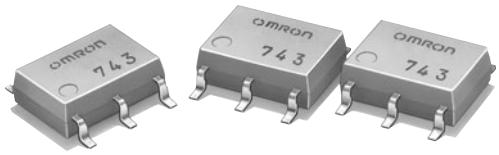
OMRON

MOS FET Relays

G3VM-41HR

Low 30-mΩ 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

⚠ Refer to *"Common Precautions"*.

NEW

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

■ Application Examples

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

■ List of Models

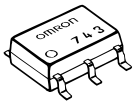
Contact form	Terminals	Load voltage (peak value) (See note.)	Model	Number per stick	Number per tape
SPST-NO	Surface-mounting terminals	40 V	G3VM-41HR	75	---
			G3VM-41HR(TR)	---	2,500

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

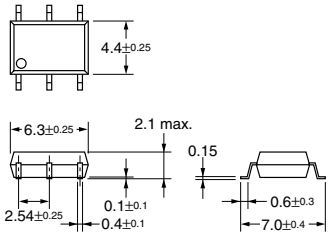
■ Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-41HR



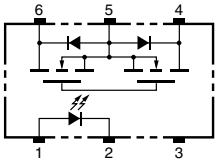
Note: The actual product is marked differently from the image shown here.



Weight: 0.13 g

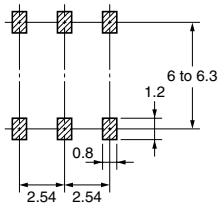
■ Terminal Arrangement/Internal Connections (Top View)

G3VM-41HR



■ Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-41HR



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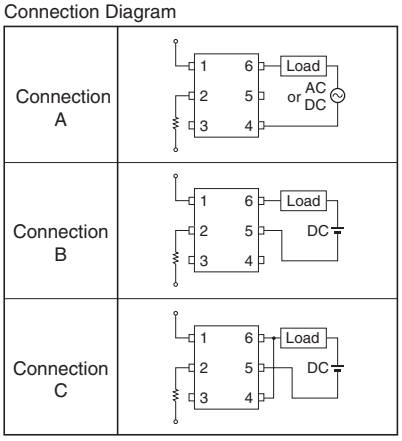
■ Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	Rating	Unit	Measurement Conditions
Input	LED forward current		I_F	30	mA	
	LED forward current reduction rate		ΔI_F/°C	–0.3	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	V	
	Continuous load current	Connection A	I_O	2.5	A	Connection A: AC peak/DC Connection B and C: DC
		Connection B		2.5		
		Connection C		5		
	ON current reduction rate	Connection A	ΔI_{IO}/°C	–33.3	mA/°C	Ta ≥ 50°C
		Connection B		–33.3		
		Connection C		–66.7		
	Pulse on current		Iop	7.5	A	t = 100 ms
	Connection temperature		T_j	125	°C	
Dielectric strength between input and output (See note 1.)			V_{I-O}	1,500	Vrms	AC for 1 min
Operating temperature			T_a	–40 to +85	°C	With no icing or condensation
Storage temperature			T_{stg}	–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.

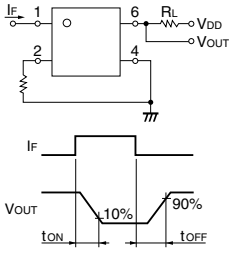
Connection Diagram



■ Electrical Characteristics (Ta = 25°C)

Item			Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions
Input	LED forward voltage		V_F	1.18	1.33	1.48	V	I_F = 10 mA
	Reverse current		I_R	---	---	10	μA	V_R = 5 V
	Capacity between terminals		C_T	---	70	---	pF	V = 0, f = 1 MHz
	Trigger LED forward current		I_{FT}	---	0.4	3	mA	I_O = 100 mA
Output	Maximum resistance with output ON	Connection A	R_{ON}	---	0.03	0.06	Ω	I_F = 5 mA, I_O = 2 A, t < 1_S
		Connection B		---	0.015	0.03	Ω	I_F = 5 mA, I_O = 2 A, t < 1_S
		Connection C		---	0.008	---	Ω	I_F = 5 mA, I_O = 4 A, t < 1_S
	Current leakage when the relay is open		I_{LEAK}	---	---	10	nA	V_{OFF} = 40 V
Capacity between I/O terminals			C_{I-O}	---	0.8	---	pF	f = 1 MHz, Vs = 0 V
Insulation resistance			R_{I-O}	1,000	---	---	MΩ	V_{I-O} = 500 VDC, RoH ≤ 60%
Turn-ON time			t_{ON}	---	1.0	5.0	ms	I_F = 5 mA, R_L = 200 Ω, V_{DD} = 20 V (See note 2.)
Turn-OFF time			t_{OFF}	---	0.15	1.0	ms	

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



■ Recommended Operating Conditions

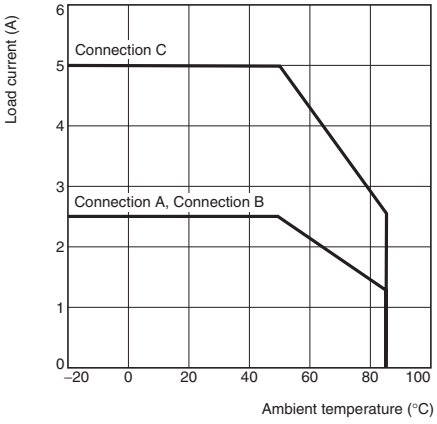
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	---	---	40	V
Operating LED forward current	I_F	5	7.5	20	mA
Continuous load current (AC peak/DC)	I_O	---	---	2	A
Operating temperature	T_a	–20	---	65	°C

■ Engineering Data

Load Current vs. Ambient Temperature

G3VM-41HR



■ Safety Precautions

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

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