

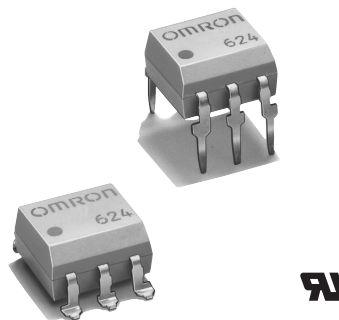
# MOS FET Relays G3VM-3(F)L

**Analog-switching MOS FET Relay with 350-V Load Voltage and Current Limit.**

- Approved standards: UL1577 (File No. E80555)
- RoHS Compliant

■ **Application Examples**

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



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

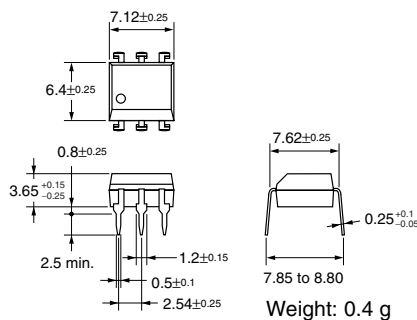
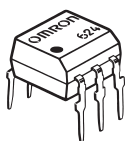
■ **List of Models**

| Contact form | Terminals                  | Load voltage (peak value) | Model        | Current limit | Number per stick | Number per tape |
|--------------|----------------------------|---------------------------|--------------|---------------|------------------|-----------------|
| SPST-NO      | PCB terminals              | 350 VAC                   | G3VM-3L      | Yes           | 50               | ---             |
|              | Surface-mounting terminals |                           | G3VM-3FL     |               |                  |                 |
|              |                            |                           | G3VM-3FL(TR) |               |                  |                 |

■ **Dimensions**

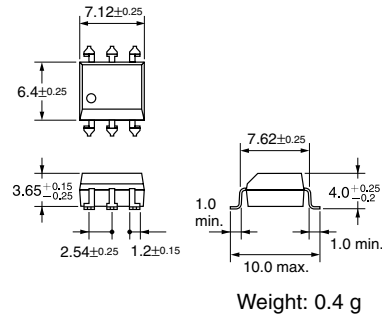
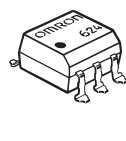
**Note:** All units are in millimeters unless otherwise indicated.

**G3VM-3L**



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

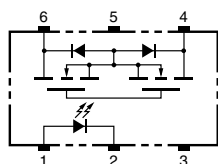
**G3VM-3FL**



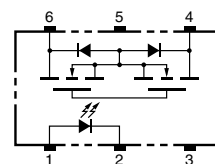
**Note:** The actual product is marked differently from the image shown here.

■ **Terminal Arrangement/Internal Connections (Top View)**

**G3VM-3L**

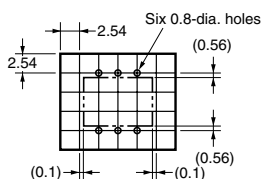


**G3VM-3FL**



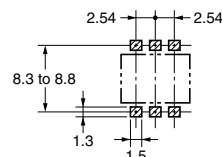
■ **PCB Dimensions (Bottom View)**

**G3VM-3L**



■ **Actual Mounting Pad Dimensions (Recommended Value, Top View)**

**G3VM-3FL**



■ Absolute Maximum Ratings (Ta = 25°C)

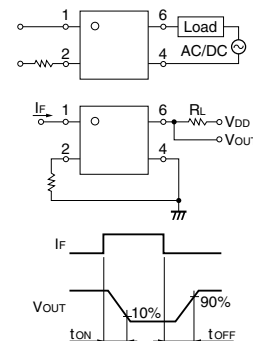
| Item   | Symbol                              | Rating                         | Unit        | Measurement conditions |                               |
|--|-------------------------------------|--------------------------------|-------------|------------------------|-------------------------------|
| 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                 | $V_R$                          | 5           | V                      |                               |
|  | Connection temperature              | $T_j$                          | 125         | $^\circ\text{C}$       |                               |
| Output   | Output dielectric strength          | $V_{OFF}$                      | 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       | 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   | $\mu\text{A}$          | $V_R = 5$ V   |
|                                | Capacity between terminals             | $C_T$      | ---     | 30      | ---  | pF                     | V = 0, f = 1 MHz  |
|                                | Trigger LED forward current            | $I_{FT}$   | ---     | ---     | 3    | mA                     | $I_O = 120$ mA  |
| Output                         | Maximum resistance with output ON      | $R_{ON}$   | ---     | 22      | 35   | $\Omega$               | $I_F = 5$ mA,<br>$I_O = 120$ mA                                       |
|                                | Current leakage when the relay is open | $I_{LEAK}$ | ---     | ---     | 1.0  | $\mu\text{A}$          | $V_{OFF} = 350$ V   |
| Limit current                  |  | $I_{LIM}$  | 150     | ---     | 300  | mA                     | $I_F = 5$ mA,<br>$V_{DD} = 5$ V, t = 5 ms                             |
| 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,<br>RoH $\leq$ 60%                                |
| Turn-ON time                   |  | tON        | ---     | ---     | 1.0  | ms                     | $I_F = 5$ mA, $R_L = 200$ $\Omega$ ,<br>$V_{DD} = 20$ V (See note 2.) |
| Turn-OFF time                  |  | tOFF       | ---     | ---     | 1.0  | ms                     |   |

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



■ Recommended Operating Conditions

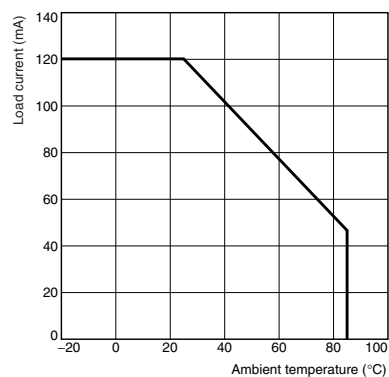
Use the G3VM under the following conditions so that the Relay will operate properly.

| Item                          | Symbol   | Minimum | Typical | Maximum | Unit             |
|-------------------------------|----------|---------|---------|---------|------------------|
| Output dielectric strength    | $V_{DD}$ | ---     | ---     | 280     | V                |
| Operating LED forward current | $I_F$    | 5       | 7.5     | 25      | mA               |
| Continuous load current       | $I_O$    | ---     | ---     | 120     | mA               |
| Operating temperature         | $T_a$    | -20     | ---     | 65      | $^\circ\text{C}$ |

■ Engineering Data

Load Current vs. Ambient Temperature

G3VM-3(F)L



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