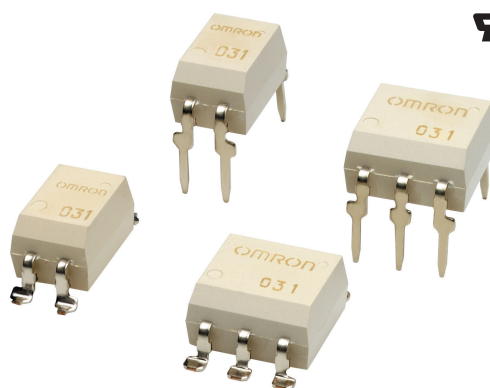


G3VM-□A□/□D□/□B□/□E□

MOS FET Relays DIP, General-purpose Type

General-purpose MOS FET Relays in DIP packages for a wide range of applications

- Package: DIP 4-pin or DIP 6-pin
- Contact form: 1a (SPST-NO) or 1b (SPST-NC)
- Load voltage: 60 V, 350 V, or 400 V



RoHS Compliant

Note: The actual product is marked differently from the image shown here.

Application Examples

- Communication equipment
- Security equipment
- Power circuit
- Test & Measurement equipment
- Industrial equipment

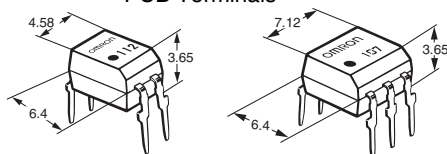
Package

(Unit : mm, Average)

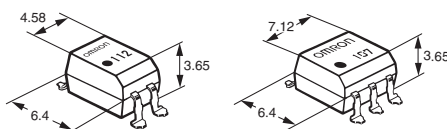
DIP 4-pin

DIP 6-pin

PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

Model Number Legend

G3VM-□□□□
1 2 3 4

1. Load Voltage

6 : 60 V
35 : 350 V
40 : 400 V

2. Contact form

1 : 1a (SPST-NO)
3 : 1b (SPST-NC)

3. Package

A : DIP 4-pin with PCB terminals
B : DIP 6-pin with PCB terminals
D : DIP 4-pin with surface-mounting terminals
E : DIP 6-pin with surface-mounting terminals

4. Other informations

When specifications overlap, serial code is added recorded order.

Ordering Information

Package	Contact form	Load voltage (peak value) *	Continuous load current (peak value) *	Stick packaging			Tape packaging	
				Model		Minimum package quantity	Model	Minimum package quantity
				PCB Terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP4	1a (SPST-NO)	60 V	500 mA	G3VM-61A1	G3VM-61D1	100 pcs.	G3VM-61D1(TR)	1,500 pcs.
			120 mA	G3VM-351A	G3VM-351D		G3VM-351D(TR)	
	1b (SPST-NC)	350 V	150 mA	G3VM-353A	G3VM-353D		G3VM-353D(TR)	
	1a (SPST-NO)	400 V	120 mA	G3VM-401A	G3VM-401D		G3VM-401D(TR)	

Package	Contact form	Load voltage (peak value) *	Continuous load current (peak value) *		Stick packaging			Tape packaging	
			Connection A, B	Connection C	Model		Minimum package quantity	Model	Minimum package quantity
					PCB Terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP6	1a (SPST-NO)	60 V	500 mA	1000 mA	G3VM-61B1	G3VM-61E1	50 pcs.	G3VM-61E1(TR)	1,500 pcs.
			120 mA	240 mA	G3VM-351B	G3VM-351E		G3VM-351E(TR)	
	1b (SPST-NC)	350 V	150 mA	300 mA	G3VM-353B	G3VM-353E		G3VM-353E(TR)	
	1a (SPST-NO)	400 V	120 mA	240 mA	G3VM-401B	G3VM-401E		G3VM-401E(TR)	

* The AC peak and DC value are given for the load voltage and continuous load current.

