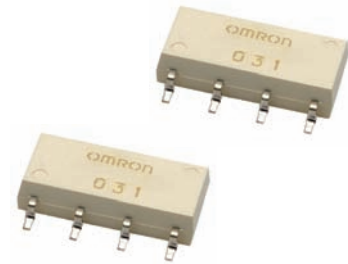


# G3VM-□J□

MOS FET Relays SOP 8-pin, Multi-contact-pair Type

## MOS FET Relays in SOP 8-pin packages with multiple contact pairs for a wide range of circuits

- Contact form: 2a (DPST-NO), 2b (DPST-NC), 1a1b (SPST-NO/SPST-NC)
- Load voltage: 60 V, 200 V, 350 V, or 400 V



RoHS Compliant

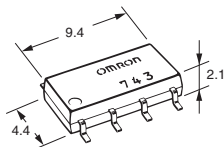
Note: The actual product is marked differently from the image shown here.

### Application Examples

- Semiconductor test equipment
- Test & Measurement equipment
- Communication equipment
- Security equipment
- Industrial equipment
- Power circuit
- Amusement equipment

### Package (Unit : mm, Average)

SOP 8-pin



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

### Model Number Legend

G3VM-□□□□□  
1 2 3 4 5

#### 1. Load Voltage

6 : 60 V  
20 : 20 V  
35 : 350 V  
40 : 400 V

#### 2. Contact form

2 : 2a (DPST-NO)  
4 : 2b (DPST-NC)  
5 : 1a1b (SPST-NO/SPST-NC)

#### 3. Package

J : SOP 8-pin

#### 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	Terminals	Load voltage (peak value) *	Continuous load current (peak value) *	Stick packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SOP8	2a (DPST-NO)	Surface-mounting Terminals	60 V	400 mA	G3VM-62J1	50 pcs.	G3VM-62J1(TR)	2,500 pcs.
			200 V	200 mA	G3VM-202J1		G3VM-202J1(TR)	
	350 V		120 mA	G3VM-355JR	G3VM-355JR(TR)			
			110 mA	G3VM-352J	G3VM-352J(TR)			
	400 V		120 mA	G3VM-354J	G3VM-354J(TR)			
					G3VM-402J		G3VM-402J(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)

