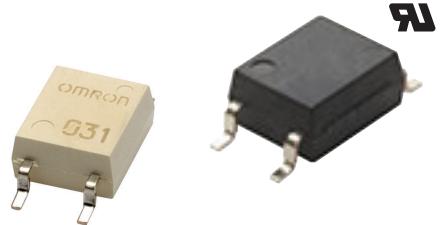


# G3VM-35□G□/351VY/401G□/401VY

MOS FET Relays SOP 4-pin, General-purpose Type

## General-purpose MOS FET Relays in SOP 4-pin packages for a wide range of applications

- Contact form: 1a (SPST-NO) or 1b (SPST-NC)
- Load voltage: 350 V or 400 V



**RoHS Compliant**

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

SOP

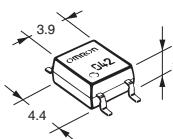
### ■ Application Examples

- Semiconductor test equipment
- Test & Measurement equipment
- Communication equipment
- Various battery-driven devices
- Security equipment
- Industrial equipment
- Power circuit
- Amusement equipment

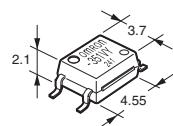
### ■ Package

(Unit : mm, Average)

SOP 4-pin



Special SOP 4-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**  
35 : 350 V      1 : 1a (SPST-NO)  
40 : 400 V      3 : 1b (SPST-NC)

**4. Additional functions**

None: Dielectric strength between I/O 1500 V  
Y: Dielectric strength between I/O 3750 V

**3. Package**

G : SOP 4-pin  
V : Special SOP 4-pin

**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	
SOP4	1a (SPST-NO)	Surface- mounting Terminals	350 V	100 mA	G3VM-351G1	100 pcs.	G3VM-351G1(TR)	2,500 pcs.	
Special SOP 4-PIN				110 mA	G3VM-351VY	125 pcs.	G3VM-351VY(TR05)	500 pcs.	
SOP4	1b (SPST-NC)		400 V	120 mA	G3VM-353G	100 pcs.	G3VM-353G(TR)	3,000 pcs.	
Special SOP 4-PIN	1a (SPST-NO)			100 mA	G3VM-401G1		G3VM-401G1(TR)		
				120 mA	G3VM-401G		G3VM-401G(TR)		
				110mA	G3VM-401VY	125 pcs.	G3VM-401VY(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 "(TR)", "(TR05)" to the end of the model number.

■Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

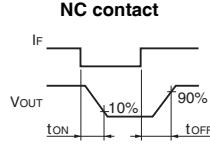
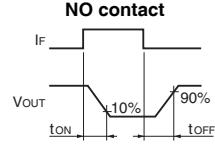
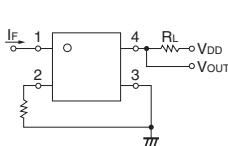
Item		Symbol	G3VM-351G1	G3VM-351VY	G3VM-353G	G3VM-401G1	G3VM-401G	G3VM-401VY	Unit	Measurement conditions
Input	LED forward current	$I_F$	50	30	50	30	50	30	mA	
	LED forward current reduction rate	$\Delta I_F/\text{°C}$	-0.5	-0.3	-0.5	-0.3	-0.5	-0.3	mA/°C	$T_a \geq 25^\circ\text{C}$
	LED reverse voltage	$V_R$	5	6		5		6	V	
	Connection temperature	$T_J$			125				°C	
Output	Load voltage (AC peak/DC)	$V_{OFF}$		350			400		V	
	Continuous load current (AC peak/DC)	$I_O$	100	110	120	100	120	110	mA	
	ON current reduction rate	$\Delta I_O/\text{°C}$	-1.0	-1.1	-1.2	-1.0	-1.2	-1.1	mA/°C	$T_a \geq 25^\circ\text{C}$
	Pulse ON current	$I_{OP}$	300	330	360	300	360	330	mA	$t=100\text{ ms},$ $\text{Duty}=1/10$
	Connection temperature	$T_J$			125				°C	
Dielectric strength between I/O *		$V_{I-O}$	1500	3750		1500		3750	Vrms	AC for 1 min
Ambient operating temperature		$T_a$	-40 to +85	-40 to +110		-40 to +85		-40 to +110	°C	With no icing or condensation
Ambient storage temperature		$T_{STG}$			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 ( $T_a = 25^\circ\text{C}$ )

