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

| Item | | Symbol | G3VM-2L G3VM-2FL | G3VM-WL G3VM-WFL | G3VM-351GL | 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 | | 5 | V | |
| | Connection temperature | $T_J$ | 125 | | | °C | |
| Output | Load voltage (AC peak/DC) | $V_{OFF}$ | 350 | | | V | |
| | Continuous load current (AC peak/DC) | $I_O$ | 120 | | | mA | |
| | ON current reduction rate | $\Delta I_O$/°C | -1.2 | | | mA/°C | Ta ≥ 25°C |
| | Connection temperature | $T_J$ | 125 | | | °C | |
| Dielectric strength between I/O ✻ | | $V_{I-O}$ | 2500 | | 1500 | Vrms | AC for 1 min |
| Ambient operating temperature | | Ta | -40 to +85 | | | °C | With no icing or condensation |
| Ambient storage temperature | | Tstg | -55 to +125 | | | °C | |
| Soldering temperature | | – | 260 | | | °C | 10 s |

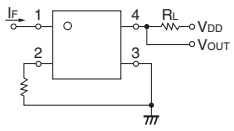
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

## ■Electrical Characteristics (Ta = 25°C)

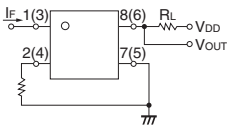
| Item | | Symbol | | G3VM-2L G3VM-2FL | G3VM-WL G3VM-WFL | G3VM-351GL | Unit | Measurement conditions |
|---|---|---|---|---|---|---|---|---|
| Input | LED forward voltage | $V_F$ | Minimum | 1.0 | | | V | $I_F$=10 mA |
| | | | Typical | 1.15 | | | | |
| | | | Maximum | 1.3 | | | | |
| | Reverse current | $I_R$ | Maximum | 10 | | | μA | G3VM-2L/2FL/WL/WFL : $V_R$=6 V<br>G3VM-351GL : $V_R$=5 V |
| | Capacitance between terminals | $C_T$ | Typical | 30 | | | pF | V=0, f=1 MHz |
| | Trigger LED forward current | $I_{FT}$ | Typical | 1 | | | mA | $I_O$=120 mA |
| | | | Maximum | 3 | | | | |
| | Release LED forward current | $I_{FC}$ | Minimum | 0.1 | | | mA | G3VM-2L/2FL/WL/WFL : $I_{OFF}$=10 μA<br>G3VM-351GL : $I_{OFF}$=100 μA |
| Output | Maximum resistance with output ON | $R_{ON}$ | Typical | 22 | | 15 | Ω | $I_F$=5 mA, $I_O$=120 mA |
| | | | Maximum | 35 | | | | |
| | Current leakage when the relay is open | $I_{LEAK}$ | Maximum | 1.0 | | | μA | $V_{OFF}$=350 V |
| | Capacitance between terminals | $C_{OFF}$ | Typical | 40 | | 70 | pF | V=0, f=1 MHz |
| Limit current | | $I_{LIM}$ | Minimum | 150 | | | mA | $I_F$=5 mA, $V_{DD}$=5 V, t=5 ms |
| | | | Maximum | 300 | | | | |
| Capacitance between I/O terminals | | $C_{I-O}$ | Typical | 0.8 | | | pF | f=1 MHz, $V_S$=0 V |
| Insulation resistance between I/O terminals | | $R_{I-O}$ | Minimum | 1000 | | | MΩ | $V_{I-O}$=500 VDC, RoH≤60% |
| | | | Typical | $10^8$ | | | | |
| Turn-ON time | | $t_{ON}$ | Typical | – | | 0.3 | ms | $I_F$=5 mA, $R_L$=200 Ω, $V_{DD}$=2 V ✻ |
| | | | Maximum | 1.0 | | | | |
| Turn-OFF time | | $t_{OFF}$ | Typical | – | | 0.1 | | |
| | | | Maximum | 1.0 | | | | |

