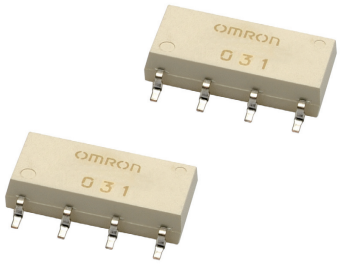
G3VM-□J□

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**



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

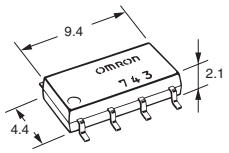
RoHS Compliant

■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)**	
	1a1b (SPST-NO/ SPST-NC)		350 V	120 mA	**G3VM-355JR**		**G3VM-355JR(TR)**	
	2a (DPST-NO)			110 mA	**G3VM-352J**		**G3VM-352J(TR)**	
	2b (DPST-NC)			120 mA	**G3VM-354J**		**G3VM-354J(TR)**	
	2a (DPST-NO)		400 V		**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)

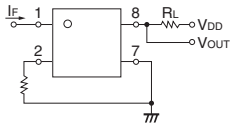
Item		Symbol	G3VM-62J1	G3VM-202J1	G3VM-355JR	G3VM-352J	G3VM-354J	G3VM-402J	Unit	Measurement conditions
Input	LED forward current	I_F	50						mA	
	LED forward current reduction rate	ΔI_F/°C	-0.5						mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5						V	
	Connection temperature	T_J	125						°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	60	200	350			400	V	
	Continuous load current (AC peak/DC)	I_O	400	200	120	110	120		mA	
	ON current reduction rate	ΔI_O/°C	-4.0	-2.0	-1.2	-1.1	-1.2		mA/°C	Ta ≥ 25°C
	Pulse ON current	Iop	1,200	600	360	330	360		mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125						°C	
Dielectric strength between I/O ✻		V_{I-O}	1500						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

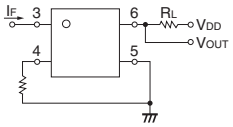
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

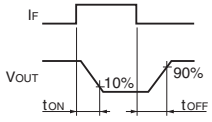
Item		Symbol		G3VM-62J1	G3VM-202J1	G3VM-355JR	G3VM-352J	G3VM-354J	G3VM-402J	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0						V	I_F=10 mA
			Typical	1.15							
			Maximum	1.3							
	Reverse current	I_R	Maximum	10						μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	30						pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT} (I_{FC}) ✻2	Typical	1.6	1					mA	G3VM-62J1/202J1/352J/402J : I_O=Continuous load current ratings G3VM-355JR : 1a : I_O=120 mA, 1b : I_{OFF}=10 μA G3VM-354J : I_{OFF}=10 μA
			Maximum	3							
	Release LED forward current	I_{FC} (I_{FT}) ✻2	Minimum	0.1						mA	G3VM-62J1/202J1/352J/402J : I_{OFF}=100 μA G3VM-355JR : 1a : I_{OFF}=10 μA, 1b : I_O=120 mA G3VM-354J : I_O=120 mA
Output	Maximum resistance with output ON	R_{ON}	Typical	1	5	15	35 (25)	15	17	Ω	G3VM-62J1/202J1/352J/402J : I_F=5 mA, I_O=Continuous load current ratings G3VM-355JR : 1a : I_F=5 mA, I_O=120 mA, 1b : I_F=0, I_O=120 mA G3VM-352J : I_F=5 mA, I_O=110 mA, Values in parentheses are for t < 1 s. G3VM-354J : I_O=120 mA
			Maximum	2	8	25	50 (35)	25	35		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1						μA	G3VM-62J1/202J1/352J1/402J : V_{OFF}=Load voltage ratings G3VM-355JR : 1a : V_{OFF}=350 V, 1b : V_{OFF}=350 V, I_F=5 mA G3VM-354J : V_{OFF}=350 V, I_F=5 mA
	Capacitance between terminals	C_{OFF}	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_F=5 mA
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, RoH≤60%
			Typical	10^8							
Turn-ON time		t_{ON}	Typical	0.8	0.6	–	0.3	–	0.3	ms	I_F=0.5 mA, R_L=200 Ω, V_{DD}=20 V ✻1
			Maximum	2	1.5	1a : 1 1b : 1	1				
Turn-OFF time		t_{OFF}	Typical	0.1		–	0.1	–	0.1		
			Maximum	0.5	1	1a : 1 1b : 3	1	3	1		

✻1. Turn-ON and Turn-OFF Times

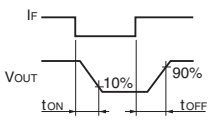




NO contact



NC contact



✻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.

