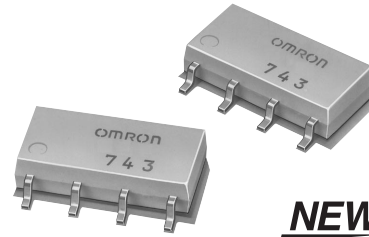


MOS FET Relays

G3VM-402J

Expanded Range of Analog-Switching MOS FET Relays with 400-V Load Voltage

- New models with two channels and an 8-pin SOP package included in 400-V load voltage series.
- Continuous load current of 120 mA.
- Dielectric strength of 1,500 Vrms between I/O.



NEW

Application Examples

- Broadband systems
- Measurement devices
- Data loggers
- Amusement machines

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

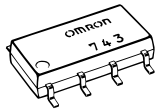
List of Models

| Contact form | Terminals | Load voltage (peak value) | Model | Number per stick | Number per tape |
|--------------|----------------------------|---------------------------|---------------|------------------|-----------------|
| DPST-NO | Surface-mounting terminals | 400 VAC | G3VM-402J | 50 | --- |
| | | | G3VM-402J(TR) | --- | 2,500 |

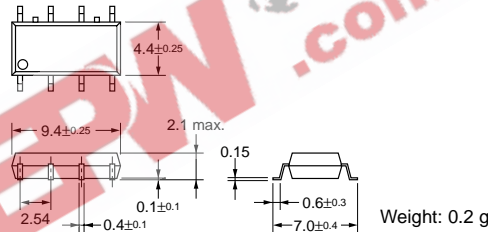
Dimensions

Note: All units are in millimeters unless otherwise indicated.

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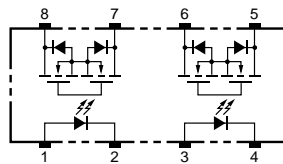


Note: The actual product is marked differently from the image shown here.



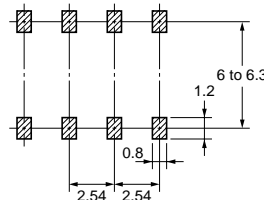
Terminal Arrangement/Internal Connections (Top View)

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Actual Mounting Pad Dimensions (Recommended Value, Top View)

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Absolute Maximum Ratings (Ta = 25°C)

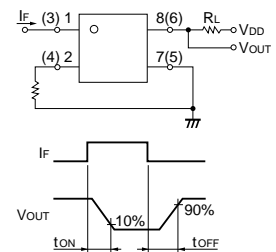
| Item | Symbol | Rating | Unit | Measurement Conditions | |
|--|-------------------------------------|--------------------------------|-------------|------------------------|-------------------------------|
| Input | LED forward current | I_F | 50 | mA | |
| | Repetitive peak LED forward current | I_{FP} | 1 | A | 100 μ s pulses, 100 pps |
| | LED forward current reduction rate | $\Delta I_F/^\circ\text{C}$ | -0.5 | mA/°C | Ta \geq 25°C |
| | LED reverse voltage | V_R | 5 | V | |
| | Connection temperature | T_j | 125 | °C | |
| Output | Output dielectric strength | V_{OFF} | 400 | V | |
| | Continuous load current | I_O | 120 | mA | |
| | ON current reduction rate | $\Delta I_{ON}/^\circ\text{C}$ | -1.2 | mA/°C | Ta \geq 25°C |
| Dielectric strength between input and output (See note 1.) | | V_{I-O} | 1,500 | Vrms | AC for 1 min |
| Operating temperature | | T_a | -40 to +85 | °C | With no icing or condensation |
| Storage temperature | | T_{stg} | -55 to +125 | °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 (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_T | --- | 30 | --- | pF | $V = 0$, $f = 1$ MHz |
| | Trigger LED forward current | I_{FT} | --- | 1 | 3 | mA | $I_O = 120$ mA |
| Output | Maximum resistance with output ON | R_{ON} | --- | 17 | 35 | Ω | $I_F = 5$ mA, $I_O = 120$ mA |
| | Current leakage when the relay is open | I_{LEAK} | --- | --- | 1.0 | μ A | $V_{OFF} = 400$ V |
| Capacity between I/O terminals | | C_{I-O} | --- | 0.8 | --- | pF | $f = 1$ MHz, $V_S = 0$ V |
| Insulation resistance | | R_{I-O} | 1,000 | --- | --- | M Ω | $V_{I-O} = 500$ VDC, $R_{OH} \leq 60\%$ |
| Turn-ON time | | t_{ON} | --- | 0.3 | 1 | ms | $I_F = 10$ mA, $R_L = 200$ Ω , $V_{DD} = 20$ V (See note 2.) |
| Turn-OFF time | | t_{OFF} | --- | 0.1 | 1 | ms | |

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



Recommended Operating Conditions

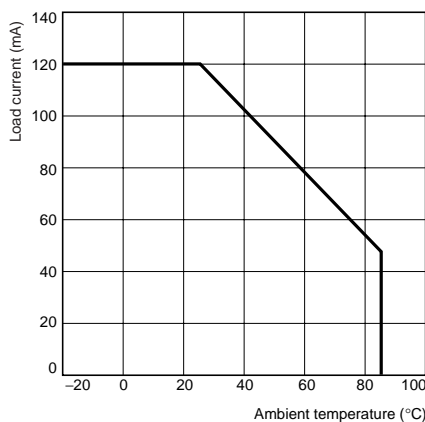
Use the G3VM under the following conditions so that the Relay will operate properly.

| Item | Symbol | Minimum | Typical | Maximum | Unit |
|-------------------------------|----------|---------|---------|---------|------|
| Output dielectric strength | V_{DD} | --- | --- | 320 | V |
| Operating LED forward current | I_F | 5 | 7.5 | 25 | mA |
| Continuous load current | I_O | --- | --- | 120 | mA |
| Operating temperature | T_a | -20 | --- | 65 | °C |

Engineering Data

Load Current vs. Ambient Temperature

G3VM-402J



Safety Precautions

Refer to page 6 for precautions common to all G3VM models.