

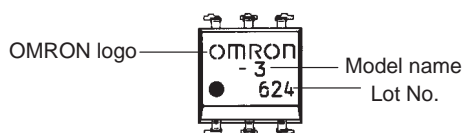
G3VM Low-cost Series (Two-output Models)

- New G3VM Series with 350-V-output dielectric strength.
- Two-output models now available.
- Approved Standards: UL1577



Ordering Information

■ Appearance



Note: "G3VM" is not printed on the actual product

■ Model Number Legend

G3VM- \square \square
1 2

1. Load Voltage

W: Load voltage, 350 VDC or 350 VAC min.

2. Terminal

F: Surface-mounting terminals

None: PCB terminals

| Contact form | Terminals | Load voltage (peak value) | Model | Number per stick |
|--------------|----------------------------|---------------------------|-----------|------------------|
| DPST-NO | PCB terminals | 350 VAC | G3VM-W-S | 50 |
| | Surface-mounting terminals | | G3VM-WF-S | 50 |

Specifications

■ Absolute Maximum Ratings (Ta = 25°C)

| Item | | Symbol | Rating | Unit |
|--|--|---|------------|-----------|
| Input | LED forward current | I_F | 50 | mA |
| | LED forward current reduction rate (Ta ≥ 25°C) | $\Delta I_F/^\circ\text{C}$ | -0.5 | mA/°C |
| | Repetitive peak LED forward current (100 μs pulse) | I_{FP} | 1 | A |
| | LED reverse voltage | V_R | 5 | V |
| | Connection temperature | T_j | 125 | °C |
| Output | Output dielectric strength | V_{OFF} | 350 | V |
| | Continuous load current | Current per channel I_O | 120 | mA |
| | ON current reduction rate (Ta ≥ 25°C) | Current per channel $\Delta I_{ON}/^\circ\text{C}$ | -1.2 | mA/°C |
| | Connection temperature | T_j | 125 | °C |
| Storage temperature | | T_{stg} | -55 to 100 | °C |
| Operating temperature | | T_a | -20 to 85 | °C |
| Soldering temperature (10 s) | | T_{sol} | 260 | °C |
| Dielectric strength (AC for 1 min with ambient humidity of 60% or less) (see note) | | V_{I-O} | 2,500 | V_{rms} |

Note: Apply voltage between a group of pins 1, 2, and 3, 4 and that of pins 8, 7 and 6, 5.

■ Recommended Operating Conditions

| Item | Symbol | Minimum | Typical | Maximum | Unit |
|-------------------------|----------|---------|---------|---------|------|
| Operating voltage | V_{DD} | --- | --- | 280 | V |
| Forward current | I_F | 5.0 | 7.5 | 25 | mA |
| Continuous load current | I_O | --- | --- | 100 | mA |
| Operating temperature | T_a | -20 | --- | 65 | °C |

■ Electrical Characteristics (Ta = 25°C)

| Item | | Symbol | Measurement conditions | Minimum | Typical | Maximum | Unit |
|--------|--|------------|------------------------|---------|---------|---------|------|
| Input | LED forward current | V_F | $I_F=10\text{ mA}$ | 1.0 | 1.15 | 1.3 | V |
| | Reverse current | I_R | $V_R=5\text{ V}$ | --- | --- | 10 | μA |
| | Capacity between terminals | C_T | $V=0, f=1\text{ MHz}$ | --- | 30 | --- | pF |
| Output | Current leakage when the relay is open | I_{LEAK} | $V_{OFF}=350\text{ V}$ | --- | --- | 1 | μA |

■ Connection Characteristics (Ta = 25°C)

| Item | Symbol | Measurement conditions | Minimum | Typical | Maximum | Unit |
|-----------------------------------|----------|---|---------|---------|---------|------|
| Maximum resistance with output ON | R_{ON} | $I_{ON}=100\text{ mA}, I_F=10\text{ mA}$ | --- | 22 | 35 | Ω |
| | | $I_{ON}=20\text{ to }100\text{ mA}, I_F=10\text{ mA}$ | --- | 26 | 40 | |

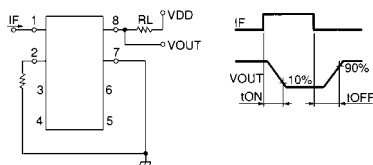
■ Insulation Characteristics (Ta = 25°C)

| Item | Symbol | Measurement conditions | Minimum | Typical | Maximum | Unit |
|---|-----------|---|--------------------|-----------|---------|-----------|
| Floating capacity between I/O terminals | C_{I-O} | $V_S=0, f=1\text{ MHz}$ | --- | 0.8 | --- | pF |
| Insulation resistance | R_{I-O} | $V_S=0$, operating ambient humidity: ≤ 60% | 5×10^{10} | 10^{14} | --- | Ω |
| Dielectric strength | V_{I-O} | AC for 1 min | 2,500 | --- | --- | V_{rms} |
| | | AC for 1 s in oil | --- | 5,000 | --- | |
| | | DC for 1 min in oil | --- | 5,000 | --- | V_{dc} |

■ Switching Characteristics (Ta = 25°C)

