



**A wide range of contact forms and functions**  
**Over 148 different models available**

# G3VM MOSFET RELAY

## *Selection Guide*

### **What's NEW!**

The Industry Leading\* very small outline package "VSON series" is now available

Expansion of the Ultra Small Outline Package "USOP" series

Expansion of the small DIP4 package with High Dielectric Strength series

\*As of March, 2015



MOS FET Relays  
**G3VM**

# About MOS FET relays

OMRON's MOS FET Relays lead the industry in Solid State Relay technology, utilizing an input LED, Photodiode Dome Array (PDA) used as photocoupler and MOS FET chip 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 very small outline package VSON which leads the industry in size and performance, with high switching capacity and high sensitivity series available.

\*As of March, 2015.

## Advantages of MOS FET relays

### Ultra Small Size and Weight

The SSOP, USOP and new VSON package offer substantial space saving, making it ideal for applications which require small overall size and less space on bottom surface.

### Low driving current

Realizing energy saving with standard driving current of 2-15mA. Ultrasensitive models are also available featuring Drive Currents as low as 0.2mA (max).

### Long operating life

MOS FET Relays use light signal instead of moveable contacts; avoiding reduction of life caused by contact wear, substantially increasing operational life.

### Small leakage current

Can withstand external surge current without addition of snubber circuit. Under normal conditions, the typical leakage current is about 1 nA or below.

### Excellent shock resistance

All the internal parts use casting method, and there is no movable parts in it, so it has excellent shock and vibration resistance.

### High Insulation

MOS FET relays offer great I/O isolation due to its operational principle. It turns the voltage into the light and transfers by the light signal; Therefore input and output are isolated. The standard models offer 2,500Vrms between input and output, and The High Dielectric Strength Series offer models with up to 5,000Vrms, accomplishing high insulation.

### Silent operation

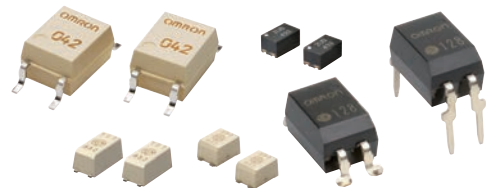
As MOS FET Relays do not have mechanical contacts, by using a MOS FET instead of an electromechanical relay, it is possible to eliminate switching noise in your applications.

### High-speed switching

Comparing with the switching time of 3 to 5ms of a mechanical relay, its switching time is shortened to 0.2ms(SSOP, USOP, VSON). Achieving quick response performance.

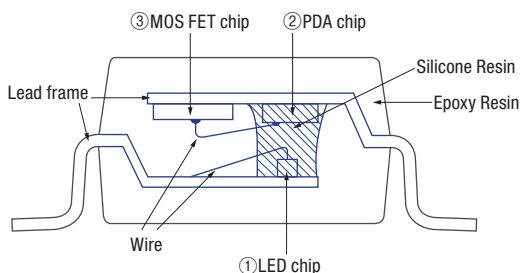
### Control the micro analog signal correctly

Comparing with the triac, MOS FET greatly reduces the dead zone. The input waveform of micro analog signal does not suffer distortion as it does with a triac and is basically converted into output waveform without distortion.



## Structure and operational principle of MOS FET relays

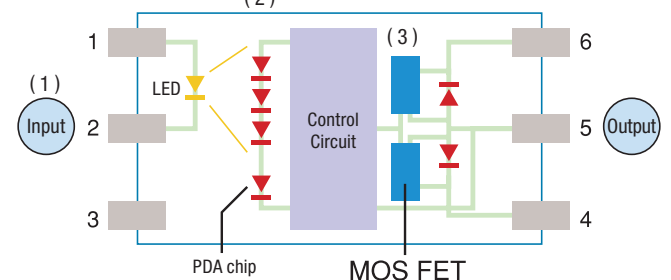
### [ Internal structure ]



MOS FET relay consists of the following three components:

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

### [ Operational Principle ]

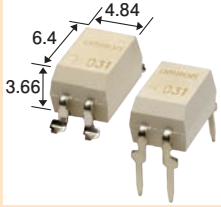


- (1) The LED lights up when the current is connected at the input side.
- (2) The light sent by the LED will be converted into voltage when it is received by the photodiode.
- (3) This voltage will be the gate voltage to drive the MOS FET via control circuit.

# Package of MOS FET Relays

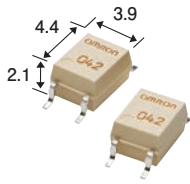
## DIP

Bottom surface  
100%



## SOP

Bottom surface  
59%



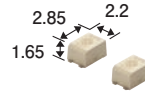
## SSOP

Bottom surface  
19%



## USOP

Bottom surface  
16%



## VSON

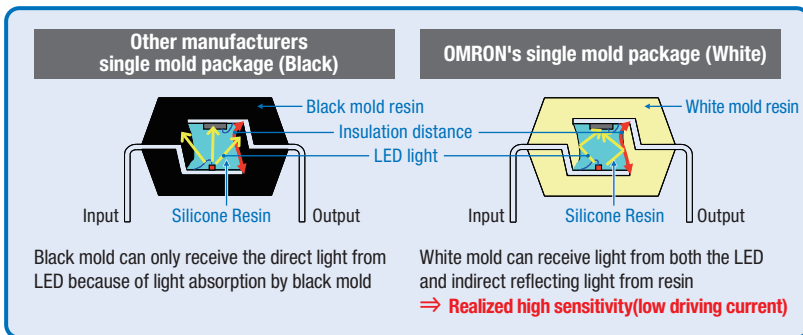
Bottom surface  
12%



# Features of OMRON's MOS FET Relays

### Feature 1

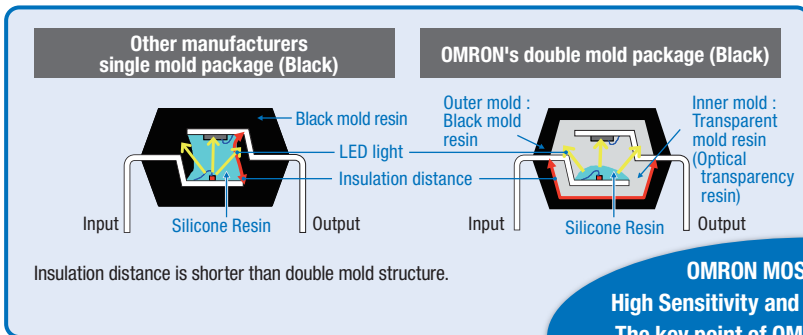
Achieves high sensitivity (low driving current) with white mold resin package!



