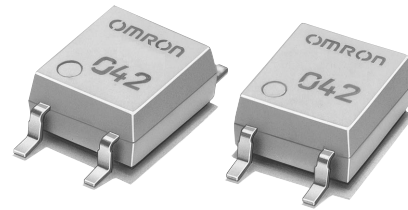


## MOS FET Relays

### 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.



**NEW**

### Application Examples

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

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

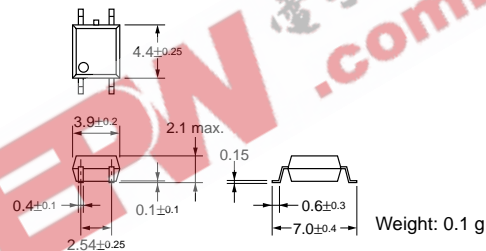
### List of Models

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.

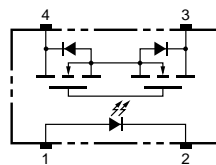
G3VM-81G1



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

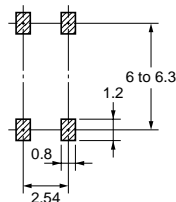
### Terminal Arrangement/Internal Connections (Top View)

G3VM-81G1



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

G3VM-81G1



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

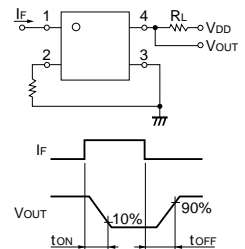
Item	Symbol	Rating	Unit	Measurement Conditions	
Input	LED forward current	$I_F$	50	mA	
	Repetitive peak LED forward current	$I_{FP}$	1	A	100 $\mu$ s pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	Ta $\geq$ 25°C
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_j$	125	°C	
Output	Output dielectric strength	$V_{OFF}$	80	V	
	Continuous load current	$I_O$	350	mA	
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-3.5	mA/°C	Ta $\geq$ 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		$T_a$	-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	$V_F$	1.0	1.15	1.3	V	$I_F = 10$ mA
	Reverse current	$I_R$	---	---	10	$\mu$ A	$V_R = 5$ V
	Capacity between terminals	$C_T$	---	15	---	pF	V = 0, f = 1 MHz
	Trigger LED forward current	$I_{FT}$	---	1.0	4.0	mA	$I_O = 350$ mA
Output	Maximum resistance with output ON	$R_{ON}$	---	1.0	1.2	$\Omega$	$I_F = 5$ mA, $I_O = 350$ mA
	Current leakage when the relay is open	$I_{LEAK}$	---	0.2	1.0	nA	$V_{OFF} = 30$ V, Ta = 50°C
Capacity between I/O terminals		$C_{I-O}$	---	0.8	---	pF	f = 1 MHz, Vs = 0 V
Insulation resistance		$R_{I-O}$	1,000	---	---	M $\Omega$	$V_{I-O} = 500$ VDC, RoH $\leq$ 60%
Turn-ON time		tON	---	0.3	0.5	ms	$I_F = 5$ mA, $R_L = 200$ $\Omega$ , $V_{DD} = 20$ V (See note 2.)
Turn-OFF time		tOFF	---	0.3	0.5	ms	

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



**Recommended Operating Conditions**

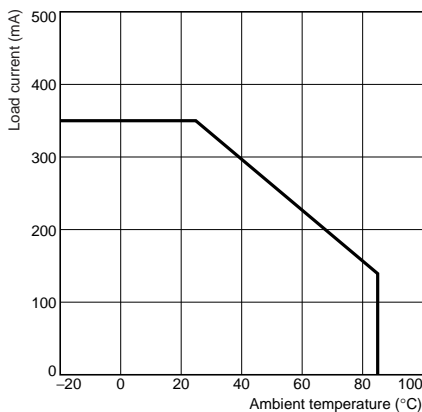
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	$V_{DD}$	---	---	64	V
Operating LED forward current	$I_F$	5	---	30	mA
Continuous load current	$I_O$	---	---	350	mA
Operating temperature	$T_a$	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.