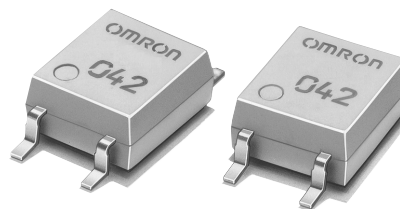


# MOS FET Relays

# G3VM-201G1

## Ultrasensitive MOS FET Relay in 200 V Load series for power savings, SOP Package.

- Trigger LED forward current of 1 mA (maximum) facilitates power saving designs and prolonged battery life.
- Continuous load current of 200 mA.
- RoHS Compliant



**NEW**

### Application Examples

- Broadband systems and Measurement devices
- Security systems
- Industrial equipment
- Battery powered equipment and Amusement machines

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

### List of Models

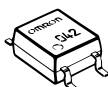
| Contact form | Terminals                  | Load voltage (peak value)<br>(See the note.) | Model          | Number per stick | Number per tape |
|--------------|----------------------------|--|----------------|------------------|-----------------|
| SPST-NO      | Surface-mounting terminals | 200 V  | G3VM-201G1     | 100              | ---             |
|              |                            |  | G3VM-201G1(TR) | ---              | 2,500           |

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

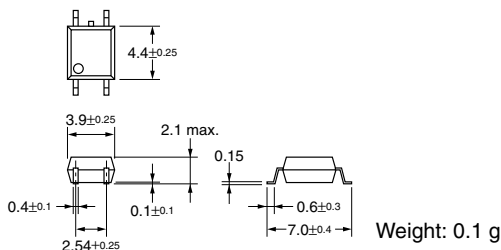
### Dimensions

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

#### G3VM-201G1

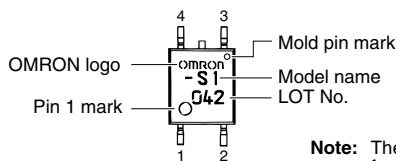
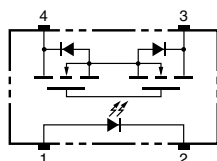


**Note:** The actual product is marked differently from the image shown here.



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

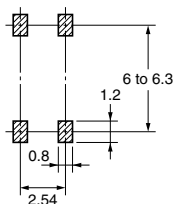
#### G3VM-201G1



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

### Actual Mounting Pad Dimensions (Recommended Value, Top View)

#### G3VM-201G1



■ Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

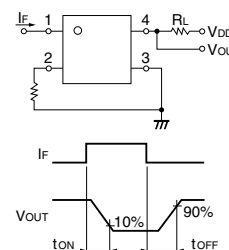
| Item   | Symbol                               | Rating               | Unit             | Measurement Conditions        |                        |
|--|--------------------------------------|----------------------|------------------|-------------------------------|------------------------|
| Input  | LED forward current                  | I <sub>F</sub>       | 50               | mA                            |                        |
|  | Repetitive peak LED forward current  | I <sub>FP</sub>      | 1                | A                             | 100 μs pulses, 100 pps |
|  | LED forward current reduction rate   | Δ I <sub>F</sub> /°C | -0.5             | mA/°C                         | T <sub>a</sub> ≥ 25°C  |
|  | LED reverse voltage                  | V <sub>R</sub>       | 5                | V                             |                        |
|  | Connection temperature               | T <sub>J</sub>       | 125              | °C                            |                        |
| Output   | Load voltage (AC peak/DC)            | V <sub>OFF</sub>     | 200              | V                             |                        |
|  | Continuous load current (AC peak/DC) | I <sub>O</sub>       | 200              | mA                            |                        |
|  | ON current reduction rate            | Δ I <sub>O</sub> /°C | -2.0             | mA/°C                         | T <sub>a</sub> ≥ 25°C  |
|  | Connection temperature               | T <sub>J</sub>       | 125              | °C                            |                        |
| Dielectric strength between input and output (See note 1.) | V <sub>I-O</sub>                     | 1,500                | V <sub>rms</sub> | AC for 1 min                  |                        |
| Operating temperature                                      | T <sub>a</sub>                       | -40 to +85           | °C               | With no icing or condensation |                        |
| Storage temperature  | T <sub>stg</sub>                     | -55 to +100          | °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 (T<sub>a</sub> = 25°C)

