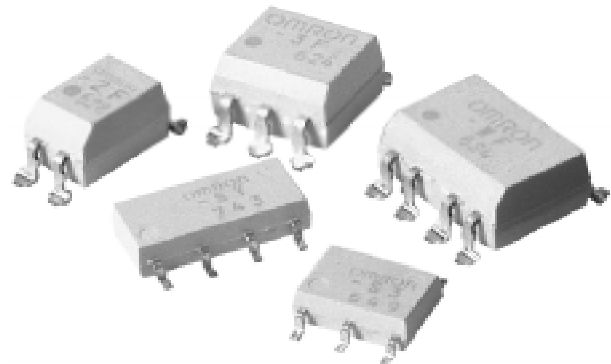


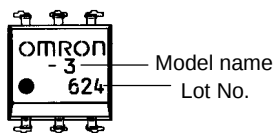
MOS FET Relay Series

- Output voltage of 350–400 V
- High-dielectric, 5000 VAC version available
- Available in PCB through-hole, SMT gullwing, and SOP terminal packages
- Ideal for Telecom and Data Communications
- Current limiting option also available



Ordering Information

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



Contact form	Terminals	Load voltage (peak value)	Dielectric strength (1 minute)	Number of terminals	Part Number	Ordering Part Number
1 Form A (SPST-NO)	PCB terminals	350V	2,500VAC	4	G3VM-2	G3VM-2-S
				6	G3VM-3	G3VM-3-S
				6	G3VM-3L*	G3VM-3L-S
		60V		6	G3VM-V	G3VM-V-S
	SMT gullwing	400V	5,000VAC	6	G3VM-6	G3VM-6-S
		350V	2,500VAC	4	G3VM-2F	G3VM-2F-S
				6	G3VM-3F	G3VM-3F-S
				6	G3VM-3FL*	G3VM-3FL-S
		60V		4	G3VM-VF	G3VM-VF-S
		350V	5,000VAC	6	G3VM-6F	G3VM-6F-S
		200V	1,500VAC	4	G3VM-S5	G3VM-S5-S
		350V		4	G3VM-S2	G3VM-S2-S
	SOP		2,500VAC	6	G3VM-S3	G3VM-S3-S
2 Form A (DPST-NO)	PCB terminals	350V	2,500VAC	8	G3VM-W	G3VM-W-S
	SMT gullwing	350V	2,500VAC	8	G3VM-WF	G3VM-WF-S
	SOP	60V	1,500VAC	8	G3VM-SY	G3VM-SY-S
		350V		8	G3VM-SW	G3VM-SW-S

Note: To order: specify the part number as shown under "Ordering part number"

Note: "*" represents model with current limiting option. For more information contact your local Omron representative

Specifications

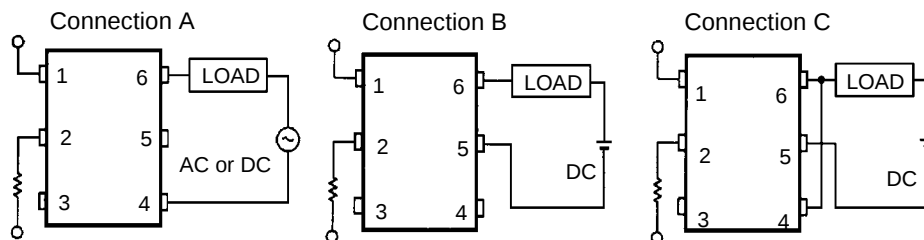
■ MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

G3VM-3/3F, G3VM-3L/3FL, G3VM-6/6F, G3VM-S3, G3VM-V/VF

Maximum ratings (at 23°C unless otherwise stated)

Part number				G3VM-3/3F	G3VM-3L/3FL	G3VM-6/6F	G3VM-S3	G3VM-V/VF
Contact form				1 Form A	1 Form A	1 Form A	1 Form A	1 Form A
Parameter		Comments and conditions						
Package type				6 PIN PCB/SMT	6 PIN PCB/SMT	6 PIN PCB/SMT	6 PIN SOP	6 PIN PCB/SMT
Input (LED)	LED forward current	---		50 mA	50 mA	50 mA	50 mA	50 mA
	Peak forward current	100μsec pulse		1A	1A	1A	1A	1A
	LED reverse voltage	---		5V	5V	5V	5V	5V
Output (Detector)	Load voltage	Peak AC/DC		350V	350V	400V	350V	60V
	Continuous load current (I _{max})	see fig. 1	Connection A (I _{max})	120mA	120mA	150mA	120mA	300mA
			Connection B (I _{max})	120mA	---	200mA	120mA	450mA
			Connection C (I _{max})	160mA	---	300mA	160mA	600mA
I/O isolation voltage		AC for 1 minute	min.	2,500V	2,500V	5,000V	1,500V	2,500V
		AC for 1 second	typ.	5,000V	5,000V	10,000V	3,000V	5,000V
		DC for 1 minute	typ.	5,000V	5,000V	10,000V	3,000V	5,000V
Temperature limits	Operating temp. range			-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
	Storage temp. range			-55°C to +125°C	-55°C to +125°C	-55°C to +125°C	-55°C to +125°C	-55°C to +125°C

Fig. 1 Circuit connections for G3VM-3/3F, G3VM-3L/3FL, G3VM-6/6F, G3VM-S3 and G3VM-V/VF

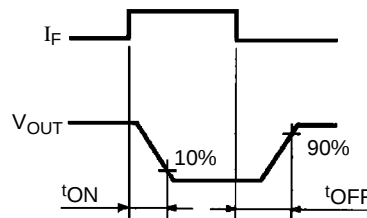
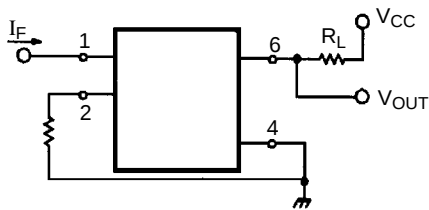


Electrical characteristics (at 23°C unless otherwise stated)

