

# G3VM-355JR

MOS FET Relays

## SPST-NO + SPST-NC MOS FET Relay in a Single SOP Package.

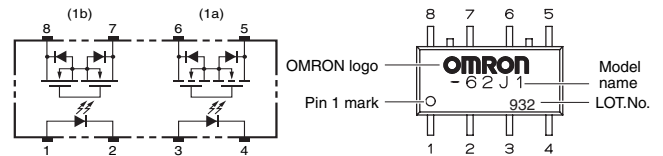
- SPST-NO/SPST-NC models with SOP 8-pin package now available in the 350-V load voltage series.

RoHS compliant

### Application Examples

- Broadband systems
- Test & Measurement equipment
- Data loggers
- Amusement machines

### Terminal Arrangement/Internal Connections



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

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### List of Models

Package type	Contact form	Terminals	Load voltage (peak value) *	Model	Minimum package quantity	
					Number per tube	Number per tape and reel
SOP8	1a1b (SPST-NO/SPST-NC)	Surface-mounting Terminals	350 V	G3VM-355JR	50	-
				G3VM-355JR (TR)	-	2,500

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

### Absolute Maximum Ratings (Ta = 25°C)

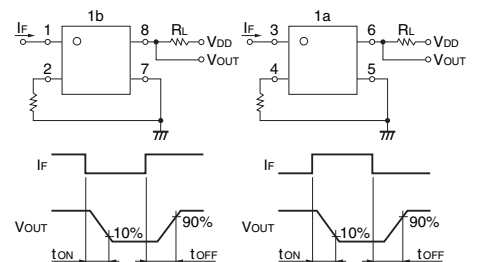
Item	Symbol	Rating	Unit	Measurement conditions	
Input	LED forward current	IF	50	mA	
	Repetitive peak LED forward current	IFP	1	A	
	LED forward current reduction rate	$\Delta I_F / ^\circ C$	-0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	VR	5	V	
	Connection temperature	TJ	125	°C	
Output	Load voltage (AC peak/DC)	V <sub>OFF</sub>	350	V	
	Continuous load current (AC peak/DC)	IO	120	mA	
	ON current reduction rate	$\Delta I_O / ^\circ C$	-1.2	mA/°C	Ta ≥ 25°C
	Connection temperature	TJ	125	°C	
Dielectric strength between I/O (See note 1.)	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	Tstg	-55 to +125	°C	With no icing or condensation	
Soldering temperature	-	260	°C	10 s	

Note: 1. 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	Minimum	Typical	Maximum	Unit	Measurement conditions	
Input	LED forward voltage	V <sub>F</sub>	1.0	1.15	1.3	V	IF = 10 mA
	Reverse current	IR	-	-	10	μA	VR = 5 V
	Capacity between terminals	CT	-	30	-	pF	V = 0, f = 1 MHz
	Trigger LED forward current	I <sub>FT</sub> I <sub>FC</sub>	-	1	3	mA	1a : IO = 120 mA 1b : IOFF = 10 μA
Output	Maximum resistance with output ON	RON	-	15	25	Ω	1a : IF = 5 mA, IO = 120 mA 1b : IF = 0 mA, IO = 120 mA
	Current leakage when the relay is open	I <sub>LEAK</sub>	-	-	1.0	μA	V <sub>OFF</sub> = 350 V
	Capacity between terminals	COFF	-	65	-	pF	(1a) V = 0, f = 1 MHz (1b) V = 0, f = 1 MHz, IF = 5 mA
Capacity between I/O terminals	CI-O	-	0.8	-	pF	f = 1 MHz, Vs = 0 V	
Insulation resistance between I/O terminals	RI-O	1000	-	-	MΩ	V <sub>I-O</sub> = 500 VDC, RoH ≤ 60 %	
Turn-ON time	1a	ton	-	-	1.0	ms	IF = 5 mA, RL = 200 Ω, VDD = 20 V (See note 2.)
	1b	ton	-	-	1.0	ms	
Turn-OFF time	1a	toff	-	-	1.0	ms	
	1b	toff	-	-	3.0	ms	

Note: 2. Turn-ON and Turn-OFF Times



## Recommended Operating Conditions

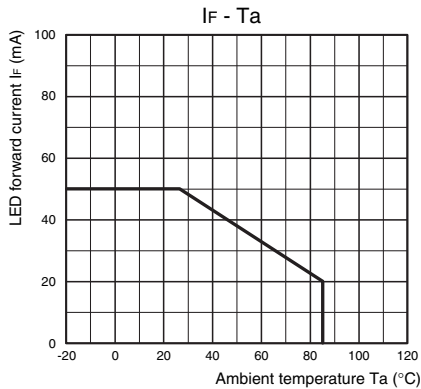
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	$V_{DD}$	-	-	280	V
Operating LED forward current	$I_F$	5	-	25	mA
Continuous load current (AC peak/DC)	$I_O$	-	-	120	mA
Ambient operating temperature	$T_a$	-20	-	65	°C

