

OMRON

# MOS FET Relays

G3VM-81G1

**New Relay Incorporating a MOS FET  
Optically Coupled with an Infrared LED  
Has a 4-pin SOP Package and 80-V Load  
Voltage**

- Continuous load current of 350 mA.
- Dielectric strength of 1,500 Vrms between I/O.

### ■ Application Examples

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

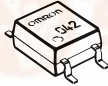
### ■ List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NO	Surface-mounting terminals	80 VAC	G3VM-81G1	100	---
			G3VM-81G1(TR)	---	2,500

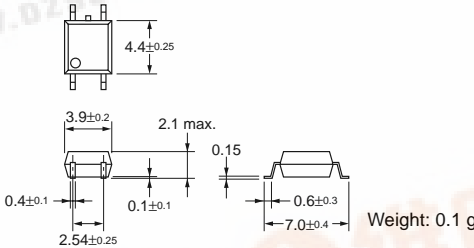
### ■ Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

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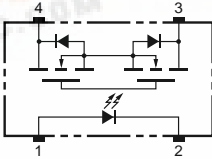


**Note:** The actual product is marked differently from the image shown here.



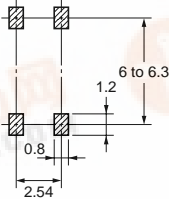
### ■ Terminal Arrangement/Internal Connections (Top View)

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

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

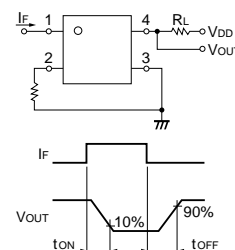
Item		Symbol	Rating	Unit	Measurement Conditions
Input	LED forward current	I <sub>F</sub>	50	mA	
	Repetitive peak LED forward current	I <sub>FP</sub>	1	A	100 μs pulses, 100 pps
	LED forward current reduction rate	Δ I <sub>F</sub> /°C	-0.5	mA/°C	T <sub>a</sub> ≥ 25°C
	LED reverse voltage	V <sub>R</sub>	5	V	
	Connection temperature	T <sub>J</sub>	125	°C	
Output	Output dielectric strength	V <sub>OFF</sub>	80	V	
	Continuous load current	I <sub>O</sub>	350	mA	
	ON current reduction rate	Δ I <sub>ON</sub> /°C	-3.5	mA/°C	T <sub>a</sub> ≥ 25°C
	Connection temperature	T <sub>J</sub>	125	°C	
Dielectric strength between input and output (See note 1.)		V <sub>I-O</sub>	1,500	V <sub>rms</sub>	AC for 1 min
Operating temperature		T <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.

## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions
Input	LED forward voltage	V <sub>F</sub>	1.0	1.15	1.3	V
	Reverse current	I <sub>R</sub>	---	---	10	μA
	Capacity between terminals	C <sub>T</sub>	---	15	---	pF
	Trigger LED forward current	I <sub>FT</sub>	---	1.0	4.0	mA
Output	Maximum resistance with output ON	R <sub>ON</sub>	---	1.0	1.2	Ω
	Current leakage when the relay is open	I <sub>LEAK</sub>	---	0.2	1.0	nA
Capacity between I/O terminals		C <sub>I-O</sub>	---	0.8	---	pF
Insulation resistance		R <sub>I-O</sub>	1,000	---	---	MΩ
Turn-ON time		t <sub>ON</sub>	---	0.3	0.5	ms
Turn-OFF time		t <sub>OFF</sub>	---	0.3	0.5	ms

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



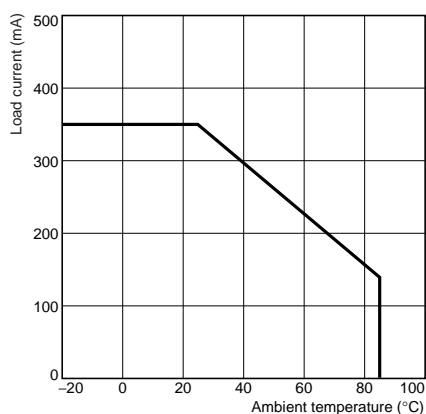
## Recommended Operating Conditions

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

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	V <sub>DD</sub>	---	---	64	V
Operating LED forward current	I <sub>F</sub>	5	---	30	mA
Continuous load current	I <sub>O</sub>	---	---	350	mA
Operating temperature	T <sub>a</sub>	25	---	60	°C

## Engineering Data

### Load Current vs. Ambient Temperature G3VM-81G1



## Safety Precautions

Refer to page 6 for precautions common to all G3VM models.