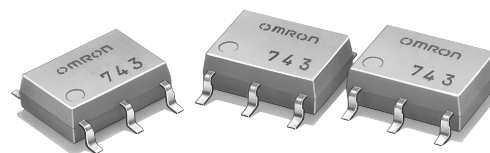


MOS FET Relays G3VM-101HR

Low 100-mΩ ON Resistance. High-power, 1.4-A Switching with a 100-V Load Voltage, SOP Package.

- Continuous load current of 1.4 A (connection C = 2.8 A).
- Dielectric strength of 1,500 Vrms between I/O.
- RoHS Compliant



NEW

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

Application Examples

- Broadband systems
- Measurement devices
- Data loggers
- Industrial equipment

List of Models

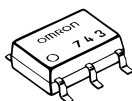
| Contact form | Terminals | Load voltage (peak value) (See note.) | Model | Number per stick | Number per tape |
|--------------|----------------------------|--|----------------|------------------|-----------------|
| SPST-NO | Surface-mounting terminals | 100 V | G3VM-101HR | 75 | --- |
| | | | G3VM-101HR(TR) | --- | 2,500 |

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

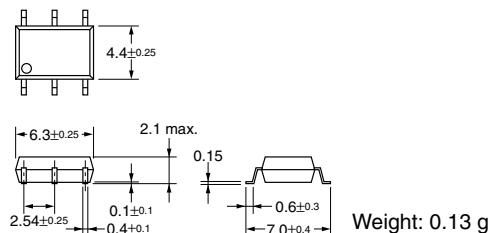
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-101HR

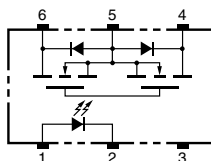


Note: The actual product is marked differently from the image shown here.



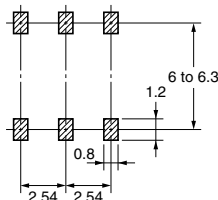
Terminal Arrangement/Internal Connections (Top View)

G3VM-101HR



Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-101HR

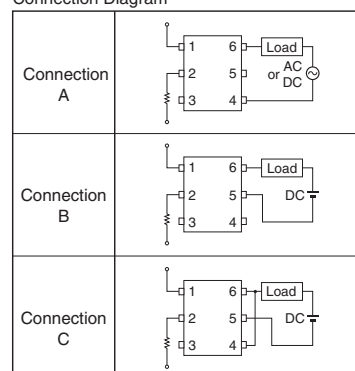


■ Absolute Maximum Ratings (Ta = 25°C)

| Item | | Symbol | Rating | Unit | Measurement Conditions | |
|--|------------------------------------|-----------------------------|-----------------------------|------------------|-------------------------------|--|
| Input | LED forward current | I_F | 30 | mA | | |
| | LED forward current reduction rate | $\Delta I_F/^\circ\text{C}$ | -0.3 | mA/°C | $T_a \geq 25^\circ\text{C}$ | |
| | LED reverse voltage | V_R | 5 | V | | |
| | Connection temperature | T_J | 125 | °C | | |
| Output | Load voltage (AC peak/DC) | V_{OFF} | 100 | V | | |
| | Continuous load current | Connection A | I_O | 1.4 | A | Connection A: AC peak/DC Connection B and C: DC |
| | | Connection B | | 1.4 | | |
| | | Connection C | | 2.8 | | |
| | ON current reduction rate | Connection A | $\Delta I_O/^\circ\text{C}$ | -18.7 | mA/°C | $T_a \geq 50^\circ\text{C}$ |
| | | Connection B | | -18.7 | | |
| | | Connection C | | -37.3 | | |
| Pulse on current | I_{OP} | 4 | A | | $t=100\text{ms}$ | |
| Connection temperature | T_J | 125 | °C | | | |
| Dielectric strength between input and output (See note 1.) | | V_{I-O} | 1,500 | V_{rms} | 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.

