# G3VM-353H MOS FET Relays

# Analog-switching MOS FET Relays with SPST-NC Contact.

• Models in 350-V load voltage series with SPST-NC contacts and SOP 6-pin package.

**RoHS compliant** 

#### ■ Application Examples

- Semiconductor test equipment
- Test & Measurement equipment
- Communication equipment
- Data loggers



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

#### Terminal Arrangement/Internal Connections



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#### ■ List of Models

Package type	Contact form	Terminals	Load voltage	Model	Minimum package quantity	
	Contact Ionin	renninais	(peak value) *	Model	Number per tube	Number per tape and reel
SOP6	1b (SPST-NC)	Surface-mounting Terminals	350 V	G3VM-353H	75	-
			350 V	G3VM-353H (TR)	-	2,500

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

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

Item			Symbol	Symbol Rating Unit Measuremen		Measurement conditions	
	LED forward current		lF	50	mA		
Input	Repetitive peak LED forward current		IFP	1	Α	100 μs pulses, 100 pps	
	LED forward current reduction rate		∆IF/°C	-0.5	mA/°C	Ta ≥ 25°C	
	LED reverse voltage		VR	5	V		
	Connection temperature		TJ	125	°C		
	Load voltage (AC peak/DC)		Voff	350	V		
	Continuous load current	Connection A		120	mA	Connection A: AC peak/DC Connection B and C: DC	
L.		Connection B	lo	120			
but		Connection C		240			
Output	ON current reduction rate	Connection A		-1.2		Ta ≥ 25°C	
•		Connection B	∆lo/°C	-1.2	mA/°C		
		Connection C		-2.4			
	Connection temperature		TJ	125	°C		
Dielectric strength between I/O (See note 1.)		VI-0	1500	Vrms	AC for 1 min		
Ambient operating temperature			Та	-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		VF	1.0	1.15	1.3	V	IF = 10 mA	
	Reverse current		IR	-	-	10	μA	VR = 5 V	
	Capacity between terminals		Ст	-	30	-	pF	V = 0, f = 1 MHz	
	Trigger LED forward current		IFC	-	1.0	3.0	mA	IOFF = 10 μA	Note: 2. Turn-ON and Turn-OFF Times
Output	Maximum	Connection A	Ron	-	15	25	Ω	lo = 120 mA	
	resistance with output ON	Connection B		-	8	14	Ω	lo = 120 mA	
		Connection C		-	4	-	Ω	lo = 240 mA	
	Current leakage when the relay is open		ILEAK	-	-	1.0	μA	Voff = 350 V, If = 5 mA	
	Capacity between terminals		Coff	-	65	-	pF	V = 0, f = 1 MHz, IF = 5 mA	
Capacity between I/O terminals		terminals	CI-O	-	0.8	-	pF	f = 1 MHz, Vs = 0 V	
Insulation resistance between I/O terminals		Ri-o	1000	-	-	MΩ	VI-0 = 500 VDC, RoH $\leq$ 60 %		
Turn-ON time		ton	-	-	1.0	ms	IF = 5 mA, RL = 200 Ω,		
Turn-OFF time		toff	-	-	3.0	ms	VDD = 20 V (See note 2.)		

## G3VM-353H

### 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)	Vdd	-	-	280	V
Operating LED forward current	lf	5	-	25	mA
Continuous load current (AC peak/DC)	lo	-	-	120	mA
Ambient operating temperature	Та	-20	-	65	°C

#### 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



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



### On-state resistance vs. Ambient temperature



Turn ON, Turn OFF time vs. Ambient

 $V_{DD} = 20 \text{ V}, \text{ R}_{L} = 200 \Omega$ 

= 5 mA

ton, toff - Ta

Ambient temperature Ta (°C)

temperature

1200

1000

800

600

400

200

0

-40

-20 0 20 40 60 80 100

torr (µs)

ON, Turn OFF time ton,

Tum

### Ambient Trigg

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



### Current leakage vs. Ambient temperature



#### Safety Precautions

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

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#### ■ Appearance

#### SOP (Small Outline Package)



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

#### Dimensions

(Unit: mm)



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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