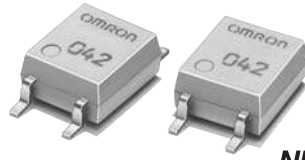


New MOSFET Relay with Low Output Capacitance and ON Resistance ($C_{xR} = 5\text{pF} \bullet \Omega$) in a 20-V Load Voltage Model

- Output capacitance of 1 pF (typical) allows high-frequency applications.
- Leakage current of 1.0 nA max. when output relay is open.



NEW

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

List of Models

| Contact form | Terminals | Load voltage (peak value) | Model | Number per stick | Number per tape |
|--------------|----------------------------|---------------------------|---------------|------------------|-----------------|
| SPST-NO | Surface-mounting terminals | 20 VAC | G3VM-21GR | 100 | |
| | | | G3VM-21GR(1H) | — | 2,500 |

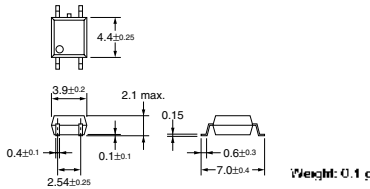
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-21GR

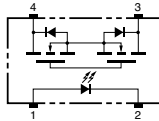


Note: The actual product is marked differently from the image shown here.



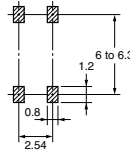
Terminal Arrangement/Internal Connections (Top View)

G3VM-21GR



Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-21GR



Absolute Maximum Ratings (Ta = 25°C)

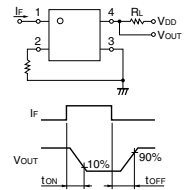
| Item | Symbol | Rating | Unit | Measurement Conditions | |
|---|-------------------------------------|--------------------------|-------|--------------------------------|-----------------------------|
| Input | LED forward current | I_F | 50 | mA | |
| | Repetitive peak I/O forward current | I_{F1} | 1 | A | 100 μ s pulses, 100 pps |
| | LED reverse current reduction rate | $\Delta I_{F1}/\Delta C$ | 0.5 | mA/°C | Ta = 25°C |
| | LED reverse voltage | V_{RR} | 5 | V | |
| | Connection temperature | T_J | 125 | °C | |
| Output | Output diode leakage strength | V_{OFF} | 20 | V | |
| | Continuous load current | I_{LO} | 100 | mA | |
| | 10k current reduction rate | $\Delta I_{LO}/\Delta C$ | -1.6 | mA/°C | Ta = 25°C |
| | Connection temperature | T_J | 125 | °C | |
| Dielectric strength between input and output (see note 1) | V_{ILO} | 1,500 | V-rms | AC for 1 min | |
| Operating temperature | T_a | -20 to +85 | °C | With no inrush or condensation | |
| Storage temperature | T_{stg} | -40 to +125 | °C | With no inrush 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 (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 | μ A | $V_R = 5$ V |
| | Capacity between terminals | C_1 | — | 15 | — | pF | $V = 0$, $f = 1$ MHz |
| | Trigger 1/O forward current | I_{F1} | — | — | 4 | mA | $I_O = 100$ mA |
| Output | Maximum resistance with output ON | R_{ON} | — | 5 | Ω | $I_F = 5$ mA, $I_O = 100$ mA, $t < 1$ s | |
| | Current leakage when the relay is on | I_{FAK} | — | 10 | nA | $V_{OFF} = 20$ V, Ta = 50°C | |
| | Capacity between terminals | $C_{(X)}$ | — | 1.0 | 2.0 | pF | $V = 0$, $f = 1$ MHz, I_F , $t < 1$ s |
| Capacity between I/O terminals | C_{LO} | — | 0.8 | — | pF | $f = 1$ MHz, $V_s = 0$ V | |
| Insulation resistance | R_{IN} | 1,000 | — | — | M Ω | $V_{ILO} = 500$ VDC, $I_{off} < 10$ nA | |
| Turn-ON time | t_{ON} | — | — | 0.5 | ms | $I_F = 10$ mA, $R_L = 200$ Ω , $V_{DD} = 20$ V (See note 2.) | |
| Turn-OFF time | t_{OFF} | — | — | 0.5 | 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} | — | — | 20 | V |
| Operating LED forward current | I_F | 7 | — | 50 | mA |
| Continuous load current | I_{LO} | — | — | 100 | mA |
| Operating temperature | T | 25 | — | 85 | °C |

Engineering Data

Load Current vs. Ambient Temperature

G3VM-21GR

