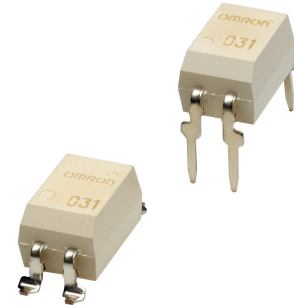


G3VM-□AR□/□DR□

MOSFET Relays DIP 4-pin, High-current and Low-ON-resistance Type

MOSFET Relays in DIP 4-pin packages that achieve the low ON resistance and high switching capacity of a mechanical relay

- Load voltage: 30 V, 60 V, 100 V, or 200 V
- 30-V Relay: Continuous load current of 4 A max.
- 60-V Relay: Continuous load current of 3 A max.
- 100-V Relay: Continuous load current of 2 A max.
- 200-V Relay: Continuous load current of 0.7 A max.



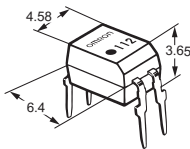
Note: The actual product is marked differently from the image shown here.

Application Examples

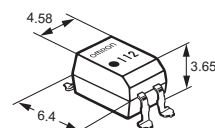
- Communication equipment
- Security equipment
- Power circuit
- Test & Measurement equipment
- Industrial equipment

Package (Unit : mm, Average)

DIP 4-pin
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 5

1. Load Voltage

3 : 30 V
6 : 60 V
10 : 100 V
20 : 200 V

2. Contact form

1 : 1a (SPST-NO)

3. Package

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

4. Additional functions

R : Low ON resistance

5. Other informations

When specifications overlap, serial code is added in the 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)	30 V	4 A	G3VM-31AR	G3VM-31DR	100 pcs.	G3VM-31DR(TR05)	500 pcs.
		60 V	3 A	G3VM-61AR1	G3VM-61DR1		G3VM-61DR1(TR05)	500 pcs.
		100 V	2 A	G3VM-101AR1	G3VM-101DR1		G3VM-101DR1(TR05)	500 pcs.
		200 V	0.7 A	G3VM-201AR	G3VM-201DR		G3VM-201DR(TR05)	500 pcs.

* 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 "(TR05)" to the end of the model number.

■ Absolute Maximum Ratings (Ta = 25°C)

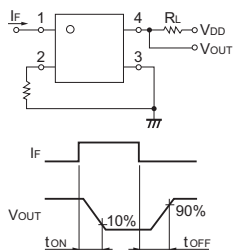
Item		Symbol	G3VM-31AR G3VM-31DR	G3VM-61AR1 G3VM-61DR1	G3VM-101AR1 G3VM-101DR1	G3VM-201AR G3VM-201DR	Unit	Measurement conditions
Input	LED forward current	IF	30				mA	
	Repetitive peak LED forward current	IFP	1				A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔIF/°C	-0.3				mA/°C	Ta ≥ 25°C
	LED reverse voltage	VR	6	6	6		V	
	Connection temperature	TJ	125				°C	
Output	Load voltage (AC peak/DC)	VOFF	30	60	100	200	V	
	Continuous load current (AC peak/DC)	IO	4	3	2	0.7	A	
	ON current reduction rate	ΔIO/°C	-40	-30	-20	-7	mA/°C	Ta ≥ 25°C
	Pulse ON current	Iop	9	9	6	2.1	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 +110	-40 to +110	-40 to +110		°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.

■ Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-31AR G3VM-31DR	G3VM-61AR1 G3VM-61DR1	G3VM-101AR1 G3VM-101DR1	G3VM-201AR G3VM-201DR	Unit	Measurement conditions	
Input	LED forward voltage	V _F	Minimum	1.5	1.5	1.5		V	I _F =10 mA	
			Typical	1.64	1.64	1.64				
			Maximum	1.8	1.8	1.8				
	Reverse current	I _R	Maximum	10					μA	V _R =5 V
	Capacitance between terminals	C _T	Typical	70					pF	V=0, f=1 MHz
	Trigger LED forward current	I _{FT} (I _{FC})	Typical	0.3	0.3	0.4	0.3	mA	G3VM-201AR/201DR: I _o =0.7A Others: I _o =1A	
Maximum			3							
Release LED forward current	I _{FC} (I _{FT})	Minimum	0.1					mA	I _{OFF} =10 μA	
		Typical	0.2	0.2	0.2					
Output	Maximum resistance with output ON	R _{ON}	Typical	25	45	110	900	mΩ	G3VM-31AR/31DR I _F =5mA, t<1s, I _o =4A G3VM-61AR1/61DR1 I _F =5mA, t<1s, I _o =3A G3VM-101AR1/101DR1: I _F =5mA, t<1s, I _o =2A G3VM-201AR/201DR: I _F =5mA, t<1s, I _o =0.7A	
			Maximum	50	100	200	2000			
	Current leakage when the relay is open	I _{LEAK}	Typical	0.01	0.005	0.01	0.04	μA	V _{OFF} =Load voltage ratings	
			Maximum	1						
	Capacitance between terminals	C _{OFF}	Typical	450	250	110		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	0.6	0.45	0.4	0.13	ms	I _F =5 mA, R _L =200 Ω, V _{DD} =20 V *		
		Maximum	3	2	2	1				
Turn-OFF time	t _{OFF}	Typical	0.3	0.2	0.2	0.14				
		Maximum	1		0.5					

* Turn-ON and Turn-OFF Times



■ 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.

