

# OMRON



A wide range of contact forms and functions  
Over 250 different models available

# G3VM MOSFET RELAY

## *Selection Guide*

Ultra small outline package "USOP series" expansion  
DIP high-capacity & Low ON resistance series expansion  
New DIP small series with High Dielectric Strength available



MOS FET Relays  
**G3VM Series**

## About MOS FET relays

Omron's Mos Fet Relays lead the industry in Solid State Relay technology, utilizing a LED, PDA and Mos Fet in the load switching current. Our G3VM series of relays offer many benefits including low maintenance costs, small footprint and high-speed switching. As a suitable replacement for a mechanical relay, Mos Fet relays are displacing reed relays as well as relays containing mercury. OMRON has expanded the product lineup by introducing their smallest relay\* to date, the new ultra small outline package(USOP) and SSOP which lead the industry in size and performance, with high switching capacity and high sensitivity series available.

\*As of September, 2012.

## Advantages of MOS FET relays

### Ultra small and Weight

Leading the market with substantial space saving offered in our SSOP and new USOP package size

### Low driving current

Standard driving current is 2-15mA.  
Ultrasensitive type with driving current 1mA(max.) available.

### Long operating life

Realize the structure without contacts by sending light signal. Avoid the reduction of life caused by wear of contacts, and realize extended operational life.

### Small leakage current

Can withstand external surge current, and not add the snubber circuit. Under normal condition, it is 1 nanometer A or below (GR, LR type), and the leakage current is very small when close.

### Excellent shock resistance

All the internal parts use the casting method, and there is not movable part in it, so it has excellent shock resistance and vibration resistance.

### High insulation

It turns the voltage into the light, and transfers by the light signal, so it is electrical insulation. It not only can ensure that the Dielectric strength between input and output under normal condition is AC 2500V, but also realizes the serialization of upper 5000V product at the same time, and realize the high insulation.

### Silent operation

Avoid the switching voice caused by metal contacts of mechanical relay. Realize the function of silence.

### High-speed switching

Comparing with the switching time of 3 ~ 5ms of mechanical relay, its switching time is shortened to 1ms. Realize the quick response performance.

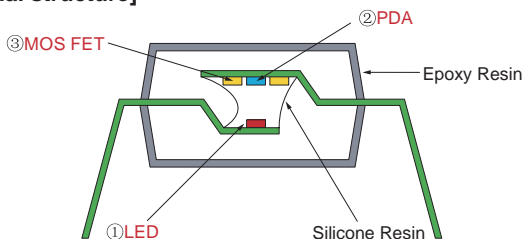
### Control the micro analog signal correctly

Comparing with the triac, it reduces the dead zone greatly. The input waveform of micro analog signal dose not distort basically and is converted into output waveform without distortion.



## Structure and operational principle of MOS FET relays

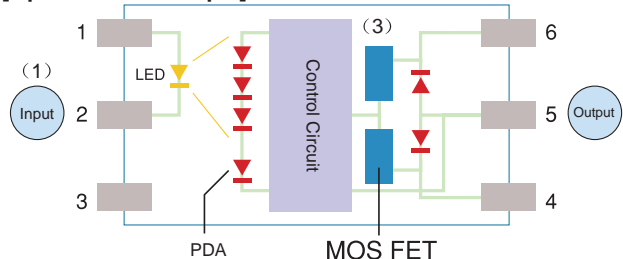
### [Internal structure]



MOS FET relay consists of the following three components:

- ① LED (light emitting diode)
- ② Photodiode dome array (PDA)
- ③ MOS FET

### [Operational Principle] (2)

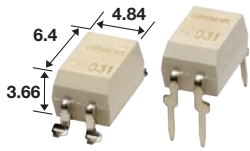


- (1) The LED lights when the current is connected at the input side.
- (2) The light sent by the LED will be converted into voltage again when it is received by the photodiode.
- (3) This voltage will be a gate voltage to drive MOS FET via control circuit.

# Package of MOS FET Relays

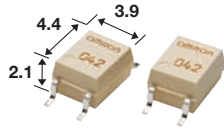
## DIP

■ Bottom surface  
100%



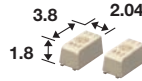
## SOP

■ Bottom surface  
59%



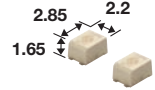
## SSOP

■ Bottom surface  
19%



## USOP

■ Bottom surface  
16%



**Competitor's SSOP Package**

**OMRON SSOP**   **OMRON USOP**

**New package USOP**   **SSOP**

6pitch  
5pitch  
4pitch  
3pitch  
4pitch  
3pitch  
2pitch  
2pitch

1pitch=1.27mm

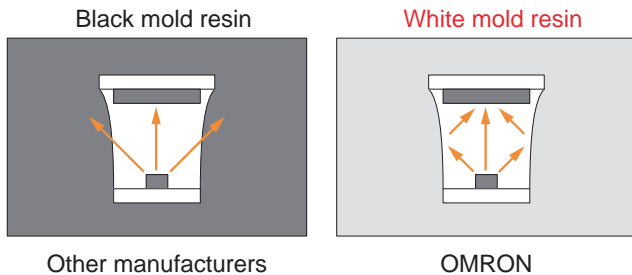
**Omron's SSOP leads the industry in size\* and performance.  
New ultra small outline package USOP available !**

\*As of September, 2012.