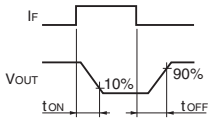
✻ Turn-ON and Turn-OFF Times

G3VM-2L/2FL/351GL




G3VM-WL/WFL




## ■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

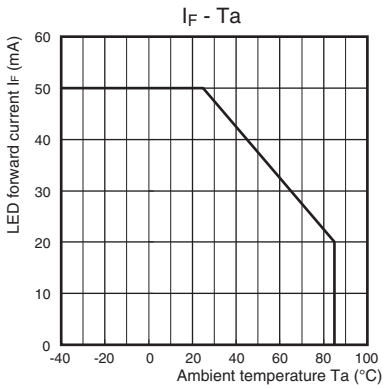
| Item | Symbol | | G3VM-2L G3VM-2FL | G3VM-WL G3VM-WFL | G3VM-351GL | Unit |
|---|---|---|---|---|---|---|
| Load voltage (AC peak/DC) | $V_{DD}$ | Maximum | 280 | | | V |
| Operating LED forward current | $I_F$ | Minimum | 5 | | | mA |
| | | Typical | 7.5 | | | |
| | | Maximum | 25 | | | |
| Continuous load current (AC peak/DC) | $I_O$ | Maximum | 100 | | | A |
| Ambient operating temperature | Ta | Minimum | -20 | | | °C |
| | | Maximum | 65 | | | |

## ■Spacing and Insulation

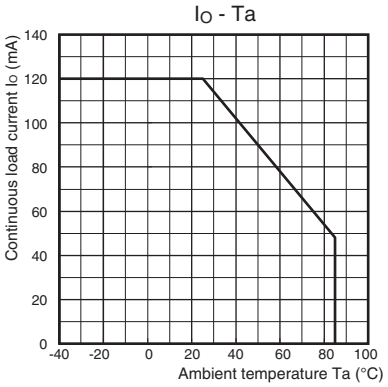
| Item | Minimum | | Unit |
|---|---|---|---|
| | G3VM-□L/□FL | G3VM-□GL | |
| Creepage distances | 7.0 | 2.5 | mm |
| Clearance distances | 7.0 | 2.5 | |
| Internal isolation thickness | 0.4 | 0.1 | |

## ■Engineering Data

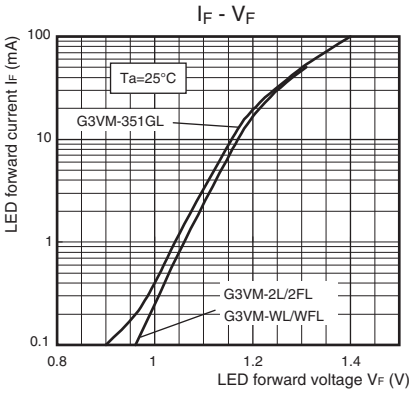
● **LED forward current vs. Ambient temperature**



