G3VM-41PR□/51PR

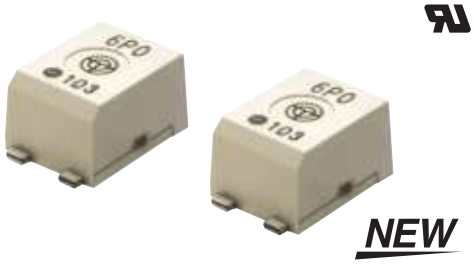
MOS FET Relays **USOP package with Low Output Capacitance and ON Resistance type (Low C × R)**

USOP Package with Low Output Capacitance and ON Resistance

- **Load voltage 40V/50V**

RoHS Compliant

⚠ Refer to "*Common Precautions*".

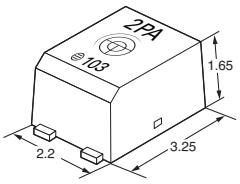


Note: The actual product is marked differently from the image shown here.

■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
4: 40V
5: 50V

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	40V	100mA	G3VM-41PR12	1 pc.	G3VM-41PR12(TR05)	500 pcs.
				120mA	G3VM-41PR6		G3VM-41PR6(TR05)	
					G3VM-41PR10		G3VM-41PR10(TR05)	
				140mA	G3VM-41PR11		G3VM-41PR11(TR05)	
				300mA	G3VM-41PR5		G3VM-41PR5(TR05)	
			50V	300mA	G3VM-51PR		G3VM-51PR(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)

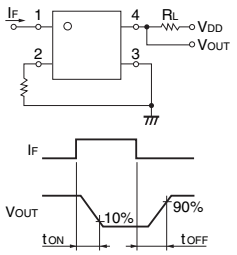
	Item	Symbol	G3VM-41PR12	G3VM-41PR6	G3VM-41PR10	G3VM-41PR11	G3VM-41PR5	G3VM-51PR	Unit	Measurement conditions
Input	LED forward current	I_F	50						mA	
	LED forward current reduction rate	ΔI_F/°C	–0.5						mA/°C	Ta≥25°C
	LED reverse voltage	V_R	5						V	
	Connection temperature	T_J	125						°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	40					50	V	
	Continuous load current (AC peak/DC)	I_O	100	120		140	300		mA	
	ON current reduction rate	ΔI_O/°C	–1.0	–1.2		–1.4	–3		mA/°C	Ta≥25°C
	Pulse ON current	Iop	300	360		420	900		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.

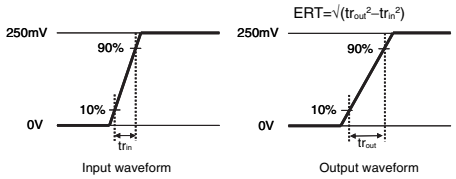
■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-41PR12	G3VM-41PR6	G3VM-41PR10	G3VM-41PR11	G3VM-41PR5	G3VM-51PR	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	0.6	0.5	1.0	0.6	0.5	mA	I_O=100mA
			Maximum	3							
	Release LED forward current	I_{FC}	Minimum	0.1					0.2	mA	I_{OFF}=10μA
Output	Maximum resistance with output ON	R_{ON}	Typical	15	10	12	7	1		Ω	I_F=5mA, t<1s I_O=Continuous load current ratings
			Maximum	20	15	14	10	1.5			
	Current leakage when the relay is open	I_{LEAK}	Maximum	1	0.2	1				nA	V_{OFF}=Load voltage ratings
	Capacity between terminals	C_{OFF}	Typical	0.3	1	0.45	0.7	10	12	pF	V=0, f=100MHz, t<1s
			Maximum	0.6	2	0.8	1.3	14	–		
Capacity between I/O terminals		C_{I-O}	Typical	0.4						pF	f=1MHz, V_S=0V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000						MΩ	V_{I-O}=500VDC, RoH≤60%
			Typical	10^8							
Turn-ON time		t_{ON}	Typical	0.04	0.05	0.03	0.04	0.2		ms	I_F=5mA, R_L=200Ω, V_{DD}=20V ✻1
			Maximum	0.2				0.5			
Turn-OFF time		t_{OFF}	Typical	0.12	0.16	0.2	0.14	0.2	0.1		
			Maximum	0.2	0.3		0.2	0.3	0.4		
Equivalent rise time		ERT	Typical	–					40	ps	I_F=5mA, V_{DD}=0.25V, Tr(in)=25ps ✻2
			Maximum	–					90		

✻1. Turn-ON and Turn-OFF Times



✻2. Equivalent Rise Time



■Recommended Operating Conditions

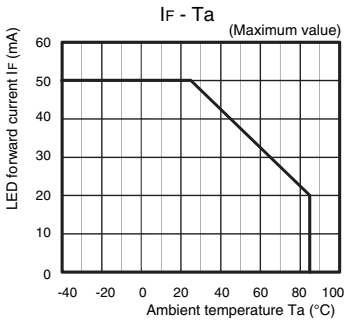
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

