

MOS FET Relays

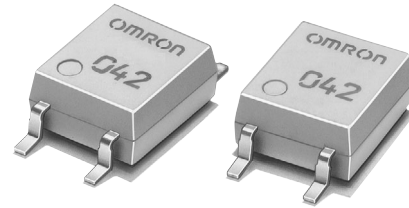
G3VM-41GR8

**Low 100-mΩ ON Resistance.
High-power, 1-A Switching with SOP
Package.**

- Continuous load current of 1 A.
- ON resistance of 0.1 Ω (typical) suppresses output signal attenuation.
- Dielectric strength of 1,500 Vrms between I/O.

RoHS compliant

⚠ Refer to "Common Precautions".



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

Application Examples

- Broadband systems
- Data loggers
- Measurement devices
- Amusement machines

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-41GR8	100	---
			G3VM-41GR8(TR)	---	2,500

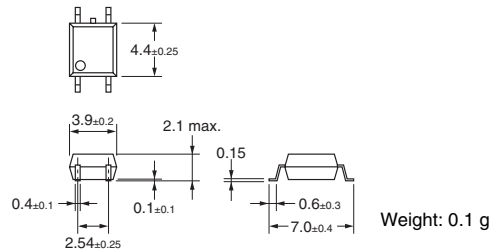
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-41GR8

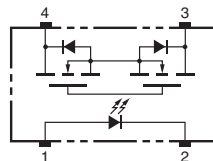


Note: The actual product is marked differently from the image shown here.



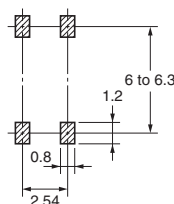
Terminal Arrangement/Internal Connections (Top View)

G3VM-41GR8



Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-41GR8



Absolute Maximum Ratings (Ta = 25°C)

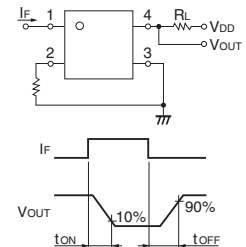
Item	Symbol	Rating	Unit	Measurement Conditions	
Input	LED forward current	I_F	30	mA	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.3	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5	V	
	Connection temperature	T_j	125	°C	
Output	Output dielectric strength	V_{OFF}	40	V	
	Continuous load current	I_O	1,000	mA	
	ON current reduction rate	$\Delta I_O/^\circ\text{C}$	-13.3	mA/°C	Ta ≥ 50°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	-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.

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	$I_F = 10 \text{ mA}$
	Reverse current	I_R	---	---	10	μA	$V_R = 5 \text{ V}$
	Capacity between terminals	C_T	---	70	---	pF	$V = 0, f = 1 \text{ MHz}$
	Trigger LED forward current	I_{FT}	---	1.0	3	mA	$I_O = 100 \text{ mA}$
Output	Maximum resistance with output ON	R_{ON}	---	0.1	0.13	Ω	$I_F = 5 \text{ mA}, I_O = 1 \text{ A}$
	Current leakage when the relay is open	I_{LEAK}	---	---	1	μA	$V_{OFF} = 30 \text{ V}$
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	$V_{I-O} = 500 \text{ VDC}, \text{RoH} \leq 60\%$
Turn-ON time		t_{ON}	---	1.2	3.0	ms	$I_F = 5 \text{ mA}, R_L = 200 \Omega, V_{DD} = 20 \text{ V}$ (See note 2.)
Turn-OFF time		t_{OFF}	---	0.2	0.5	ms	

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



Recommended Operating Conditions

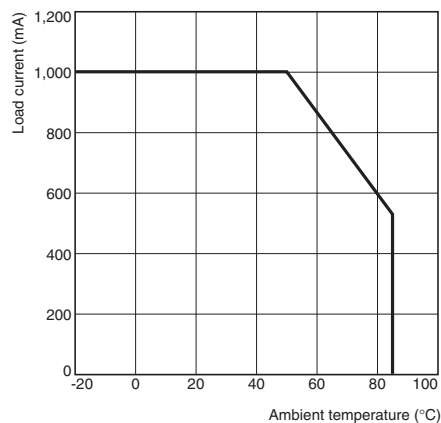
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	V_{DD}	---	---	32	V
Operating LED forward current	I_F	5	10	20	mA
Continuous load current	I_O	---	---	1,000	mA
Operating temperature	T_a	25	---	60	°C

Engineering Data

Load Current vs. Ambient Temperature

G3VM-41GR8



Safety Precautions

Refer to "Common Precautions" for all G3VM models.