G3VM-61PR1(TR05) Datasheet

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DiGi Electronics Part Number	G3VM-61PR1(TR05)-DG
Manufacturer	Omron Electronics Inc-EMC Div
Manufacturer Product Number	G3VM-61PR1(TR05)
Description	SSR RELAY SPST-NO 120MA 0-60V
Detailed Description	Solid State SPST-NO (1 Form A) 4-SMD (0.128", 3.25 mm)

This model G3VM-61PR1(TR05) is available at DiGi Electronics.

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
G3VM-61PR1(TR05)	Omron Electronics Inc-EMC Div
Series:	Product Status:
G3VM	Active
Mounting Type:	Circuit:
Surface Mount	SPST-NO (1 Form A)
Output Type:	Voltage - Input:
AC, DC	1.15VDC
Voltage - Load:	Load Current:
0 V ~ 60 V	120 mA
On-State Resistance (Max):	Termination Style:
15 Ohms	SMD (SMT) Tab
Package / Case:	Supplier Device Package:
4-SMD (0.128", 3.25mm)	4-USOP
Base Product Number:	
G3VM	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
RoHS Compliant	3 (168 Hours)
ECCN:	HTSUS:
EAR99	8536.49.0055

G3VM-61PR□/71PR/81PR/101PR

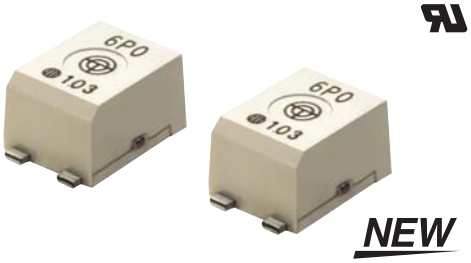
MOS FET Relays USOP Package with High Load voltage

USOP Package with High Load voltage

- **Load voltage 60V/75V/80V/100V**

RoHS Compliant

⚠ Refer to "*Common Precautions*".



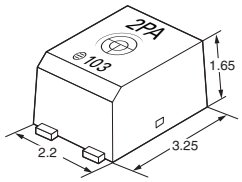
NEW

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)



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: 60V
7: 75V
8: 80V
10: 100V

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

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

Note: When ordering tape packing, add "(TR05)" (500pcs/reel) to the model number.
Ask your OMRON representative for orders under 500 pcs. We can supply products with the tape already cut.
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.

■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	−12	−4		−1.2	−1	mA/°C	Ta≥25°C
	Pulse ON current	Iop	360	1,200		360	300	mA	t=100ms, Duty=1/10
	Connection temperature	T_J	125					°C	
Dielectric strength between I/O ✻		V_{I-O}	500					Vrms	AC for 1 min
Ambient operating temperature		Ta	−40~+85					°C	With no icing or condensation
Ambient storage temperature		Tstg	−40~+125					°C	
Soldering temperature		–	260					°C	10s

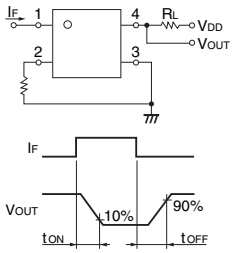
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

G3VM-61PR□/71PR/81PR/101PR

■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=10mA
			Typical	1.15						
			Maximum	1.3						
	Reverse current	I_R	Maximum	10					μA	V_R=5V
	Capacity between terminals	C_T	Typical	15					pF	V=0, f=1MHz
	Trigger LED forward current	I_{FT}	Typical	1.0	0.5		0.6	0.5	mA	I_O=100mA
			Maximum	3						
	Release LED forward current	I_{FC}	Minimum	0.1	0.2	0.1			mA	I_{OFF}=10μA
Output	Maximum resistance with output ON	R_{ON}	Typical	10	1		7	8	Ω	G3VM-61PR : I_F=5mA, Io=400mA Others : I_F=5mA, Io=Continuous load current ratings, t<1s
			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
	Capacity between terminals	C_{OFF}	Typical	0.7	20	30	5	6	pF	G3VM-61PR : V=0, f=1MHz, t<1s Others : V=0, f=100MHz, t<1s
			Maximum	1.3	–		7	8		
Capacity between I/O terminals		C_{I-O}	Typical	0.4	0.3	0.4			pF	f=1MHz, V_S=0V
Insulation resistance between I/O terminals		R_{I-O}	Maximum	1000					MΩ	V_{I-O}=500VDC, RoH≤60%
			Typical	10^8						
Turn-ON time		t_{ON}	Typical	0.04	0.3	0.4	0.14	0.12	ms	I_F=5mA, R_L=200Ω, V_{DD}=20V ✻
			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		