Many models of OMRON's MOS FET Relays are made with white mold resin in order to achieve high sensitivity.

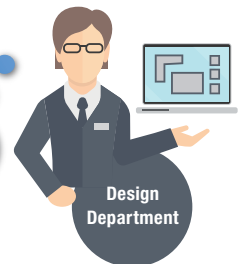
### Feature 2

Realizes high dielectric strength and high sensitivity with black mold resin package!



High Dielectric Strength types have double molded structure which assures longer insulation distance; the utilization of high-luminance LED achieves high dielectric strength and high sensitivity.

OMRON MOS FET relays offer High Sensitivity and High Dielectric Strength! The key point of OMRON's MOS FET relays is its internal structure. It provides a lot of design flexibility.



### Feature 3

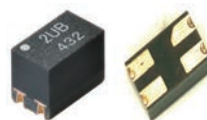
Good solderability with small package!

● SSOP/USOP Package ... Lead type

● VSON Package ... Non-lead type



Offers High Visibility with side solder joints



Achieves high solder bond strength with large solder joints in the bottom surface

Due to the small size of MOS FET Relays, solder mounting and inspection becomes more difficult. With High Visibility lead terminals and side solder joints, OMRON's MOS FET Relays solve this problem allowing us to improve productivity.



# MOS FET Relay Lineup

## General Purpose Type



Best-selling products suitable for various applications  
Ideal for AC/DC load, Micro analog signal

| Package | Model                 | Contact form | Load voltage (V) Max. | Continuous load current (mA) Max. | Dielectric strength between I/O (Vrms) |
|---------|-----------------------|--------------|-----------------------|-----------------------------------|--|
| DIP     | G3VM-61A1/D1          | 1a           | 60                    | 500                               | 2500                                   |
|         | G3VM-61B1/E1          | 1a           | 60                    | 500(1000)                         | 2500                                   |
|         | G3VM-62C1/F1          | 2a           | 60                    | 500                               | 2500                                   |
|         | G3VM-351A/D           | 1a           | 350                   | 120                               | 2500                                   |
|         | G3VM-351B/E           | 1a           | 350                   | 120(240)                          | 2500                                   |
|         | G3VM-352C/F           | 2a           | 350                   | 120                               | 2500                                   |
| SOP     | G3VM-61G1             | 1a           | 60                    | 400                               | 1500                                   |
|         | G3VM-61VY1 <b>NEW</b> | 1a           | 60                    | 100                               | 3750                                   |
|         | G3VM-61H1             | 1a           | 60                    | 400(800)                          | 1500                                   |
|         | G3VM-62J1             | 2a           | 60                    | 400                               | 1500                                   |
|         | G3VM-81G1             | 1a           | 80                    | 350                               | 1500                                   |
|         | G3VM-351G             | 1a           | 350                   | 110                               | 1500                                   |
|         | G3VM-351H             | 1a           | 350                   | 110(220)                          | 1500                                   |
|         | G3VM-352J             | 2a           | 350                   | 110                               | 1500                                   |

\* Load current in case of connection C is shown in parentheses

## Ultrasensitive Type



Ideal for energy saving, various battery-driven devices  
Ultrasensitive Driving current\* 0.2 mA (Max.)

with SOP4 available

\*Driving current = LED forward current

| Model                 | Load voltage (V) Max. | Continuous load current (mA) Max. | Trigger LED forward current (mA) Max. | Recommended trigger LED forward current (mA) Max. |
|-----------------------|-----------------------|-----------------------------------|---------------------------------------|---|
| G3VM-61G2             | 60                    | 400                               | 1                                     | 2   |
| G3VM-61G3 <b>NEW</b>  | 60                    | 400                               | 0.2                                   | 0.5   |
| G3VM-201G1            | 200                   | 200                               | 1                                     | 2   |
| G3VM-201G2 <b>NEW</b> | 200                   | 200                               | 0.2                                   | 0.5   |
| G3VM-351G1            | 350                   | 100                               | 1                                     | 2   |
| G3VM-401G1 <b>NEW</b> | 400                   | 100                               | 0.2                                   | 0.5   |
| G3VM-601G1 <b>NEW</b> | 600                   | 70                                | 0.2                                   | 0.5   |
| G3VM-601G             | 600                   | 90                                | 1                                     | 2   |

## Low Output Capacitance and ON Resistance Type (Low CxR)

Ideal for semi-conductor test equipment.

low C(capacitance between terminals)  
× R(output on-resistance) type



■SSOP package

| Model       | Load voltage (V) Max. | Continuous load current (mA) Max. | Maximum resistance with output ON(Ω) Typ. | Capacitance 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                                     |

■USOP package

| Model                  | Load voltage (V) Max. | Continuous load current (mA) Max. | Maximum resistance with output ON(Ω) Typ. | Capacitance between terminals (pF) Typ. |
|------------------------|-----------------------|-----------------------------------|---|---|
| G3VM-21PR1 <b>NEW</b>  | 20                    | 450                               | 0.6                                       | 5                                       |
| 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-41PR6 <b>NEW</b>  | 40                    | 120                               | 10  | 1                                       |
| G3VM-41PR10 <b>NEW</b> | 40                    | 120                               | 12  | 0.45                                    |
| G3VM-41PR11 <b>NEW</b> | 40                    | 140                               | 7   | 0.7                                     |
| G3VM-61PR1 <b>NEW</b>  | 60                    | 120                               | 10  | 0.7                                     |

