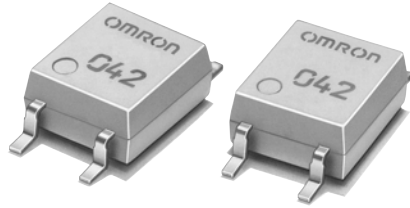


## New MOS FET Relays Designed for Switching Minute Signals and Analog Signals.

- New models for 80-V loads.
- Turn-ON/turn-OFF times of 0.07 ms (typical).
- Capacity between output terminals of 2.5 pF (typical).
- RoHS compliant



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

### Application Examples

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

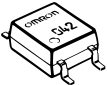
### List of Models

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

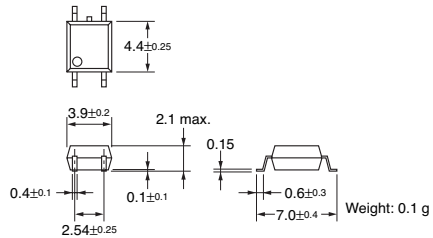
### Dimensions

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

#### G3VM-81GR

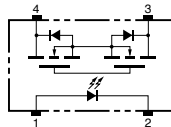


**Note.** The actual product is marked differently from the image shown here.



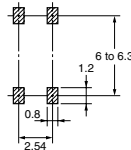
### Terminal Arrangement/Internal Connections (Top View)

#### G3VM-81GR



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

#### G3VM-81GR



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

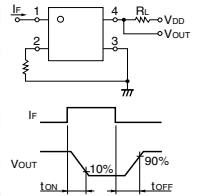
Item	Symbol	Rating	Unit	Measurement Conditions	
Input	LED forward current	$I_F$	50	mA	
	Repetitive peak LED forward current	$I_{FP}$	7	A	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_J$	125	°C	
Output	Output dielectric strength	$V_{OFF}$	80	V	
	Continuous load current	$I_O$	40	mA	
	ON current reduction rate	$\Delta I_O/^\circ\text{C}$	-0.4	mA/°C	Ta ≥ 25°C
	Connection temperature	$T_J$	125	°C	
	Dielectric strength between input and output (See note 1.)	$V_{IO}$	1,500	Vrms	AC for 1 min
Ambient 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	---	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	$\mu\text{A}$	$V_R = 5 \text{ V}$
	Capacity between terminals	$C_T$	---	15	---	pF	$V = 0, f = 1 \text{ MHz}$
	Trigger LED forward current	$I_{FT}$	---	---	3	mA	$I_O = 40 \text{ mA}$
Output	Maximum resistance with output ON	$R_{ON}$	---	16	25	$\Omega$	$I_F = 5 \text{ mA}$ $I_O = 40 \text{ mA}$
	Current leakage when the relay is open	$I_{LEAK}$	---	---	1	nA	$V_{OFF} = 80 \text{ V}$ $T_a = 60^\circ\text{C}$
	Capacity between terminals	$C_{OFF}$	---	2.5	3.5	pF	$V = 0, f = 100 \text{ MHz}$ $t = 10 \text{ ns}$
Capacity between I/O terminals	$C_{IO}$	---	0.7	---	pF	$f = 1 \text{ MHz}, V_s = 0 \text{ V}$	
Insulation resistance between I/O terminals	$R_{IO}$	1,000	---	---	M $\Omega$	$V_{IO} = 500 \text{ VDC}$ $RoH \leq 60\%$	
Turn-ON time	$t_{ON}$	---	0.07	0.5	ms	$I_F = 5 \text{ mA}, R_L = 200 \Omega$	
Turn-OFF time	$t_{OFF}$	---	0.07	0.5	ms	$V_{DD} = 10 \text{ V}$ (See note 2.)	

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



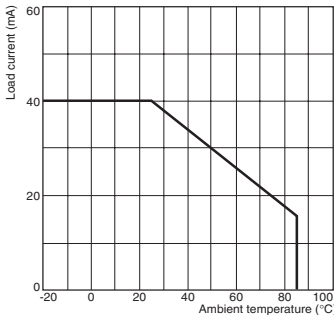
## Recommended Operating Conditions

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

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	$V_{DD}$	---	---	64	V
Operating LED forward current	$I_F$	5	---	30	mA
Continuous load current	$I_O$	---	---	40	mA
Operating temperature	$T_a$	25	---	60	°C

## Engineering Data

Load Current vs. Ambient Temperature  
G3VM-81GR



## Safety Precautions

Refer to "Common Precautions" for all G3VM models.