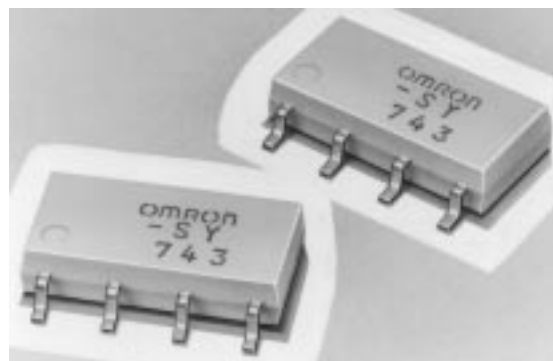


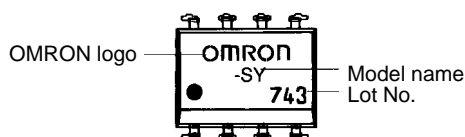
### Relay Incorporating a MOS FET Optically Coupled with an Infrared LED in a Miniature Flat Package

- Low offset voltage when the Relay is OFF.
- Ideal for minute-signal scanning circuits and the subscriber circuits of digital telephone exchange systems for switching analog signals.



## Ordering Information

### ■ Appearance



**Note:** "G3VM" is not printed on the actual product

Contact form	Terminals	Load voltage (peak value)	Model
DPST-ND	Surface-mounting terminals (see note)	60 VAC	G3VM-SY

**Note:** Surface-mounting terminal models are also available on tape.

## Application Examples

- Electronic automatic exchange systems
- Gauging control systems
- Data management systems
- Gauging systems

## Specifications

### ■ General Specifications

- Eight-pin SOP with two circuits (DPST-NO)
- Output dielectric strength: 60 V min.
- Trigger LED current: 3 mA max.
- Continuous load current: 300 mA max.
- Output ON resistance: 2  $\Omega$  max.
- Insulation resistance between I/O pins: 1,500  $V_{rms}$  min.

### ■ Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rating	Unit
Input	LED forward current	$I_F$	50	mA
	DC forward current reduction rate (Ta ≥ 25°C)	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C
	Repetitive peak LED forward current (100 μs pulse, 100 pps)	$I_{FP}$	1	A
	LED reverse voltage	$V_R$	5	V
	Connection temperature	$T_j$	125	°C
Output	Output dielectric strength	$V_{OFF}$	60	V
	Continuous load current (see note 1)	$I_O$	300	mA
	ON current reduction rate (Ta ≥ 25°C)	$\Delta I_{ON}/^\circ\text{C}$	-3.0	mA/°C
	Connection temperature	$T_j$	125	°C
Storage temperature		$T_{stg}$	-55 to 100	°C
Operating temperature		$T_a$	-20 to 85	°C
Soldering temperature (10 s)		$T_{sol}$	260	°C
Dielectric strength (AC for 1 min with ambient humidity of 60% or less) (see note 2)		$V_{I-O}$	1,500	$V_{rms}$

Note: 1. The output load current varies depending on the ambient temperature. Refer to *Engineering Data*.

2. Impose voltage between a group of the whole input pins and that of the whole output pin.

### ■ Recommended Operating Conditions

Item	Symbol	Minimum	Typical	Maximum	Unit
Operating voltage	$V_{DD}$	---	---	48	V
Forward current	$I_F$	5	10	25	mA
Continuous load current	$I_O$	---	---	300	mA
Operating temperature	$T_{opr}$	-20	---	65	°C

### ■ Electrical Characteristics (Ta = 25°C)

Item		Symbol	Measurement conditions	Minimum	Typical	Maximum	Unit
Input	LED forward current	$V_F$	$I_F=10\text{ mA}$	1.0	1.15	1.3	V
	Reverse current	$I_R$	$V_R=5\text{ V}$	---	---	10	μA
	Capacity between terminals	$C_T$	$V=0, f=1\text{ MHz}$	---	30	---	pF
Output	Current leakage when the relay is open	$I_{LEAK}$	$V_{OFF}=60\text{ V}$	---	---	1	μA

### ■ Connection Characteristics (Ta = 25°C)

Item	Symbol	Measurement conditions	Minimum	Typical	Maximum	Unit
Maximum resistance with output ON	$R_{ON}$	$I_{ON}=300\text{ mA}, I_F=10\text{ mA}$	---	1.4	2	Ω

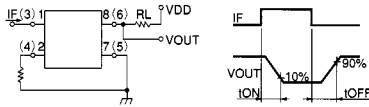
### ■ Insulation Characteristics (Ta = 25°C)

Item	Symbol	Measurement conditions	Minimum	Typical	Maximum	Unit
Floating capacity between I/O terminals	$C_{I-O}$	$V_{I-O}=0, f=1\text{ MHz}$	---	0.8	---	pF
Insulation resistance	$R_{I-O}$	$V_{I-O}=500\text{ V}$ , operating ambient humidity: ≤ 60%	$5 \times 10^{10}$	$10^{14}$	---	Ω
Dielectric strength	$V_{I-O}$	AC for 1 min	1,500	---	---	$V_{rms}$
		AC for 1 s in oil	---	3,000	---	
		DC for 1 min in oil	---	3,000	---	$V_{dc}$

■ Switching Characteristics (Ta = 25°C)

Item	Symbol	Measurement conditions	Minimum	Typical	Maximum	Unit
Turn-on time	t <sub>ON</sub>	R <sub>L</sub> =200 Ω V <sub>DD</sub> =20 V, I <sub>F</sub> =10 mA (see note)	---	---	2	ms
Turn-off time	t <sub>OFF</sub>		---	---	1	

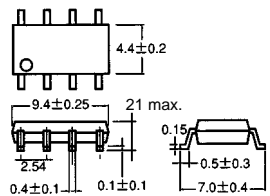
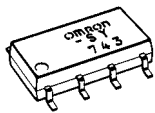
Note: Switching Time Measuring Circuit



Dimensions

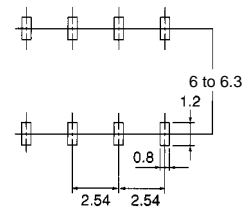
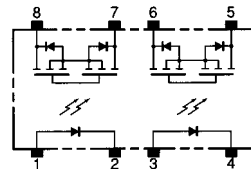
Note: All units are in millimeters unless otherwise indicated.

G3VM-SY



Unit: mm  
Weight: 0.2 g

Terminal Arrangement/  
Internal Connections  
(Top View)



Precautions

■ Correct Use

Recommended Operating Conditions

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

Item	Min.	Type	Max.
Operating LED forward current	5 mA	7.5 mA	25 mA
Releasing LED forward current	0 V	---	0.8 V

Note: Refer to page 35 for precautions common to all G3VM models.