# Features of Omron's technology

## 1. White Mold

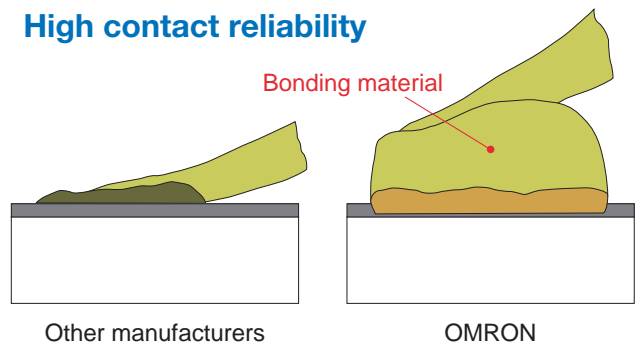
### High efficient light conductivity



Black mold: only can receive the direct light from LED  
White mold: can receive the indirect reflecting light from both LED and resin

## 2. BWB Bonding

### High contact reliability



OMRON uses more bonding material than that used by other manufacturers; in an effort to improve the contact reliability.

# MOS FET Relay Lineup

## High Current & Low On-resistance Type

Ideal for power circuit with high current and low on-resistance



| Package               | Model                     | Load Voltage(V) Max. | Continuous load current (mA) Max. | Typical ON resistance(Ω) |
|-----------------------|---------------------------|----------------------|-----------------------------------|--------------------------|
| DIP                   | G3VM-21AR/DR <b>NEW</b>   | 20                   | 3                                 | 0.04                     |
|                       | G3VM-21BR/ER <b>NEW</b>   | 20                   | 4(8)*                             | 0.02(0.005)*             |
|                       | G3VM-41AR/DR <b>NEW</b>   | 40                   | 2.5                               | 0.05                     |
|                       | G3VM-41BR/ER <b>NEW</b>   | 40                   | 3.5(7)*                           | 0.03(0.008)*             |
|                       | G3VM-61AR/DR <b>NEW</b>   | 60                   | 2                                 | 0.08                     |
|                       | G3VM-61BR/ER              | 60                   | 2.5                               | 0.065                    |
|                       | G3VM-61BR1/ER1 <b>NEW</b> | 60                   | 3(6)*                             | 0.04(0.01)*              |
|                       | G3VM-101AR/DR <b>NEW</b>  | 100                  | 1                                 | 0.25                     |
|                       | G3VM-101BR/ER <b>NEW</b>  | 100                  | 2(4)*                             | 0.1(0.025)*              |
| SOP                   | G3VM-21HR                 | 20                   | 2.5(5)*                           | 0.02(0.005)*             |
|                       | G3VM-41GR8                | 40                   | 1                                 | 0.1                      |
|                       | G3VM-41HR <b>NEW</b>      | 40                   | 2.5(5)*                           | 0.03(0.008)*             |
|                       | G3VM-61GR1                | 60                   | 1                                 | 0.25                     |
|                       | G3VM-61HR <b>NEW</b>      | 60                   | 2.3(4.6)*                         | 0.04(0.01)*              |
|                       | G3VM-81HR                 | 80                   | 1.25(2.5)*                        | 0.11(0.03)*              |
| G3VM-101HR <b>NEW</b> | 100                       | 1.4(2.8)*            | 0.1(0.025)*                       |                          |

\*( )=C-connection

## New Ultra Small Outline Package USOP Type

USOP with low C (capacity between terminals) × R (output on-resistance)



| Model                  | Load Voltage(V) Max. | Continuous load current(mA) Max. | Typical ON resistance(Ω) | Capacity between terminals (pF) Typ. |
|------------------------|----------------------|----------------------------------|--------------------------|--------------------------------------|
| G3VM-21PR10 <b>NEW</b> | 20                   | 200                              | 3                        | 0.8                                  |
| G3VM-21PR11 <b>NEW</b> | 20                   | 900                              | 0.18                     | 40                                   |
| G3VM-41PR12 <b>NEW</b> | 40                   | 100                              | 15                       | 0.3                                  |
| G3VM-41PR10 <b>NEW</b> | 40                   | 120                              | 12                       | 0.45                                 |
| G3VM-41PR11 <b>NEW</b> | 40                   | 140                              | 7                        | 0.7                                  |
| G3VM-51PR <b>NEW</b>   | 50                   | 300                              | 1                        | 12                                   |
| G3VM-61PR1 <b>NEW</b>  | 60                   | 120                              | 10                       | 0.7                                  |
| G3VM-61PR <b>NEW</b>   | 60                   | 400                              | 1                        | 20                                   |

## Small & High Dielectric Strength Type

Dielectric Strength between I/O 5,000Vrms with small DIP4.

Low Power Consumption at 2mA (maximum) driving current\*.