■VSON package

| Model                  | Load voltage (V) Max. | Continuous load current (mA) Max. | Maximum resistance with output ON(Ω) Typ. | Capacitance between terminals (pF) Typ. |
|------------------------|-----------------------|-----------------------------------|---|---|
| G3VM-21UR10 <b>NEW</b> | 20                    | 200                               | 3   | 0.8                                     |
| G3VM-21UR1 <b>NEW</b>  | 20                    | 450                               | 0.8                                       | 5                                       |
| G3VM-21UR11 <b>NEW</b> | 20                    | 1000                              | 0.18                                      | 40                                      |
| G3VM-41UR12 <b>NEW</b> | 40                    | 100                               | 15  | 0.3                                     |
| G3VM-41UR10 <b>NEW</b> | 40                    | 120                               | 12  | 0.45                                    |
| G3VM-41UR11 <b>NEW</b> | 40                    | 140                               | 7   | 0.7                                     |
| G3VM-61UR1 <b>NEW</b>  | 60                    | 120                               | 10  | 0.7                                     |

## High Current & Low On-resistance Type



Offers High Current & Low On-resistance in the same level as the mechanical relay

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

\* Load current in case of connection C is shown in parentheses

## Small & High Dielectric Strength Type



Dielectric Strength between I/O 5,000Vrms with small DIP4.  
High Continuous load current at 2A for G3VM-41AY1/DY1

| Package | Model           | Load voltage (V) Max. | Continuous load current (mA) Max. | Recommended Trigger LED forward current (mA) Max. | Dielectric strength between I/O (Vrms) |
|---------|-----------------|-----------------------|-----------------------------------|---|--|
| DIP4    | G3VM-41AY1/DY1  | 40                    | 2000                              | 7.5   | 5000                                   |
|         | G3VM-61AY1/DY1  | 60                    | 500                               | 7.5   | 5000                                   |
|         | G3VM-201AY1/DY1 | 200                   | 250                               | 7.5   | 5000                                   |
|         | G3VM-351AY1/DY1 | 350                   | 100                               | 7.5   | 5000                                   |
|         | G3VM-401AY1/DY1 | 400                   | 120                               | 7.5   | 5000                                   |
|         | G3VM-601AY1/DY1 | 600                   | 90                                | 7.5   | 5000                                   |

## G3VM Model Number Legend

G3VM-□□□□□

### ① Load voltage

2: 20V 10: 100V  
4: 40V 20: 200V  
5: 50V 35: 350V  
6: 60V 40: 400V  
7: 75V 60: 600V  
8: 80V

### ② Contact form

1: 1a(SPST-NO)  
2: 2a(DPST-NO)  
3: 1b(SPST-NC)  
4: 2b(DPST-NC)  
5: 1a1b  
(SPST-NO/SPST-NC)

### ③ Package type

A: DIP 4pin PCB Terminals  
B: DIP 6pin PCB Terminals  
C: DIP 8pin PCB Terminals  
D: DIP 4pin Surface-mounting Terminals  
E: DIP 6pin Surface-mounting Terminals  
F: DIP 8pin Surface-mounting Terminals  
G: SOP 4pin  
H: SOP 6pin  
J: SOP 8pin  
L: SSOP 4pin  
P: USOP 4pin  
U: VSON 4pin  
V: SOP 4pin (Special)

### ④ Additional functions

L: Current limit  
R: Low ON-resistance type  
Y: Dielectric strength between I/O above 2.5 kV type

### ⑤ Other information

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) is 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

Please refer to our web site or datasheet for more information such as measurement conditions.

