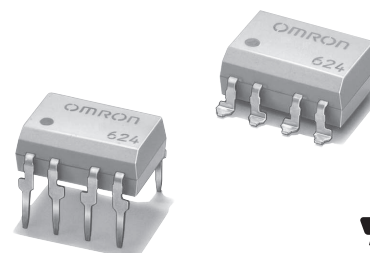# MOS FET Relays
G3VM-W(F)L

MOS FET Relay Series with 350-V Load Voltage Current-limiting Models with 2 Outputs.

• Current Limit: 100 to 300 mA

• RoHS Compliant.

■ Application Examples

• Electronic automatic exchange systems

• Multi-functional telephones

• Cordless telephones

• Measurement devices

Note: The actual product is marked differently from the image shown here.
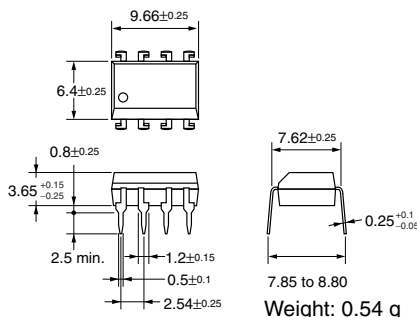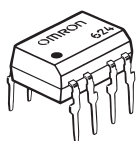
■ List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Current limit	Number per stick	Number per tape
DPST-NO	PCB terminals	350 VAC	G3VM-WL	Yes	50	---
	Surface-mounting terminals		G3VM-WFL			
			G3VM-WFL(TR)		---	1,500

■ Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-WL

9.66±0.25
6.4±0.25
0.8±0.25
3.65 +0.15 −0.25
7.62±0.25
0.25 +0.1 −0.05
2.5 min.
1.2±0.15
0.5±0.1
2.54±0.25
7.85 to 8.80

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

Weight: 0.54 g

G3VM-WFL

9.66±0.25
6.4±0.25
3.65 +0.15 −0.25
2.54±0.25
1.2±0.15
7.62±0.25
4.0 +0.25 −0.2
1.0 min.
10.0 max.
1.0 min.

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

Weight: 0.54 g
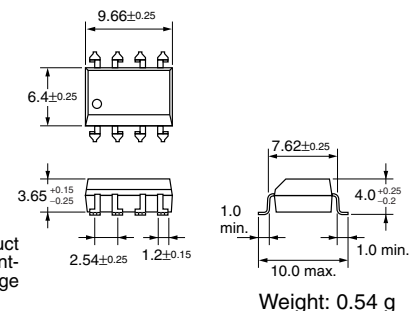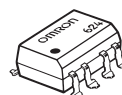
■ Terminal Arrangement/Internal Connections (Top View)

G3VM-WL
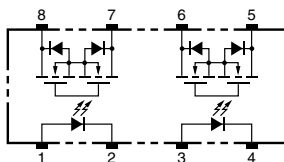
G3VM-WFL
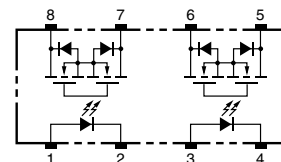
■ PCB Dimensions (Bottom View)

G3VM-WL

Eight 0.8-dia. holes
2.54
2.54
(0.56)
(0.56)
(0.1)
(0.1)
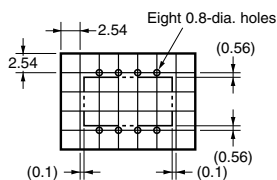
■ Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-WFL

2.54
2.54
8.3 to 8.8
1.3
1.5

OMRON
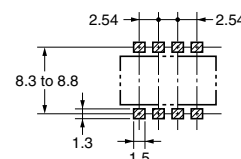
■ Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	I_F	50	mA	
	Repetitive peak LED forward current	I_{FP}	1	A	100 μs pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/°C$	−0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	6	V	
	Connection temperature	T_j	125	°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	350	V	
	Continuous load current	I_O	120	mA	
	ON current reduction rate	$\Delta I_{ON}/°C$	−1.2	mA/°C	Ta ≥ 25°C
	Connection temperature	T_j	125	°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	°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	μA	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}	---	22	35	Ω	I_F = 5 mA, I_O = 120 mA
	Current leakage when the relay is open	I_{LEAK}	---	0.0005	1.0	μA	V_{OFF} = 350 V
	Capacity between terminals	C_{OFF}	---	40	---	pF	V = 0, f = 1MHz
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	---	---	MΩ	V_{I-O} = 500 VDC, R_{oH} ≤ 60%
Turn-ON time		t_{ON}	---	0.25	1.0	ms	I_F = 5 mA, R_L = 200 Ω, 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
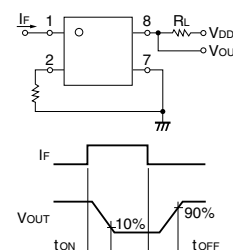
■ Recommended Operating Conditions

