

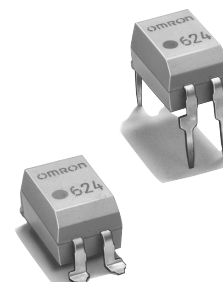
# MOS FET Relays G3VM-2(F)L

## Analog-switching MOS FET Relays with 350-V Load Voltage and Current Limit.

- A 4-pin Relay available with the same terminal-pin position as 4-pin photocouplers.
- Approved standards: UL1577 (File No. E80555)
- RoHS Compliant.

### Application Examples

- Electronic automatic exchange systems
- Cordless telephones
- Multi-functional telephones
- Measurement devices



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

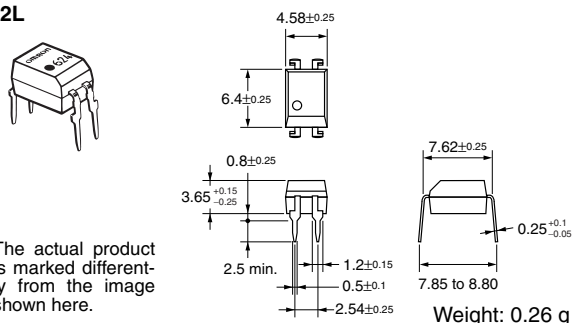
### List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Current limit	Number per stick	Number per tape
SPST-NO	PCB terminals	350 VAC	G3VM-2L	Yes	100	---
	Surface-mounting terminals		G3VM-2FL			
					G3VM-2FL(TR)	---

### Dimensions

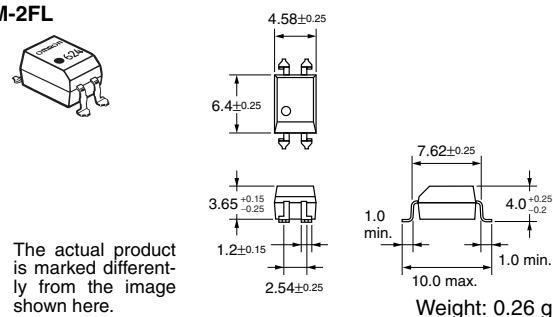
**Note:** All units are in millimeters unless otherwise indicated.

#### G3VM-2L



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

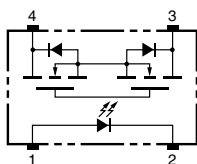
#### G3VM-2FL



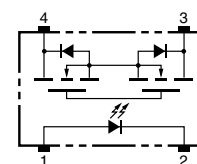
**Note:** The actual product is marked differently from the image shown here.

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

#### G3VM-2L

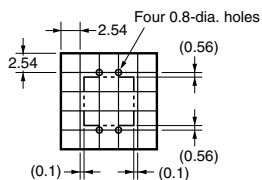


#### G3VM-2FL



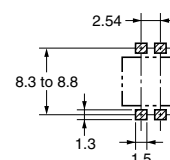
### PCB Dimensions (Bottom View)

#### G3VM-2L



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

#### G3VM-2FL



■ Absolute Maximum Ratings (Ta = 25°C)

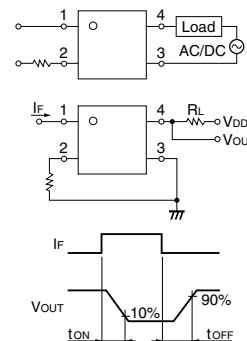
Item		Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	$I_F$	50	mA	
	Repetitive peak LED forward current	$I_{FP}$	1	A	100 $\mu$ s pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/ $^\circ\text{C}$	Ta $\geq$ 25 $^\circ\text{C}$
	LED reverse voltage	$V_R$	6	V	
	Connection temperature	$T_j$	125	$^\circ\text{C}$	
Output	Load voltage (AC peak/DC)	$V_{OFF}$	350	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 $^\circ\text{C}$
	Connection temperature	$T_j$	125	$^\circ\text{C}$	
Dielectric strength between input and output (See note 1.)		$V_{I-O}$	2,500	$V_{rms}$	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	$\mu\text{A}$	$V_R = 6$ 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	$R_{ON}$	---	22	35	$\Omega$	$I_F = 5$ mA, $I_O = 120$ mA
	Current leakage when the relay is open	$I_{LEAK}$	---	0.0005	1.0	$\mu\text{A}$	$V_{OFF} = 350$ V
	Capacity between terminals	$C_{OFF}$	---	40	---	pF	$V = 0$ , $f = 1$ MHz
Limit current		$I_{LIM}$	150	---	300	mA	$I_F = 5$ mA, $V_{DD} = 5$ V, $t = 5$ ms
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, $R_{oH} \leq 60\%$
Turn-ON time		$t_{ON}$	---	0.25	1.0	ms	$I_F = 5$ mA, $R_L = 200 \Omega$ , $V_{DD} = 20$ V (See note 2.)
Turn-OFF time		$t_{OFF}$	---	0.15	1.0	ms	