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

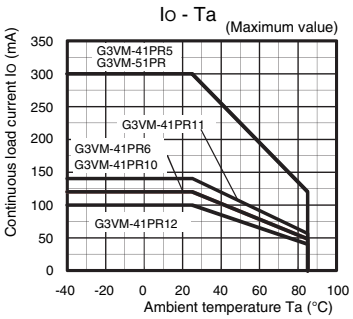
Item	Symbol		G3VM-41PR12	G3VM-41PR6	G3VM-41PR10	G3VM-41PR11	G3VM-41PR5	G3VM-51PR	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	32					40	V
Operating LED forward current	I_F	Minimum	5						mA
		Typical	7.5						
		Maximum	20						
Continuous load current (AC peak/DC)	I_O	Maximum	100	120		140	300		
Ambient operating temperature	Ta	Minimum	–20						°C
		Maximum	65						

■Engineering Data

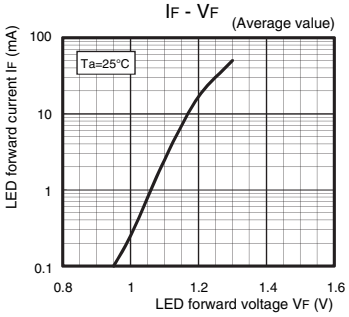
●LED forward current vs. Ambient temperature