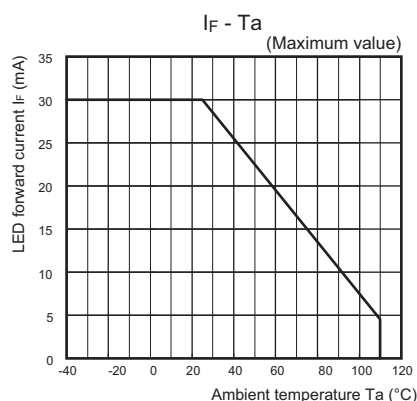
Item	Symbol		G3VM-31AR G3VM-31DR	G3VM-61AR1 G3VM-61DR1	G3VM-101AR1 G3VM-101DR1	G3VM-201AR G3VM-201DR	Unit
Load voltage (AC peak/DC)	V _{DD}	Maximum	24	48	80	160	V
Operating LED forward current	I _F	Minimum	5				mA
		Typical	10				
		Maximum	25				
Continuous load current (AC peak/DC)	I _O	Maximum	4	3	2	0.7	A
Ambient operating temperature	T _a	Minimum	-20				°C
		Maximum	85	85	85		

■ Spacing and Insulation

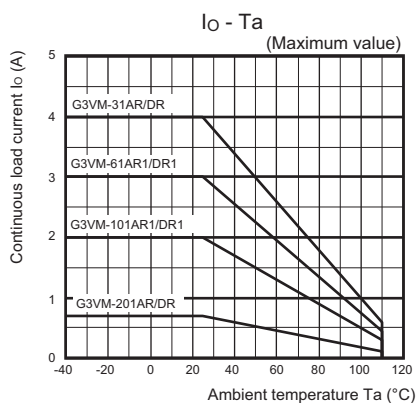
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

■ Engineering Data

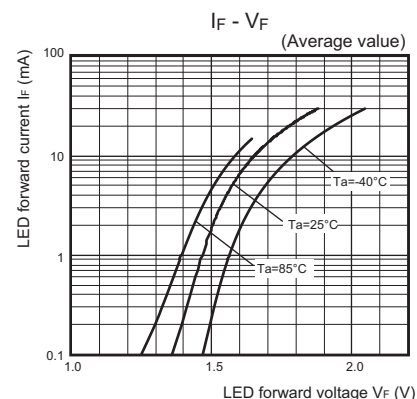
● LED forward current vs. Ambient temperature



