# OMRON MOS FET Relays

### G3VM-41HR

### Low 30-m $\Omega$ ON Resistance. Higher power, 2.5-A switching with a 40-V load voltage, SOP package.

- Continuous load current of 2.5 A (connection C = 5 A).
- Dielectric strength of 1,500 Vrms between I/O.

#### **RoHS compliant**

A Refer to "Common Precautions".

#### ■ Application Examples

- Broadband systems
- Measurement devices
- Data loggers
- Industrial equipment

#### ■ List of Models



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

Contact form	Terminals	Load voltage (peak value) (See note.)	Model	Number per stick	Number per tape
SPST-NO	Surface-mounting	40 V	G3VM-41HR	75	
	terminals		G3VM-41HR(TR)		2,500

Note: The AC peak and DC value is given for the load voltage.

#### ■ Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-41HR



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

#### ■ Terminal Arrangement/Internal Connections (Top View)

G3VM-41HR



#### ■ Actual Mounting Pad Dimensions (Recommended Value, Top View) G3VM-41HR



#### ■ Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	Rating	Unit	Measurement Conditions	
Input LED forward current		I <sub>F</sub>	30	mA			
	LED forward current reduction rate LED reverse voltage		$\Delta I_{F}^{\circ}C$	-0.3	mA/°C	Ta≥25°C	
			V <sub>R</sub>	5	V		
	Connection temperatur	onnection temperature		125	°C		
Output	ut Load voltage (AC peak/DC)		V <sub>OFF</sub>	40	V		
	Continuous load current	Connection A	I <sub>O</sub>	2.5	A	Connection A: AC peak/DC	
		Connection B		2.5		Connection B and C: DC	
		Connection C		5			
	ON current reduction rate	Connection A	Δ I <sub>IO</sub> /°C	-33.3	mA/°C	Ta≥50°C	
		Connection B		-33.3			
		Connection C		-66.7			
	Pulse on current		lop	7.5	А	t = 100 ms	
	Connection temperature		Тj	125	°C		
Dielectric strength between input and output (See note 1.)			V <sub>I-O</sub>	1,500	Vrms	AC for 1 min	
Operating temperature			Τ <sub>a</sub>	-40 to +85	°C	With no icing or condensation	
Storage temperature			T <sub>stg</sub>	-55 to +125	°C	With no icing or condensation	
Soldering temperature (10 s)				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.

## Connection Diagram

Connection A	$\begin{bmatrix} 1 & 6 \\ - & Load \\ 2 & 5 \\ 0 & 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \xrightarrow{AC} \bigoplus_{i=1}^{AC} $
Connection B	$\begin{bmatrix} 1 & 6 \\ - & Load \end{bmatrix}$
Connection C	

#### ■ Electrical Characteristics (Ta = 25°C)

Item			Symbol	Mini- mum	Typical	Maxi- mum	Unit	Measurement conditions
Input	nput LED forward voltage		V <sub>F</sub>	1.18	1.33	1.48	V	I <sub>F</sub> = 10 mA
	Reverse current		I <sub>R</sub>			10	μА	V <sub>R</sub> = 5 V
	Capacity between terminals Trigger LED forward current		CT		70		pF	V = 0, f = 1 MHz
			I <sub>FT</sub>		0.4	3	mA	I <sub>O</sub> = 100 mA
Output	Maximum resistance with output ON	Connection A	R <sub>ON</sub>		0.03	0.06	Ω	$I_F = 5 \text{ mA}, I_O = 2 \text{ A}, t < 1_S$
		Connection B			0.015	0.03	Ω	$I_F = 5 \text{ mA}, I_O = 2 \text{ A}, t < 1_S$
		Connection C			0.008		Ω	$I_F = 5 \text{ mA}, I_O = 4 \text{ A}, t < 1_S$
	Current leakage when the relay is open		I <sub>LEAK</sub>			10	nA	V <sub>OFF</sub> = 40 V
Capacity	Capacity between I/O terminals				0.8		pF	f = 1 MHz, Vs = 0 V
Insulation resistance			R <sub>I-O</sub>	1,000			MΩ	$\label{eq:VI-O} \begin{array}{l} V_{I\text{-}O} = 500 \ \text{VDC}, \\ \text{RoH} \leq 60\% \end{array}$
Turn-ON time			t <sub>ON</sub>		1.0	5.0	ms	$I_F = 5 \text{ mA}, \text{ R}_L = 200 \Omega,$
Turn-OFF time			t <sub>OFF</sub>		0.15	1.0	ms	$V_{DD} = 20 V$ (See note 2.)



#### Recommended Operating Conditions

Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V <sub>DD</sub>			40	V
Operating LED forward current	I <sub>F</sub>	5	7.5	20	mA
Continuous load current (AC peak/DC)	Io			2	A
Operating temperature	T <sub>a</sub>	-20		65	°C

#### ■ Engineering Data Load Current vs. Ambient Temperature G3VM-41HR



#### ■ Safety Precautions

Refer to "Common Precautions" for all G3VM models.