\*Driving current=Trigger LED forward current



| Model                    | Load Voltage(V) Max. | Continuous load current (mA) Max. | Maximum Trigger LED forward current (mA) | Dielectric strength between input and output (Vrms) Max. |
|--------------------------|----------------------|-----------------------------------|--|--|
| G3VM-41AY/DY <b>NEW</b>  | 40                   | 2000                              | 2  | 5000   |
| G3VM-61AY/DY <b>NEW</b>  | 60                   | 500                               | 2  | 5000   |
| G3VM-201AY/DY <b>NEW</b> | 200                  | 250                               | 2  | 5000   |
| G3VM-351AY/DY <b>NEW</b> | 350                  | 100                               | 2  | 5000   |
| G3VM-401AY/DY <b>NEW</b> | 400                  | 120                               | 2  | 5000   |
| G3VM-601AY/DY <b>NEW</b> | 600                  | 90                                | 2  | 5000   |

## Ultrasensitive Type

Ideal for power saving with a driving current\* 1mA(maximum)

\*Driving current=Trigger LED forward current



| Model      | Load Voltage(V) Max. | Continuous load current (mA) Max. | Maximum Trigger LED forward current (mA) | Operating LED forward current (mA) |
|------------|----------------------|-----------------------------------|--|------------------------------------|
| G3VM-61G2  | 60                   | 400                               | 1  | 2                                  |
| G3VM-201G1 | 200                  | 200                               | 1  | 2                                  |
| G3VM-351G1 | 350                  | 100                               | 1  | 2                                  |
| G3VM-601G  | 600                  | 90                                | 1  | 2                                  |

## Low Capacity between terminals & Low On-resistance Type (Low C × R)

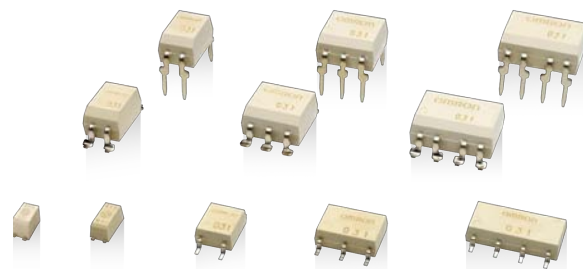
Ideal for semi-conductor test equipment. low C(capacity between terminals) × R(output on-resistance) type

### ■ SOP package

| Model      | Load Voltage(V) Max. | Continuous load current(mA) Max. | Typical ON resistance(Ω) | Capacity between terminals (pF) Typ. |
|------------|----------------------|----------------------------------|--------------------------|--------------------------------------|
| G3VM-21GR  | 20                   | 160                              | 5                        | 1                                    |
| G3VM-21GR1 | 20                   | 300                              | 1                        | 5                                    |
| G3VM-41GR4 | 40                   | 250                              | 2                        | 5                                    |
| G3VM-41GR5 | 40                   | 300                              | 1                        | 10                                   |
| G3VM-41GR6 | 40                   | 120                              | 10                       | 1                                    |
| G3VM-81GR  | 80                   | 40                               | 16                       | 2.5                                  |
| G3VM-81GR1 | 80                   | 200                              | 5                        | 6.5                                  |

### ■ SSOP package

| Model       | Load Voltage(V) Max. | Continuous load current(mA) Max. | Typical ON resistance(Ω) | Capacity between terminals (pF) Typ. |
|-------------|----------------------|----------------------------------|--------------------------|--------------------------------------|
| G3VM-21LR   | 20                   | 160                              | 5                        | 1                                    |
| G3VM-21LR1  | 20                   | 450                              | 0.8                      | 5                                    |
| G3VM-21LR10 | 20                   | 200                              | 3                        | 0.8                                  |
| G3VM-41LR4  | 40                   | 250                              | 2                        | 5                                    |
| G3VM-41LR5  | 40                   | 300                              | 1                        | 10                                   |
| G3VM-41LR6  | 40                   | 120                              | 10                       | 1                                    |
| G3VM-41LR10 | 40                   | 120                              | 12                       | 0.45                                 |
| G3VM-41LR11 | 40                   | 140                              | 7                        | 0.7                                  |