Part number					G3VM-3/3F	G3VM-3L/3FL	G3VM-6/6F	G3VM-S3	G3VM-V/VF
Parameter		Comments and conditions							
Input (LED)	Trigger LED current (LED operate current) (See Note.)	Typical			1.0mA	1.0mA	1.0mA	1.0mA	1.0mA
		Maximum			3.0mA	3.0mA	5.0mA	3.0mA	5.0mA
	Forward voltage	I _F =10mA	min.	1.0V	1.0V	1.0V	1.0V	1.0V	
			typ.	1.15V	1.15V	1.15V	1.15V	1.15V	
			max.	1.3V	1.3V	1.3V	1.3V	1.3V	
Input capacitance	V=0, freq.=1MHZ			30pF	30pF	30pF	30pF	30pF	
Output (Detector)	On resistance (See Note.)	Connection A	I _{ON} =I _{MAX} I _F =5mA	typ.	22Ω	22Ω	8Ω	22Ω	1.4Ω
				max.	35Ω	35Ω	12Ω	35Ω	2Ω
			I _{ON} =20mA to I _{MAX} I _F =5mA	typ.	26Ω	26Ω	—	26Ω	—
				max.	40Ω	40Ω	—	40Ω	—
		Connection B	I _{ON} =I _{MAX} I _F =5mA	typ.	13Ω	13Ω	4.0Ω	—	0.7Ω
				max.	23Ω	23Ω	6.0Ω	—	1.0Ω
		Connection C	I _{ON} =I _{MAX} I _F =5mA	typ.	7.0Ω	7.0Ω	2.0Ω	—	0.35Ω
				max.	10Ω	10Ω	3.0Ω	—	0.5Ω
	Output capacitance	Typical			40pF	40pF	40pF	40pF	40pF
Off state leakage current	Maximum			1.0μA	1.0μA	1.0μA	1.0μA	1.0μA	
Transfer characteristics	Turn-on time	See figure 2		max.	1.0ms	1.0ms	1.0ms	1.0ms	2.0ms
	max.			1.0ms	1.0ms	1.0ms	1.0ms	2.0ms	
	I/O capacitance	Typical			0.8pF	0.8pF	0.8pF	0.8pF	0.8pF
	Initial I/O insulation resistance	Minimum			5x10 ¹⁰ Ω	5x10 ¹⁰ Ω	5x10 ¹⁰ Ω	5x10 ¹⁰ Ω	5x10 ¹⁰ Ω
	Load current limiting	I _F =5mA, V _{DD} =5V, t=5ms	min.	---	150mA	---	---	---	
			max.	---	300mA	---	---	---	

Note: $I_{ON}=120\text{mA}$ for G3VM-3/3F, $I_{ON}=120\text{mA}$ for G3VM-3L/3FL, $I_{ON}=150\text{mA}$ for G3VM-6/6F, $I_{ON}=120\text{mA}$ for G3VM-S3, $I_{ON}=300\text{mA}$ for G3VM-V/VF

Fig. 2 Timing test circuit for G3VM-3/3F, G3VM-3L/3FL, G3VM-6/6F, G3VM-S3 and G3VM-V/VF



Note: $R_L=200\Omega$, $V_{CC}=20\text{V}$, $I_F=5\text{mA}$

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (CONTINUED)

G3VM-2/2F, G3VM-S2, G3VM-S5

Maximum ratings (at 23°C unless otherwise stated)

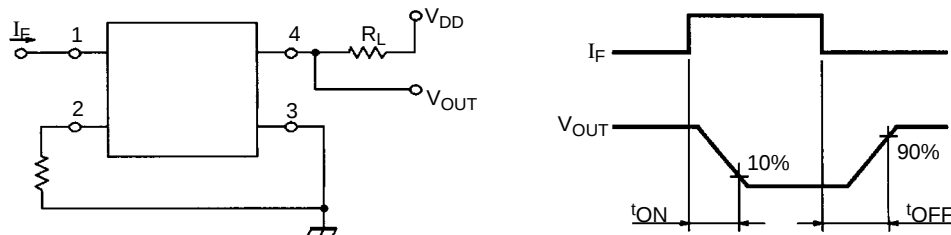
Part number				G3VM-2/2F	G3VM-S2	G3VM-S5
Contact form				1 Form A	1 Form A	1 Form A
Parameter		Comments and conditions				
Package type				4 PIN PCB/SMT	4 PIN SOP	4 PIN SOP
Input (LED)	LED forward current	---		50 mA	50 mA	50 mA
	Peak forward current	100μsec pulse		1A	1A	1A
	LED reverse voltage	---		5V	5V	5V
Output (Detector)	Load voltage	Peak AC/DC		350V	350V	200V
	Continuous load current	I _{MAX}		120mA	120mA	150mA
I/O isolation voltage		AC for 1 minute	min.	2,500V	1,500V	1,500V
		AC for 1 second	typ.	5,000V	3,000V	3,000V
		DC for 1 minute	typ.	5,000V	3,000V	3,000V
Temperature limits	Operating temp. range	No freezing or condensation		-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
	Storage temp. range			-55°C to +125°C	-55°C to +125°C	-55°C to +125°C

Electrical characteristics (at 23°C unless otherwise stated)

Part number			G3VM-2/2F	G3VM-S2	G3VM-S5
Parameter	Comments and conditions				
Input (LED)	Trigger LED current (LED operate current) (See Note.)	I _{ON} =I _{MAX}	typ.	2.0mA	1.0mA
			max.	3.0mA	3.0mA
	Forward voltage	I _F =10mA	min.	1.0V	1.0V
			typ.	1.15V	1.15V
			max.	1.3V	1.3V
	Input capacitance	V=0, freq.=1MHZ	30pF	30pF	30pF
Output (Detector)	On resistance (See Note.)	I _{ON} =I _{MAX} I _F =5mA	typ.	22Ω	5Ω
			max.	35Ω	8Ω
		I _{ON} =20mA to I _{MAX} I _F =5mA	typ.	26Ω	---
			max.	40Ω	---
	Output capacitance	Typical	40pF	40pF	40pF
	Off state leakage current	Maximum	1.0μA	1.0μA	1.0μA
Transfer characteristics	Turn-on time	See figure 3	max.	1.0ms	1.5ms
	Turn-off time		max.	1.0ms	1.0ms
	I/O capacitance	Typical	0.8pF	0.8pF	0.8pF
	Initial I/O insulation resistance	Minimum	5x10 ¹⁰ Ω	5x10 ¹⁰ Ω	5x10 ¹⁰ Ω

Note: I_{ON}=120mA for G3VM-2/2F and G3VM-S2, I_{ON}=150mA for G3VM-S5

Fig. 3 Timing test circuit for G3VM-2/2F, G3VM-S2, and G3VM-S5



Note: R_L=200Ω, V_{DD}=20V, I_F=5mA

■ MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (CONTINUED)

G3VM-W/WF, G3VM-SW, G3VM-SY

Maximum ratings (at 23°C unless otherwise stated)