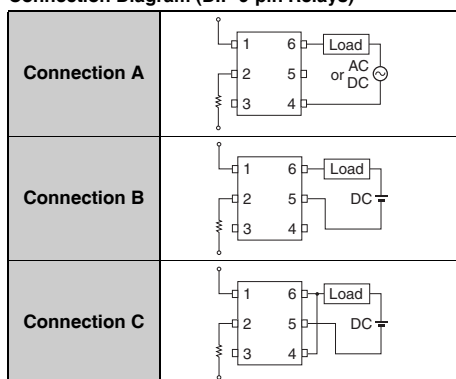
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	G3VM-61A1 G3VM-61D1	G3VM-61B1 G3VM-61E1	G3VM-351A G3VM-351D	G3VM-351B G3VM-351E	G3VM-353A G3VM-353D	G3VM-353B G3VM-353E	G3VM-401A G3VM-401D	G3VM-401B G3VM-401E	Unit	Measurement conditions	
Input	LED forward current	I _F	50									mA	
	Repetitive peak LED forward current	I _{FP}	1									A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔI _F /°C	-0.5									mA/°C	Ta ≥ 25°C
	LED reverse voltage	V _R	5									V	
	Connection temperature	T _J	125									°C	
Output	Load voltage (AC peak/DC)		V _{OFF}	60		350				400		V	
	Continuous load current (AC peak/DC)	Connection A	I _O	500		120		150		120		mA	Connection A: AC peak/DC Connection B and C: DC
		Connection B		—	500	—	120	—	150	—	120		
		Connection C			1000		240		300		240		
	ON current reduction rate	Connection A	ΔI _O /°C	-5		-1.2		-1.5		-1.2		mA/°C	Ta ≥ 25°C
		Connection B		—	-5	—	-1.2	—	-1.5	—	-1.2		
		Connection C			-10		-2.4		-3		-2.4		
	Pulse ON current		I _{OP}	1.5		0.36		0.45		0.36		A	t=100 ms, Duty=1/10
	Connection temperature		T _J	125									°C
Dielectric strength between I/O *		V _{I-O}	2,500									V _{rms}	AC for 1 min
Ambient operating temperature		T _a	-40 to +85									°C	With no icing or condensation
Ambient storage temperature		T _{stg}	-55 to +125									°C	
Soldering temperature		—	260									°C	10 s

* The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram (DIP 6-pin Relays)



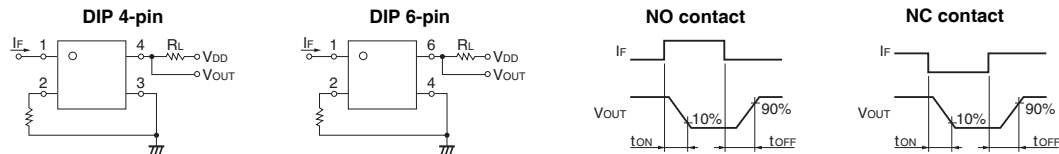
DIP

G3VM-□A□/□D□/□B□/□E□

■Electrical Characteristics (Ta = 25°C)

Item			Symbol		G3VM-61A1 G3VM-61D1	G3VM-61B1 G3VM-61E1	G3VM-351A G3VM-351D	G3VM-351B G3VM-351E	G3VM-353A G3VM-353D	G3VM-353B G3VM-353E	G3VM-401A G3VM-401D	G3VM-401B G3VM-401E	Unit	Measurement conditions
Input	LED forward voltage	V _F	Minimum		1.0								V	I _F =10 mA
			Typical		1.15									
			Maximum		1.3									
	Reverse current	I _R	Maximum		10								μA	V _R =5 V
	Capacitance between terminals	C _T	Typical		30								pF	V=0, f=1 MHz
	Trigger LED forward current	I _{FT} (I _{FC}) *2	Typical		1.6		1						mA	G3VM-353A/353D/ 353B/353E : I _{OFF} =10 μA Others : I _o =Continuous load current ratings
			Maximum		3									
Release LED forward current	I _{FC} (I _{FT}) *2	Minimum		0.1								mA	G3VM-353A/353D/ 353B/353E : I _o =150 mA Others : I _{OFF} =100 μA	
Output	Maximum resistance with output ON	R _{ON}	Typical	Connection A	1		35 (25)		15		18	17	Ω	G3VM-61A1/61D1/61B1/ 61E1/351A/351D/351B/ 351E/401A/401D/401B/ 401E : I _F =5 mA, I _o =Continuous load current ratings Values in parentheses are for t < 1 s. G3VM-353A/353D/ 353B/353E : I _o =Continuous load current ratings
				Connection B	—	0.5	—	28	—	8	—	11		
				Connection C	—	0.25	—	14	—	4	—	6		
			Maximum	Connection A	2		50 (35)		25		35			
				Connection B	—	1	—	40	—	14	—	20		
				Connection C	—			—		20		7		
	Current leakage when the relay is open	I _{LEAK}	Maximum		1								μA	G3VM-353A/353D/ 353B/353E : I _F =5mA, V _{OFF} =Load voltage ratings Others : V _{OFF} =Load voltage ratings
	Capacitance between terminals	C _{OFF}	Typical		130		30		85		40		pF	V=0, f=1 MHz
	Capacitance between I/O terminals	C _{I-O}	Typical		0.8								pF	f=1 MHz, V _S =0 V
Insulation resistance between I/O terminals	R _{I-O}	Minimum		1000								MΩ	V _{I-O} =500 VDC, R _{oH} ≤60%	
		Typical		10 ⁸										
Turn-ON time	t _{ON}	Typical		0.8		0.3		0.1		—		0.3	ms	I _F =5 mA, R _L =200 Ω, V _{DD} =10 V *1
		Maximum		2				1						
Turn-OFF time	t _{OFF}	Typical		0.1				1		—		0.1		
		Maximum		0.5		1		3		1				