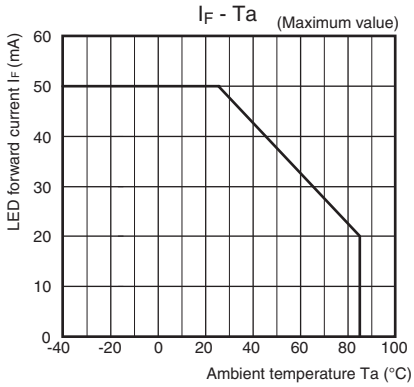
Item	Symbol		G3VM-62J1	G3VM-202J1	G3VM-355JR	G3VM-352J	G3VM-354J	G3VM-402J	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	48	200	280			320	V
Operating LED forward current	I_F	Minimum	5						mA
		Typical	7.5		–	10	–	7.5	
		Maximum	25						
Continuous load current (AC peak/DC)	I_O	Maximum	400	130	120	100	120		
Ambient operating temperature	Ta	Minimum	-20						°C
		Maximum	65						

■Spacing and Insulation

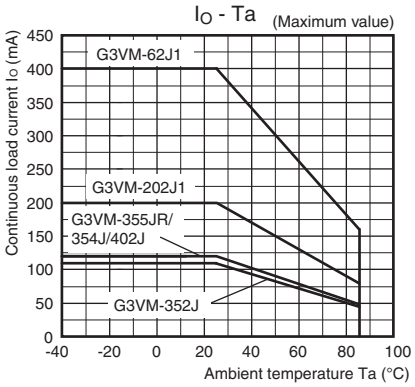
Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

■Engineering Data

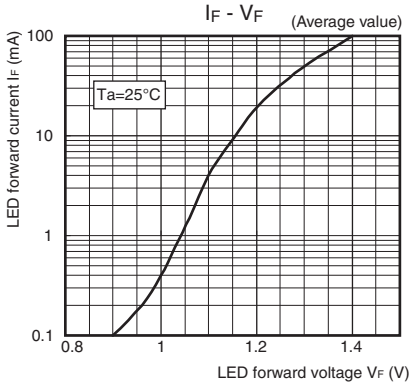
●LED forward current vs. Ambient temperature