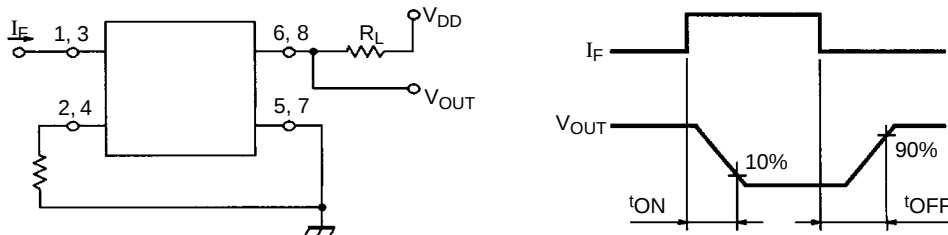
Part number				G3VM-W/WF	G3VM-SW	G3VM-SY
Contact form				2 Form A	2 Form A	2 Form A
Parameter		Comments and conditions				
Package type				8 PIN PCB/SMT	8 PIN SOP	8 PIN SOP
Input (LED)	LED forward current	---		50 mA	50 mA	50 mA
	Peak forward current	100μsec pulse		1A	1A	1A
	LED reverse voltage	---		5V	5V	5V
Output (Detector)	Load voltage	Peak AC/DC		350V	350V	60V
	Continuous load current (I _{MAX})	One channel		120mA	120mA	300mA
		Both channels		100mA	100mA	200mA
I/O isolation voltage		AC for 1 minute	min.	2,500V	1,500V	1,500V
		AC for 1 second	typ.	5,000V	3,000V	3,000V
		DC for 1 minute	typ.	5,000V	3,000V	3,000V
Temperature limits	Operating temp. range	No freezing or condensation		-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
	Storage temp. range			-55°C to +125°C	-55°C to +125°C	-55°C to +125°C

Electrical characteristics (at 23°C unless otherwise stated)

Part number			G3VM-W/WF	G3VM-SW	G3VM-SY
Parameter	Comments and conditions				
Input (LED)	Trigger LED current (LED operate current) (See Note.)	$I_{ON}=I_{MAX}$	typ.	2.0mA	1.0mA
			max.	3.0mA	3.0mA
	Forward voltage	$I_F=10mA$	min.	1.0V	1.0V
			typ.	1.15V	1.15V
			max.	1.3V	1.3V
	Input capacitance	$V=0$, freq.=1MHZ	30pF	30pF	30pF
Output (Detector)	On resistance (See Note.)	$I_{ON}=I_{MAX}$ $I_F=5mA$	typ.	22Ω	22Ω
			max.	35Ω	35Ω
		$I_{ON}=20mA$ to I_{MAX} $I_F=5mA$	typ.	26Ω	—
			max.	40Ω	—
	Output capacitance	Typical	40pF	40pF	40pF
Transfer characteristics	Off state leakage current	Maximum	1.0μA	1.0μA	1.0μA
	Turn-on time	See figure 4	max.	1.0ms	1.0ms
	Turn-off time		max.	1.0ms	1.0ms
	I/O capacitance	Typical	0.8pF	0.8pF	0.8pF
	Initial I/O insulation resistance	Minimum	$5 \times 10^{10} \Omega$	$5 \times 10^{10} \Omega$	$5 \times 10^{10} \Omega$

Note: $I_{ON}=120mA$ for G3VM-W/WF and G3VM-SW, $I_{ON}=300mA$ for G3VM-SY

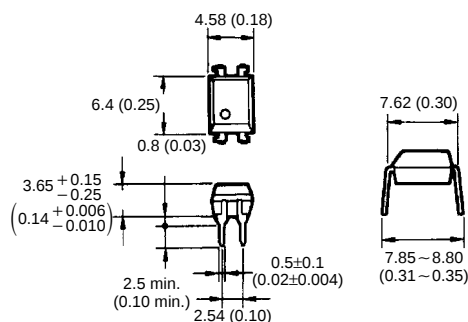
Fig. 4 Timing test circuit for G3VM-W/WF, G3VM-SW, and G3VM-SY



Note: $R_L=200\Omega$, $V_{DD}=20V$, $I_F=5mA$

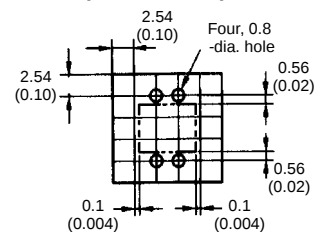
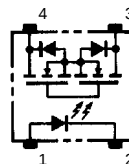
Tolerance is ± 0.25 (0.010) unless otherwise specified.

G3VM-2

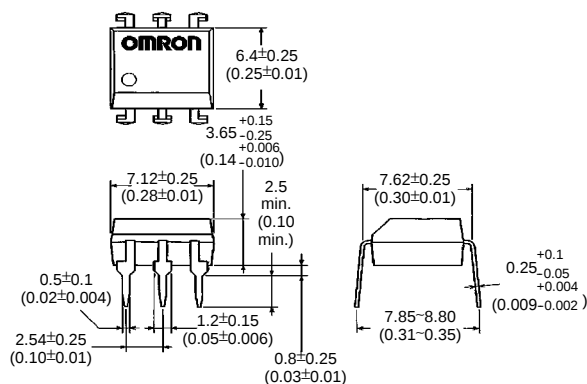


Note: "G3VM" is not printed on the actual product.

PCB Dimensions (Bottom View)

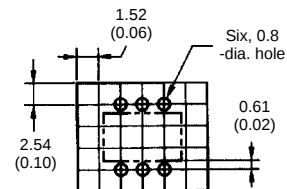
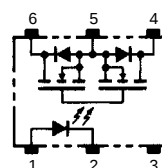


G3VM-3, G3VM-3L, G3VM-V

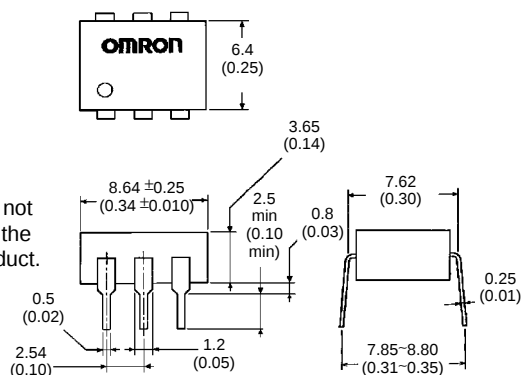


Note: "G3VM" is not printed on the actual product.

PCB Dimensions (Bottom View)

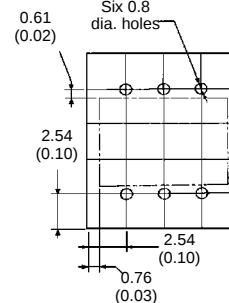
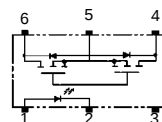


G3VM-6

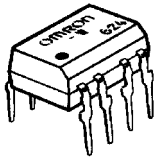


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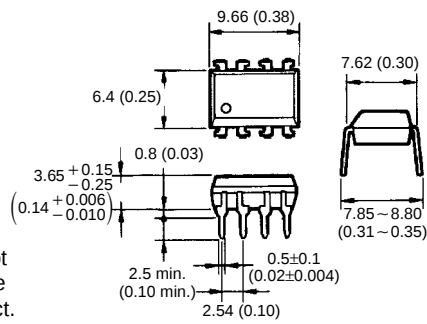
PCB Dimensions (Bottom View)



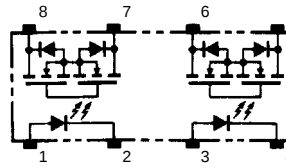
G3VM-W



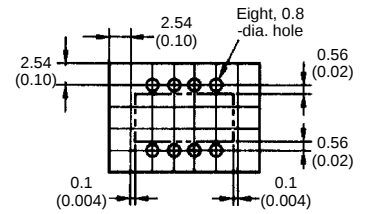
Note: "G3VM" is not printed on the actual product.