# Product lineup of MOS FET Relays

## DIP(Dual Inline Package)

| Load Voltage(V) Max. | Model                     | Number of terminals | Contact form | Continuous load current (mA) Max. | Typical ON resistance( $\Omega$ ) | Maximum turn-ON time (ms) | Maximum turn-OFF time (ms) | Dielectric strength between input and output (Vrms) Max. |
|----------------------|---------------------------|---------------------|--------------|-----------------------------------|-----------------------------------|---------------------------|----------------------------|--|
| 20                   | G3VM-21AR/DR <i>NEW</i>   | 4                   | 1a           | 3000                              | 0.04                              | 5.0                       | 1.0                        | 2500   |
| 20                   | G3VM-21BR/ER <i>NEW</i>   | 6                   | 1a           | 4000                              | 0.02                              | 5.0                       | 1.0                        | 2500   |
| 40                   | G3VM-41AY/DY <i>NEW</i>   | 4                   | 1a           | 2000                              | 0.09*                             | 5.0                       | 1.0                        | 5000   |
| 40                   | G3VM-41AR/DR <i>NEW</i>   | 4                   | 1a           | 2500                              | 0.05                              | 5.0                       | 1.0                        | 2500   |
| 40                   | G3VM-41BR/ER <i>NEW</i>   | 6                   | 1a           | 3500                              | 0.03                              | 5.0                       | 1.0                        | 2500   |
| 60                   | G3VM-61A1/D1              | 4                   | 1a           | 500                               | 1                                 | 2.0                       | 0.5                        | 2500   |
| 60                   | G3VM-61AY/DY <i>NEW</i>   | 4                   | 1a           | 500                               | 0.6                               | 1.0                       | 1.0                        | 5000   |
| 60                   | G3VM-61AR/DR <i>NEW</i>   | 4                   | 1a           | 2000                              | 0.08                              | 5.0                       | 1.0                        | 2500   |
| 60                   | G3VM-61B1/E1              | 6                   | 1a           | 500                               | 1                                 | 2.0                       | 0.5                        | 2500   |
| 60                   | G3VM-61BR/ER              | 6                   | 1a           | 2500                              | 0.065                             | 1.5                       | 0.4                        | 2500   |
| 60                   | G3VM-61BR1/ER1 <i>NEW</i> | 6                   | 1a           | 3000                              | 0.04                              | 5.0                       | 1.0                        | 2500   |
| 60                   | G3VM-62C1/F1              | 8                   | 2a           | 500                               | 1                                 | 2.0                       | 0.5                        | 2500   |
| 100                  | G3VM-101AR/DR <i>NEW</i>  | 4                   | 1a           | 1000                              | 0.25                              | 5.0                       | 1.0                        | 2500   |
| 100                  | G3VM-101BR/ER <i>NEW</i>  | 6                   | 1a           | 2000                              | 0.1                               | 5.0                       | 1.0                        | 2500   |
| 200                  | G3VM-201AY/DY <i>NEW</i>  | 4                   | 1a           | 250                               | 5                                 | 1.0                       | 1.0                        | 5000   |
| 350                  | G3VM-351AY/DY <i>NEW</i>  | 4                   | 1a           | 100                               | 35*                               | 1.0                       | 1.0                        | 5000   |
| 350                  | G3VM-2L/2FL               | 4                   | 1a           | 120                               | 22                                | 1.0                       | 1.0                        | 2500   |
| 350                  | G3VM-351A/D               | 4                   | 1a           | 120                               | 35*                               | 1.0                       | 1.0                        | 2500   |
| 350                  | G3VM-351B/E               | 6                   | 1a           | 120                               | 35                                | 1.0                       | 1.0                        | 2500   |
| 350                  | G3VM-352C/F               | 8                   | 2a           | 120                               | 35*                               | 1.0                       | 1.0                        | 2500   |
| 350                  | G3VM-WL/WFL               | 8                   | 2a           | 120                               | 22                                | 1.0                       | 1.0                        | 2500   |
| 350                  | G3VM-353A/D               | 4                   | 1b           | 150                               | 15                                | 1.0                       | 3.0                        | 2500   |
| 350                  | G3VM-353B/E               | 6                   | 1b           | 150                               | 15                                | 1.0                       | 3.0                        | 2500   |
| 350                  | G3VM-354C/F               | 8                   | 2b           | 150                               | 15                                | 1.0                       | 1.0                        | 2500   |
| 350                  | G3VM-355CR/FR             | 8                   | 1a1b         | 120                               | 15                                | 1.0                       | 3.0                        | 2500   |
| 400                  | G3VM-401A/D               | 4                   | 1a           | 120                               | 18                                | 1.0                       | 1.0                        | 2500   |
| 400                  | G3VM-401AY/DY <i>NEW</i>  | 4                   | 1a           | 120                               | 22*                               | 1.0                       | 1.0                        | 5000   |
| 400                  | G3VM-401B/E               | 6                   | 1a           | 120                               | 17                                | 1.0                       | 1.0                        | 2500   |
| 400                  | G3VM-401BY/EY             | 6                   | 1a           | 120                               | 17                                | 1.0                       | 1.0                        | 5000   |
| 400                  | G3VM-402C/F               | 8                   | 2a           | 120                               | 18                                | 1.0                       | 1.0                        | 2500   |
| 600                  | G3VM-601AY/DY <i>NEW</i>  | 4                   | 1a           | 90                                | 45*                               | 1.0                       | 1.0                        | 5000   |
| 600                  | G3VM-601BY/EY             | 6                   | 1a           | 100                               | 30                                | 1.5                       | 1.0                        | 5000   |