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



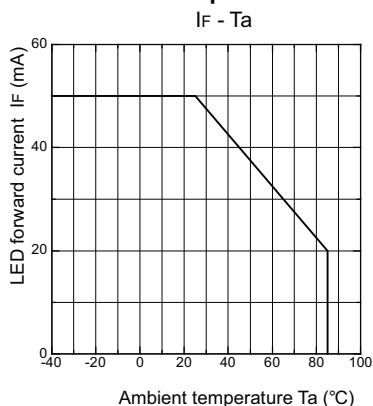
■ Recommended Operating Conditions

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

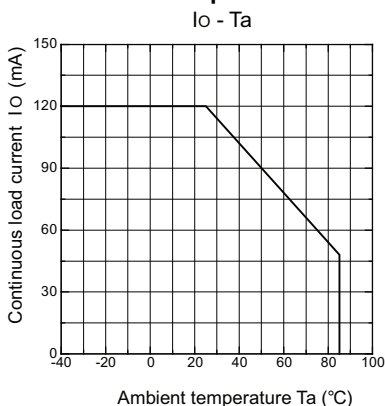
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	$V_{DD}$	---	---	280	V
Operating LED forward current	$I_F$	5	7.5	25	mA
Continuous load current (AC peak/DC)	$I_O$	---	---	100	mA
Operating temperature	$T_a$	-20	---	65	$^\circ\text{C}$

■ Engineering Data

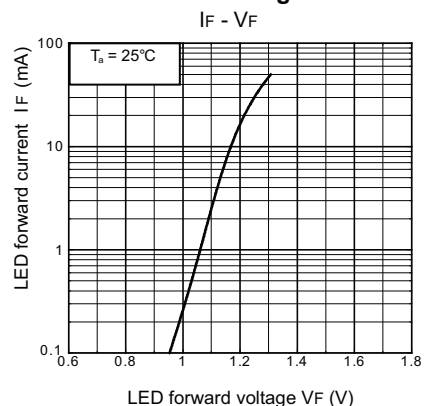
LED forward current vs. Ambient temperature



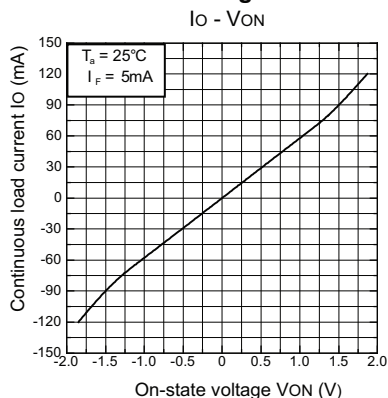
Continuous load current vs. Ambient temperature



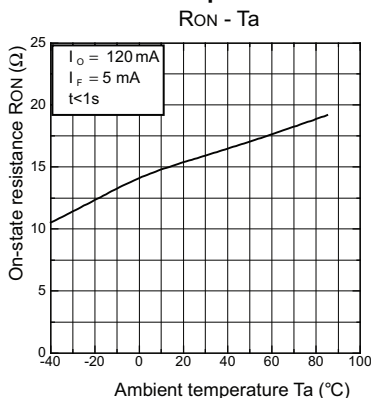
LED forward current vs. LED forward voltage



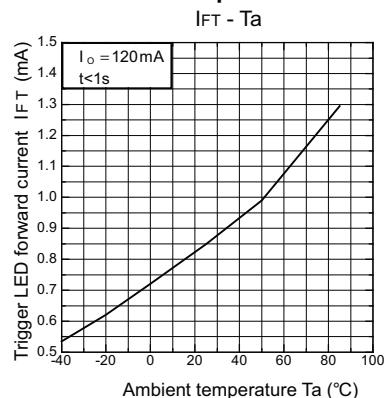
Continuous load current vs. On-state voltage



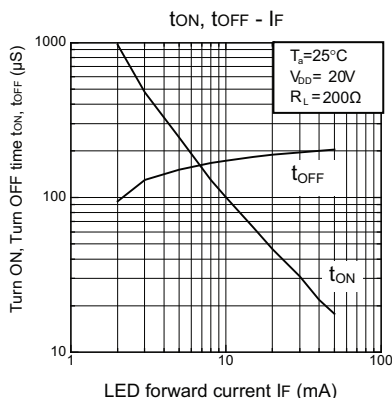
On-state resistance vs. Ambient temperature



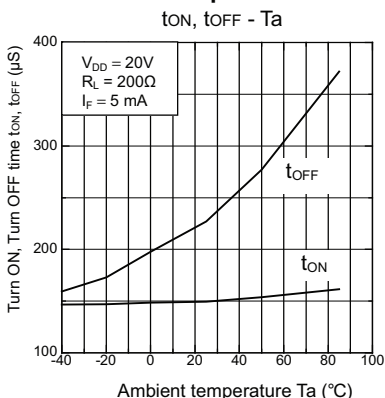
Trigger LED forward current vs. Ambient temperature



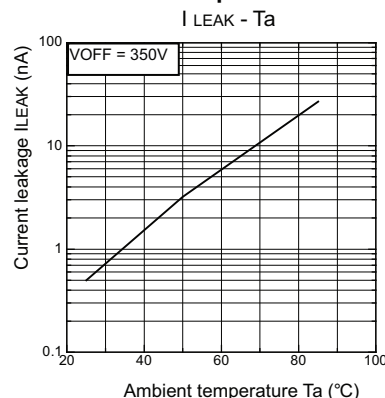
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Ambient temperature



MEMO

A large grid of dashed lines for taking notes, consisting of 20 columns and 30 rows of small squares.

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