

MOS FET Relays

G3VM-41GR7

New MOS FET Relays with Low Output Capacitance and ON Resistance ($C \times R = 10\text{pF} \cdot \Omega$) in a 40-V Load Voltage Model.

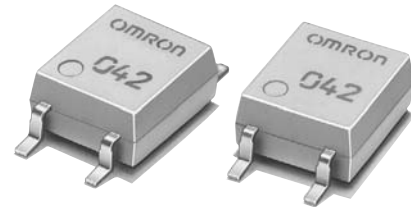
- C_{OFF} (typical): 1.65 pF, R_{ON} (typical): 6.5 Ω
- Leakage current of 1.0 nA max. when output relay is open.

RoHS compliant

⚠ Refer to "Common Precautions".

Application Examples

- Semiconductor inspection tools
- Measurement devices
- Broadband systems
- Data loggers



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

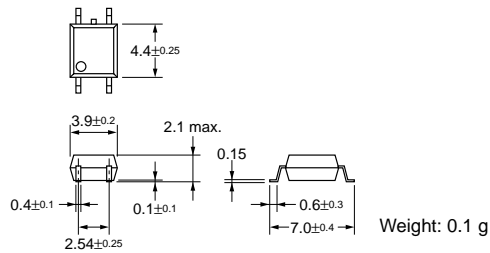
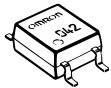
List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Minimum packaging unit	
				Number per stick	Number per tape
SPST-NO	Surface-mounting terminals	40 VAC	G3VM-41GR7	100	---
			G3VM-41GR7(TR)	---	2,500

Dimensions

Note: All units are in millimeters unless otherwise indicated.

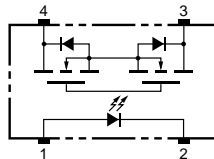
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Note: The actual product is marked differently from the image shown here.

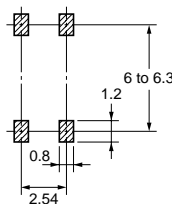
Terminal Arrangement/Internal Connections (Top View)

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Actual Mounting Pad Dimensions (Recommended Value, Top View)

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Absolute Maximum Ratings (Ta = 25°C)

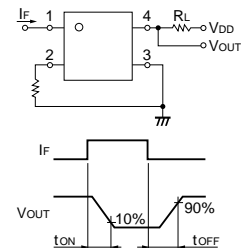
Item	Symbol	Rating	Unit	Measurement Conditions	
Input	LED forward current	I_F	50	mA	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5	V	
	Connection temperature	T_j	125	°C	
Output	Output dielectric strength	V_{OFF}	40	V	
	Continuous load current	I_O	120	mA	
	ON current reduction rate	$\Delta I_O/^\circ\text{C}$	-1.2	mA/°C	Ta ≥ 25°C
	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	-20 to +85	°C	With no icing or condensation
Storage temperature		T_{stg}	-40 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.

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions	
Input	LED forward voltage	V_F	1.0	1.15	1.3	V	$I_F = 10\text{ mA}$
	Reverse current	I_R	---	---	10	μA	$V_R = 5\text{ V}$
	Capacity between terminals	C_T	---	15	---	pF	$V = 0, f = 1\text{ MHz}$
	Trigger LED forward current	I_{FT}	---	---	4	mA	$I_O = 100\text{ mA}$
Output	Maximum resistance with output ON	R_{ON}	---	6.5	9.5	Ω	$I_F = 5\text{ mA}, I_O = 120\text{ mA}, t = 10\text{ ms}$
	Current leakage when the relay is open	I_{LEAK}	---	---	1.0	nA	$V_{OFF} = 30\text{ V}, T_a = 50^\circ\text{C}$
	Capacity between terminals	C_{OFF}	---	1.65	3.0	pF	$V = 0, f = 100\text{ MHz}, t < 1\text{ s}$
Capacity between I/O terminals		C_{I-O}	---	0.8	---	pF	$f = 1\text{ MHz}, V_s = 0\text{ V}$
Insulation resistance between I/O terminals		R_{I-O}	1,000	---	---	MΩ	$V_{I-O} = 500\text{ VDC}, R_{oH} \leq 60\%$
Turn-ON time		t_{ON}	---	---	0.5	ms	$I_F = 10\text{ mA}, R_L = 200\ \Omega, V_{DD} = 10\text{ V}$ (See note 2.)
Turn-OFF time		t_{OFF}	---	---	0.5	ms	

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



Recommended Operating Conditions

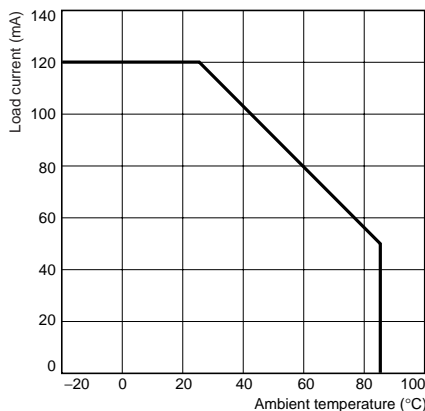
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	V_{DD}	---	---	32	V
Operating LED forward current	I_F	10	---	30	mA
Continuous load current	I_O	---	---	120	mA
Operating temperature	T_a	25	---	60	°C

Engineering Data

Load Current vs. Ambient Temperature

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Safety Precautions

Refer to "Common Precautions" for all G3VM models.