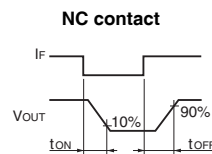
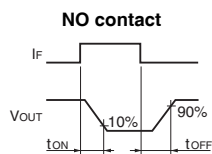
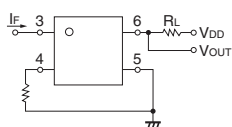
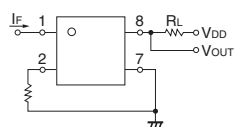
Item		Symbol	G3VM-62J1	G3VM-202J1	G3VM-355JR	G3VM-352J	G3VM-354J	G3VM-402J	Unit	Measurement conditions	
Input	LED forward current	IF	50							mA	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5							mA/°C	Ta ≥ 25°C
	LED reverse voltage	VR	5							V	
	Connection temperature	TJ	125							°C	
Output	Load voltage (AC peak/DC)	V <sub>OFF</sub>	60	200	350			400	V		
	Continuous load current (AC peak/DC)	Io	400	200	120	110	120		mA		
	ON current reduction rate	$\Delta I_o/^\circ\text{C}$	-4.0	-2.0	-1.2	-1.1	-1.2		mA/°C	Ta ≥ 25°C	
	Pulse ON current	I <sub>op</sub>	1,200	600	360	330	360		mA	t=100 ms, Duty=1/10	
	Connection temperature	TJ	125							°C	
Dielectric strength between I/O *		V <sub>I-O</sub>	1500							V <sub>rms</sub>	AC for 1 min
Ambient operating temperature		Ta	-40 to +85							°C	With no icing or condensation
Ambient storage temperature		T <sub>stg</sub>	-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-62J1	G3VM-202J1	G3VM-355JR	G3VM-352J	G3VM-354J	G3VM-402J	Unit	Measurement conditions	
Input	LED forward voltage	Minimum	1.0						V	If=10 mA	
		Typical	1.15								
		Maximum	1.3								
	Reverse current	IR	Maximum	10						μA	VR=5 V
	Capacitance between terminals	CT	Typical	30						pF	V=0, f=1 MHz
Trigger LED forward current	IFT (IFC) *2	Typical	1.6	1					mA	G3VM-62J1/202J1/352J/402J : Io=Continuous load current ratings G3VM-355JR : 1a : Io=120 mA, 1b : Ioff=10 μA G3VM-354J : Ioff=10 μA	
		Maximum	3								
Release LED forward current	IFC (IFT) *2	Minimum	0.1						mA	G3VM-62J1/202J1/352J/402J : Ioff=100 μA G3VM-355JR : 1a : Ioff=10 μA, 1b : Io=120 mA G3VM-354J : Io=120 mA	
Output	Maximum resistance with output ON	Typical	1	5	15	35 (25)	15	17	Ω	G3VM-62J1/202J1/352J/402J : If=5 mA, Io=Continuous load current ratings G3VM-355JR : 1a : If=5 mA, Io=120 mA, 1b : If=0, Io=120 mA G3VM-352J : If=5 mA, Io=110 mA, Values in parentheses are for t < 1 s. G3VM-354J : Io=120 mA	
		Maximum	2	8	25	50 (35)	25	35			
	Current leakage when the relay is open	I <sub>LEAK</sub>	Maximum	1						μA	G3VM-62J1/202J1/352J/402J : V <sub>OFF</sub> =Load voltage ratings G3VM-355JR : 1a : V <sub>OFF</sub> =350 V, 1b : V <sub>OFF</sub> =350 V, I <sub>F</sub> =5 mA G3VM-354J : V <sub>OFF</sub> =350 V, I <sub>F</sub> =5 mA
Capacitance between terminals	C <sub>OFF</sub>	Typical	130	100	65	30	65	70	pF	G3VM-62J1/202J1/352J/402J : V=0, f=1 MHz G3VM-355JR : 1a : V=0, f=1 MHz, 1b : V=0, f=1 MHz, f=5 mA G3VM-354J : V=0, f=1 MHz, I <sub>F</sub> =5 mA	
Capacitance between I/O terminals	C <sub>I-O</sub>	Typical	0.8						pF	f=1 MHz, V <sub>s</sub> =0 V	
Insulation resistance between I/O terminals	R <sub>I-O</sub>	Minimum	1000						MΩ	V <sub>I-O</sub> =500 VDC, RoH≤60%	
		Typical	10 <sup>8</sup>								
Turn-ON time	t <sub>ON</sub>	Typical	0.8	0.6	–	0.3	–	0.3	ms	If=0.5 mA, RL=200 Ω, VDD=20 V *1	
		Maximum	2	1.5	1a : 1 1b : 1	1					
Turn-OFF time	t <sub>OFF</sub>	Typical	0.1		–	0.1	–	0.1	ms	If=0.5 mA, RL=200 Ω, VDD=20 V *1	
		Maximum	0.5	1	1a : 1 1b : 3	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.

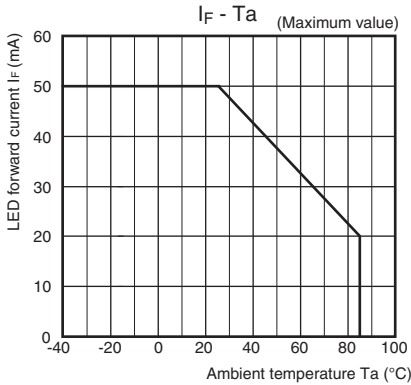
Item	Symbol		G3VM-62J1	G3VM-202J1	G3VM-355JR	G3VM-352J	G3VM-354J	G3VM-402J	Unit	
Load voltage (AC peak/DC)	V <sub>DD</sub>	Maximum	48	200	280			320	V	
Operating LED forward current	I <sub>F</sub>	Minimum	5						mA	
		Typical	7.5			–	10	–		7.5
		Maximum	25							
Continuous load current (AC peak/DC)	I <sub>o</sub>	Maximum	400	130	120	100	120			
Ambient operating temperature	T <sub>a</sub>	Minimum	-20						°C	
		Maximum	65							