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

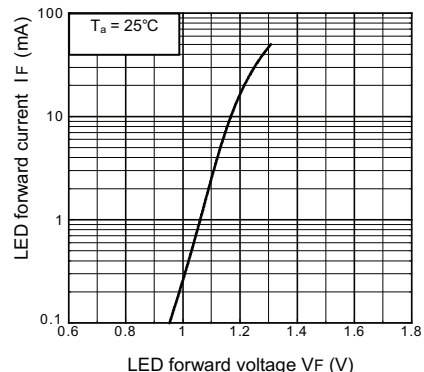| Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	---	---	280	V
Operating LED forward current	I_F	5	7.5	25	mA
Continuous load current (AC peak/DC)	I_O	---	---	100	mA
Operating temperature	T_a	−20	---	65	°C

■ **Engineering Data**

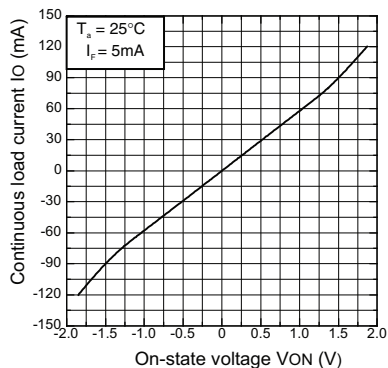**LED forward current vs. Ambient temperature**

IF - Ta
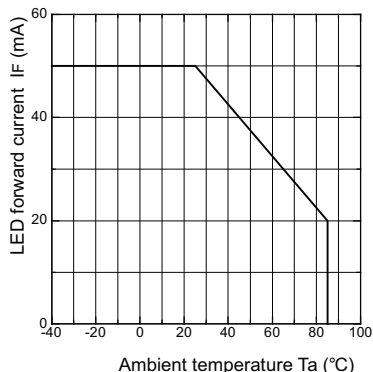
Continuous load current vs. Ambient temperature
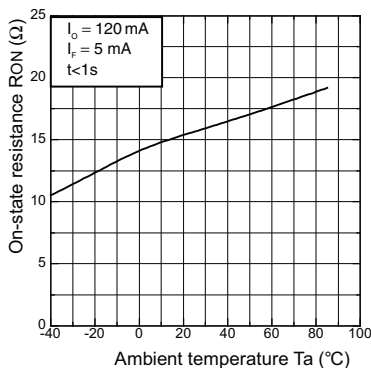
IO - Ta
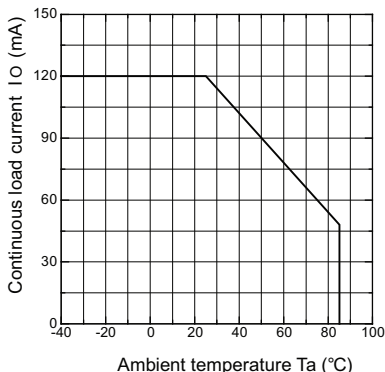
LED forward current vs. LED forward voltage
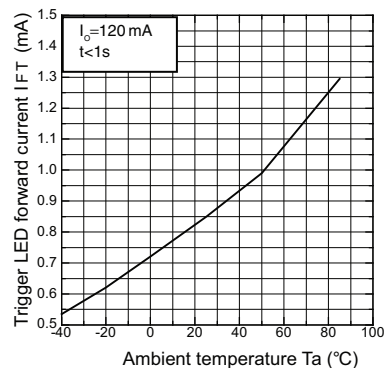
IF - VF

Continuous load current vs. On-state voltage
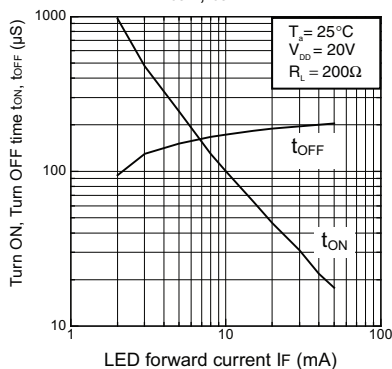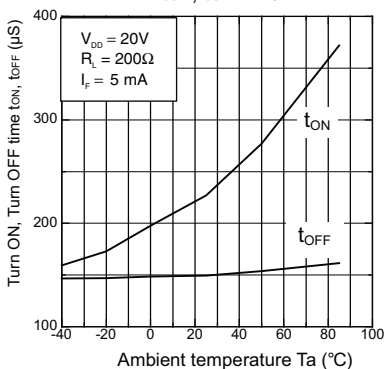
IO - VON

On-state resistance vs. Ambient temperature

RON - Ta

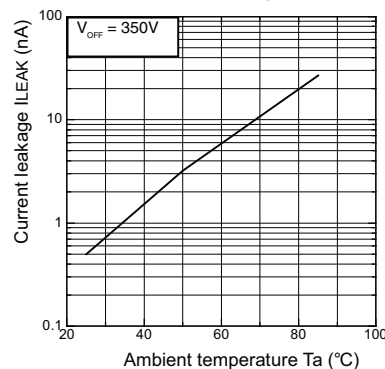**Trigger LED forward current vs. Ambient temperature**

IFT - Ta

Turn ON, Turn OFF time vs. LED forward current

tON, tOFF - IF

Turn ON, Turn OFF time vs. Ambient temperature

tON, tOFF - Ta

Current leakage vs. Ambient temperature

I LEAK - Ta

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

MOS FET Relays **G3VM-W(F)L**