On-resistance when saturated

## SOP(Small Outline Package)

| Load Voltage(V) Max. | Model                 | Number of terminals | Contact form | Continuous load current (mA) Max. | Typical ON resistance( $\Omega$ ) | Maximum turn-ON time (ms) | Maximum turn-OFF time (ms) | Dielectric strength between input and output (Vrms) Max. |
|----------------------|-----------------------|---------------------|--------------|-----------------------------------|-----------------------------------|---------------------------|----------------------------|--|
| 20                   | G3VM-21GR             | 4                   | 1a           | 160                               | 5                                 | 0.5                       | 0.5                        | 1500   |
| 20                   | G3VM-21GR1            | 4                   | 1a           | 300                               | 1                                 | 0.5                       | 0.5                        | 1500   |
| 20                   | G3VM-21HR             | 6                   | 1a           | 2500                              | 0.02                              | 5.0                       | 1.0                        | 1500   |
| 40                   | G3VM-41GR4            | 4                   | 1a           | 250                               | 2                                 | 0.5                       | 0.5                        | 1500   |
| 40                   | G3VM-41GR5            | 4                   | 1a           | 300                               | 1                                 | 0.5                       | 0.5                        | 1500   |
| 40                   | G3VM-41GR6            | 4                   | 1a           | 120                               | 10                                | 0.5                       | 0.5                        | 1500   |
| 40                   | G3VM-41GR8            | 4                   | 1a           | 1000                              | 0.1                               | 3.0                       | 0.5                        | 1500   |
| 40                   | G3VM-41HR <i>NEW</i>  | 6                   | 1a           | 2500                              | 0.03                              | 5.0                       | 1.0                        | 1500   |
| 60                   | G3VM-61VY <i>NEW</i>  | 4                   | 1a           | 70                                | 25                                | 5.0                       | 5.0                        | 3750   |
| 60                   | G3VM-61G1             | 4                   | 1a           | 400                               | 1                                 | 2.0                       | 0.5                        | 1500   |
| 60                   | G3VM-61G2             | 4                   | 1a           | 400                               | 1                                 | 8.0                       | 3.0                        | 1500   |
| 60                   | G3VM-61GR1            | 4                   | 1a           | 1000                              | 0.25                              | 3.0                       | 1.0                        | 1500   |
| 60                   | G3VM-61H1             | 6                   | 1a           | 400                               | 1                                 | 2.0                       | 0.5                        | 1500   |
| 60                   | G3VM-61HR <i>NEW</i>  | 6                   | 1a           | 2300                              | 0.04                              | 5.0                       | 1.0                        | 1500   |
| 60                   | G3VM-62J1             | 8                   | 2a           | 400                               | 1                                 | 2.0                       | 0.5                        | 1500   |
| 80                   | G3VM-81G1             | 4                   | 1a           | 350                               | 1                                 | 0.5                       | 0.5                        | 1500   |
| 80                   | G3VM-81GR             | 4                   | 1a           | 40                                | 16                                | 0.5                       | 0.5                        | 1500   |
| 80                   | G3VM-81GR1            | 4                   | 1a           | 200                               | 5                                 | 0.5                       | 0.5                        | 1500   |
| 80                   | G3VM-81HR             | 6                   | 1a           | 1250                              | 0.11                              | 3.0                       | 1.0                        | 1500   |
| 100                  | G3VM-101HR <i>NEW</i> | 6                   | 1a           | 1400                              | 0.1                               | 5.0                       | 1.0                        | 1500   |
| 200                  | G3VM-201G             | 4                   | 1a           | 50                                | 40                                | 0.5                       | 0.2                        | 1500   |
| 200                  | G3VM-201G1            | 4                   | 1a           | 200                               | 5                                 | 8.0                       | 3.0                        | 1500   |
| 200                  | G3VM-S5               | 4                   | 1a           | 200                               | 5                                 | 1.5                       | 1.0                        | 1500   |
| 200                  | G3VM-201H1            | 6                   | 1a           | 200                               | 5                                 | 1.5                       | 1.0                        | 1500   |

On-resistance when saturated

# Product lineup of MOS FET Relays

## SOP (Small Outline Package)

| Load Voltage(V) Max. | Model      | Number of terminals | Contact form | Continuous load current (mA) Max. | Typical ON resistance( $\Omega$ ) | Maximum turn-ON time (ms) | Maximum turn-OFF time (ms) | Dielectric strength between input and output (Vrms) Max. |
|----------------------|------------|---------------------|--------------|-----------------------------------|-----------------------------------|---------------------------|----------------------------|--|
| 200                  | G3VM-202J1 | 8                   | 2a           | 200                               | 5                                 | 1.5                       | 1.0                        | 1500   |
| 350                  | G3VM-351G  | 4                   | 1a           | 110                               | 35*                               | 1.0                       | 1.0                        | 1500   |
| 350                  | G3VM-351G1 | 4                   | 1a           | 100                               | 35                                | 5.0                       | 3.0                        | 1500   |
| 350                  | G3VM-351GL | 4                   | 1a           | 120                               | 15                                | 1.0                       | 1.0                        | 1500   |
| 350                  | G3VM-351H  | 6                   | 1a           | 110                               | 35*                               | 1.0                       | 1.0                        | 1500   |
| 350                  | G3VM-352J  | 8                   | 2a           | 110                               | 35*                               | 1.0                       | 1.0                        | 1500   |
| 350                  | G3VM-353G  | 4                   | 1b           | 120                               | 15                                | 1.0                       | 3.0                        | 1500   |
| 350                  | G3VM-353H  | 6                   | 1b           | 120                               | 15                                | 1.0                       | 3.0                        | 1500   |
| 350                  | G3VM-354J  | 8                   | 2b           | 120                               | 15                                | 1.0                       | 3.0                        | 1500   |
| 350                  | G3VM-355JR | 8                   | 1a1b         | 120                               | 15                                | 1.0                       | 3.0                        | 1500   |
| 400                  | G3VM-401G  | 4                   | 1a           | 120                               | 17                                | 1.0                       | 1.0                        | 1500   |
| 400                  | G3VM-401H  | 6                   | 1a           | 120                               | 17                                | 1.0                       | 1.0                        | 1500   |
| 400                  | G3VM-402J  | 8                   | 2a           | 120                               | 17                                | 1.0                       | 1.0                        | 1500   |
| 600                  | G3VM-601G  | 4                   | 1a           | 90                                | 45                                | 8.0                       | 3.0                        | 1500   |