✻ 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					

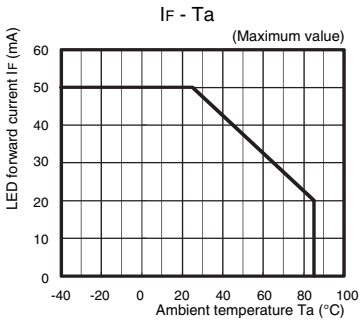
USOP

G3VM-61PR□/71PR/81PR/101PR

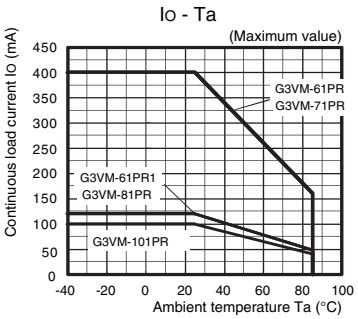
G3VM-61PR□/71PR/81PR/101PR

■Engineering Data

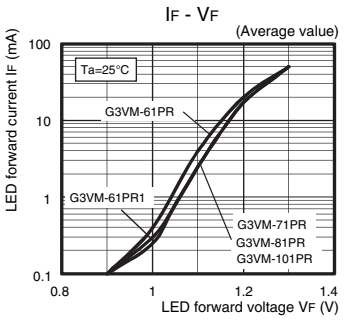
●LED forward current vs. Ambient temperature