## Spacing and Insulation

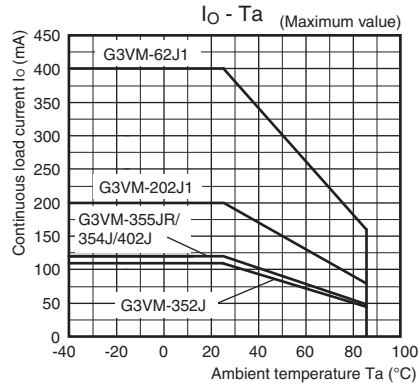
Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

## Engineering Data

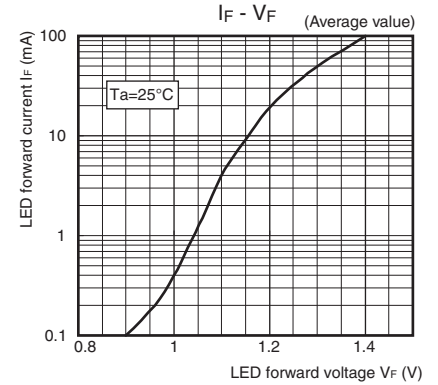
### LED forward current vs. Ambient temperature



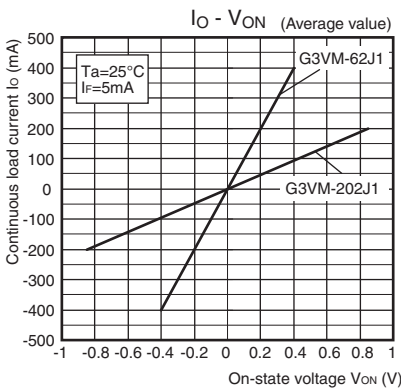
### Continuous load current vs. Ambient temperature



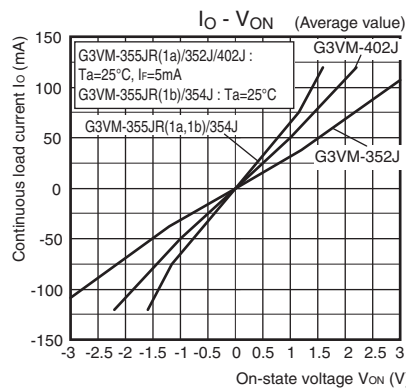
### LED forward current vs. LED forward voltage



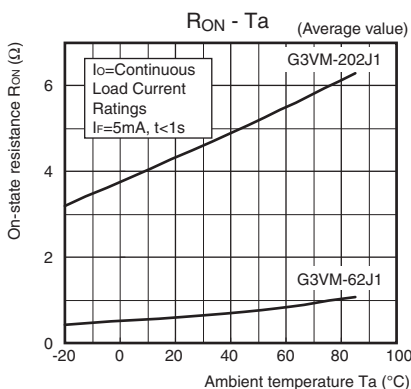
### Continuous load current vs. On-state voltage