ON resistance when it is saturation

## SSOP (Shrink Small Outline Package)

| Load Voltage(V) Max. | Model       | Number of terminals | Contact form | Continuous load current (mA) Max. | Typical ON resistance( $\Omega$ ) | Maximum turn-ON time (ms) | Maximum turn-OFF time (ms) | Dielectric strength between input and output (Vrms) Max. |
|----------------------|-------------|---------------------|--------------|-----------------------------------|-----------------------------------|---------------------------|----------------------------|--|
| 20                   | G3VM-21LR   | 4                   | 1a           | 160                               | 5                                 | 0.5                       | 0.5                        | 1500   |
| 20                   | G3VM-21LR1  | 4                   | 1a           | 450                               | 0.8                               | 0.5                       | 0.5                        | 1500   |
| 20                   | G3VM-21LR10 | 4                   | 1a           | 200                               | 3                                 | 0.2                       | 0.2                        | 1500   |
| 20                   | G3VM-21LR11 | 4                   | 1a           | 900                               | 0.18                              | 2.0                       | 1.0                        | 1500   |
| 40                   | G3VM-41LR4  | 4                   | 1a           | 250                               | 2                                 | 0.5                       | 0.5                        | 1500   |
| 40                   | G3VM-41LR5  | 4                   | 1a           | 300                               | 1                                 | 0.5                       | 0.5                        | 1500   |
| 40                   | G3VM-41LR6  | 4                   | 1a           | 120                               | 10                                | 0.5                       | 0.5                        | 1500   |
| 40                   | G3VM-41LR10 | 4                   | 1a           | 120                               | 12                                | 0.2                       | 0.3                        | 1500   |
| 40                   | G3VM-41LR11 | 4                   | 1a           | 140                               | 7                                 | 0.2                       | 0.2                        | 1500   |
| 60                   | G3VM-61LR   | 4                   | 1a           | 400                               | 1                                 | 1.0                       | 1.0                        | 1500   |
| 80                   | G3VM-81LR   | 4                   | 1a           | 120                               | 7.5                               | 0.25                      | 0.2                        | 1500   |
| 100                  | G3VM-101LR  | 4                   | 1a           | 80                                | 8                                 | 0.3                       | 0.3                        | 1500   |

## USOP (Ultra Small Outline Package)

| Load Voltage(V) Max. | Model                  | Number of terminals | Contact form | Continuous load current (mA) Max. | Typical ON resistance( $\Omega$ ) | Maximum turn-ON time (ms) | Maximum turn-OFF time (ms) | Dielectric strength between input and output (Vrms) Max. |
|----------------------|------------------------|---------------------|--------------|-----------------------------------|-----------------------------------|---------------------------|----------------------------|--|
| 20                   | G3VM-21PR10 <b>NEW</b> | 4                   | 1a           | 200                               | 3                                 | 0.2                       | 0.2                        | 500  |
| 20                   | G3VM-21PR11 <b>NEW</b> | 4                   | 1a           | 900                               | 0.18                              | 2.0                       | 1.0                        | 500  |
| 40                   | G3VM-41PR12 <b>NEW</b> | 4                   | 1a           | 100                               | 15                                | 0.2                       | 0.2                        | 500  |
| 40                   | G3VM-41PR10 <b>NEW</b> | 4                   | 1a           | 120                               | 12                                | 0.2                       | 0.3                        | 500  |
| 40                   | G3VM-41PR11 <b>NEW</b> | 4                   | 1a           | 140                               | 7                                 | 0.2                       | 0.2                        | 500  |
| 50                   | G3VM-51PR <b>NEW</b>   | 4                   | 1a           | 300                               | 1                                 | 0.5                       | 0.4                        | 500  |
| 60                   | G3VM-61PR1 <b>NEW</b>  | 4                   | 1a           | 120                               | 10                                | 0.2                       | 0.2                        | 500  |
| 60                   | G3VM-61PR <b>NEW</b>   | 4                   | 1a           | 400                               | 1                                 | 0.5                       | 0.5                        | 500  |

