

## MOS FET Relays

G3VM-402C/F

### New Expanded Range of Analog-switching MOS FET Relays with 400-V Load Voltage with 2 Output Channels.

- A 2-channel Relay now included in the 400-V load voltage series.
- Continuous load current of 120 mA.
- Dielectric strength of 2,500 Vrms between I/O.



**NEW** Approval pending

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

### Application Examples

- Measurement devices
- Security systems
- Amusement machines

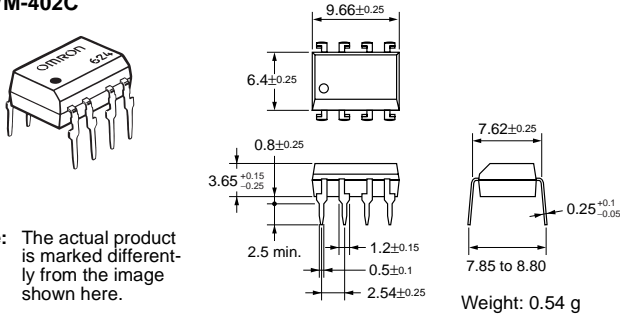
### List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
DPST-NO	PCB terminals	400 VAC	G3VM-402C	50	---
	Surface-mounting terminals		G3VM-402F		
				G3VM-402F(TR)	---

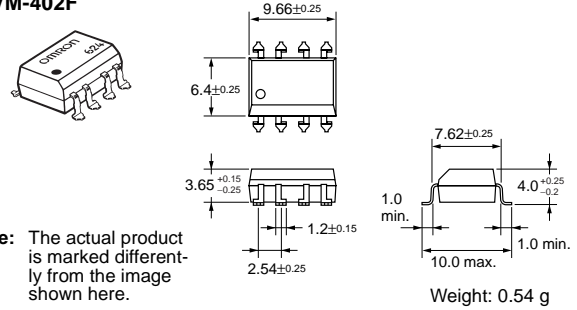
### Dimensions

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

#### G3VM-402C

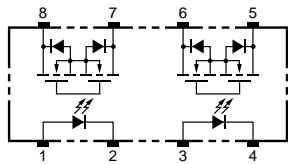


#### G3VM-402F

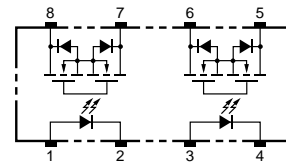


### Terminal Arrangement/Internal Connections (Top View)

#### G3VM-402C

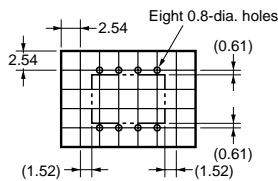


#### G3VM-402F



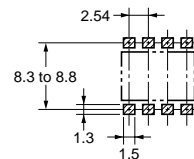
### PCB Dimensions (Bottom View)

#### G3VM-402C



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

#### G3VM-402F



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

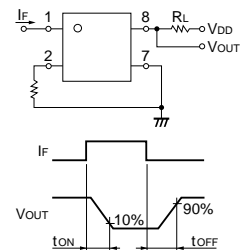
Item	Symbol	Rating	Unit	Measurement Conditions	
Input	LED forward current	$I_F$	50	mA	
	Repetitive peak LED forward current	$I_{FP}$	1	A	100 $\mu$ s pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/ $^\circ\text{C}$	Ta $\geq$ 25°C
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_j$	125	$^\circ\text{C}$	
Output	Output dielectric strength	$V_{OFF}$	400	V	
	Continuous load current	$I_O$	120	mA	
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-1.2	mA/ $^\circ\text{C}$	Ta $\geq$ 25°C
	Connection temperature	$T_j$	125	$^\circ\text{C}$	
Dielectric strength between input and output (See note 1.)	$V_{I-O}$	2,500	Vrms	AC for 1 min	
Operating temperature	$T_a$	-40 to +85	$^\circ\text{C}$	With no icing or condensation	
Storage temperature	$T_{stg}$	-55 to +125	$^\circ\text{C}$	With no icing or condensation	
Soldering temperature (10 s)	---	260	$^\circ\text{C}$	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	$C_T$	---	30	---	pF	$V = 0$ , $f = 1$ MHz
	Trigger LED forward current	$I_{FT}$	---	1	3	mA	$I_O = 120$ mA
Output	Maximum resistance with output ON	$R_{ON}$	---	18	35	$\Omega$	$I_F = 5$ mA, $I_O = 120$ mA
	Current leakage when the relay is open	$I_{LEAK}$	---	---	1.0	$\mu$ A	$V_{OFF} = 400$ V
Capacity between I/O terminals	$C_{I-O}$	---	0.8	---	pF	$f = 1$ MHz, $V_s = 0$ V	
Insulation resistance	$R_{I-O}$	1,000	---	---	M $\Omega$	$V_{I-O} = 500$ VDC, $RoH \leq 60\%$	
Turn-ON time	$t_{ON}$	---	---	1.0	ms	$I_F = 5$ mA, $R_L = 200$ $\Omega$ , $V_{DD} = 20$ V (See note 2.)	
Turn-OFF time	$t_{OFF}$	---	---	1.0	ms		

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



## Recommended Operating Conditions

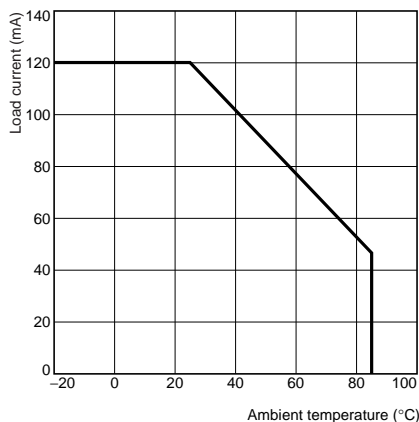
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	$V_{DD}$	---	---	320	V
Operating LED forward current	$I_F$	5	7.5	25	mA
Continuous load current	$I_O$	---	---	100	mA
Operating temperature	$T_a$	-20	---	65	$^\circ\text{C}$

## Engineering Data

### Load Current vs. Ambient Temperature

#### G3VM-402C(F)



## Safety Precautions

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