## DIP (Dual Inline Package)

| Load Voltage (V) Max. | Model                      | Number of terminals | Contact form | Continuous load current (mA) Max. | Maximum resistance with output ON (Ohm) Typ. | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) |
|-----------------------|----------------------------|---------------------|--------------|-----------------------------------|--|--|---|------------------------|-------------------------|--|
| 20                    | G3VM-21AR/DR               | 4                   | 1a           | 3000                              | 0.04   | 1000   | 300                                     | 5.0                    | 1.0                     | 2500                                   |
| 20                    | G3VM-21BR/ER               | 6                   | 1a           | 4000 (8000) *1                    | 0.02   | 1000   | 1000                                    | 5.0                    | 1.0                     | 2500                                   |
| 40                    | G3VM-41AY/DY <b>NEW</b>    | 4                   | 1a           | 2000                              | 0.09   | 1000   | 300                                     | 5.0                    | 1.0                     | 5000                                   |
| 40                    | G3VM-41AY1/DY1 <b>NEW</b>  | 4                   | 1a           | 2000                              | 0.09   | 1000   | 300                                     | 5.0                    | 1.0                     | 5000                                   |
| 40                    | G3VM-41AR/DR               | 4                   | 1a           | 2500                              | 0.05   | 1000   | 300                                     | 5.0                    | 1.0                     | 2500                                   |
| 40                    | G3VM-41BR/ER               | 6                   | 1a           | 3500 (7000) *1                    | 0.03   | 1000   | 1000                                    | 5.0                    | 1.0                     | 2500                                   |
| 60                    | G3VM-61A1/D1               | 4                   | 1a           | 500                               | 1  | 1000   | 130                                     | 2.0                    | 0.5                     | 2500                                   |
| 60                    | G3VM-61AY/DY               | 4                   | 1a           | 500                               | 0.6  | 1000   | 130                                     | 1.0                    | 1.0                     | 5000                                   |
| 60                    | G3VM-61AY1/DY1 <b>NEW</b>  | 4                   | 1a           | 500                               | 0.6  | 1000   | 130                                     | 3.0                    | 1.0                     | 5000                                   |
| 60                    | G3VM-61AR/DR               | 4                   | 1a           | 2000                              | 0.08   | 1000   | 250                                     | 5.0                    | 1.0                     | 2500                                   |
| 60                    | G3VM-61B1/E1               | 6                   | 1a           | 500 (1000) *1                     | 1  | 1000   | 130                                     | 2.0                    | 0.5                     | 2500                                   |
| 60                    | G3VM-61BR/ER               | 6                   | 1a           | 2500                              | 0.065  | 10   | 400                                     | 1.5                    | 0.4                     | 2500                                   |
| 60                    | G3VM-61BR1/ER1             | 6                   | 1a           | 3000 (6000) *1                    | 0.04   | 1000   | 1000                                    | 5.0                    | 1.0                     | 2500                                   |
| 60                    | G3VM-62C1/F1               | 8                   | 2a           | 500                               | 1  | 1000   | 130                                     | 2.0                    | 0.5                     | 2500                                   |
| 100                   | G3VM-101AR/DR              | 4                   | 1a           | 1000                              | 0.25   | 1000   | 200                                     | 5.0                    | 1.0                     | 2500                                   |
| 100                   | G3VM-101BR/ER              | 6                   | 1a           | 2000 (4000) *1                    | 0.1  | 1000   | 1000                                    | 5.0                    | 1.0                     | 2500                                   |
| 200                   | G3VM-201AY/DY              | 4                   | 1a           | 250                               | 5  | 1000   | 90                                      | 1.0                    | 1.0                     | 5000                                   |
| 200                   | G3VM-201AY1/DY1 <b>NEW</b> | 4                   | 1a           | 250                               | 5  | 1000   | 90                                      | 3.0                    | 1.0                     | 5000                                   |
| 350                   | G3VM-351AY/DY              | 4                   | 1a           | 100                               | 35   | 1000   | 30                                      | 1.0                    | 1.0                     | 5000                                   |
| 350                   | G3VM-351AY1/DY1 <b>NEW</b> | 4                   | 1a           | 100                               | 35   | 1000   | 30                                      | 2.0                    | 1.0                     | 5000                                   |
| 350                   | G3VM-2L/2FL                | 4                   | 1a           | 120 *2                            | 22   | 1000   | 40                                      | 1.0                    | 1.0                     | 2500                                   |
| 350                   | G3VM-351A/D                | 4                   | 1a           | 120                               | 35   | 1000   | 30                                      | 1.0                    | 1.0                     | 2500                                   |
| 350                   | G3VM-353A/D                | 4                   | 1b           | 150                               | 15   | 1000   | 85                                      | 1.0                    | 3.0                     | 2500                                   |
| 350                   | G3VM-351B/E                | 6                   | 1a           | 120 (240) *1                      | 35   | 1000   | 30                                      | 1.0                    | 1.0                     | 2500                                   |
| 350                   | G3VM-353B/E                | 6                   | 1b           | 150 (300) *1                      | 15   | 1000   | 85                                      | 1.0                    | 3.0                     | 2500                                   |
| 350                   | G3VM-355CR/FR              | 8                   | 1a1b         | 120                               | 15   | 1000   | 65                                      | 1.0                    | 3.0                     | 2500                                   |
| 350                   | G3VM-352C/F                | 8                   | 2a           | 120                               | 35   | 1000   | 30                                      | 1.0                    | 1.0                     | 2500                                   |
| 350                   | G3VM-WL/WFL                | 8                   | 2a           | 120 *2                            | 22   | 1000   | 40                                      | 1.0                    | 1.0                     | 2500                                   |
| 350                   | G3VM-354C/F                | 8                   | 2b           | 150                               | 15   | 1000   | 85                                      | 1.0                    | 3.0                     | 2500                                   |
| 400                   | G3VM-401A/D                | 4                   | 1a           | 120                               | 18   | 1000   | 40                                      | 1.0                    | 1.0                     | 2500                                   |
| 400                   | G3VM-401AY/DY              | 4                   | 1a           | 120                               | 22   | 1000   | 80                                      | 1.0                    | 1.0                     | 5000                                   |
| 400                   | G3VM-401AY1/DY1 <b>NEW</b> | 4                   | 1a           | 120                               | 22   | 1000   | 80                                      | 2.0                    | 1.0                     | 5000                                   |
| 400                   | G3VM-401B/E                | 6                   | 1a           | 120 (240) *1                      | 17   | 1000   | 40                                      | 1.0                    | 1.0                     | 2500                                   |
| 400                   | G3VM-401BY/EY              | 6                   | 1a           | 120 (240) *1                      | 17   | 1000   | 40                                      | 1.0                    | 1.0                     | 5000                                   |
| 400                   | G3VM-402C/F                | 8                   | 2a           | 120                               | 18   | 1000   | 40                                      | 1.0                    | 1.0                     | 2500                                   |
| 600                   | G3VM-601AY/DY              | 4                   | 1a           | 90                                | 45   | 1000   | 75                                      | 1.0                    | 1.0                     | 5000                                   |
| 600                   | G3VM-601AY1/DY1 <b>NEW</b> | 4                   | 1a           | 90                                | 45   | 1000   | 75                                      | 2.0                    | 1.0                     | 5000                                   |
| 600                   | G3VM-601BY/EY              | 6                   | 1a           | 100 (200) *1                      | 30   | 1000   | 120                                     | 1.5                    | 1.0                     | 5000                                   |

\*1 Load current in case of connection C is shown in parentheses

\*2 Current-Limiting function (Limit current 150mA Min. 300mA Max.)

