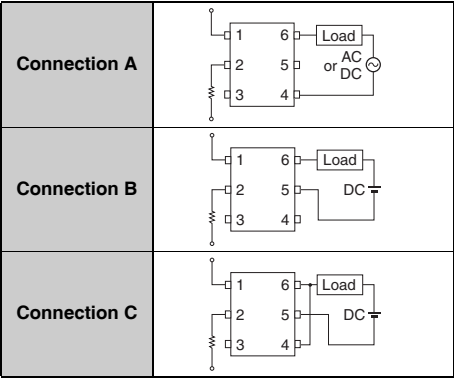


■Absolute Maximum Ratings (Ta = 25°C)

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	IF	50									mA		
	Repetitive peak LED forward current	IFP	1									A	100 μs pulses, 100 pps	
	LED forward current reduction rate	ΔIF/°C	-0.5									mA/°C	Ta ≥ 25°C	
	LED reverse voltage	VR	5									V		
	Connection temperature	TJ	125									°C		
Output	Load voltage (AC peak/DC)		VOFF	60		350				400		V		
	Continuous load current (AC peak/DC)	Connection A	Io	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	ΔIo/°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		Iop	1.5		0.36		0.45		0.36		A	t=100 ms, Duty=1/10	
	Connection temperature		TJ	125									°C	
Dielectric strength between I/O *			VI-O	2,500									Vrms	AC for 1 min
Ambient operating temperature			Ta	-40 to +85									°C	With no icing or condensation
Ambient storage temperature			Tstg	-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)



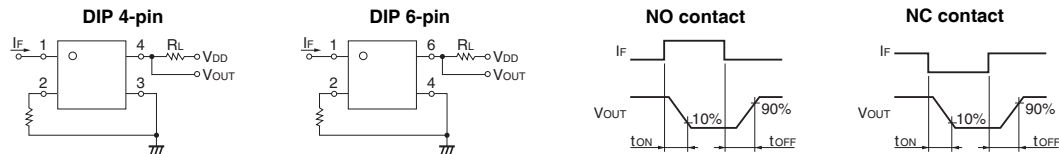
DIP

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		—		
	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	ton	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	toff	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.

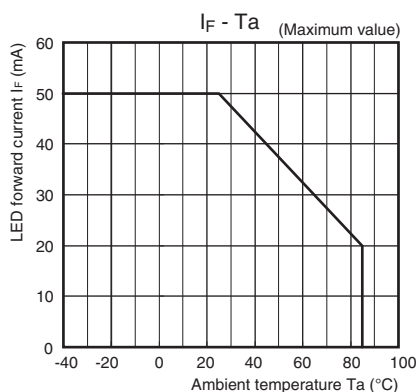
Item			Symbol		G3VM-61A1	G3VM-61B1	G3VM-351A	G3VM-351B	G3VM-353A	G3VM-353B	G3VM-401A	G3VM-401B	Unit
			G3VM-61D1	G3VM-61E1	G3VM-351D	G3VM-351E	G3VM-353D	G3VM-353E	G3VM-401D	G3VM-401E			
Load voltage (AC peak/DC)	V _{DD}	Maximum	48			280					320		V
Operating LED forward current	I _F	Minimum	5								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

■Spacing and Insulation

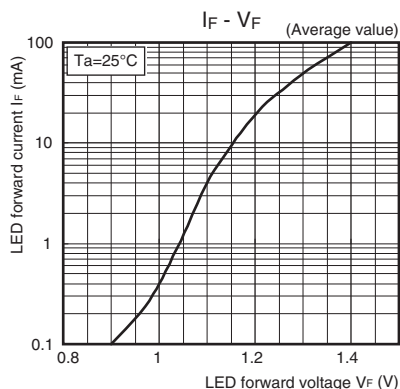
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

■Engineering Data

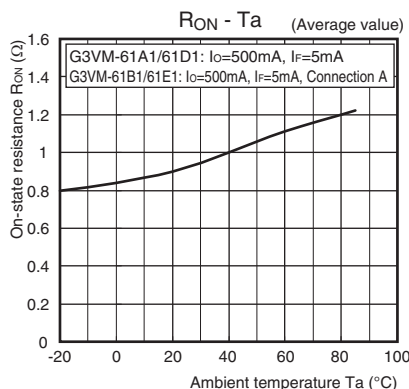
●LED forward current vs. Ambient temperature



