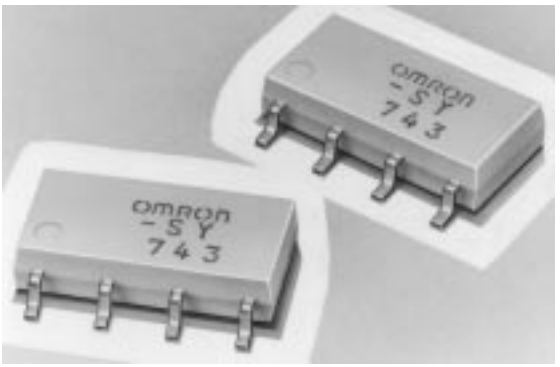
OMRON

MOS FET Relay

G3VM-SY

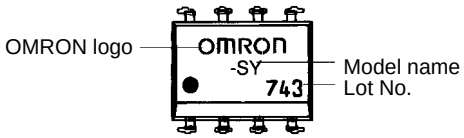
Relay Incorporating a MOS FET Optically Coupled with an Infrared LED in a Miniature Flat Package

- 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 Ω 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)	ΔI_F/°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)	ΔI_{ON}/°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 mA	1.0	1.15	1.3	V
	Reverse current	I_R	V_R=5 V	---	---	10	μA
	Capacity between terminals	C_T	V=0, , f=1MHZ	---	30	---	pF
Output	Current leakage when the relay is open	I_{LEAK}	V_{OFF}=60 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 mA, I_F=10 mA	---	1.4	2	Ω

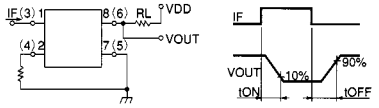
■ Insulation Characteristics (Ta = 25°C)

Item	Symbol	Measurement conditions	Minimum	Typical	Maximum	Unit
Floating capacity between I/O terminals	C_{I-O}	V_{I-O}=0, f=1MH$_Z$	---	0.8	---	pF
Insulation resistance	R_{I-O}	V_{I-O}=500 V, operating ambient humidity: ≦60%	5 x 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_{ON}	R_L=200 Ω V_{DD}=20 V, I_F=10 mA (see note)	---	---	2	ms
Turn-off time	t_{OFF}		---	---	1	

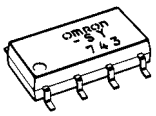
Note: Switching Time Measuring Circuit

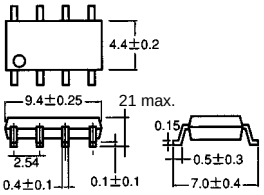


Dimensions

Note: All units are in millimeters unless otherwise indicated.

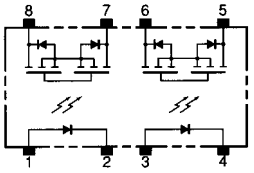
G3VM-SY

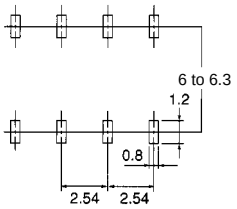




Unit: mm
Weight: 0.2 g

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.