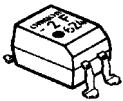
Terminal Arrangement/
Internal Connections
(Top View)



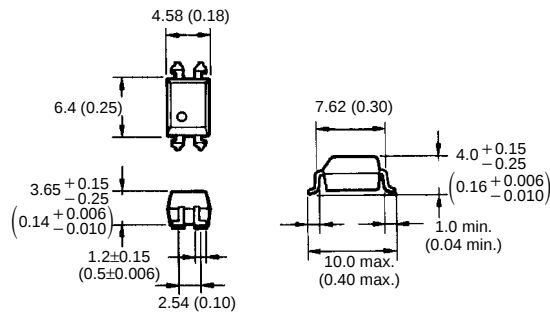
PCB Dimensions
(Bottom View)



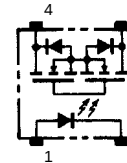
G3VM-2F



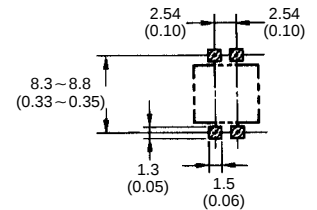
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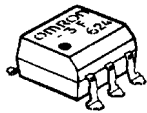
Terminal Arrangement/
Internal Connections
(Top View)



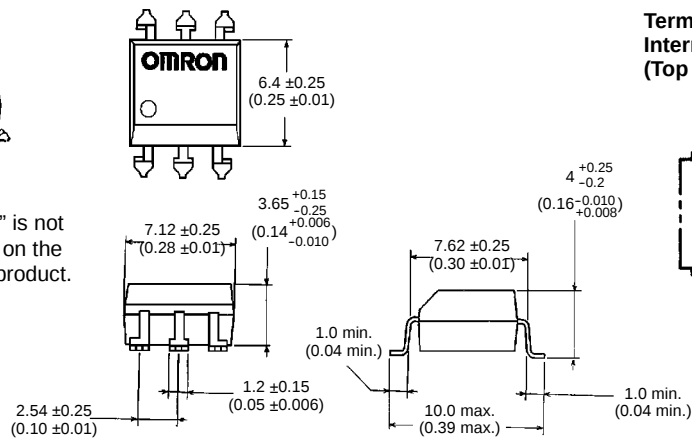
Actual Mounting Pad
Dimensions (Recommended Value, Bottom View)



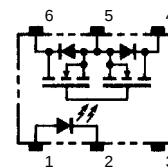
G3VM-3F, G3VM-3FL, G3VM-VF



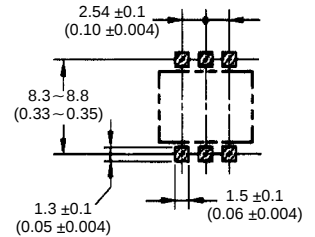
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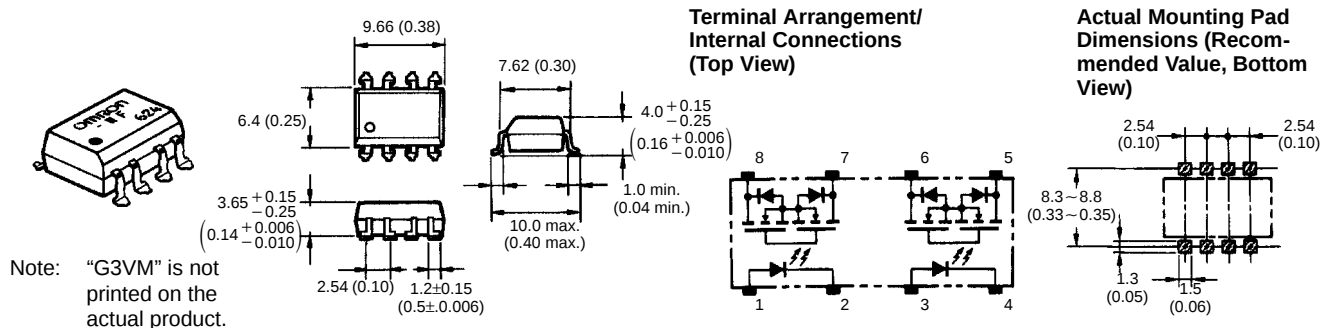
Terminal Arrangement/
Internal Connections
(Top View)



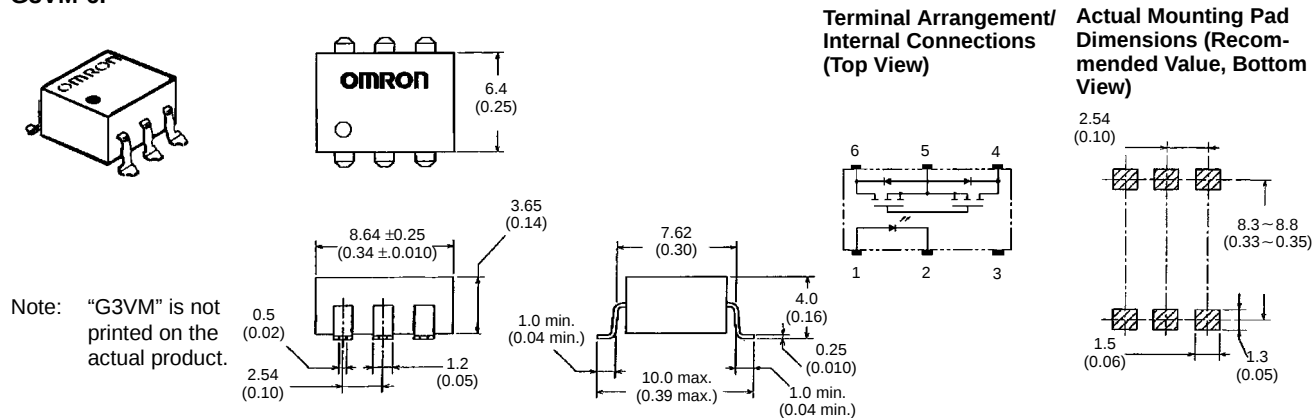
Actual Mounting Pad
Dimensions (Recommended Value, Bottom View)