●LED forward current vs. LED forward voltage

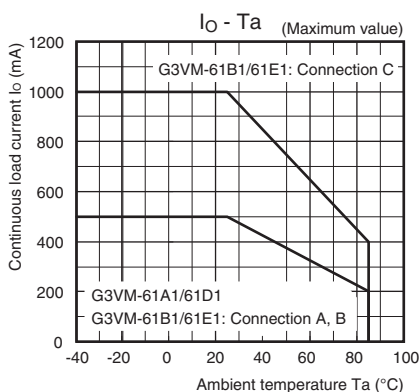


●On-state resistance vs. Ambient temperature



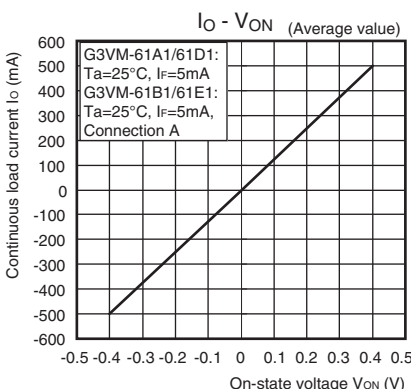
●Continuous load current vs. Ambient temperature

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

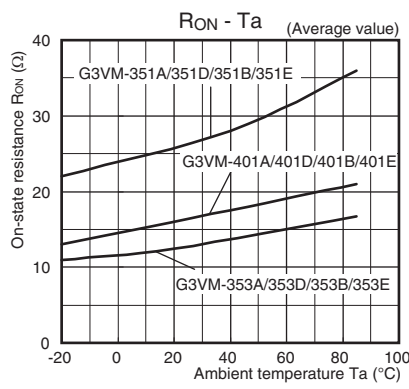


●Continuous load current vs. On-state voltage

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

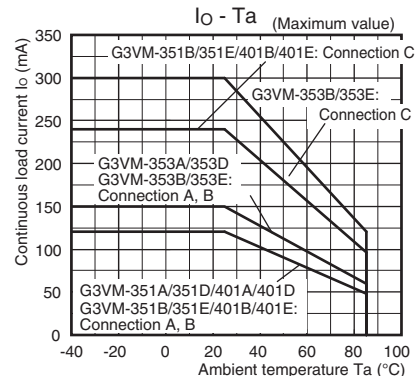


G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E

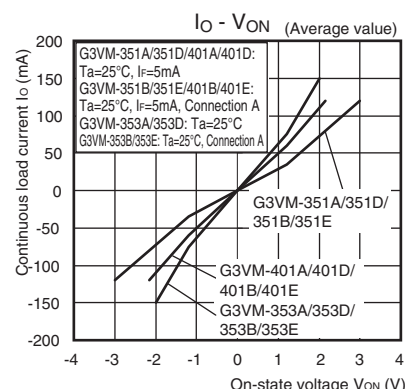


G3VM-351A/351D/401A/401D:
 $I_o=120mA$, $I_f=5mA$, $t<1s$
G3VM-351B/351E/401B/401E:
 $I_o=120mA$, $I_f=5mA$, $t<1s$, Connection A
G3VM-353A/353D: $I_o=150mA$, $t<1s$
G3VM-353B/353E: $I_o=150mA$, $t<1s$, Connection A

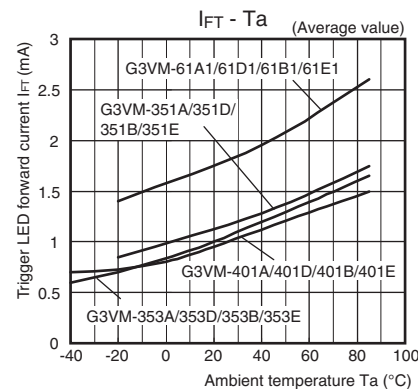
G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E