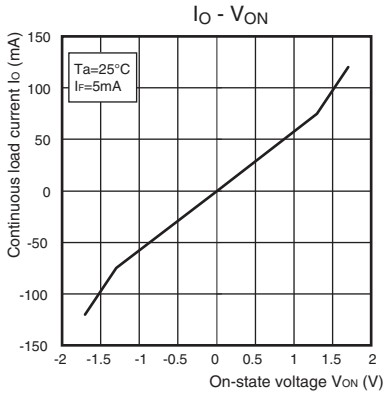

● **Continuous load current vs. Ambient temperature**



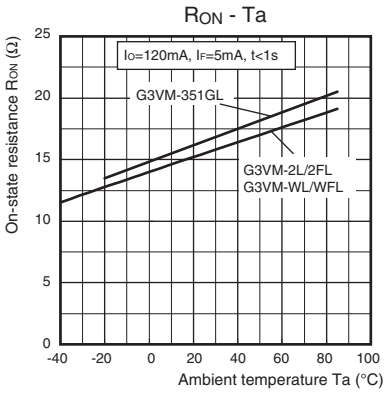

● **LED forward current vs. LED forward voltage**



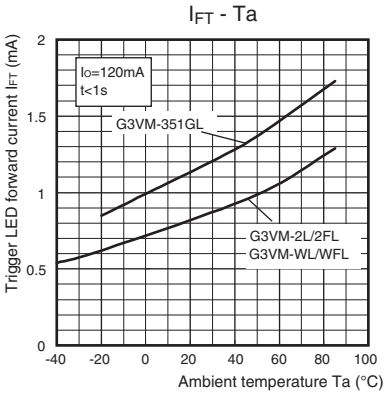

● **Continuous load current vs. On-state voltage**



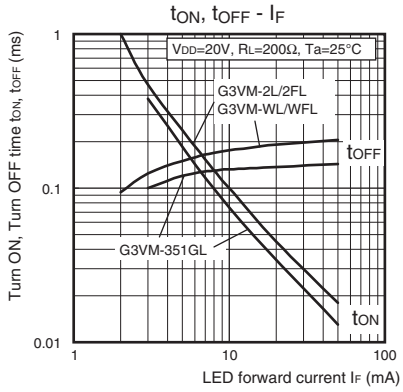

● **On-state resistance vs. Ambient temperature**



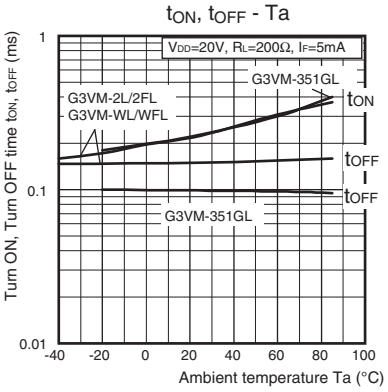

● **Trigger LED forward current vs. Ambient temperature**



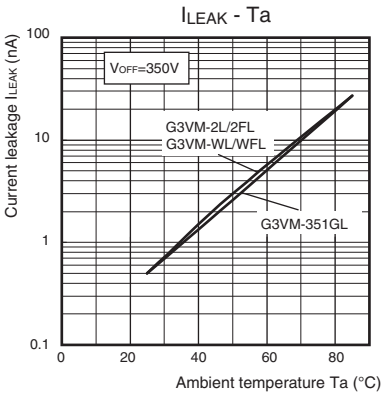

● **Turn ON, Turn OFF time vs. LED forward current**




● **Turn ON, Turn OFF time vs. Ambient temperature**




● **Current leakage vs. Ambient temperature**

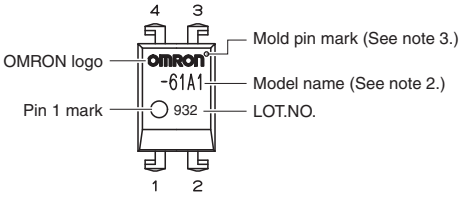


## ■Appearance / Terminal Arrangement / Internal Connections

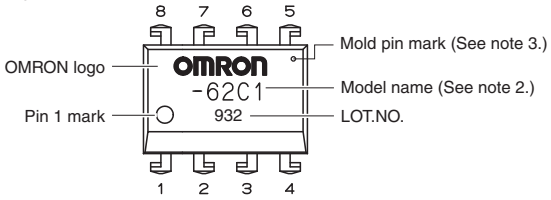
### ●Appearance

#### DIP (Dual Inline Package)

DIP 4-pin

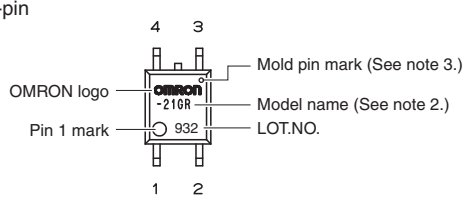



DIP 8-pin

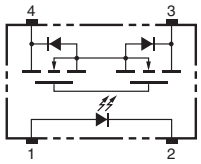


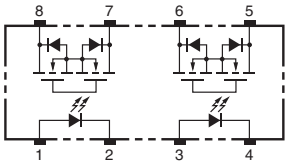

#### SOP (Small Outline Package)

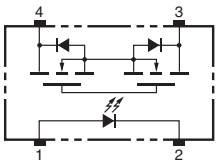
SOP 4-pin




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



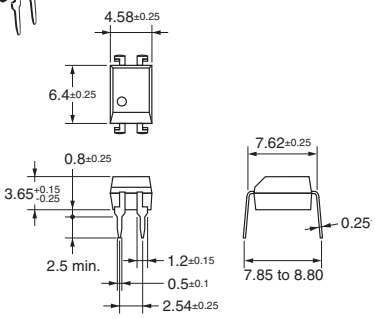

**Note: 1.** The actual product is marked differently from the image shown here.
**Note: 2.** "G3VM" does not appear in the model number on the Relay.
**Note: 3.** The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