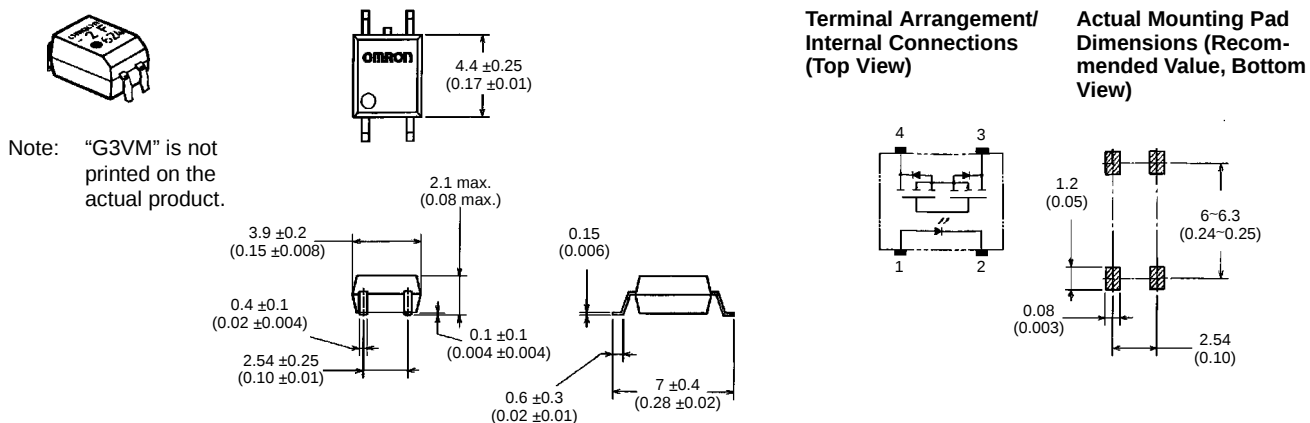
G3VM-WF



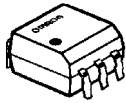
G3VM-6F



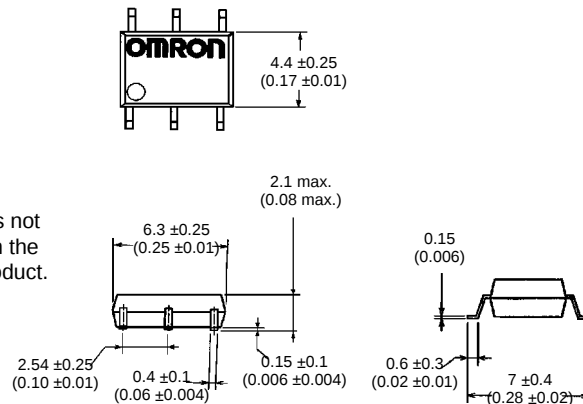
G3VM-S2



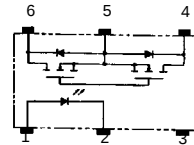
G3VM-S3



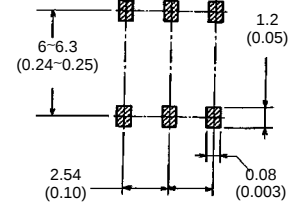
Note: "G3VM" is not printed on the actual product.



Terminal Arrangement/
Internal Connections
(Top View)



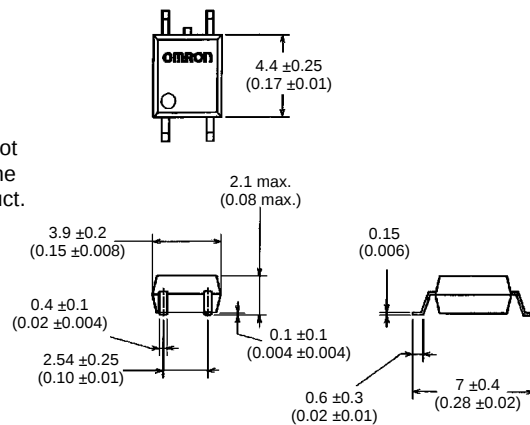
Actual Mounting Pad
Dimensions
(Recommended Value,
Bottom View)



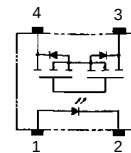
G3VM-S5



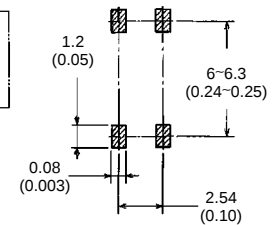
Note: "G3VM" is not printed on the actual product.



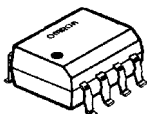
Terminal Arrangement/
Internal Connections
(Top View)



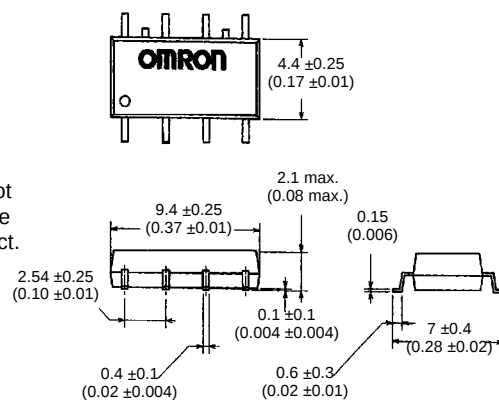
Actual Mounting Pad
Dimensions (Recom-
mended Value, Bottom
View)



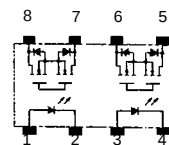
G3VM-SW



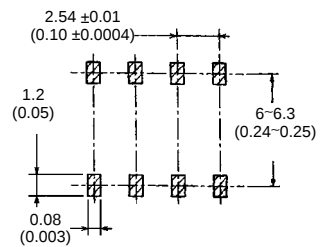
Note: "G3VM" is not printed on the actual product.



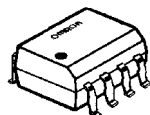
Terminal Arrangement/
Internal Connections
(Top View)



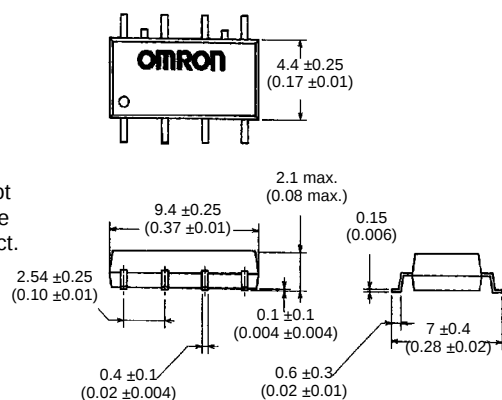
Actual Mounting Pad
Dimensions (Recom-
mended Value, Bottom
View)



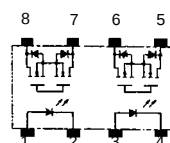
G3VM-SY



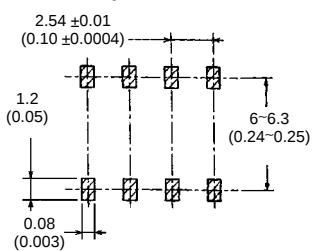
Note: "G3VM" is not printed on the actual product.