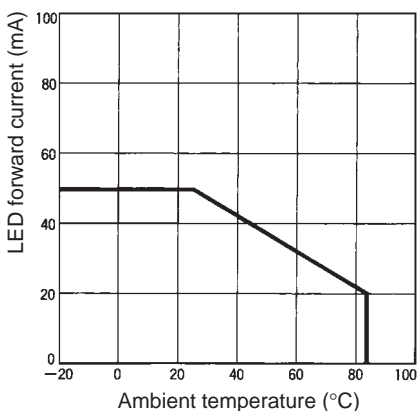
| Item | Symbol | Measurement conditions | Minimum | Typical | Maximum | Unit |
|---------------|------------------|---|---------|---------|---------|------|
| Turn-on time | t _{ON} | R _L =200 Ω V _{DD} =20 V, I _F =10 mA (see note) | --- | --- | 1 | ms |
| Turn-off time | t _{OFF} | | --- | --- | 1 | |

Note: Switching Time Measuring Circuit

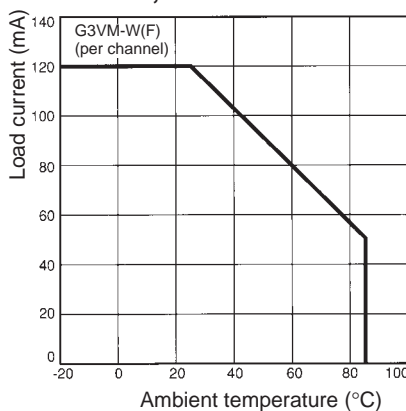


Engineering Data

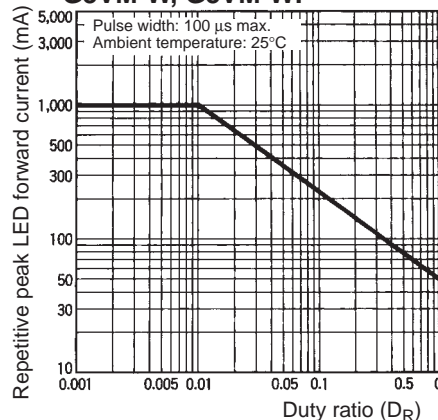
LED Forward Current vs. Ambient Temperature
G3VM-W, G3VM-WF



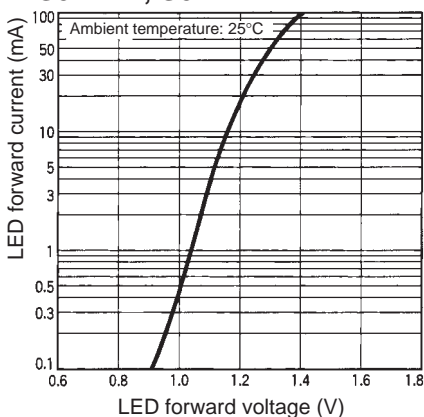
Load Current vs. Ambient Temperature Characteristics
G3VM-W, G3VM-WF



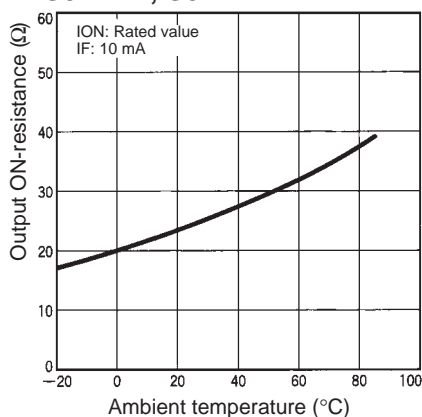
Repetitive Peak LED Forward Current vs. Duty Ratio
G3VM-W, G3VM-WF



LED Forward Current vs. LED Forward Voltage
G3VM-W, G3VM-WF



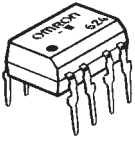
Output ON-resistance vs. Ambient Temperature
G3VM-W, G3VM-WF



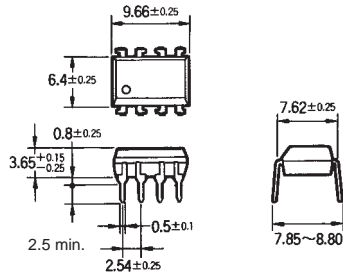
Dimensions

Note: All units are in millimeters unless otherwise indicated.

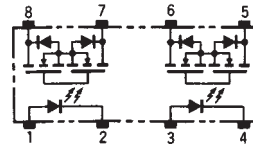
G3VM-W



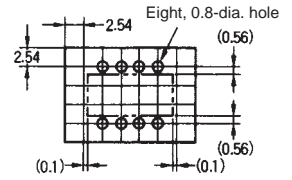
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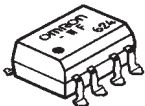
Terminal Arrangement/ Internal Connections (Top View)



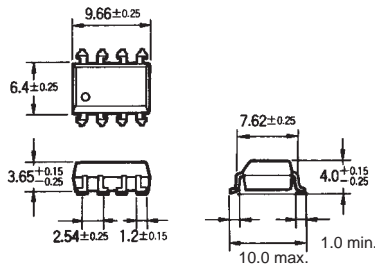
PCB Dimensions (Bottom View)



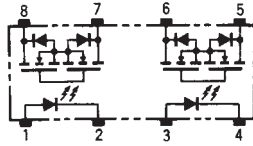
G3VM-WF



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Terminal Arrangement/ Internal Connections (Top View)



Actual Mounting Pad Dimensions (Recommended Value, Bottom View)