*1. Turn-ON and Turn-OFF Times



*2. These values are for Relays with NC contacts

■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

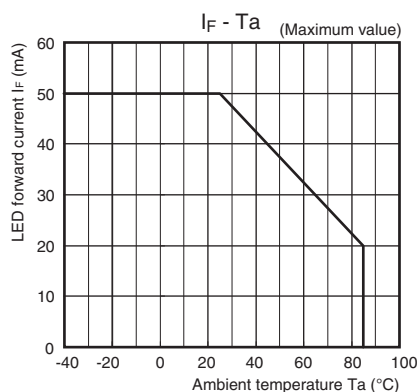
Item			Symbol		G3VM-61A1	G3VM-61B1	G3VM-351A	G3VM-351B	G3VM-353A	G3VM-353B	G3VM-401A	G3VM-401B	Unit
			G3VM-61D1	G3VM-61E1	G3VM-351D	G3VM-351E	G3VM-353D	G3VM-353E	G3VM-401D	G3VM-401E			
Load voltage (AC peak/DC)	V _{DD}	Maximum	48			280					320		V
Operating LED forward current	I _F	Minimum	5										mA
		Typical	7.5			10	—		7.5				
		Maximum	25										
Continuous load current (AC peak/DC)	I _O	Maximum	500			100		150		100	120		
Ambient operating temperature	T _a	Minimum	-20										°C
		Maximum	65										

■Spacing and Insulation

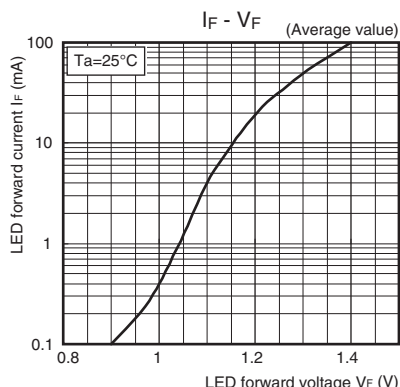
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

■Engineering Data

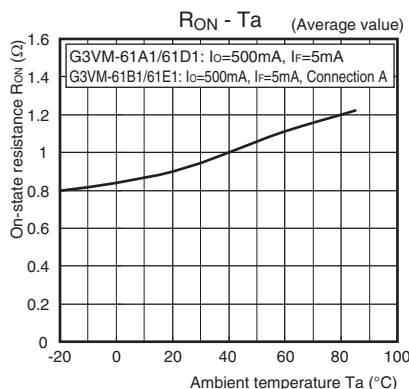
●LED forward current vs. Ambient temperature



●LED forward current vs. LED forward voltage

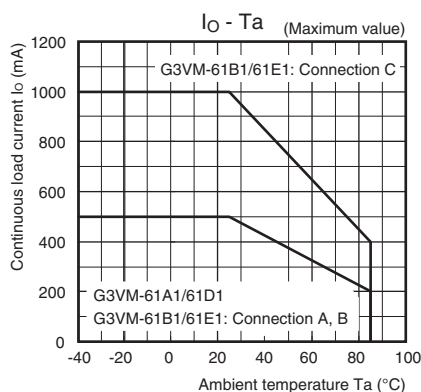


●On-state resistance vs. Ambient temperature



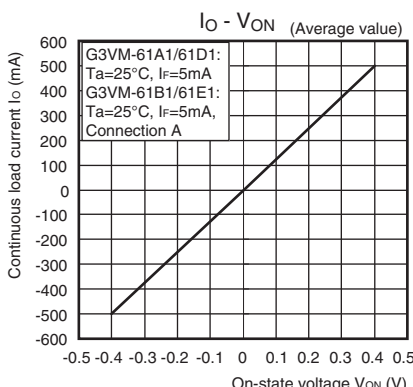
●Continuous load current vs. Ambient temperature