Terminal Arrangement/ Internal Connections (Top View)



Actual Mounting Pad Dimensions (Recommended Value, Bottom View)



Accessories

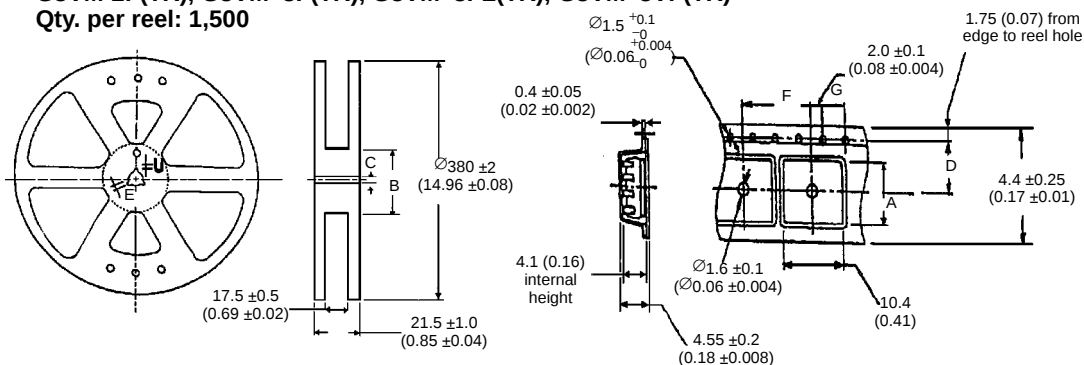
Tube packing	Standard nomenclature
Tape packing	When ordering, add "(TR)" to the ordering number, (e.g., G3VM-3F(TR)-S). Note: (TR) is not part of the relay model number and will not be marked on the relay.

Part number	Qty. per tube	Qty. per tape and reel	Ordering number
G3VM-2	50	-	G3VM-2-S
G3VM-2F	50	-	G3VM-2F-S
G3VM-2F(TR)	-	1,500	G3VM-2F(TR)-S
G3VM-3	50	-	G3VM-3-S
G3VM-3F	50	-	G3VM-3F-S
G3VM-3F(TR)	-	1,500	G3VM-3F(TR)-S
G3VM-3L	50	-	G3VM-3L-S
G3VM-3FL	50	-	G3VM-3FL-S
G3VM-3FL(TR)	-	1,500	G3VM-3FL(TR)-S
G3VM-6	50	-	G3VM-6-S
G3VM-6F	50	-	G3VM-6F-S
G3VM-6F(TR)	-	1,500	G3VM-6F(TR)-S
G3VM-S2	100	-	G3VM-S2-S
G3VM-S2(TR)	-	2,500	G3VM-S2(TR)-S
G3VM-S3	75	-	G3VM-S3-S
G3VM-S3(TR)	-	2,500	G3VM-S3(TR)-S
G3VM-S5	100	-	G3VM-S5-S
G3VM-S5(TR)	-	2,500	G3VM-S5(TR)-S
G3VM-SW	50	-	G3VM-SW-S
G3VM-SW(TR)	-	2,500	G3VM-SW(TR)-S
G3VM-SY	50	-	G3VM-SY-S
G3VM-SY(TR)	-	2,500	G3VM-SY(TR)-S
G3VM-V	50	-	G3VM-V-S
G3VM-VF	50	-	G3VM-VF-S
G3VM-VF(TR)	-	1,500	G3VM-VF(TR)-S
G3VM-W	50	-	G3VM-W-S
G3VM-WF	50	-	G3VM-WF-S
G3VM-WF(TR)	-	1,500	G3VM-WF(TR)-S

■ TAPE AND REEL DIMENSIONS

G3VM-2F(TR), G3VM-3F(TR), G3VM-3FL(TR), G3VM-3VF(TR)

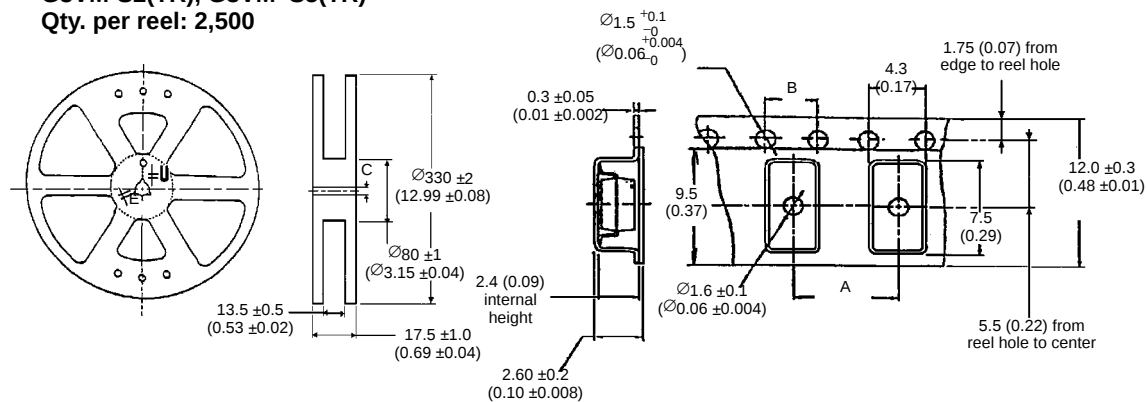
Qty. per reel: 1,500



Symbol	Dimension	Remarks
A	7.6 (0.30)	----
B	$\varnothing 80 \pm 1$ ($\varnothing 3.15 \pm 0.04$)	----
C	$\varnothing 13 \pm 0.5$ ($\varnothing 0.51 \pm 0.02$)	----
D	7.5 (0.30)	From reel hole to center
E	2.0 $\pm$ 0.5 (0.08 $\pm$ 0.02)	----
F	12.0 (0.47)	Total tolerance: +0.1/10, -0.3/10 pitches
G	4.0 (0.16)	Total tolerance: +0.1/10, -0.3/10 pitches
U	4.0 $\pm$ 0.5 (0.16 $\pm$ 0.02)	----

G3VM-S2(TR), G3VM-S5(TR)

