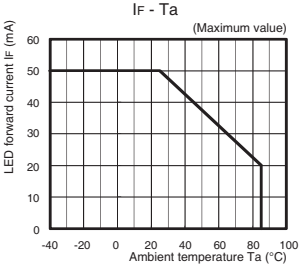
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

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

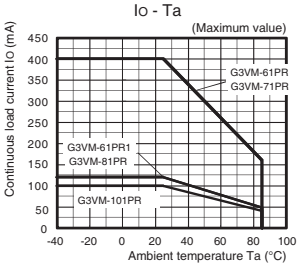
Item	Symbol		G3VM-61PR1	G3VM-61PR	G3VM-71PR	G3VM-81PR	G3VM-101PR	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	48		60	64	80	V
Operating LED forward current	I_F	Minimum	5					mA
		Typical	7.5					
		Maximum	20					
Continuous load current (AC peak/DC)	I_O	Maximum	120	400		120	100	
Ambient operating temperature	Ta	Minimum	−20					°C
		Maximum	65					

■Engineering Data

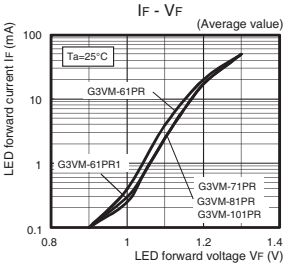
●**LED forward current vs. Ambient temperature**



●**Continuous load current vs. Ambient temperature**

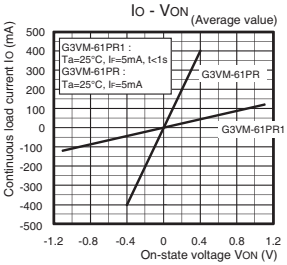


●**LED forward current vs. LED forward voltage**

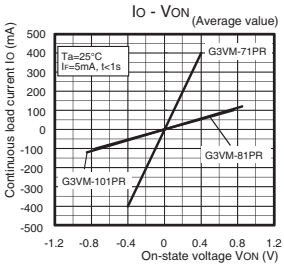


●**Continuous load current vs. On-state voltage**

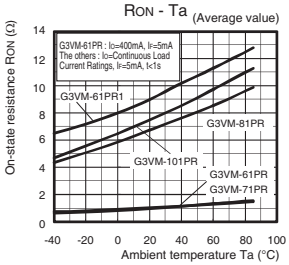
G3VM-61PR1/61PR



G3VM-71PR/81PR/101PR

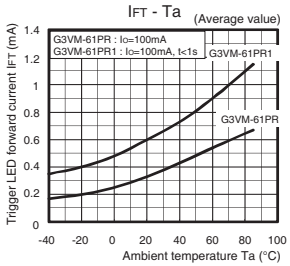


●**On-state resistance vs. Ambient temperature**

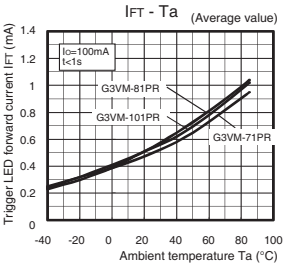


●**Trigger LED forward current vs. Ambient temperature**

G3VM-61PR1/61PR

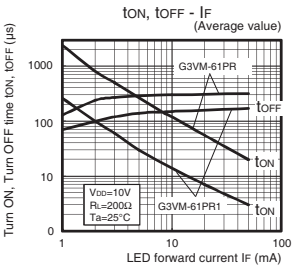


G3VM-71PR/81PR/101PR

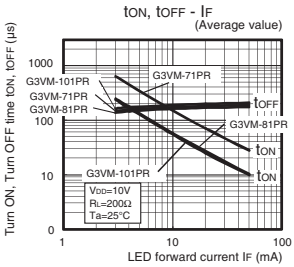


●**Turn ON, Turn OFF time vs. LED forward current**

G3VM-61PR1/61PR



G3VM-71PR/81PR/101PR



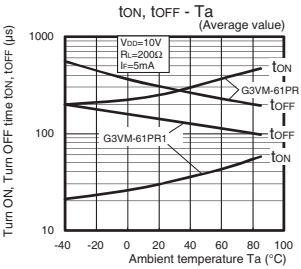
G3VM-61PR□/71PR/81PR/101PR

MOS FET Relays

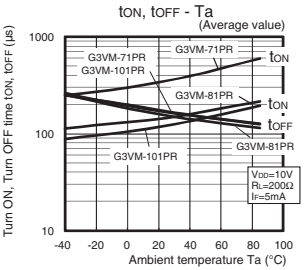
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature

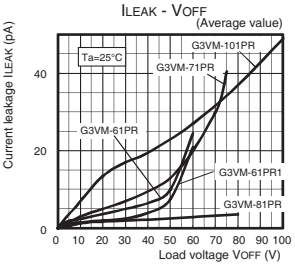
G3VM-61PR1/61PR



G3VM-71PR/81PR/101PR

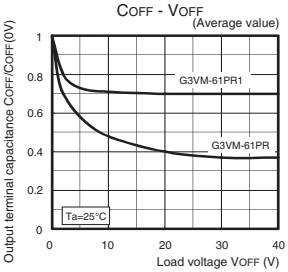


●Current leakage vs. Load voltage

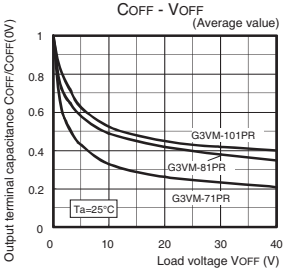


●Output terminal capacitance vs. Load voltage

G3VM-61PR1/61PR

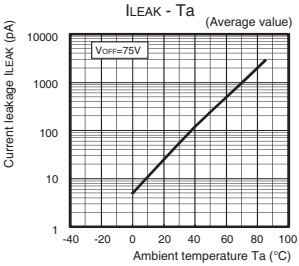


G3VM-71PR/81PR/101PR



●Current leakage vs. Ambient temperature

G3VM-71PR

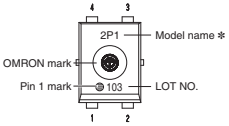


■Appearance / Terminal Arrangement / Internal Connections

●Appearance

USOP (Ultra Small Outline Package)

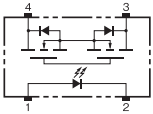
USOP 4-pin



✻ Actual model name marking for each model

Model	Marking
G3VM-61PR1	6P1
G3VM-61PR	6P0
G3VM-71PR	7P0
G3VM-81PR	8P0
G3VM-101PR	AP0

●Terminal Arrangement/Internal Connections (Top View)

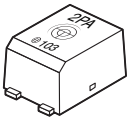


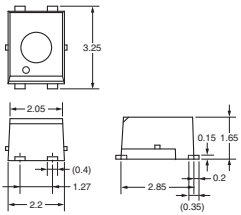
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.03 g

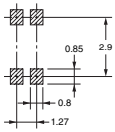




Unless otherwise specified, the dimensional tolerance is ±0.2 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ±0.2 mm.

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.

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Omron:
G3VM-71PR(TR05)