●Continuous load current vs. Ambient temperature

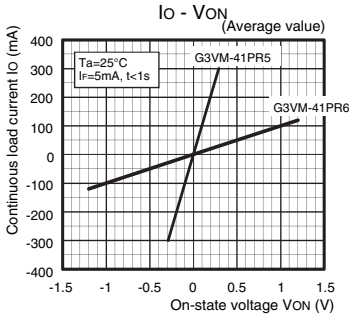


●LED forward current vs. LED forward voltage

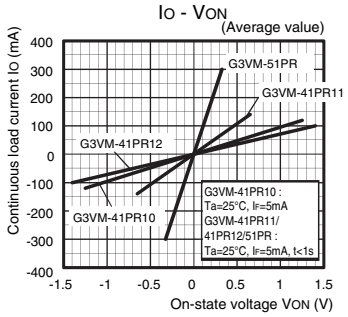


●Continuous load current vs. On-state voltage

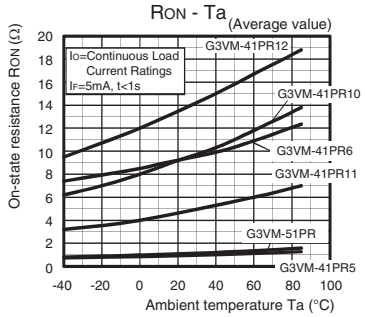
G3VM-41PR5/41PR6



G3VM-41PR10/41PR11/41PR12/51PR

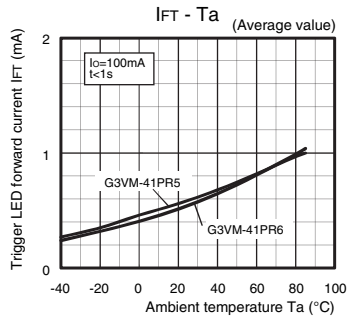


●On-state resistance vs. Ambient temperature

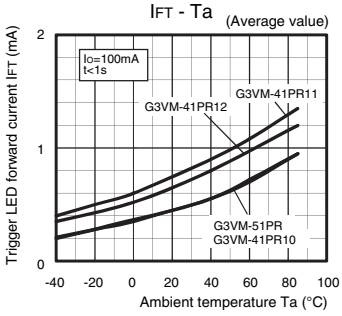


●Trigger LED forward current vs. Ambient temperature

G3VM-41PR5/41PR6

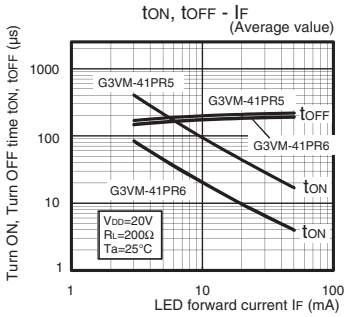


G3VM-41PR10/41PR11/41PR12/51PR

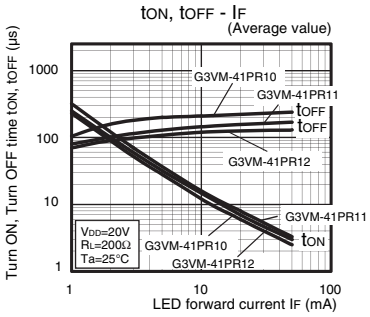


●Turn ON, Turn OFF time vs. LED forward current

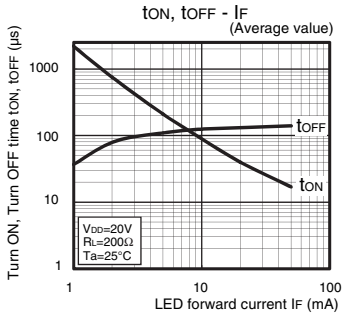
G3VM-41PR5/41PR6



G3VM-41PR10/41PR11/41PR12



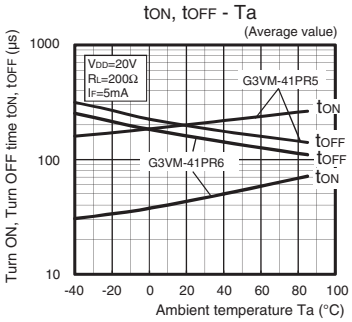
G3VM-51PR



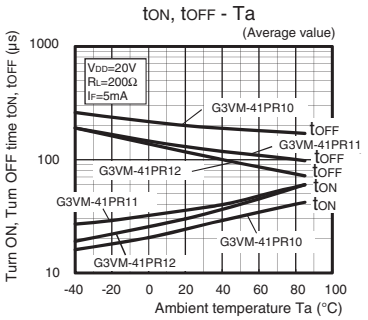
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature

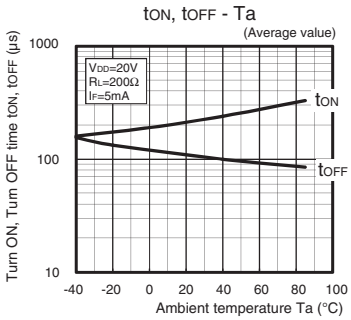
G3VM-41PR5/41PR6



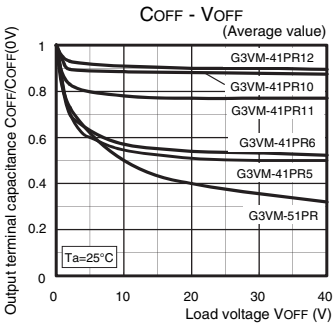
G3VM-41PR10/41PR11/41PR12



G3VM-51PR

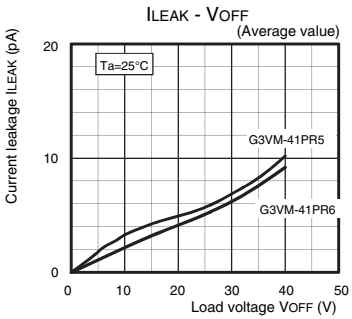


●Output terminal capacitance vs. Load voltage

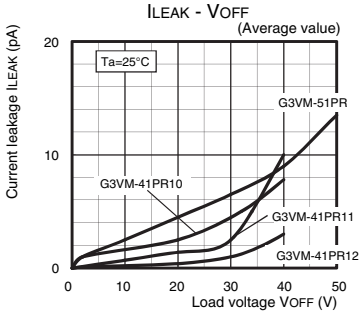


●Current leakage vs. Load voltage

G3VM-41PR5/41PR6



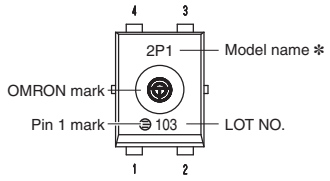
G3VM-41PR10/41PR11/41PR12/51PR



■Appearance / Terminal Arrangement / Internal Connections

■Appearance

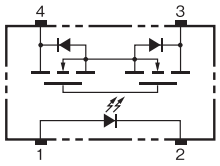
USOP (Ultra Small Outline Package)
USOP4 pin



✻ Actual model name marking for each model

Model	Marking
G3VM-41PR12	4PC
G3VM-41PR6	4P6
G3VM-41PR10	4PA
G3VM-41PR11	4PB
G3VM-41PR5	4P5
G3VM-51PR	5P0

■Terminal Arrangement/Internal Connections (Top View)

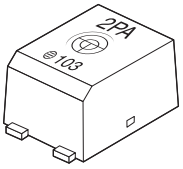


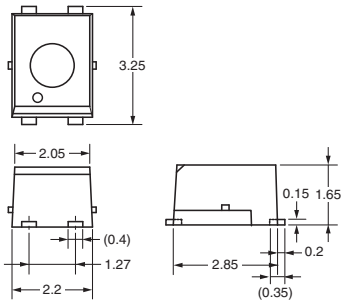
Note. The actual product is marked differently from the image shown here.

■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.03g

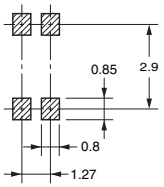




Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

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.

Please check each region's Terms & Conditions by region website.

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Cat. No. K273-E1-03
0318(0115)(O)