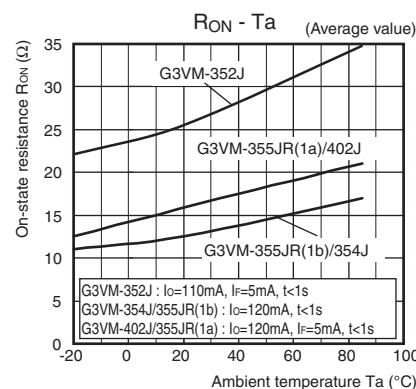
### G3VM-355JR/352J/354J/402J



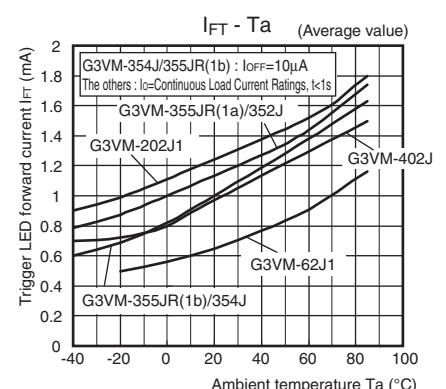
### On-state resistance vs. Ambient temperature



### G3VM-355JR/352J/354J/402J

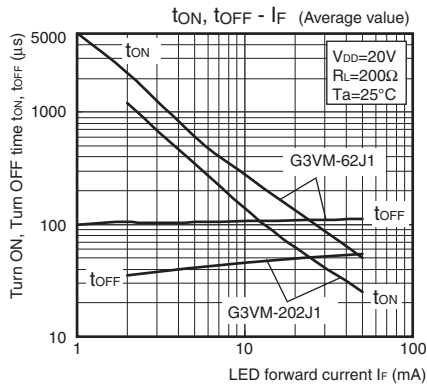


### Trigger LED forward current vs. Ambient temperature

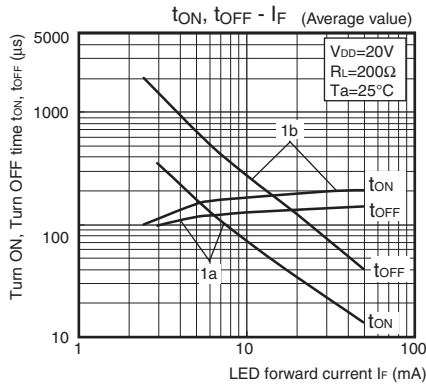


## Engineering Data

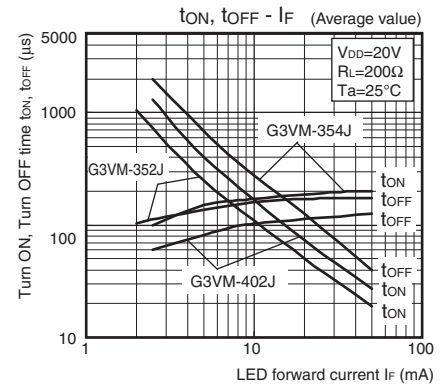
### ● Turn ON, Turn OFF time vs. LED forward current G3VM-62J1/202J1



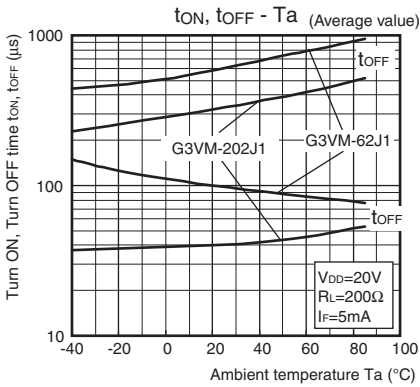
### G3VM-355JR



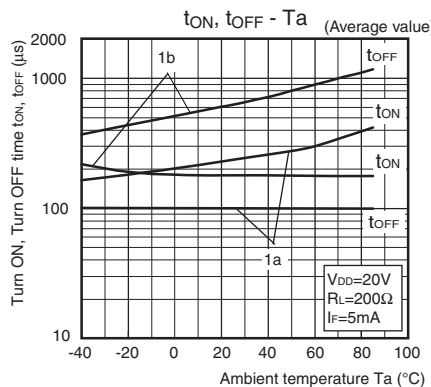
### G3VM-352J/354J/402J



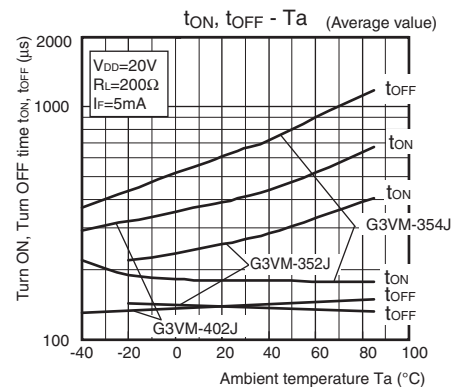
### ● Turn ON, Turn OFF time vs. Ambient temperature G3VM-62J1/202J1