| Item                           | Symbol                                 | Minimum           | Typical | Maximum | Unit | Measurement conditions  |   |
|--------------------------------|--|-------------------|---------|---------|------|---|---|
| Input                          | LED forward voltage                    | V <sub>F</sub>    | 1.0     | 1.15    | 1.3  | V   | I <sub>F</sub> = 10 mA                          |
|                                | Reverse current                        | I <sub>R</sub>    | ---     | ---     | 10   | μA  | V <sub>R</sub> = 5 V                            |
|                                | Capacity between terminals             | C <sub>T</sub>    | ---     | 30      | ---  | pF  | V = 0, f = 1 MHz                                |
|                                | Trigger LED forward current            | I <sub>FT</sub>   | ---     | 0.4     | 1    | mA  | I <sub>O</sub> = 200 mA                         |
| Output                         | Maximum resistance with output ON      | R <sub>ON</sub>   | ---     | 5       | 8    | Ω   | I <sub>F</sub> = 2 mA, I <sub>O</sub> = 200 mA  |
|                                | Current leakage when the relay is open | I <sub>LEAK</sub> | ---     | 1       | 1000 | nA  | V <sub>OFF</sub> = 200 V, T <sub>a</sub> = 25°C |
|                                | Capacity between terminals             | C <sub>OFF</sub>  | ---     | 90      | ---  | pF  | V = 0, f = 1MHz                                 |
| Capacity between I/O terminals | C <sub>I-O</sub>                       | ---               | 0.8     | ---     | pF   | f = 1 MHz, V <sub>s</sub> = 0 V   |   |
| Insulation resistance          | R <sub>I-O</sub>                       | 1,000             | ---     | ---     | MΩ   | V <sub>I-O</sub> = 500 VDC, R <sub>oH</sub> ≤ 60%                                   |   |
| Turn-ON time                   | t <sub>ON</sub>                        | ---               | 3       | 8       | ms   | I <sub>F</sub> = 2 mA, R <sub>L</sub> = 200 Ω, V <sub>DD</sub> = 20 V (See note 2.) |   |
| Turn-OFF time                  | t <sub>OFF</sub>                       | ---               | 0.6     | 3       | ms   |   |   |

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



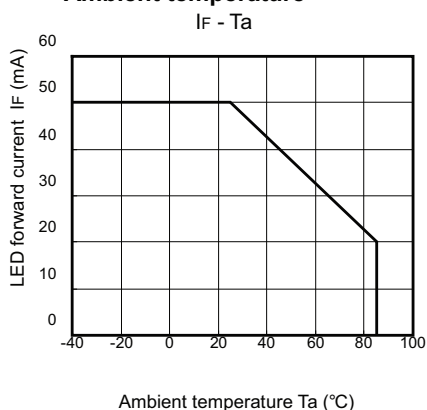
■ Recommended Operating Conditions

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

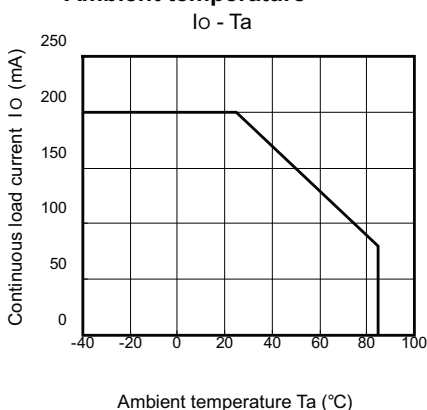
| Item                                 | Symbol          | Minimum | Typical | Maximum | Unit |
|--------------------------------------|-----------------|---------|---------|---------|------|
| Load voltage (AC peak/DC)            | V <sub>DD</sub> | ---     | ---     | 160     | V    |
| Operating LED forward current        | I <sub>F</sub>  | ---     | 2       | 25      | mA   |
| Continuous load current (AC peak/DC) | I <sub>O</sub>  | ---     | ---     | 160     | mA   |
| Operating temperature                | T <sub>a</sub>  | -20     | ---     | 65      | °C   |