## G3VM Model Number Legend

G3VM-               

①    ②    ③    ④    ⑤

| ① Load voltage   | ② Contact form  | ③ Package type  | ④ Additional functions  | ⑤ Other information  |
|--|---|---|---|--|
| 2: 20V<br>4: 40V<br>6: 60V<br>8: 80V<br>10: 100V<br>20: 200V<br>25: 250V<br>35: 350V<br>40: 400V<br>60: 600V | 1: 1a(SPST-NO)<br>2: 2a(DPST-NO)<br>3: 1b(SPST-NC)<br>4: 2b(DPST-NC)<br>5: 1a1b(SPST-NO/SPST-NC)<br>6: Other form | A: DIP 4pin<br>B: DIP 6pin<br>C: DIP 8pin<br>D: SMD 4pin<br>E: SMD 6pin<br>F: SMD 8pin<br>G: SOP 4pin<br>H: SOP 6pin<br>J: SOP 8pin<br>K: SOP 18pin<br>L: SSOP 4pin<br>M: SSOP 6pin<br>N: SSOP 8pin<br>P: USOP 4pin<br>Q: USOP 6pin<br>R: USOP 8pin<br>S: SON 4pin<br>T: SON 6pin<br>U: SON 8pin<br>V: SOP 4pin (special) | L: Current limit<br>M: Multi-functional and basic type<br>N: Multi-function without diode<br>O: Single input LED type<br>P: Special pin arrangement<br>Q: Multifunction with current limiter type<br>R: Low ON-resistance type<br>S: Slow input/slow output<br>T: Multifunction with current limiter and without diode type<br>Y: Dielectric strength between I/O above 2.5 kV type<br>F: High switching speed type | When specifications overlap, serial code is added in the recorded order. |

Note 1: Some products may have a different model number structure.

Note 2: In order to avoid the confusion of I (English letter) and 1 (number), I (English letter) are not used here.

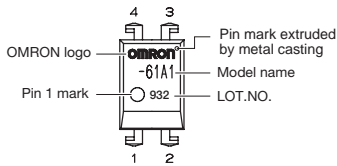
Note 3: For 4-pin SOP models, where the available marking space is insufficient to clearly differentiate model numbers with 6 or more suffix digits, the package type code ③ is omitted.

# Product lineup of MOS FET Relays

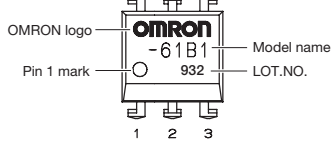
## Package

### DIP(Dual Inline Package)

DIP4pin

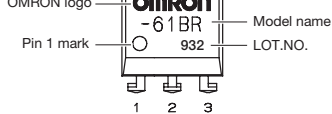


DIP6pin

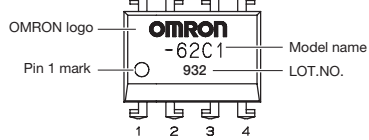


DIP6pin(special)

G3VM-61BR/ER

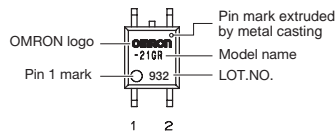


DIP8pin



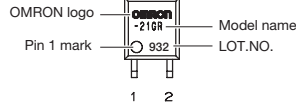
### SOP(Small Outline Package)

SOP4pin

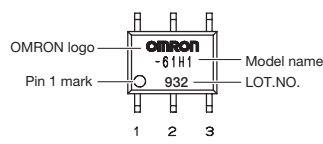


SOP4pin(special)

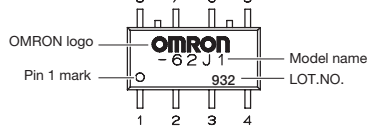
G3VM-61VY



SOP6pin

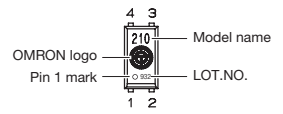


SOP8pin



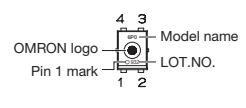
### SSOP(Shrink Small Outline Package)