G3VM-61A1/61D1/61B1/61E1

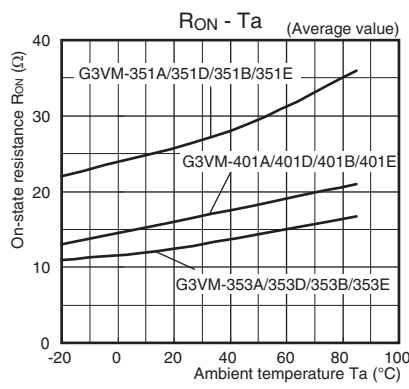


●Continuous load current vs. On-state voltage

G3VM-61A1/61D1/61B1/61E1

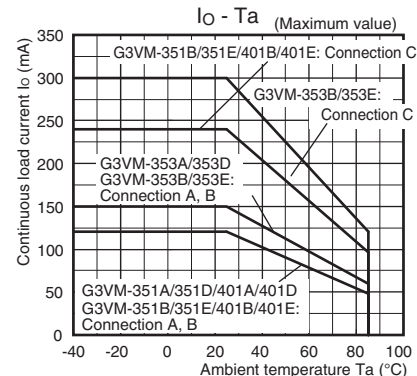


G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E

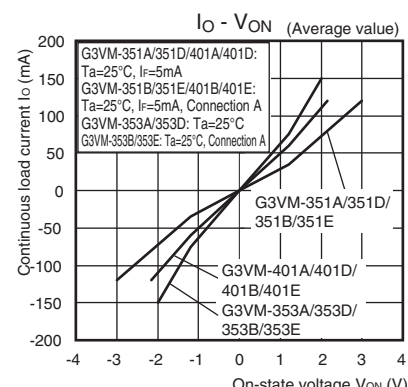


G3VM-351A/351D/401A/401D:
 $I_o=120mA$, $I_F=5mA$, $t<1s$
G3VM-351B/351E/401B/401E:
 $I_o=120mA$, $I_F=5mA$, $t<1s$, Connection A
G3VM-353A/353D: $I_o=150mA$, $t<1s$
G3VM-353B/353E: $I_o=150mA$, $t<1s$, Connection A

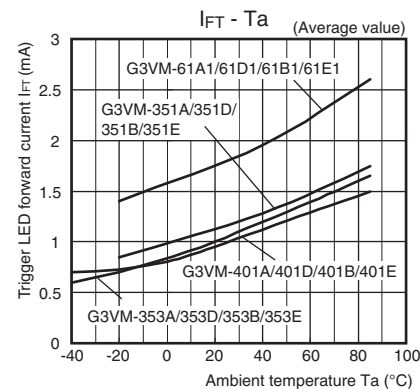
G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E



G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E



●Trigger LED forward current vs. Ambient temperature



G3VM-61A1/61D1/351A/351D/401A/401D:
 $I_o=Continuous\ Load\ Current\ Ratings$, $t<1s$
G3VM-61B1/61E1/351B/351E/401B/401E:
 $I_o=Continuous\ Load\ Current\ Ratings$, $t<1s$, Connection A
G3VM-353A/353D: $I_{OFF}=10\mu A$
G3VM-353B/353E: $I_{OFF}=10\mu A$, Connection A

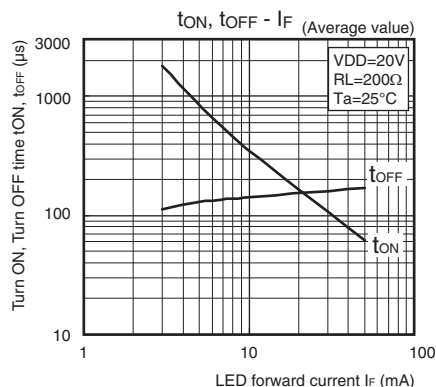
DIP

G3VM-□A□/□D□/□B□/□E□

Engineering Data

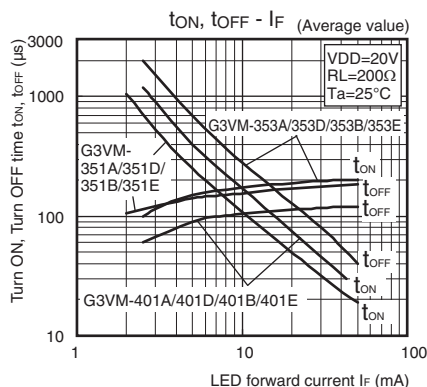
Turn ON, Turn OFF time vs. LED forward current