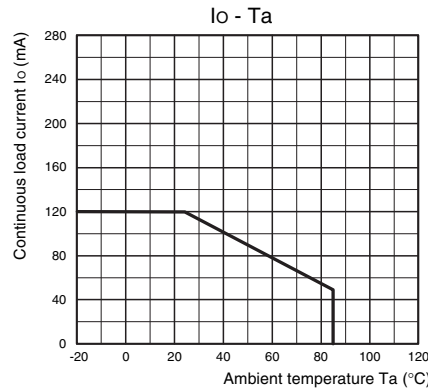
## Engineering Data

(Common to SPST-NO and SPST-NC contacts)

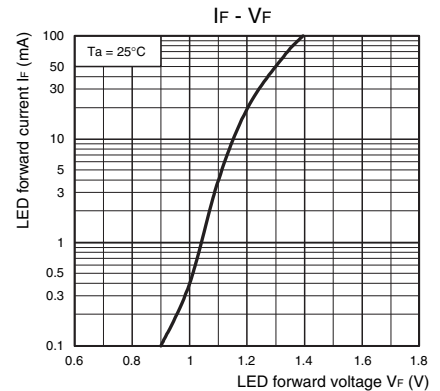
LED forward current vs. Ambient temperature



Continuous load current vs. Ambient temperature

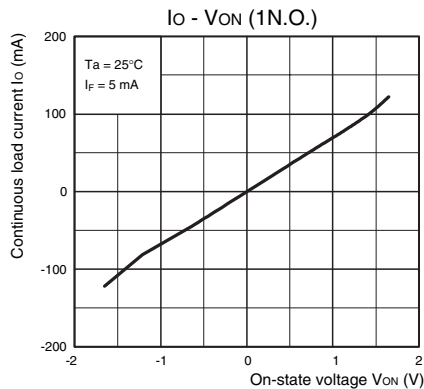


LED forward current vs. LED forward voltage

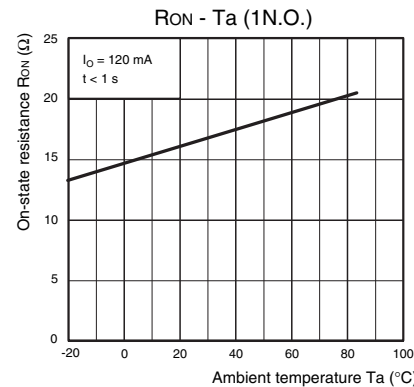


(SPST-NO contacts)

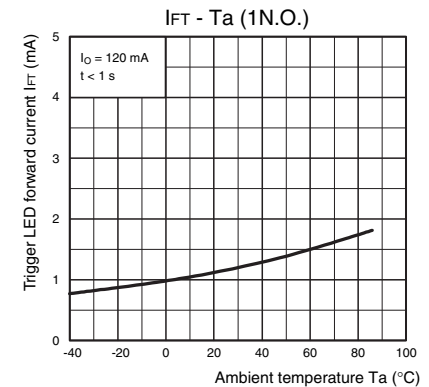
Continuous load current vs. On-state voltage



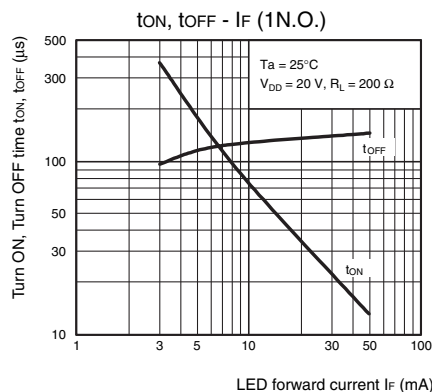
On-state resistance vs. Ambient temperature



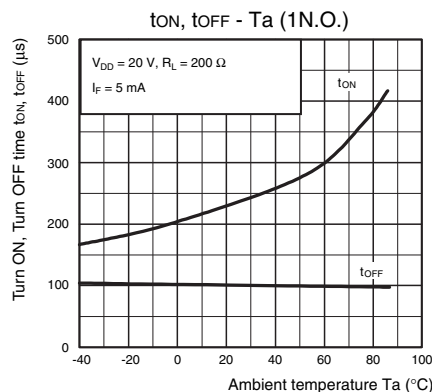
Trigger LED forward current vs. Ambient temperature



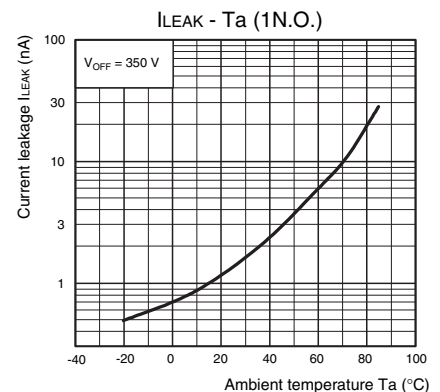
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature

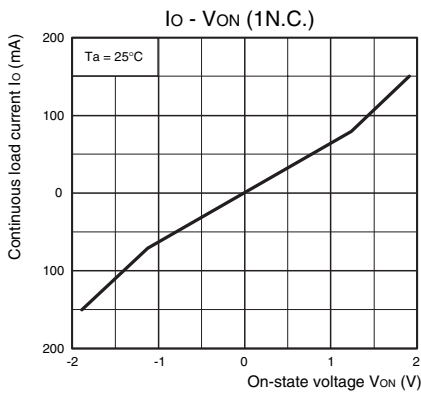


Current leakage vs. Ambient temperature

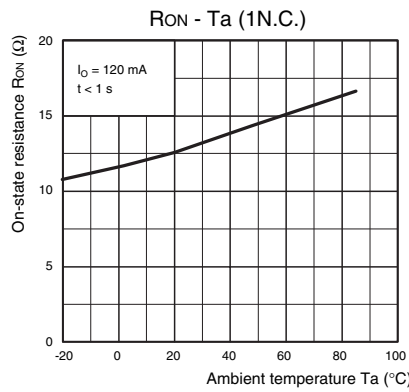


(SPST-NC contacts)

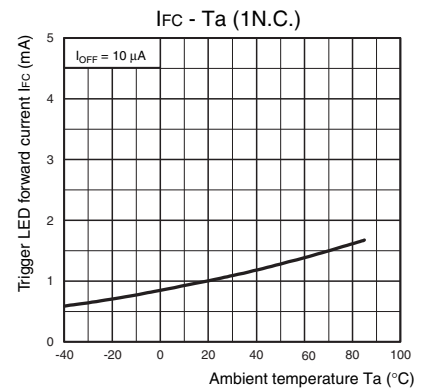
**Continuous load current vs. On-state voltage**



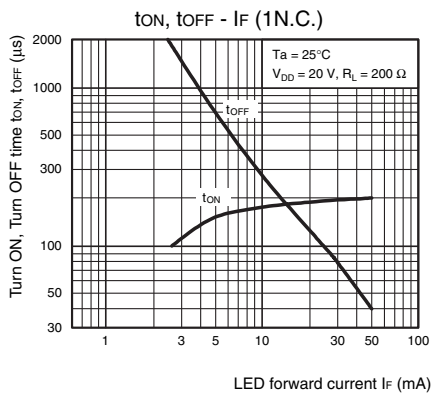
**On-state resistance vs. Ambient temperature**



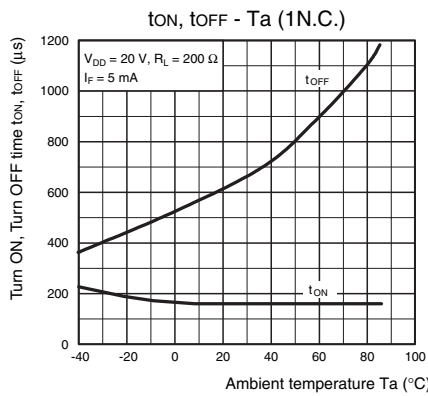
**Trigger LED forward current vs. Ambient temperature**



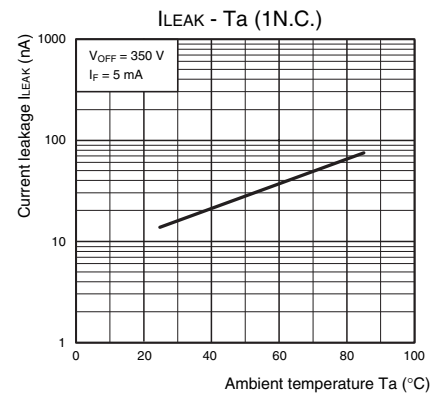
**Turn ON, Turn OFF time vs. LED forward current**



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



**Current leakage vs. Ambient temperature**



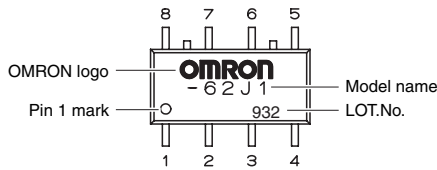
### ■ Safety Precautions

- Refer to "Common Precautions" for all G3VM models.

## ■ Appearance

### SOP (Small Outline Package)

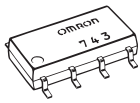
SOP8



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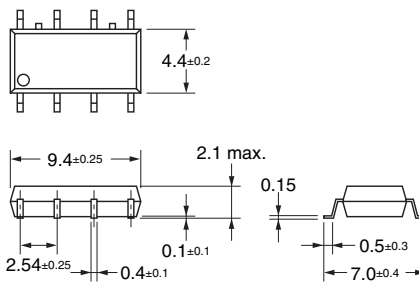
## ■ SOP8

(Unit: mm)



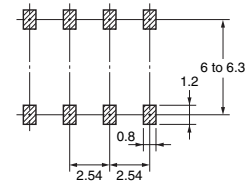
### Surface-mounting Terminals

Weight: 0.2 g



### Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



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

- Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
- Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Note: Do not use this document to operate the Unit.

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