## SOP (Small Outline Package)

| Load Voltage (V) Max. | Model                 | Number of terminals | Contact form | Continuous load current (mA) Max. | Maximum resistance with output ON (Ohm) Typ. | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) |
|-----------------------|-----------------------|---------------------|--------------|-----------------------------------|--|--|---|------------------------|-------------------------|--|
| 20                    | G3VM-21GR             | 4                   | 1a           | 160                               | 5  | 1  | 1                                       | 0.5                    | 0.5                     | 1500                                   |
| 20                    | G3VM-21GR1            | 4                   | 1a           | 300                               | 1  | 1  | 5                                       | 0.5                    | 0.5                     | 1500                                   |
| 20                    | G3VM-21HR             | 6                   | 1a           | 2500 (5000) *1                    | 0.02   | 10   | 1000                                    | 5.0                    | 1.0                     | 1500                                   |
| 40                    | G3VM-41GR6            | 4                   | 1a           | 120                               | 10   | 1  | 1                                       | 0.5                    | 0.5                     | 1500                                   |
| 40                    | G3VM-41GR4            | 4                   | 1a           | 250                               | 2  | 1  | 5                                       | 0.5                    | 0.5                     | 1500                                   |
| 40                    | G3VM-41GR5            | 4                   | 1a           | 300                               | 1  | 1  | 10                                      | 0.5                    | 0.5                     | 1500                                   |
| 40                    | G3VM-41GR8            | 4                   | 1a           | 1000                              | 0.1  | 1  | 300                                     | 3.0                    | 0.5                     | 1500                                   |
| 40                    | G3VM-41HR             | 6                   | 1a           | 2500 (5000) *1                    | 0.03   | 10   | 1000                                    | 5.0                    | 1.0                     | 1500                                   |
| 60                    | G3VM-61VY1 <b>NEW</b> | 4                   | 1a           | 100                               | 25   | 1000   | 10                                      | 5.0                    | 5.0                     | 3750                                   |
| 60                    | G3VM-61G1             | 4                   | 1a           | 400                               | 1  | 1000   | 130                                     | 2.0                    | 0.5                     | 1500                                   |
| 60                    | G3VM-61G2             | 4                   | 1a           | 400                               | 1  | 1000   | 130                                     | 8.0                    | 3.0                     | 1500                                   |
| 60                    | G3VM-61G3 <b>NEW</b>  | 4                   | 1a           | 400                               | 1  | 1000   | 130                                     | 10.0                   | 5.0                     | 1500                                   |
| 60                    | G3VM-61GR1            | 4                   | 1a           | 1000                              | 0.25   | 100  | 90                                      | 3.0                    | 1.0                     | 1500                                   |
| 60                    | G3VM-61H1             | 6                   | 1a           | 400 (800) *1                      | 1  | 1000   | 130                                     | 2.0                    | 0.5                     | 1500                                   |
| 60                    | G3VM-61HR             | 6                   | 1a           | 2300 (4600) *1                    | 0.04   | 10   | 1000                                    | 5.0                    | 1.0                     | 1500                                   |
| 60                    | G3VM-62J1             | 8                   | 2a           | 400                               | 1  | 1000   | 130                                     | 2.0                    | 0.5                     | 1500                                   |
| 80                    | G3VM-81GR             | 4                   | 1a           | 40                                | 16   | 1  | 2.5                                     | 0.5                    | 0.5                     | 1500                                   |
| 80                    | G3VM-81GR1            | 4                   | 1a           | 200                               | 5  | 1  | 6.5                                     | 0.5                    | 0.5                     | 1500                                   |
| 80                    | G3VM-81G1             | 4                   | 1a           | 350                               | 1  | 1  | 30                                      | 0.5                    | 0.5                     | 1500                                   |
| 80                    | G3VM-81HR             | 6                   | 1a           | 1250 (2500) *1                    | 0.11   | 1.5  | 460                                     | 3.0                    | 1.0                     | 1500                                   |
| 100                   | G3VM-101HR            | 6                   | 1a           | 1400 (2800) *1                    | 0.1  | 10   | 1000                                    | 5.0                    | 1.0                     | 1500                                   |
| 200                   | G3VM-201G             | 4                   | 1a           | 50                                | 40   | 1  | 15                                      | 0.5                    | 0.2                     | 1500                                   |
| 200                   | G3VM-201G1            | 4                   | 1a           | 200                               | 5  | 1000   | 90                                      | 8.0                    | 3.0                     | 1500                                   |
| 200                   | G3VM-201G2 <b>NEW</b> | 4                   | 1a           | 200                               | 5  | 1000   | 90                                      | 10.0                   | 5.0                     | 1500                                   |
| 200                   | G3VM-S5               | 4                   | 1a           | 200                               | 5  | 1000   | 100                                     | 1.5                    | 1.0                     | 1500                                   |
| 200                   | G3VM-201H1            | 6                   | 1a           | 200 (400) *1                      | 5  | 1000   | 100                                     | 1.5                    | 1.0                     | 1500                                   |

\*1 Load current in case of connection C is shown in parentheses

\*2 Current-Limiting function (Limit current 150mA Min. 300mA Max.)

# Product lineup of MOS FET Relays

Please refer to our web site or datasheet for more information such as measurement conditions.