G3VM-61A1/61D1/61B1/61E1



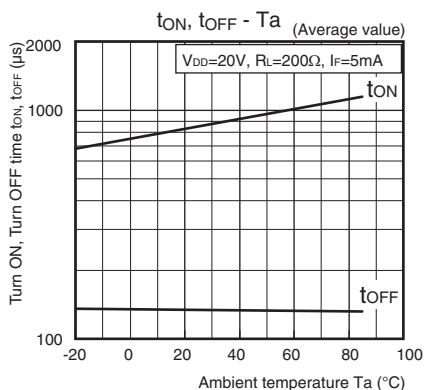
Turn ON, Turn OFF time vs. LED forward current

G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E



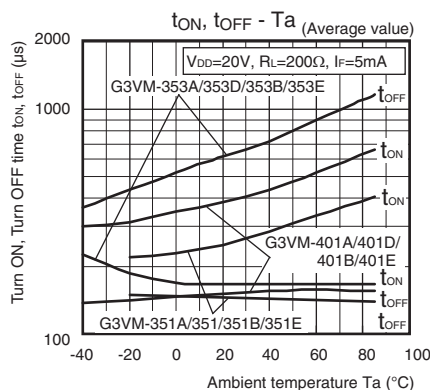
Turn ON, Turn OFF time vs. Ambient temperature

G3VM-61A1/61D1/61B1/61E1

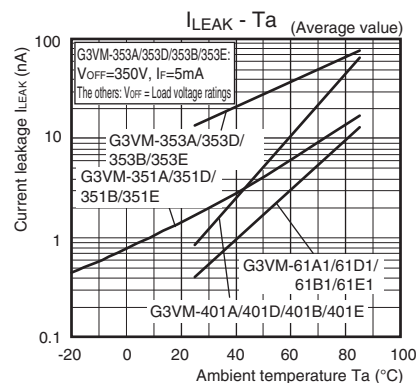


Turn ON, Turn OFF time vs. Ambient temperature

G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E



Current leakage vs. Ambient temperature

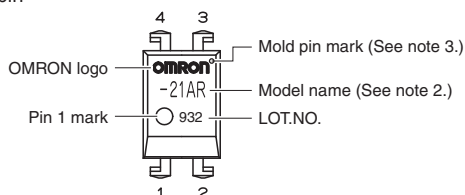


Appearance / Terminal Arrangement / Internal Connections

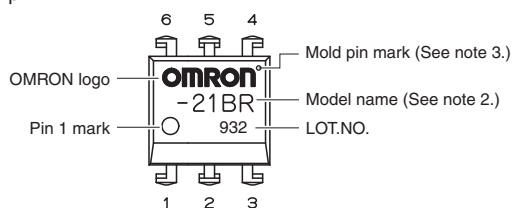
Appearance

DIP (Dual Inline Package)

DIP 4-pin

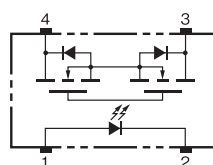


DIP 6-pin

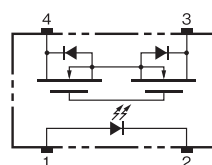


Terminal Arrangement/Internal Connections (Top View)