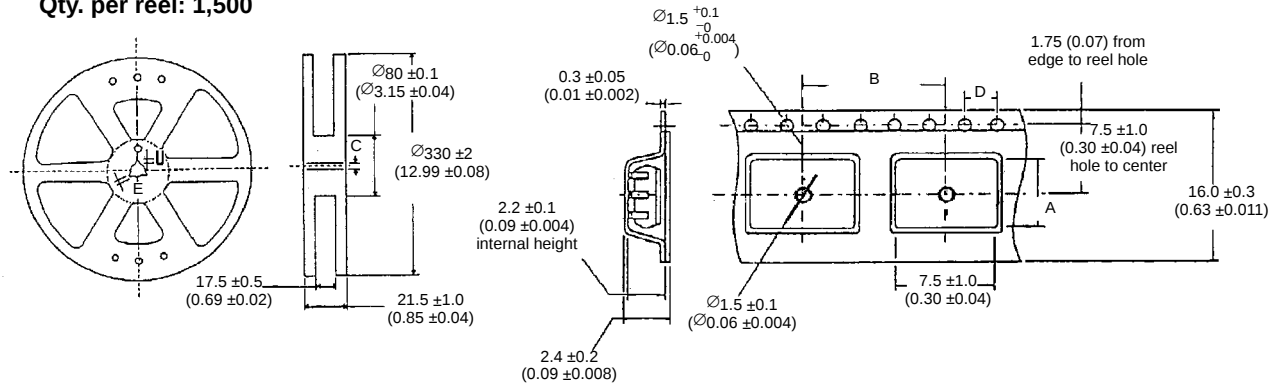
Qty. per reel: 2,500



Symbol	Dimension	Remarks
A	8.0 (0.31)	Total tolerance: +0.1/10, -0.3/10 pitches
B	4.0 (0.16)	Total tolerance: +0.1/10, -0.3/10 pitches
C	$\varnothing 13 \pm 0.5$ ($\varnothing 0.51 \pm 0.02$)	----
E	2.0 $\pm$ 0.5 (0.08 $\pm$ 0.02)	----
U	4.0 $\pm$ 0.5 (0.16 $\pm$ 0.02)	----

G3VM-S3(TR)

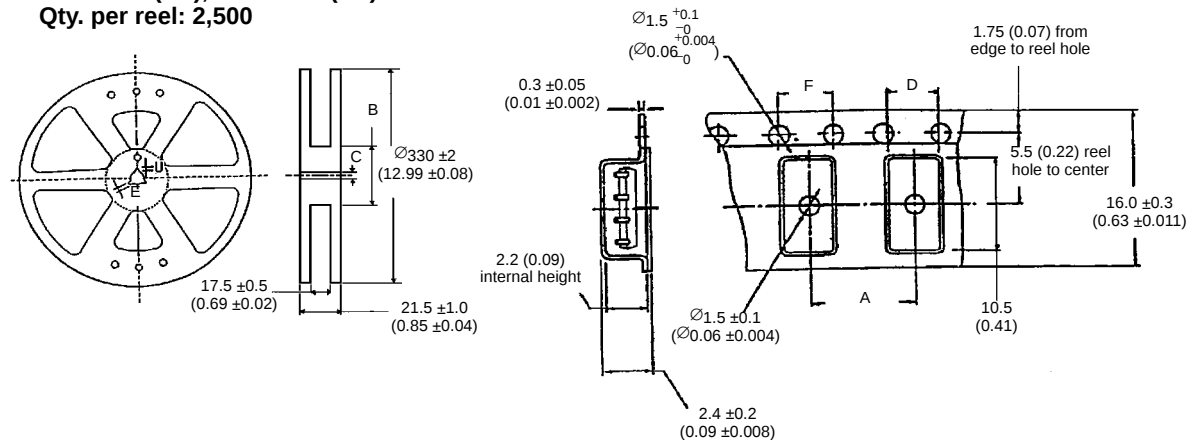
Qty. per reel: 1,500



Symbol	Dimension	Remarks
A	6.7 ±0.1 (0.26 ±0.04)	----
B	12.0 ±0.1 (0.47 ±0.04)	Total tolerance: +0.1/10, -0.3/10 pitches
C	Ø13 ±0.5 (Ø0.51 ±0.02)	----
D	4.0 ±0.1 (0.16 ±0.04)	Total tolerance: +0.1/10, -0.3/10 pitches
E	2.0 ±0.5 (0.08 ±0.02)	----
U	4.0 ±0.5 (0.16 ±0.02)	----

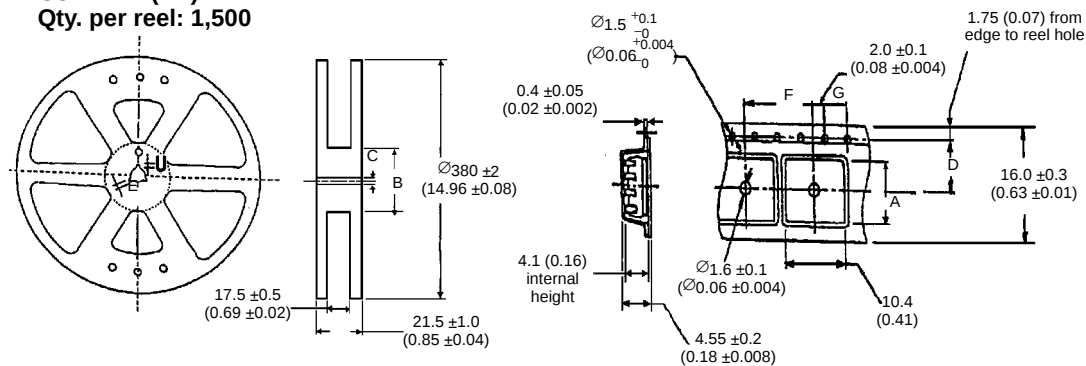
G3VM-SW(TR), G3VM-SY (TR)

Qty. per reel: 2,500



Symbol	Dimension	Remarks
A	12.0 (0.47)	Total tolerance: +0.1/10, -0.3/10 pitches
B	Ø80 ±1 (Ø3.14 ±0.04)	----
C	Ø13 ±0.5 (Ø0.51 ±0.02)	----
D	7.5 (0.30)	----
E	2.0 ±0.5 (0.08 ±0.02)	----
F	4.0 (0.16)	Total tolerance: +0.1/10, -0.3/10 pitches
U	4.0 ±0.5 (0.16 ±0.02)	----

G3VM-WF(TR)
Qty. per reel: 1,500



Symbol	Dimension	Remarks
A	7.6 (0.30)	----
B	$\varnothing 80 \pm 1$ ($\varnothing 3.15 \pm 0.04$)	----
C	$\varnothing 13 \pm 0.5$ ($\varnothing 0.51 \pm 0.02$)	----
D	7.5 (0.30)	From reel hole to center
E	2.0 ± 0.5 (0.08 $\pm$ 0.02)	----
F	12.0 (0.47)	Total tolerance: +0.1/10, -0.3/10 pitches
G	4.0 (0.16)	Total tolerance: +0.1/10, -0.3/10 pitches
U	4.0 ± 0.5 (0.16 $\pm$ 0.02)	----

Precautions



WARNING

Always turn the power off before wiring, otherwise an electric shock may occur.