● Continuous load current vs. Ambient temperature

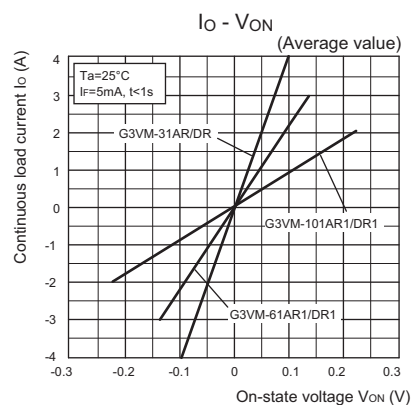


● LED forward current vs. LED forward voltage

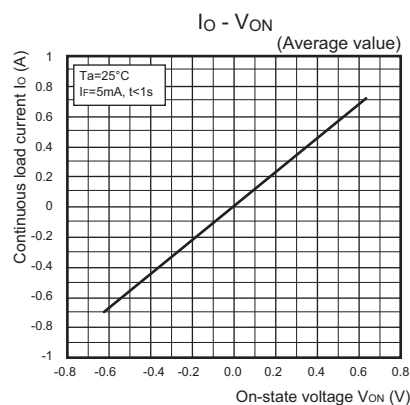


● Continuous load current vs. On-state voltage

G3VM-31AR/31DR/61AR1/61DR1/
101AR1/101DR1

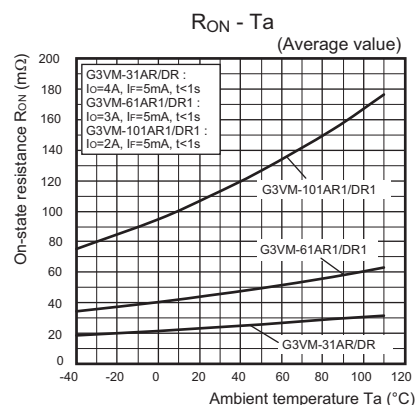


G3VM-201AR/201DR

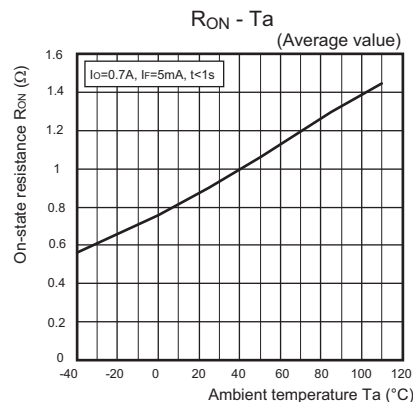


● On-state resistance vs. Ambient temperature

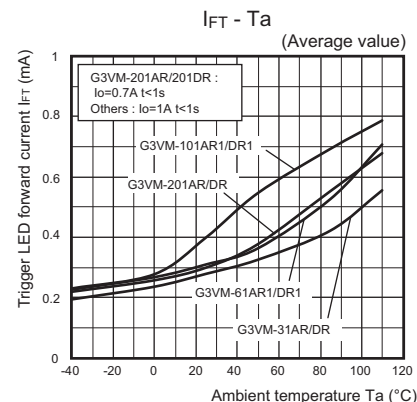
G3VM-31AR/31DR/61AR1/61DR1/
101AR1/101DR1



G3VM-201AR/201DR



● Trigger LED forward current vs. Ambient temperature

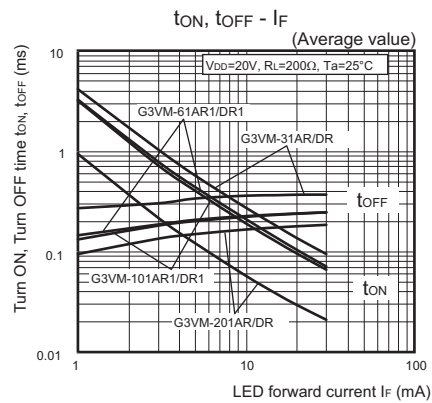


DIP

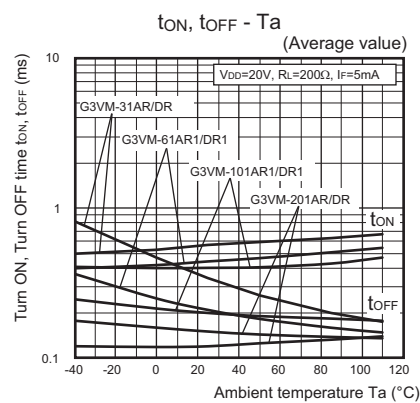
G3VM-□AR□/□DR□

Engineering Data

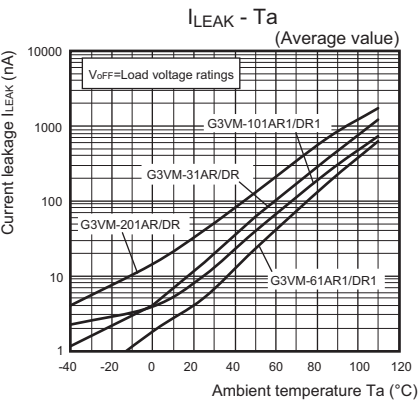
- Turn ON, Turn OFF time vs. LED forward current



- Turn ON, Turn OFF time vs. Ambient temperature



- Current leakage vs. Ambient temperature



DIP

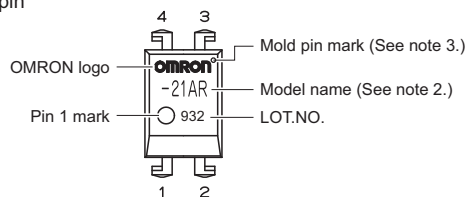
G3VM-AR/DR

■ Appearance / Terminal Arrangement / Internal Connections

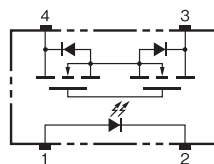
● Appearance

DIP (Dual Inline Package)

DIP 4-pin



● Terminal Arrangement/Internal Connections (Top View)



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.

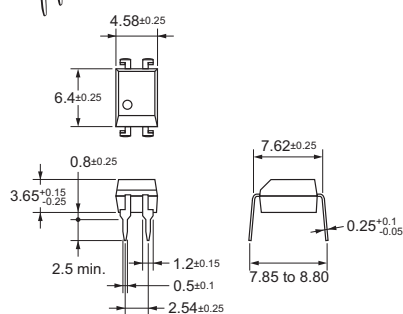
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■ Dimensions (Unit: mm)



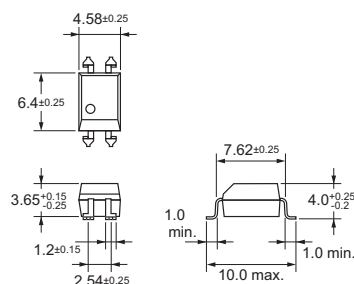
PCB Terminals

Weight: 0.25 g

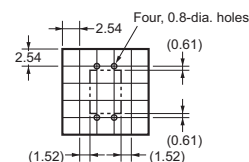


Surface-mounting Terminals

Weight: 0.25 g

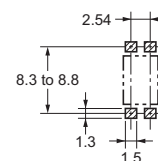


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



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

■ Approved Standards

UL recognized 

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■ Safety Precautions

- Refer to the *Common Precautions for All MOSFET Relays* for precautions that apply to all MOSFET Relays.

DIP

G3VM-□AR□/□DR□

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

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Device & Module Solutions Company

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