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

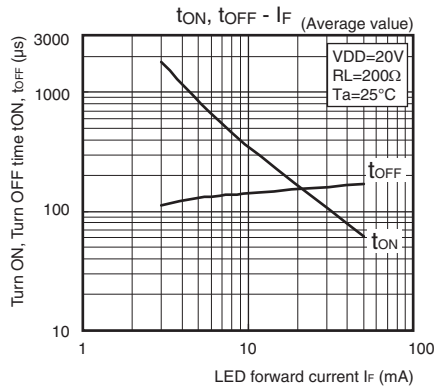
DIP

G3VM-□A□/□D□/□B□/□E□

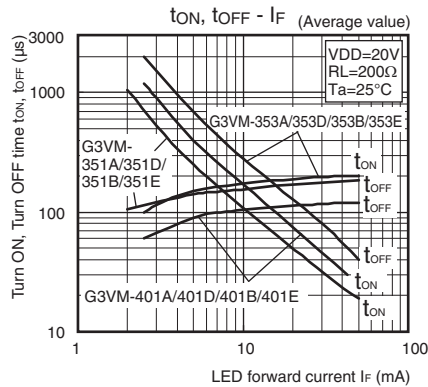
Engineering Data

● Turn ON, Turn OFF time vs. LED forward current

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

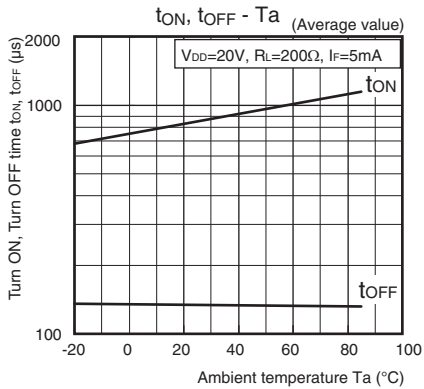


G3VM-351A/351D/351B/351E G3VM-353A/353D/353B/353E G3VM-401A/401D/401B/401E

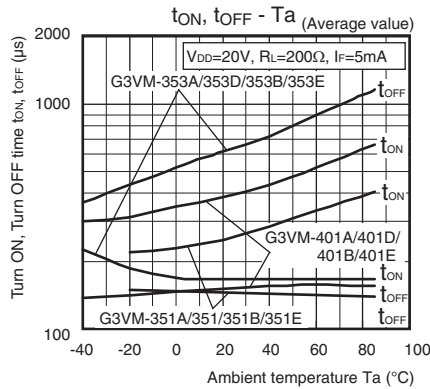


● Turn ON, Turn OFF time vs. Ambient temperature

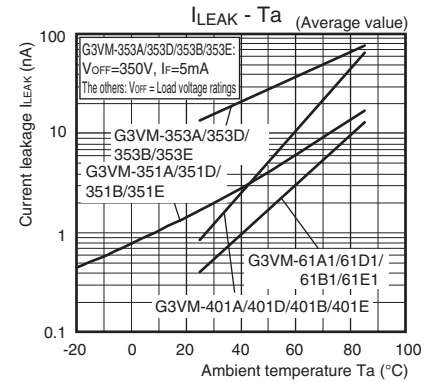
G3VM-61A1/61D1/61B1/61E1



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



● Current leakage vs. Ambient temperature

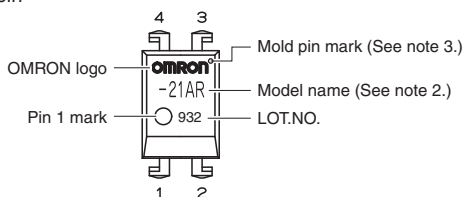


Appearance / Terminal Arrangement / Internal Connections

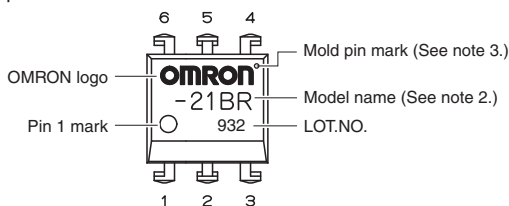
● Appearance

DIP (Dual Inline Package)