## SOP (Small Outline Package)

| Load Voltage (V) Max. | Model                 | Number of terminals | Contact form | Continuous load current (mA) Max. | Maximum resistance with output ON (Ohm) Typ. | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) |
|-----------------------|-----------------------|---------------------|--------------|-----------------------------------|--|--|---|------------------------|-------------------------|--|
| 200                   | G3VM-202J1            | 8                   | 2a           | 200                               | 5  | 1000   | 100                                     | 1.5                    | 1.0                     | 1500                                   |
| 350                   | G3VM-351G1            | 4                   | 1a           | 100                               | 35   | 1000   | 35                                      | 5.0                    | 3.0                     | 1500                                   |
| 350                   | G3VM-351G             | 4                   | 1a           | 110                               | 35   | 1000   | 30                                      | 1.0                    | 1.0                     | 1500                                   |
| 350                   | G3VM-351GL            | 4                   | 1a           | 120 *2                            | 15   | 1000   | 70                                      | 1.0                    | 1.0                     | 1500                                   |
| 350                   | G3VM-353G             | 4                   | 1b           | 120                               | 15   | 1000   | 65                                      | 1.0                    | 3.0                     | 1500                                   |
| 350                   | G3VM-351H             | 6                   | 1a           | 110 (220) *1                      | 35   | 1000   | 30                                      | 1.0                    | 1.0                     | 1500                                   |
| 350                   | G3VM-353H             | 6                   | 1b           | 120 (240) *1                      | 15   | 1000   | 65                                      | 1.0                    | 3.0                     | 1500                                   |
| 350                   | G3VM-355JR            | 8                   | 1a1b         | 120                               | 15   | 1000   | 65                                      | 1.0                    | 3.0                     | 1500                                   |
| 350                   | G3VM-352J             | 8                   | 2a           | 110                               | 35   | 1000   | 30                                      | 1.0                    | 1.0                     | 1500                                   |
| 350                   | G3VM-354J             | 8                   | 2b           | 120                               | 15   | 1000   | 65                                      | 1.0                    | 3.0                     | 1500                                   |
| 400                   | G3VM-401G1 <b>NEW</b> | 4                   | 1a           | 100                               | 18   | 1000   | 70                                      | 10.0                   | 5.0                     | 1500                                   |
| 400                   | G3VM-401G             | 4                   | 1a           | 120                               | 17   | 1000   | 70                                      | 1.0                    | 1.0                     | 1500                                   |
| 400                   | G3VM-401H             | 6                   | 1a           | 120 (240) *1                      | 17   | 1000   | 70                                      | 1.0                    | 1.0                     | 1500                                   |
| 400                   | G3VM-402J             | 8                   | 2a           | 120                               | 17   | 1000   | 70                                      | 1.0                    | 1.0                     | 1500                                   |
| 600                   | G3VM-601G1 <b>NEW</b> | 4                   | 1a           | 70                                | 35   | 1000   | 75                                      | 10.0                   | 5.0                     | 1500                                   |
| 600                   | G3VM-601G             | 4                   | 1a           | 90                                | 45   | 1000   | 75                                      | 8.0                    | 3.0                     | 1500                                   |

\*1 Load current in case of connection C is shown in parentheses

\*2 Current-Limiting function (Limit current 150mA Min. 300mA Max.)

## SSOP (Shrink Small Outline Package)

| Load Voltage (V) Max. | Model       | Number of terminals | Contact form | Continuous load current (mA) Max. | Maximum resistance with output ON (Ohm) Typ. | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) |
|-----------------------|-------------|---------------------|--------------|-----------------------------------|--|--|---|------------------------|-------------------------|--|
| 20                    | G3VM-21LR   | 4                   | 1a           | 160                               | 5  | 1  | 1                                       | 0.5                    | 0.5                     | 1500                                   |
| 20                    | G3VM-21LR10 | 4                   | 1a           | 200                               | 3  | 0.2  | 0.8                                     | 0.2                    | 0.2                     | 1500                                   |
| 20                    | G3VM-21LR1  | 4                   | 1a           | 450                               | 0.8  | 1  | 5                                       | 0.5                    | 0.5                     | 1500                                   |
| 20                    | G3VM-21LR11 | 4                   | 1a           | 900                               | 0.18   | 1  | 40                                      | 2.0                    | 1.0                     | 1500                                   |
| 40                    | G3VM-41LR6  | 4                   | 1a           | 120                               | 10   | 1  | 1                                       | 0.5                    | 0.5                     | 1500                                   |
| 40                    | G3VM-41LR10 | 4                   | 1a           | 120                               | 12   | 0.2  | 0.45                                    | 0.2                    | 0.3                     | 1500                                   |
| 40                    | G3VM-41LR11 | 4                   | 1a           | 140                               | 7  | 0.2  | 0.7                                     | 0.2                    | 0.2                     | 1500                                   |
| 40                    | G3VM-41LR4  | 4                   | 1a           | 250                               | 2  | 1  | 5                                       | 0.5                    | 0.5                     | 1500                                   |
| 40                    | G3VM-41LR5  | 4                   | 1a           | 300                               | 1  | 1  | 10                                      | 0.5                    | 0.5                     | 1500                                   |
| 60                    | G3VM-61LR   | 4                   | 1a           | 400                               | 1  | 1000   | 20                                      | 1.0                    | 1.0                     | 1500                                   |
| 80                    | G3VM-81LR   | 4                   | 1a           | 120                               | 7.5  | 0.2  | 5                                       | 0.25                   | 0.2                     | 1500                                   |
| 100                   | G3VM-101LR  | 4                   | 1a           | 80                                | 8  | 0.2  | 6                                       | 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. | Maximum resistance with output ON (Ohm) Typ. | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) |
|-----------------------|------------------------|---------------------|--------------|-----------------------------------|--|--|---|------------------------|-------------------------|--|
| 20                    | G3VM-21PR10 <b>NEW</b> | 4                   | 1a           | 200                               | 3  | 1  | 0.8                                     | 0.2                    | 0.2                     | 500                                    |
| 20                    | G3VM-21PR1 <b>NEW</b>  | 4                   | 1a           | 450                               | 0.6  | 1  | 5                                       | 0.5                    | 0.5                     | 500                                    |
| 20                    | G3VM-21PR11 <b>NEW</b> | 4                   | 1a           | 900                               | 0.18   | 1  | 40                                      | 2.0                    | 1.0                     | 500                                    |
| 40                    | G3VM-41PR12 <b>NEW</b> | 4                   | 1a           | 100                               | 15   | 1  | 0.3                                     | 0.2                    | 0.2                     | 500                                    |
| 40                    | G3VM-41PR10 <b>NEW</b> | 4                   | 1a           | 120                               | 12   | 1  | 0.45                                    | 0.2                    | 0.3                     | 500                                    |
| 40                    | G3VM-41PR6 <b>NEW</b>  | 4                   | 1a           | 120                               | 10   | 0.2  | 1                                       | 0.2                    | 0.3                     | 500                                    |
| 40                    | G3VM-41PR11 <b>NEW</b> | 4                   | 1a           | 140                               | 7  | 1  | 0.7                                     | 0.2                    | 0.2                     | 500                                    |
| 40                    | G3VM-41PR5 <b>NEW</b>  | 4                   | 1a           | 300                               | 1  | 1  | 10                                      | 0.5                    | 0.3                     | 500                                    |
| 50                    | G3VM-51PR <b>NEW</b>   | 4                   | 1a           | 300                               | 1  | 1  | 12                                      | 0.5                    | 0.4                     | 500                                    |
| 60                    | G3VM-61PR1 <b>NEW</b>  | 4                   | 1a           | 120                               | 10   | 1  | 0.7                                     | 0.2                    | 0.2                     | 500                                    |
| 60                    | G3VM-61PR <b>NEW</b>   | 4                   | 1a           | 400                               | 1  | 1  | 20                                      | 0.5                    | 0.5                     | 500                                    |
| 75                    | G3VM-71PR <b>NEW</b>   | 4                   | 1a           | 400                               | 1  | 1  | 30                                      | 2.0                    | 1.0                     | 500                                    |
| 80                    | G3VM-81PR <b>NEW</b>   | 4                   | 1a           | 120                               | 7  | 0.02   | 5                                       | 0.5                    | 0.2                     | 500                                    |
| 100                   | G3VM-101PR <b>NEW</b>  | 4                   | 1a           | 100                               | 8  | 0.2  | 6                                       | 0.3                    | 0.3                     | 500                                    |