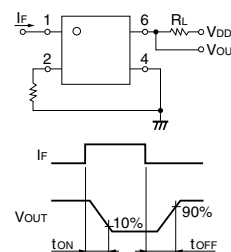
Connection Diagram



■ Electrical Characteristics (Ta = 25°C)

| Item | | Symbol | Minimum | Typical | Maximum | Unit | Measurement conditions | |
|--|-----------------------------------|--------------|----------|---------|---------|---------------|---|--|
| Input | LED forward voltage | V_F | 1.18 | 1.33 | 1.48 | V | $I_F = 10 \text{ mA}$ | |
| | Reverse current | I_R | --- | --- | 10 | μA | $V_R = 5 \text{ V}$ | |
| | Capacity between terminals | C_T | --- | 70 | --- | pF | $V = 0, f = 1 \text{ MHz}$ | |
| | Trigger LED forward current | I_{FT} | --- | 0.4 | 3 | mA | $I_O = 100 \text{ mA}$ | |
| Output | Maximum resistance with output ON | Connection A | R_{ON} | --- | 0.01 | 0.2 | Ω | $I_F=5 \text{ mA}, I_O=1.4 \text{ A}, t < 1 \text{ s}$ |
| | | Connection B | | --- | 0.05 | 0.1 | Ω | $I_F=5 \text{ mA}, I_O=1.4 \text{ A}, t < 1 \text{ s}$ |
| | | Connection C | | --- | 0.025 | --- | Ω | $I_F=5 \text{ mA}, I_O=2.8 \text{ A}, t < 1 \text{ s}$ |
| Current leakage when the relay is open | | I_{LEAK} | --- | --- | 10 | nA | $V_{OFF} = 100 \text{ V}$ | |
| Capacity between I/O terminals | | C_{I-O} | --- | 0.8 | --- | pF | $f = 1 \text{ MHz}, V_s = 0 \text{ V}$ | |
| Insulation resistance | | R_{I-O} | 1,000 | --- | --- | M Ω | $V_{I-O} = 500 \text{ VDC}, R_{oh} \leq 60\%$ | |
| Turn-ON time | | t_{ON} | --- | 1.0 | 5.0 | ms | $I_F = 5 \text{ mA}, R_L = 200 \Omega, V_{DD} = 20 \text{ V}$ (See note 2.) | |
| Turn-OFF time | | t_{OFF} | --- | 0.15 | 1.0 | ms | | |

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



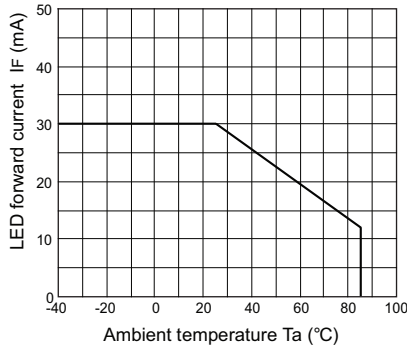
■ Recommended Operating Conditions

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

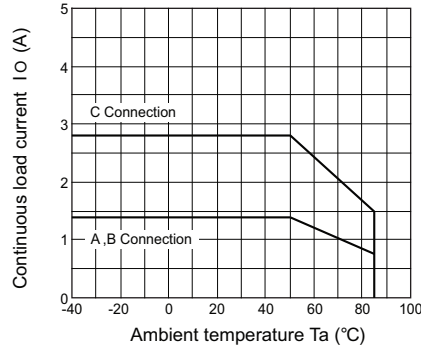
| Item | Symbol | Minimum | Typical | Maximum | Unit |
|--------------------------------------|----------|---------|---------|---------|------|
| Load voltage (AC peak/DC) | V_{DD} | --- | --- | 100 | V |
| Operating LED forward current | I_F | 5 | 7.5 | 20 | mA |
| Continuous load current (AC peak/DC) | I_O | --- | --- | 1.1 | A |
| Operating temperature | T_a | -20 | --- | 65 | °C |

■ Engineering Data

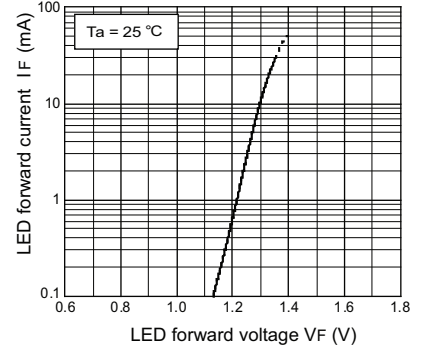
LED forward current vs. Ambient temperature
IF - Ta