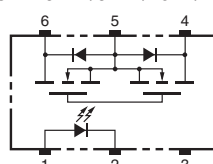
G3VM-61A1/61D1/401A/401D



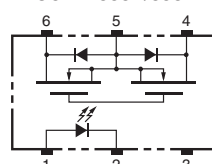
G3VM-353A/353D



G3VM-61B1/61E1/401B/401E



G3VM-353B/353E



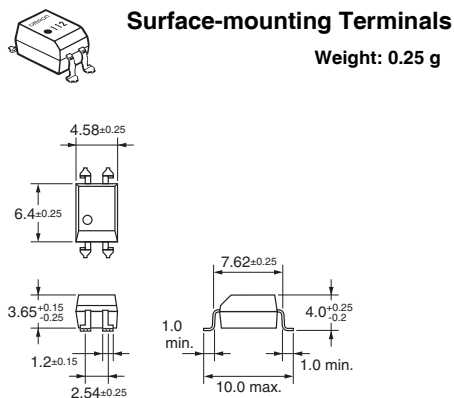
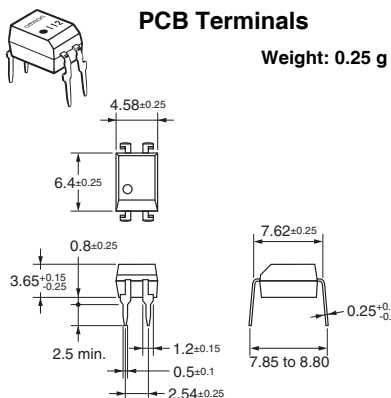
Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

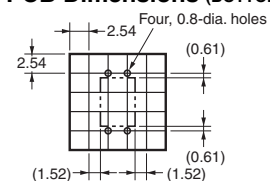
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)

DIP4

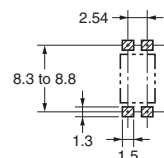


PCB Dimensions (BOTTOM VIEW)



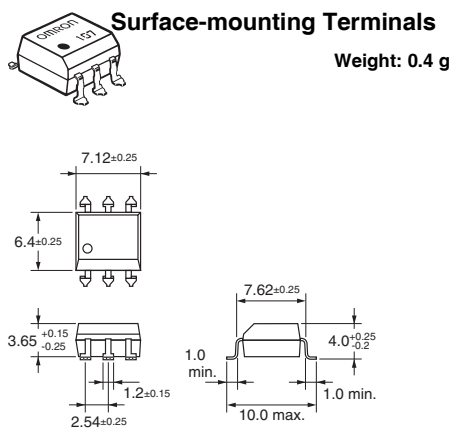
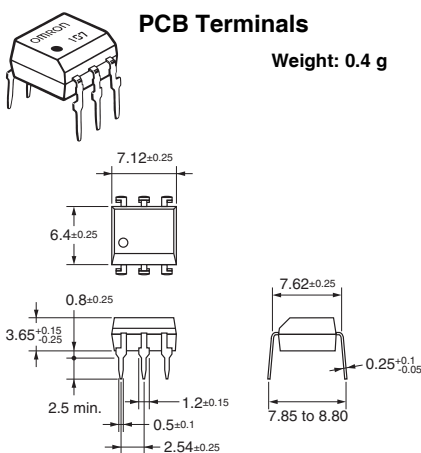
Actual Mounting Pad Dimensions

(Recommended Value, Top View)

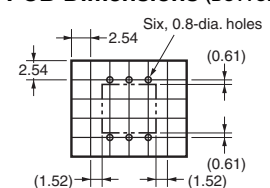


Note: The actual product is marked differently from the image shown here.

DIP6

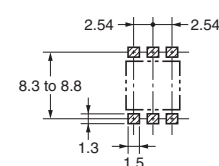


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Model				Approved Standards	Contact form	File No.
G3VM-61A1	G3VM-61D1	G3VM-61B1	G3VM-61E1	UL (recognized)	1a (SPST-NO)	E80555
G3VM-351A	G3VM-351D	G3VM-351B	G3VM-351E			
G3VM-401A	G3VM-401D	G3VM-401B	G3VM-401E			
G3VM-353A	G3VM-353D	G3VM-353B	G3VM-353E		1b (SPST-NC)	

Models Certified by SEMKO for EN/IEC Standards

Model		Approved Standards	Contact form	File No.
G3VM-351A G3VM-351D		EN62368-1 (SEMKO certified)	1a (SPST-NO)	SE-S-2001018

■Safety Precautions

Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

DIP

G3VM-□A□/□D□/□B□/□E□

DIP

G3VM-□A□/□D□/□B□/□E□

Please check each region's Terms & Conditions by region website.

OMRON Corporation
Electronic and Mechanical Components Company

Regional Contact	
Americas https://www.components.omron.com/	Europe http://components.omron.eu/
Asia-Pacific https://ecb.omron.com.sg/	China https://www.ecb.omron.com.cn/
Korea https://www.omron-ecb.co.kr/	Japan https://www.omron.co.jp/ecb/