DIP 4-pin

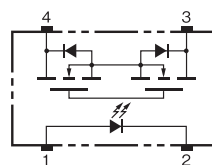


DIP 6-pin

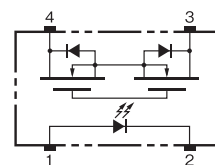


● Terminal Arrangement/Internal Connections (Top View)

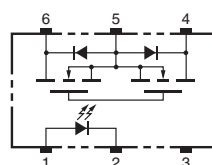
G3VM-61A1/61D1/401A/401D



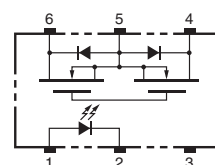
G3VM-353A/353D



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



G3VM-353B/353E



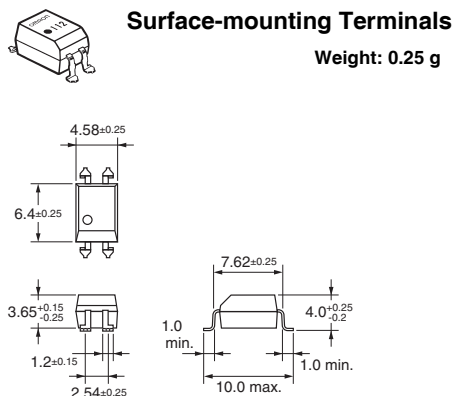
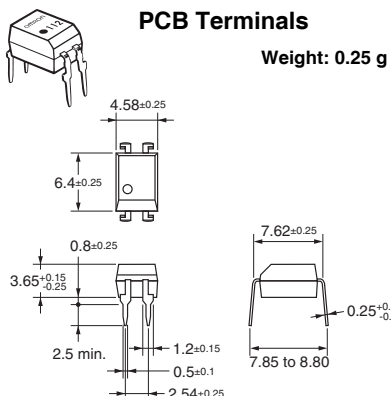
Note: 1. The actual product is marked differently from the image shown here.

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

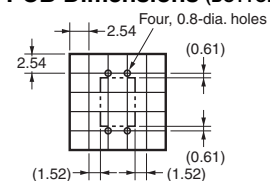
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)

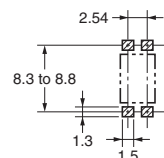
DIP4



PCB Dimensions (BOTTOM VIEW)

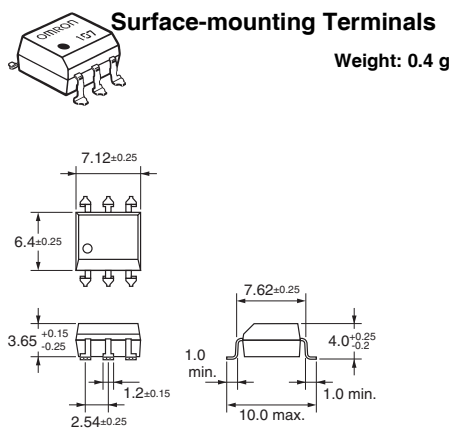
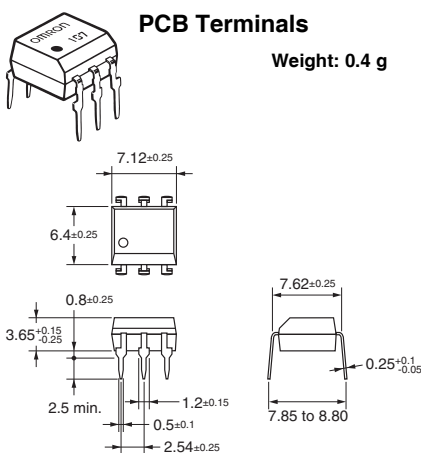


Actual Mounting Pad Dimensions (Recommended Value, Top View)

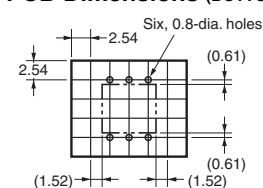


Note: The actual product is marked differently from the image shown here.

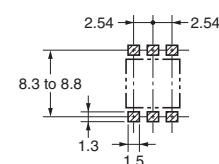
DIP6



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□

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