●Continuous load current vs. Ambient temperature

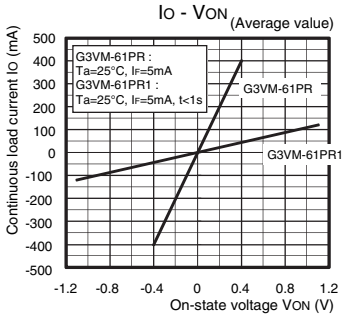


●LED forward current vs. LED forward voltage

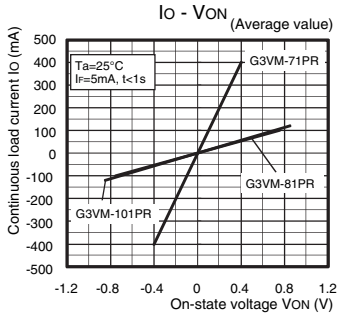


●Continuous load current vs. On-state voltage

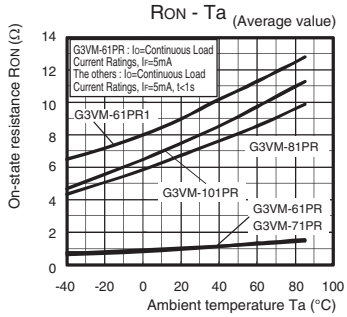
G3VM-61PR/61PR1



G3VM-71PR/81PR/101PR

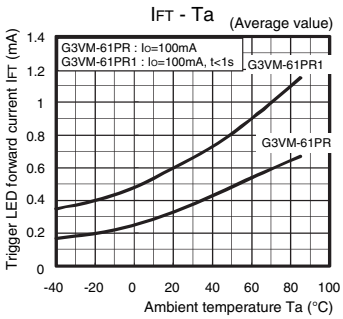


●On-state resistance vs. Ambient temperature

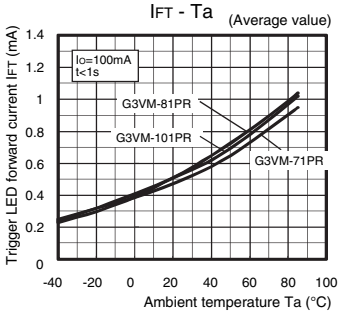


●Trigger LED forward current vs. Ambient temperature

G3VM-61PR/61PR1

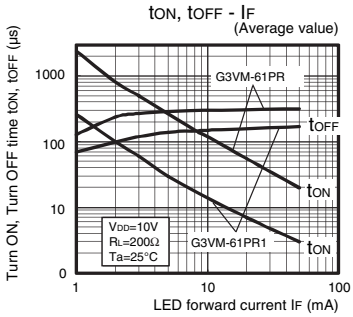


G3VM-71PR/81PR/101PR

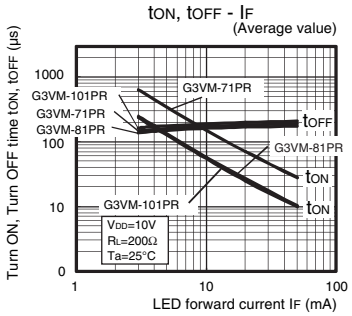


●Turn ON, Turn OFF time vs. LED forward current

G3VM-61PR/61PR1



G3VM-71PR/81PR/101PR

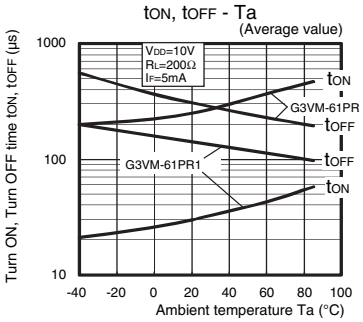


G3VM-61PR□/71PR/81PR/101PR

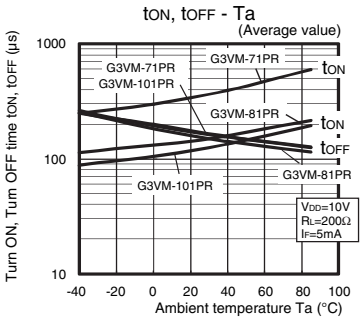
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature

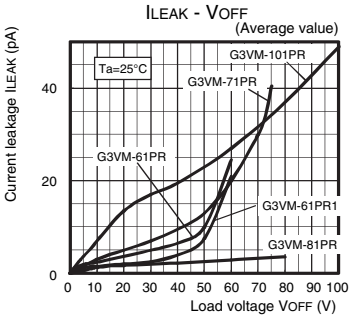
G3VM-61PR/61PR1



G3VM-71PR/81PR/101PR

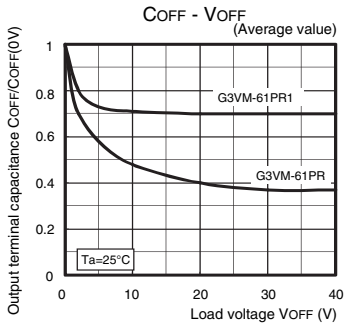


●Current leakage vs. Load voltage

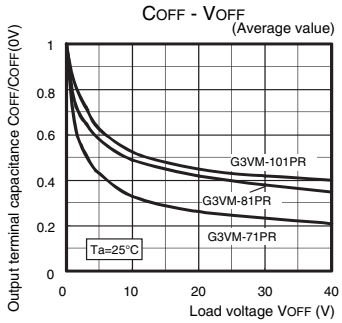


●Output terminal capacitance vs. Load voltage

G3VM-61PR/61PR1

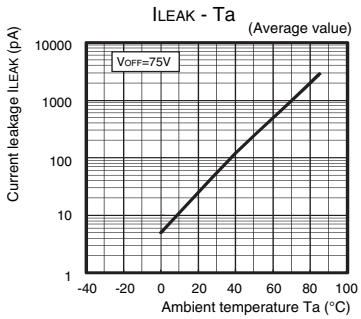


G3VM-71PR/81PR/101PR



●Current leakage vs. Ambient temperature

G3VM-71PR



G3VM-61PR□/71PR/81PR/101PR

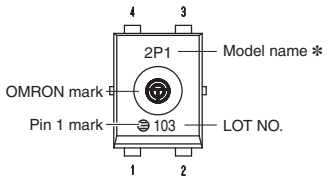
MOS FET Relays

■Appearance / Terminal Arrangement / Internal Connections

■Appearance

USOP (Ultra Small Outline Package)

USOP4 pin

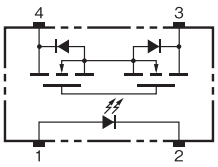


✻ Actual model name marking for each model

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

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

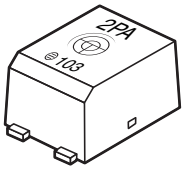
■Terminal Arrangement/Internal Connections (Top View)

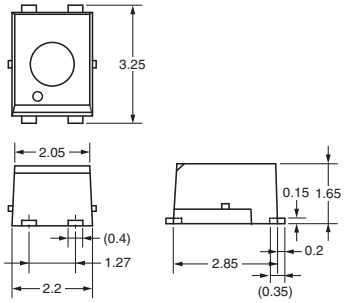


■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.03g

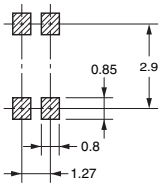




Unless otherwise specified, the dimensional tolerance is ±0.2 mm.

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 "**Common Precautions**" for all G3VM models.

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