●Continuous load current vs. Ambient temperature

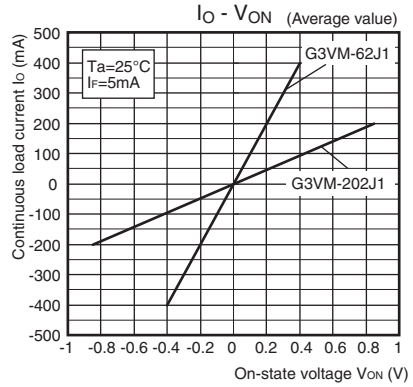


●LED forward current vs. LED forward voltage

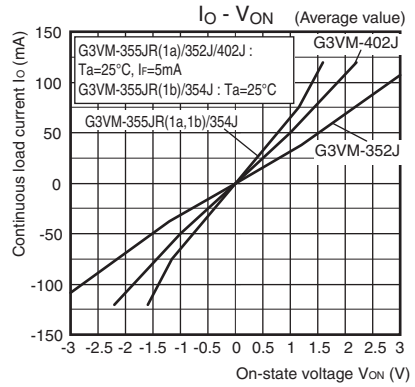


●Continuous load current vs. On-state voltage

G3VM-62J1/202J1

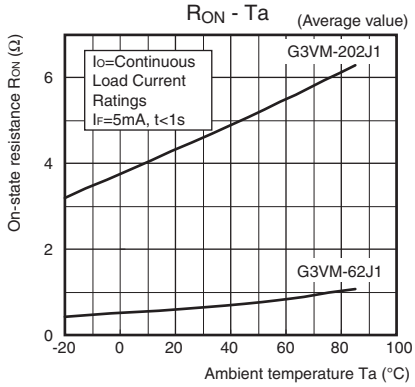


G3VM-355JR/352J/354J/402J

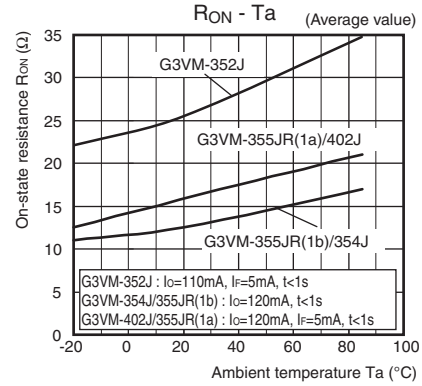


●On-state resistance vs. Ambient temperature

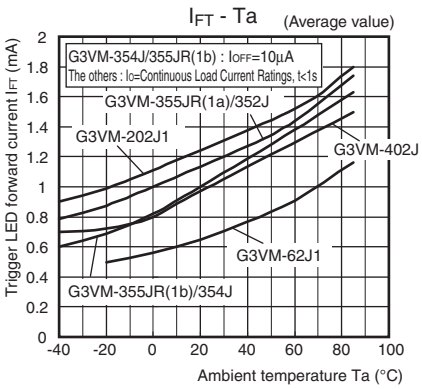
G3VM-62J1/202J1



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



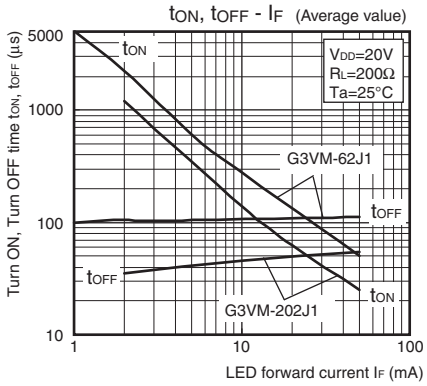
●Trigger LED forward current vs. Ambient temperature