SSOP4pin



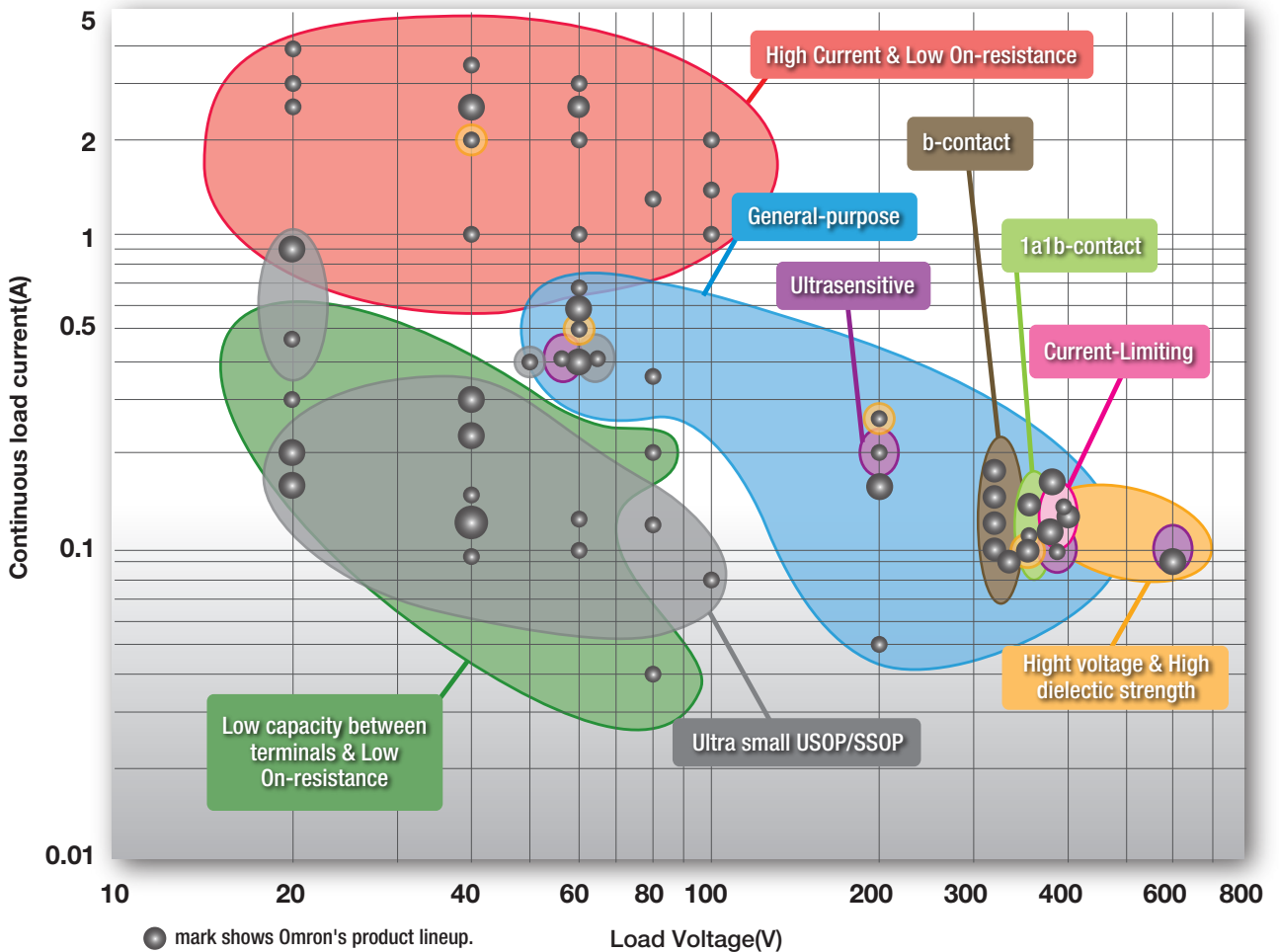
### USOP(Ultra Small Outline Package)

USOP4pin



Note: Model symbol of product does not include "G3VM".  
 ※ 1PIN mark and the dent at the side opposite to the angle are marks extruded by metal casting.

## Product Map by features



# Target Applications

## Communication Equipment

- Modem
- FAX
- Network equipment
- PBX • Transmission equipment

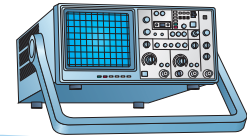


Recommended products

**General -purpose/  
b-contact type**  
G3VM-61A1/D1  
G3VM-351A/D  
G3VM-353A/D

## Test and Measurement Equipment

- ATE(Automated test equipment)
- Oscilloscope
- Probe/Load card
- IC tester



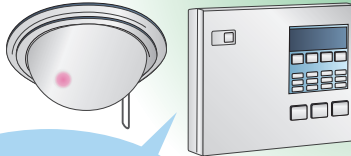
Recommended products

**Ultra-small/Low C×R type**  
G3VM-21GRxx/41GRxx/81GRXX  
G3VM-21LRxx/41LRxx/  
61LR/81LR/101LR  
G3VM-21PRxx/41PRxx/61PRxx



## Security Equipment

- Smoke and gas detection equipment
- Household safety panel
- Human detection sensor
- Video intercom

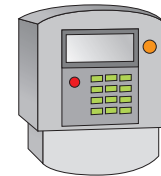


Recommended products

**Silent/Ultrasonic type**  
G3VM-61G1/G2/VY  
G3VM-351G/351G1

## Electric Meter

- Electric Meter
- Smart Meter
- Gas Meter



Recommended products

**High Dielectric Strength type**  
G3VM-351AY/DY  
G3VM-401AY/DY  
G3VM-401BY/EY  
G3VM-601AY/DY  
G3VM-601BY/DY

There are many other usages beyond the above applications.

Medical Equipment

Broadcasting Equipment

Factory Automation Equipment

FA/Amusement Equipment

For more detailed information, please contact your local Omron Representative.

Note: Do not use this document to operate the Unit.

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