## VSON (Very Small Outline Package Non-leaded)

| Load Voltage (V) Max. | Model                  | Number of terminals | Contact form | Continuous load current (mA) Max. | Maximum resistance with output ON (Ohm) Typ. | Current leakage when the relay is open (nA) Max. | Capacitance between terminals (pF) Typ. | Turn-ON time (ms) Max. | Turn-OFF time (ms) Max. | Dielectric strength between I/O (Vrms) |
|-----------------------|------------------------|---------------------|--------------|-----------------------------------|--|--|---|------------------------|-------------------------|--|
| 20                    | G3VM-21UR10 <b>NEW</b> | 4                   | 1a           | 200                               | 3  | 1  | 0.8                                     | 0.2                    | 0.2                     | 300                                    |
| 20                    | G3VM-21UR1 <b>NEW</b>  | 4                   | 1a           | 450                               | 0.8  | 1  | 5                                       | 0.4                    | 0.4                     | 300                                    |
| 20                    | G3VM-21UR11 <b>NEW</b> | 4                   | 1a           | 1000                              | 0.18   | 1  | 40                                      | 2.0                    | 1.0                     | 300                                    |
| 40                    | G3VM-41UR12 <b>NEW</b> | 4                   | 1a           | 100                               | 15   | 1  | 0.3                                     | 0.2                    | 0.2                     | 300                                    |
| 40                    | G3VM-41UR10 <b>NEW</b> | 4                   | 1a           | 120                               | 12   | 1  | 0.45                                    | 0.2                    | 0.3                     | 300                                    |
| 40                    | G3VM-41UR11 <b>NEW</b> | 4                   | 1a           | 140                               | 7  | 1  | 0.7                                     | 0.2                    | 0.2                     | 300                                    |
| 50                    | G3VM-51UR <b>NEW</b>   | 4                   | 1a           | 300                               | 1  | 1  | 12                                      | 0.5                    | 0.4                     | 300                                    |
| 60                    | G3VM-61UR1 <b>NEW</b>  | 4                   | 1a           | 120                               | 10   | 1  | 0.7                                     | 0.2                    | 0.2                     | 300                                    |
| 60                    | G3VM-61UR <b>NEW</b>   | 4                   | 1a           | 400                               | 1  | 1  | 20                                      | 0.5                    | 0.5                     | 300                                    |
| 80                    | G3VM-81UR <b>NEW</b>   | 4                   | 1a           | 120                               | 7  | 0.02   | 5                                       | 0.5                    | 0.2                     | 300                                    |
| 80                    | G3VM-81UR1 <b>NEW</b>  | 4                   | 1a           | 200                               | 6  | 1  | 6.5                                     | 0.4                    | 0.4                     | 300                                    |
| 100                   | G3VM-101UR <b>NEW</b>  | 4                   | 1a           | 100                               | 8  | 0.2  | 6                                       | 0.3                    | 0.3                     | 300                                    |

# Product lineup of MOS FET Relays

(Unit:mm)

## Package dimensions/Appearance

### DIP (Dual Inline Package)

**PCB Terminals**

■DIP4 weight : 0.25g

■DIP6 weight : 0.4g

■DIP8 weight : 0.54g

**Surface-mounting Terminals**

(Exclude G3VM-61BR/ER)