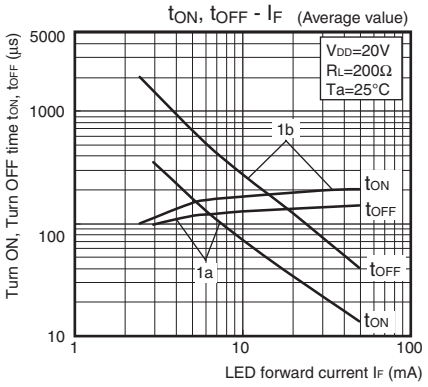
■Engineering Data

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

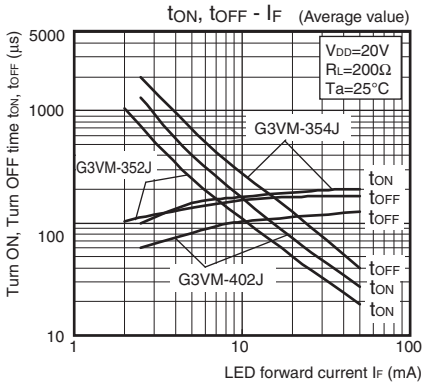
G3VM-62J1/202J1



G3VM-355JR

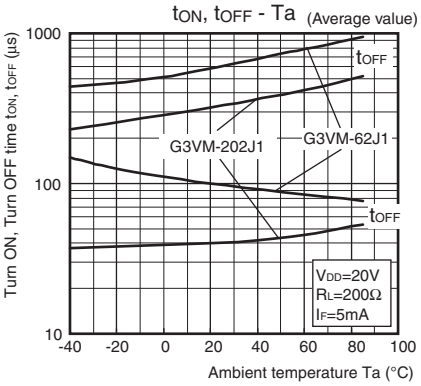


G3VM-352J/354J/402J

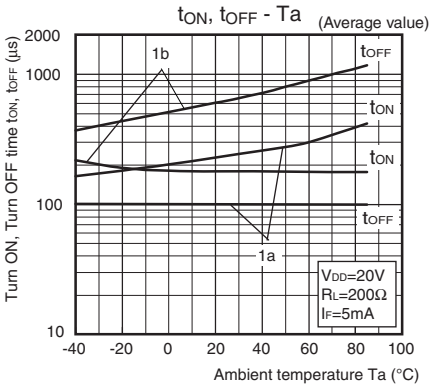


● **Turn ON, Turn OFF time vs. Ambient temperature**

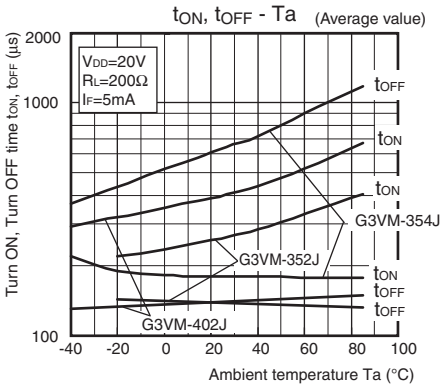
G3VM-62J1/202J1



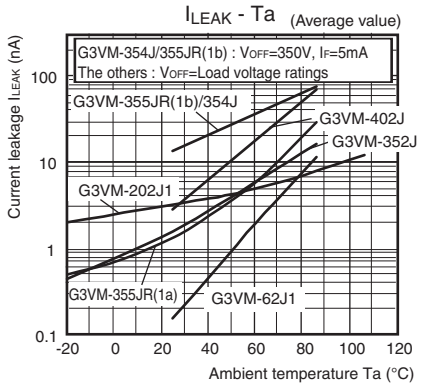
G3VM-355JR



G3VM-352J/354J/402J



● **Current leakage vs. Ambient temperature**



SOP

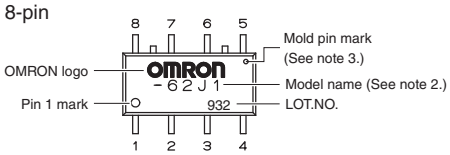
G3VM-□J□

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

SOP (Small Outline Package)

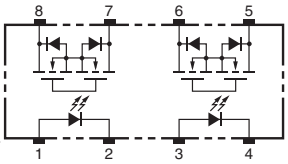
SOP 8-pin



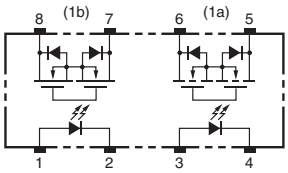
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

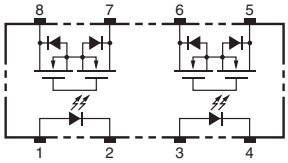
G3VM-62J1/202J1/352J/402J



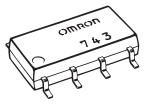
G3VM-355JR



G3VM-354J

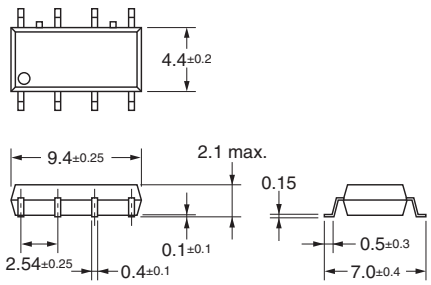


■Dimensions (Unit: mm)



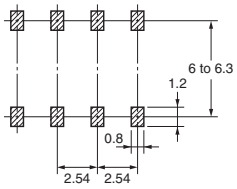
Surface-mounting Terminals

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			
G3VM-355JR		1a1b (SPST-NO/SPST-NC)	
G3VM-352J		2a (DPST-NO)	
G3VM-354J		2b (DPST-NC)	
G3VM-402J		2a (DPST-NO)	

Models Certified by SEMKO for EN/IEC Standards

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

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

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Electronic and Mechanical Components Company

Regional Contact

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0121(0816)(O)