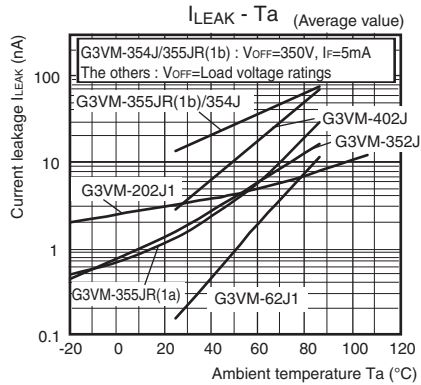
### G3VM-355JR



### G3VM-352J/354J/402J



### ● Current leakage vs. Ambient temperature



SOP

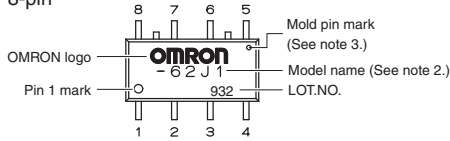
G3VM-□J□

## ■ Appearance / Terminal Arrangement / Internal Connections

### ● Appearance

#### SOP (Small Outline Package)

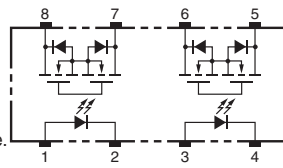
SOP 8-pin



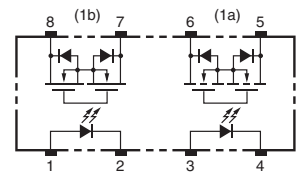
- Note 1:** The actual product is marked differently from the image shown here.
- Note 2:** "G3VM" does not appear in the model number on the Relay.
- Note 3:** The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

### ● Terminal Arrangement/Internal Connections (Top View)

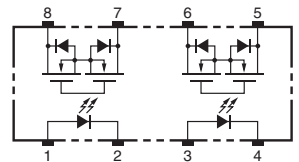
G3VM-62J1/202J1/352J/402J



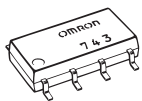
G3VM-355JR



G3VM-354J

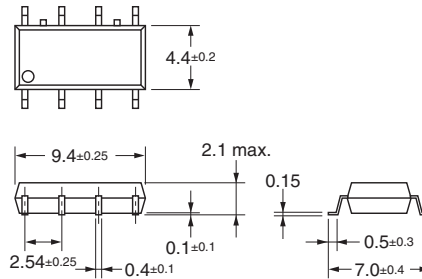


### ■ Dimensions (Unit: mm)



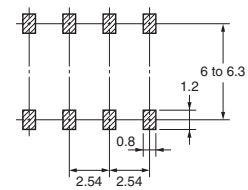
#### Surface-mounting Terminals

Weight: 0.2 g



#### 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-62J1	UL (recognized)	2a (DPST-NO)	E80555
G3VM-202J1		1a1b (SPST-NO/SPST-NC)	
G3VM-355JR		2a (DPST-NO)	
G3VM-352J		2b (DPST-NC)	
G3VM-354J		2a (DPST-NO)	
G3VM-402J			

Models Certified by BSI for EN/IEC Standards

Model	Approved Standards	Contact form	File No.
G3VM-402J	EN62368-1 (BSI certified)	2a (DPST-NO)	VC669262

### ■ Safety Precautions

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

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

## OMRON Corporation

Electronic and Mechanical Components Company

### Regional Contact

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