### SOP (Small Outline Package)

**Surface-mounting Terminals**

■SOP4 weight : 0.1g

■SOP6 weight : 0.13g

■SOP8 weight : 0.2g

### SSOP (Shrink Small Outline Package)

**Surface-mounting Terminals**

■SSOP4 weight : 0.03g

Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

### USOP (Ultra Small Outline Package)

**Surface-mounting Terminals**

■USOP4 weight : 0.03g

Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

### VSON (Very Small Outline Non-leaded)

**Surface-mounting Terminals**

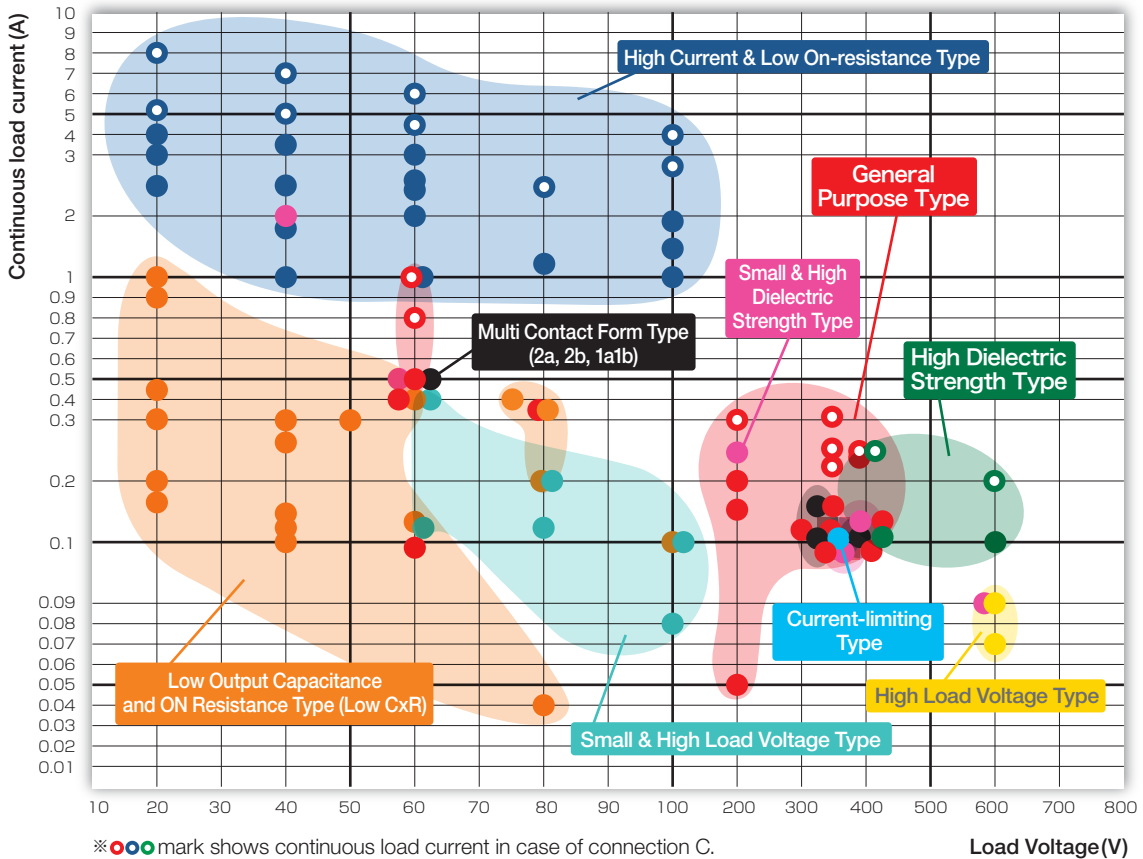
■VSON4 weight : 0.01g

Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

**Appearance Example**

1.The actual product is marked differently from the image shown here.  
 2."G3VM" is not marked on the package.  
 \*The indentation may appear in the corner diagonally opposite from the pin 1 mark due to extrusion by metal casting.

## Product Map by features



# MOS FET Relay Application Examples

## FA/Industrial Equipment

- Machine tool/ Customized power supply  
Factory autoation (PLC/Thermostat/Timer)



| Function   | Features                                 | Recommended products   |
|--|--|--|
| Status output<br>Signal output   | General purpose                          | G3VM-61G1<br>G3VM-61VY1<br>G3VM-351G<br>G3VM-351A/D                |
| Switching power supply of small solenoid valve, small motor<br>External output | High current<br>High dielectric strength | G3VM-41GR8/61GR1<br>G3VM-□BR/DR<br>G3VM-□HR<br>G3VM-□AY/DY/AY1/DY1 |

## Security Equipment

- Smoke detector/Home security panel/PIR/  
Video intercom systems



| Function   | Features                                       | Recommended products  |
|--|--|---|
| Status output<br>Signal output   | General purpose<br>Ultrasensitive<br>b contact | G3VM-61G1/G2/G3 (Ultrasensitive)<br>G3VM-61VY1 (General purpose)<br>G3VM-351G/G1/G2 (Ultrasensitive)<br>G3VM-353G (b contact) |
| Switching power supply of small solenoid valve, small light<br>External output | High current<br>High dielectric strength       | G3VM-41GR8/61GR1<br>G3VM-□BR/DR<br>G3VM-□HR<br>G3VM-□AY/DY/AY1/DY1  |

## Test & Measurement Equipment

- Semi-conductor test equipment (ATE)/  
Semi-conductor test equipment Interface board/  
Oscilloscope/Data logger/ I/O board



| Function               | Features     | Recommended products                          |
|------------------------|--------------|---|
| Switching test signal  | Low CxR      | G3VM-□GR□<br>G3VM-□LR□/□PR□/□JUR□             |
| Switching power supply | High current | G3VM-41GR8/61GR1<br>G3VM-21LR11/21PR11/21UR11 |

## Amusement Equipment

- Currency Sensing Modules  
Coin dispenser / Information system



| Function                       | Features                     | Recommended products  |
|--------------------------------|------------------------------|---|
| Status output<br>Signal output | General purpose<br>b contact | G3VM-61A1/D1<br>G3VM-61VY1<br>G3VM-351A/D<br>G3VM-351G<br>G3VM-353G (b contact) |

**There are many other usages beyond the above applications.**

## Medical Equipment

## Office automation/AV Equipment

## Broadcasting Equipment

## Communication Equipment

**For more detailed information, please contact your local OMRON Representative.**

• Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.  
• Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

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