Do not touch the SSR terminal section (the recharge section) while the power supply is connected. Contact with the recharge section will result in an electric shock.



Caution

Do not use excess voltage or current in the SSR input or output circuits. Otherwise, damage to the SSR or a fire will result.

Conduct wiring and soldering correctly according to soldering conditions. If the product is used with incomplete wiring, overheating will occur and may result in a fire.

■ OPTIMUM OPERATING CONDITIONS

Part number	G3VM-2/2F, G3VM-3/3F, G3VM-3L/3FL, G3VM-S2, G3VM-S3, G3VM-SW, G3VM-W/WF			G3VM-6/6F		
	Min.	Typ.	Max.	Min.	Typ.	Max.
Supply voltage	---	---	280V	---	---	280V
LED Forward current	5.0mA	7.5mA	25mA	10mA	15mA	25mA
Output current	---	---	100mA	---	---	120mA
Operating temperature	-20°C	---	65°C	-20°C	---	80°C

Part number	G3VM-V/VF, G3VM-SY			G3VM-S5		
	Min.	Typ.	Max.	Min.	Typ.	Max.
Supply voltage	---	---	48V	---	150V	200V
LED Forward current	7.5mA	15mA	25mA	5.0mA	7.5mA	25mA
Output current	---	---	300mA	---	---	120mA
Operating temperature	-20°C	---	80°C	-20°C	---	65°C

■ TEMPERATURE DERATINGS

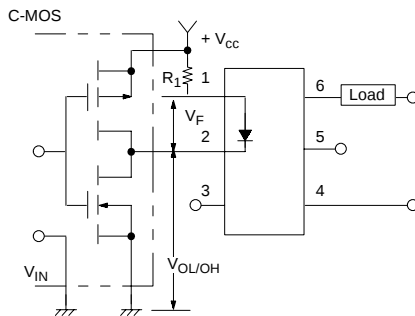
Part number	G3VM-2/2F, G3VM-S2	G3VM-S5	G3VM-SY
LED forward current derating	-0.5mA/°C	-0.5mA/°C	-0.5mA/°C
Continuous load current derating	-1.2mA/°C	-1.5mA/°C	-3.0mA/°C

Part number		G3VM-3/3F, G3VM-3L/3FL, G3VM-S3	G3VM-6/6F	G3VM-V/VF
LED forward current derating		-0.5mA/°C	-0.3mA/°C	-0.5mA/°C
Continuous load current derating	Connection A	-1.2mA/°C	-1.5mA/°C	-3.0mA/°C
	Connection B	-1.2mA/°C	-2.0mA/°C	-4.5mA/°C
	Connection C	-1.6mA/°C	-3.0mA/°C	-6.0mA/°C

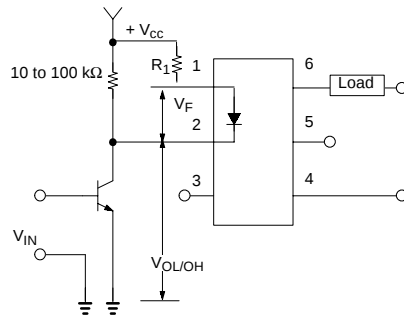
Part number		G3VM-SW, G3VM-W/WF
LED forward current derating		-0.5mA/°C
Continuous load current derating	One channel	-1.2mA/°C
	Both channels	-1.0mA/°C

■ TYPICAL RELAY DRIVING CIRCUIT EXAMPLES

C-MOS



Transistor



Use the following formula to obtain the LED current limiting resistance value to assure that the Relay operates accurately.

$$R_1 = \frac{V_{CC} - V_{OL} - V_F(ON)}{5 \text{ to } 20 \text{ mA}}$$

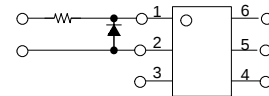
Use the following formula to obtain the LED forward voltage value to assure that the Relay releases accurately.

$$V_F(ON) = V_{CC} - V_{OH} < 0.8 \text{ V}$$

■ PROTECTION FROM SURGE VOLTAGE ON THE INPUT TERMINALS

If any reversed surge voltage is imposed on the input terminals, insert a diode in parallel to the input terminals as shown in the following circuit diagram and do not impose a reversed voltage value of 3 V or more.

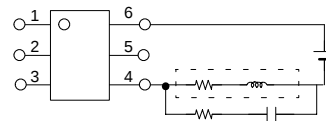
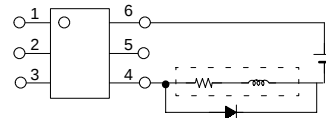
Surge Voltage Protection Circuit Example



■ PROTECTION FROM SPIKE VOLTAGE ON THE OUTPUT TERMINALS

If a spike voltage exceeding the absolute maximum rated value is generated between the output terminals, insert a C-R snubber or clamping diode in parallel to the load as shown in the following circuit diagram to limit the spike voltage.

Spike Voltage Protection Circuit Example

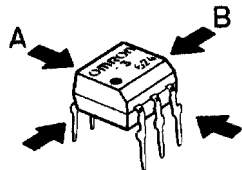


■ UNUSED TERMINALS

Terminal 3 is connected to the internal circuit. Do not connect anything to terminal 3 externally.

■ RELAY HOLDING FORCE FOR AUTOMATIC MOUNTING

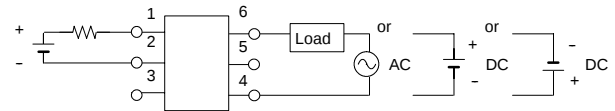
A Relay must not be imposed with a force exceeding 200 gf (1.96 N) in the A or B direction shown in the following illustration when the Relay is mounted automatically, otherwise the characteristics of the Relay may change.



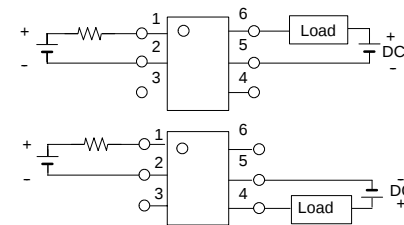
■ LOAD CONNECTION

Do not short-circuit the input and output terminals while the Relay is operating or the Relay may malfunction.

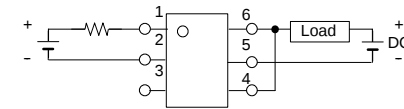
AC Connection



DC Single Connection



DC Parallel Connection



You must allow sufficient leeway in ratings and performance and provide proper fail-safe and other safety measures when using the G3VM in any of the following applications. Be sure also to consult with your OMRON representative before actually attempting any of these applications.

1. Applications under conditions or environments not specified in user manuals.
2. Applications for nuclear reactor control, train facilities, aviation facilities, motorized vehicles, furnaces, medical equipment, amusement equipment, and safety equipment.
3. Applications strongly related to human life or property, particularly those requiring safety.

NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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