## ■Dimensions (Unit: mm)

G3VM-2L

**PCB Terminals**

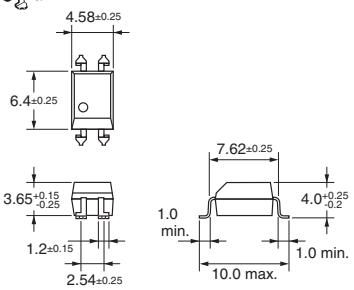
**Weight: 0.4 g**



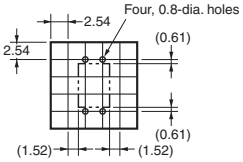

G3VM-2FL

**Surface-mounting Terminals**

**Weight: 0.4 g**

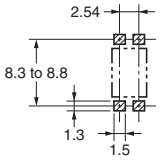



**PCB Dimensions (BOTTOM VIEW)**




**Actual Mounting Pad Dimensions**

**(Recommended Value, TOP VIEW)**

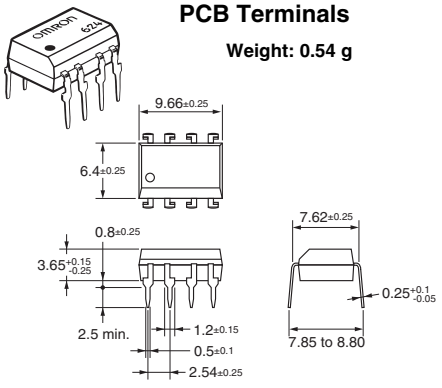



**Note:** The actual product is marked differently from the image shown here.

G3VM-WL

**PCB Terminals**

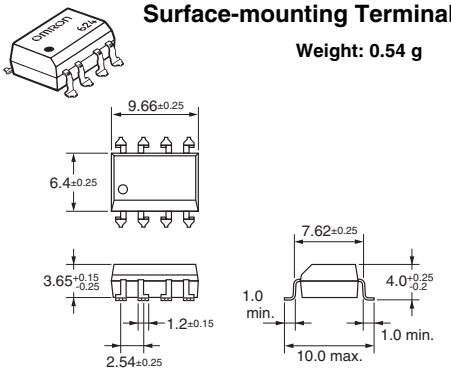
**Weight: 0.54 g**



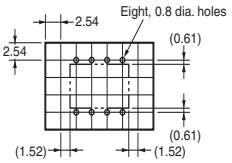

G3VM-WFL

**Surface-mounting Terminals**

**Weight: 0.54 g**

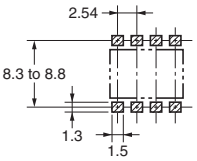



**PCB Dimensions (BOTTOM VIEW)**




**Actual Mounting Pad Dimensions**

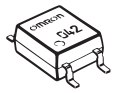
**(Recommended Value, TOP VIEW)**




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

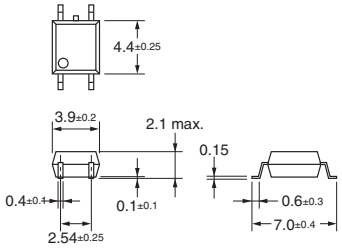
## ■Dimensions (Unit: mm)

G3VM-351GL



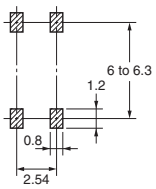
**Surface-mounting Terminals**

**Weight: 0.1 g**




**Actual Mounting Pad Dimensions**

**(Recommended Value, TOP VIEW)**




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

## ■Approved Standards

UL recognized

| Model | Approved Standards | Contact form | File No. |
|---|---|---|---|
| G3VM-2L<br>G3VM-2FL | UL (recognized) | 1a (SPST-NO) | E80555 |
| G3VM-WL<br>G3VM-WFL | | 2a (DPST-NO) | |

## ■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

Please check each region's Terms & Conditions by region website.

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**Cat. No. K306-E1-01**
0318(0318)(O)