

MOS FET Relays

G3VM-201AY/DY

Compact, General-purpose, Analog-switching MOS FET Relays, with Dielectric Strength of 5 kVAC between I/O Using Optical Isolation.

- Trigger LED forward current of 2 mA (maximum) facilitates power saving designs.
- Switches minute analog signals.
- Continuous load current of 250 mA.



NEW

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

RoHS compliant

⚠ Refer to "Common Precautions".

Application Examples

- Power meter
- Measurement devices
- Security systems
- Industrial equipment

List of Models

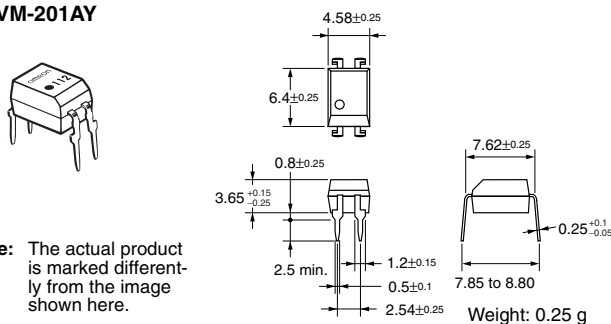
| Contact form | Terminals | Load voltage (peak value) (See the note.) | Model | Number per stick | Number per tape |
|--------------|----------------------------|--|----------------|------------------|-----------------|
| SPST-NO | PCB terminals | 200 V | G3VM-201AY | 100 | --- |
| | Surface-mounting terminals | | G3VM-201DY | | |
| | | | G3VM-201DY(TR) | --- | 1,500 |

Note: The AC peak and DC value are given for the load voltage.

Dimensions

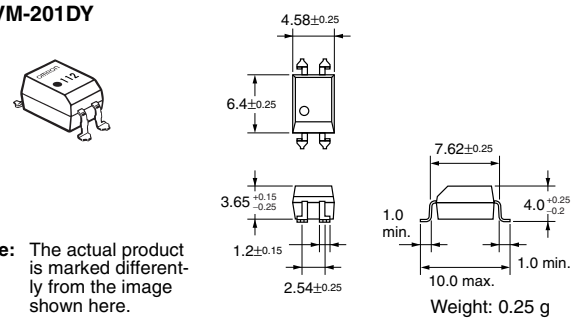
Note: All units are in millimeters unless otherwise indicated.

G3VM-201AY



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

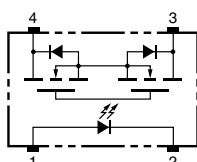
G3VM-201DY



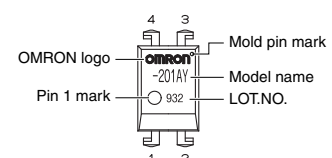
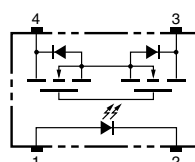
Note: The actual product is marked differently from the image shown here.

Terminal Arrangement/Internal Connections (Top View)

G3VM-201AY



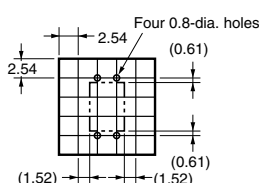
G3VM-201DY



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

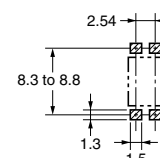
PCB Dimensions (Bottom View)

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Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-201DY



Absolute Maximum Ratings (Ta = 25°C)

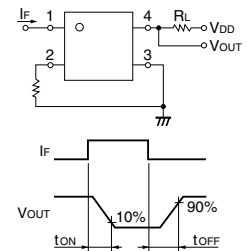
| Item | | Symbol | Rating | Unit | Measurement Conditions |
|--|--------------------------------------|--------------------------------|-------------|----------------------|-------------------------------|
| Input | LED forward current | I_F | 30 | mA | |
| | Repetitive peak LED forward current | I_{FP} | 1 | A | 100 μ s pulses, 100 pps |
| | LED forward current reduction rate | $\Delta I_F/^\circ\text{C}$ | -0.3 | mA/ $^\circ\text{C}$ | Ta \geq 25°C |
| | LED reverse voltage | V_R | 5 | V | |
| | Connection temperature | T_j | 125 | $^\circ\text{C}$ | |
| Output | Load voltage (AC peak/DC) | V_{OFF} | 200 | V | |
| | Continuous load current (AC peak/DC) | I_O | 250 | mA | |
| | ON current reduction rate | $\Delta I_{ON}/^\circ\text{C}$ | -2.5 | mA/ $^\circ\text{C}$ | Ta \geq 25°C |
| | Pulse ON current | I_{op} | 0.75 | A | t = 100 ms, Duty = 1/10 |
| | Connection temperature | T_j | 125 | $^\circ\text{C}$ | |
| Dielectric strength between input and output (See note 1.) | | V_{I-O} | 5,000 | 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 | 1.45 | 1.63 | 1.75 | V | $I_F = 10$ mA |
| | Reverse current | I_R | --- | --- | 10 | μA | $V_R = 5$ V |
| | Capacity between terminals | C_T | --- | 40 | --- | pF | V = 0, f = 1 MHz |
| | Trigger LED forward current | I_{FT} | --- | 0.3 | 2 | mA | $I_O = 250$ mA |
| Output | Maximum resistance with output ON | R_{ON} | --- | 5 | 8 | Ω | $I_F = 5$ mA, $I_O = 250$ mA |
| | Current leakage when the relay is open | I_{LEAK} | --- | --- | 1.0 | μA | $V_{OFF} = 200$ V |
| | Capacity between terminals | C_{OFF} | --- | 90 | --- | pF | V = 0, f = 1 MHz |
| 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 Ω | $V_{I-O} = 500$ VDC, RoH \leq 60% |
| Turn-ON time | | tON | --- | 0.5 | 1 | ms | $I_F = 5$ mA, $R_L = 200$ Ω , $V_{DD} = 20$ V (See note 2.) |
| Turn-OFF time | | tOFF | --- | 0.2 | 1 | ms | |

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



Recommended Operating Conditions

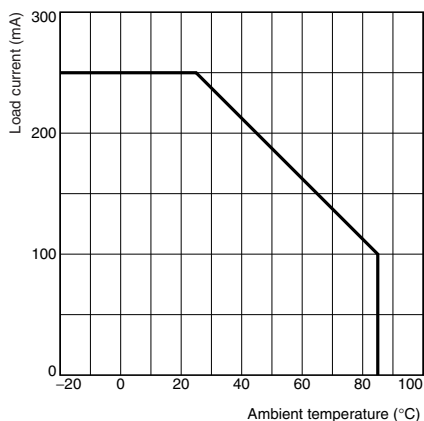
Use the G3VM under the following conditions so that the Relay will operate properly.

| Item | Symbol | Minimum | Typical | Maximum | Unit |
|--------------------------------------|----------|---------|---------|---------|------------------|
| Load voltage (AC peak/DC) | V_{DD} | --- | --- | 160 | V |
| Operating LED forward current | I_F | 3 | 5 | 20 | mA |
| Continuous load current (AC peak/DC) | I_O | --- | --- | 250 | mA |
| Operating temperature | T_a | -20 | --- | 65 | $^\circ\text{C}$ |

Engineering Data

Load Current vs. Ambient Temperature

G3VM-201AY(DY)



Safety Precautions

Refer to "Common Precautions" for all G3VM models.