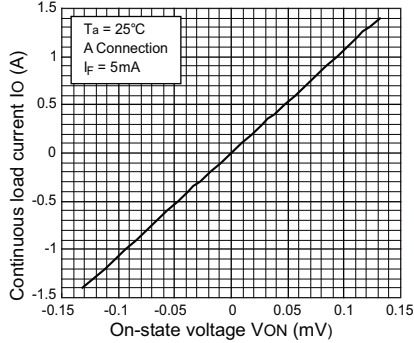
Continuous load current vs. Ambient temperature
Io - Ta



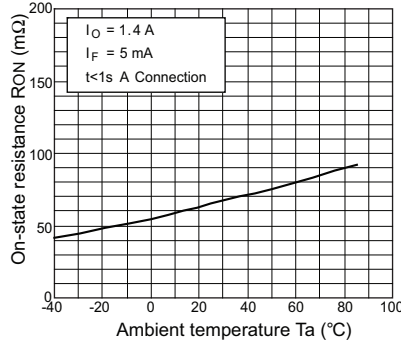
LED forward current vs. LED forward voltage
IF - VF



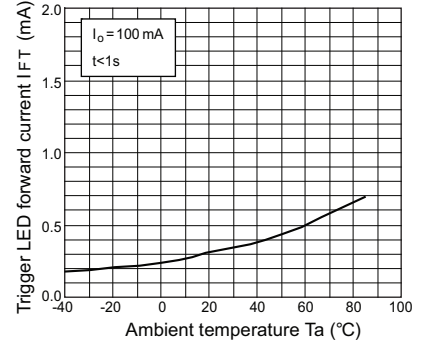
Continuous load current vs. On-state voltage
Io - VON



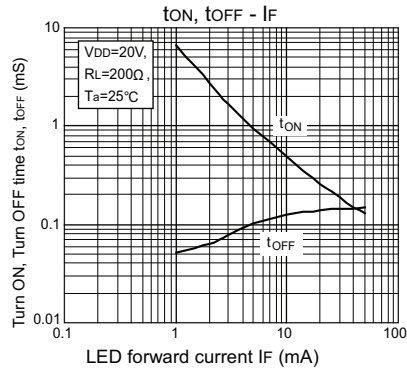
On-state resistance vs. Ambient temperature
RON - Ta



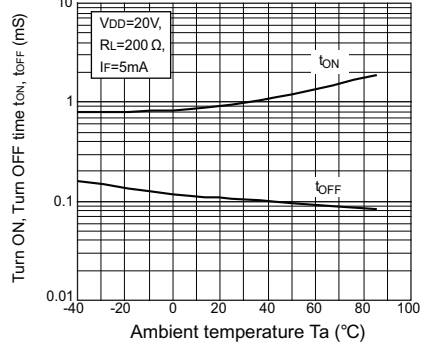
Trigger LED forward current vs. Ambient temperature
IFT - Ta



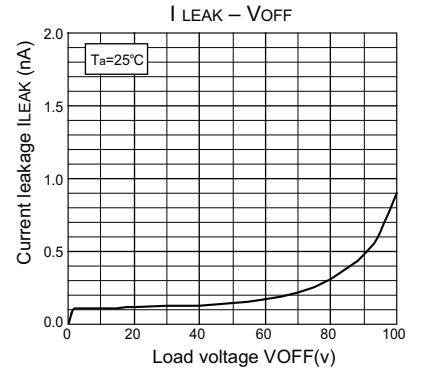
Turn ON, Turn OFF time vs. LED forward current
tON, tOFF - IF



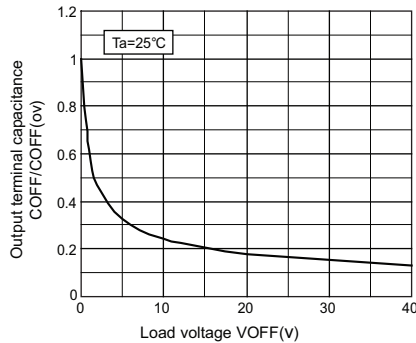
Turn ON, Turn OFF time vs. Ambient temperature
tON, tOFF - Ta



Current leakage vs. Load voltage
ILEAK - VOFF



Output terminal capacitance COFF/COFF(ov) vs. Load voltage
COFF - VOFF



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COMPONENTS LLC**

55 E. Commerce Drive, Suite B
Schaumburg, IL 60173

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