■ Engineering Data

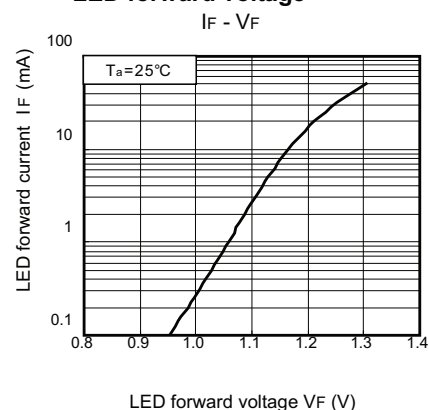
LED forward current vs. Ambient temperature



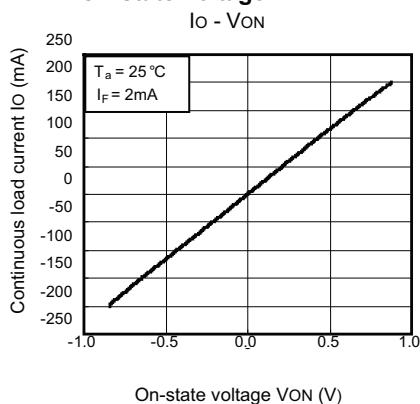
Continuous load current vs. Ambient temperature



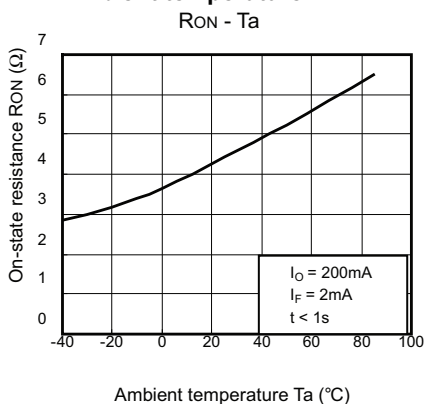
LED forward current vs. LED forward voltage



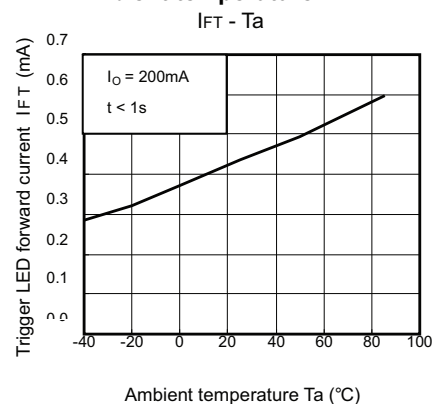
Continuous load current vs. On-state voltage



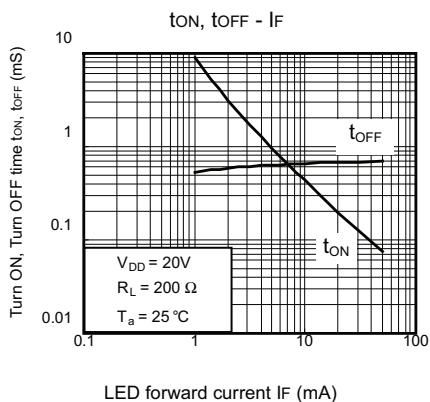
On-state resistance vs. Ambient temperature



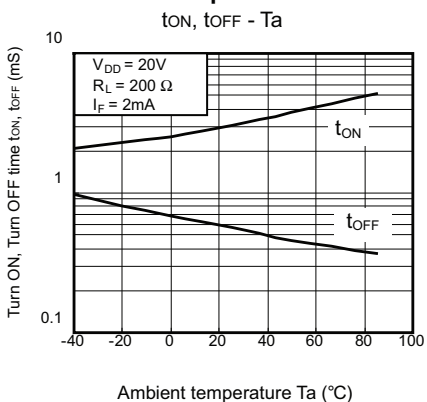
Trigger LED forward current vs. Ambient temperature



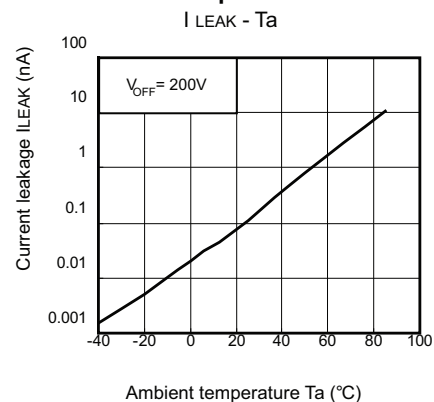
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Ambient temperature



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

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