Item		Symbol	G3VM-351G1	G3VM-351VY	G3VM-353G	G3VM-401G1	G3VM-401G	G3VM-401VY	Unit	Measurement conditions
Input	LED forward voltage	$V_F$	Minimum	1.0	1.1	1.0	1.1	1.1	V	$I_F=10\text{ mA}$
			Typical	1.15	1.27	1.15	1.27	1.15		
			Maximum	1.3	1.4	1.3	1.4	1.4		
	Reverse current	$I_R$	Maximum			10			$\mu\text{A}$	$V_R=5\text{ V}$
	Capacitance between terminals	$C_T$	Typical			30			$\text{pF}$	$V=0, f=1\text{ MHz}$
	Trigger LED forward current	$I_{FT} (I_{FC})$ *2	Typical	0.4	0.8	1	-	1	$\text{mA}$	G3VM-351G1/401G1 : $I_O=100\text{ mA}$ G3VM-351VY/401VY : $I_O=110\text{ mA}$ G3VM-353G : $I_{OFF}=10\text{ }\mu\text{A}$ G3VM-401G : $I_O=120\text{ mA}$
			Maximum	1	3		0.2	3		
	Release LED forward current	$I_{FC} (I_{FT})$ *2	Minimum		0.1		-	0.1	$\text{mA}$	G3VM-351G1/351VY/401G1/401G/ 401VY : $I_{OFF}=100\text{ }\mu\text{A}$ G3VM-353G : $I_O=120\text{ mA}$
			Typical	-	0.4	-	0.001	-	$\text{mA}$	
Output	Maximum resistance with output ON	$R_{ON}$	Typical	35 (25)	35 (22)	15	18	17	40 (30)	$\Omega$
			Maximum	50 (35)		25	35		65 (45)	
	Current leakage when the relay is open	$I_{LEAK}$	Typical	1	1	-	1	-	1	$\text{nA}$
			Maximum			1,000				
	Capacitance between terminals	$C_{OFF}$	Typical	35	30	65	70		30	$\text{pF}$
	Capacitance between I/O terminals	$C_{I-O}$	Typical			0.8				$\text{pF}$
	Insulation resistance between I/O terminals	$R_{I-O}$	Minimum			1000			$\text{M}\Omega$	$V_{I-O}=500\text{ VDC}, \text{RoH}\leq 60\%$
			Typical			10 <sup>8</sup>				
Turn-ON time	$t_{ON}$	Typical	1	0.5	-	2	0.3	0.5	$\text{ms}$	G3VM-351G1 : $I_F=2\text{ mA}, R_L=200\text{ }\Omega, V_{DD}=20\text{ V}$ G3VM-401G1 : $I_F=0.5\text{ mA}, R_L=200\text{ }\Omega, V_{DD}=20\text{ V}$ Others : $I_F=5\text{ mA}, R_L=200\text{ }\Omega, V_{DD}=20\text{ V}$ *1
		Maximum	5	1		10	1			
Turn-OFF time	$t_{OFF}$	Typical	1	0.1	-	1	0.1			
		Maximum	3	0.5	3	5	1	0.5		

\*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.

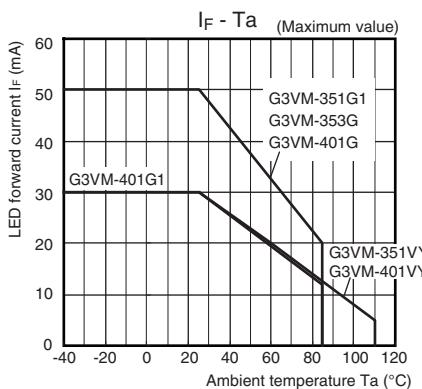
Item	Symbol	G3VM-351G1	G3VM-351VY	G3VM-353G	G3VM-401G1	G3VM-401G	G3VM-401VY	Unit
Load voltage (AC peak/DC)	V <sub>DD</sub>	Maximum	280			320		V
Operating LED forward current	I <sub>F</sub>	Minimum	–	5	–	5		mA
		Typical	2	7.5	–	0.5	7.5	
		Maximum			25			
Continuous load current (AC peak/DC)	I <sub>O</sub>	Maximum	80	110	120	80	120	110
Ambient operating temperature	T <sub>A</sub>	Minimum			-20			°C
		Maximum	65	100	65		100	

## ■ Spacing and Insulation

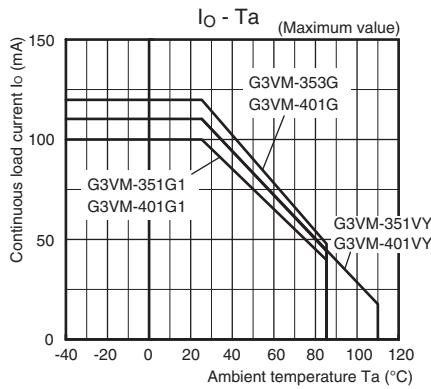
Item	G3VM-35□G□/401G□	G3VM-351VY/401VY	Unit
	Minimum		
Creepage distances	4.0	5.0	mm
Clearance distances	4.0	5.0	
Internal isolation thickness	0.1	0.2	

### ■Engineering Data

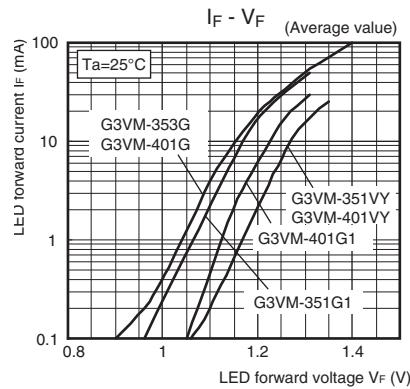
● LED forward current vs.  
Ambient temperature



● Continuous load current vs.  
Ambient temperature

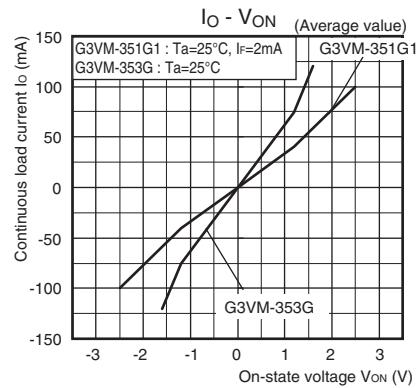


● LED forward current vs.  
LED forward voltage



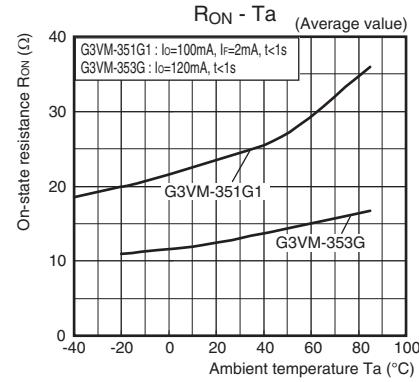
● Continuous load current vs.  
On-state voltage

G3VM-351G1/353G



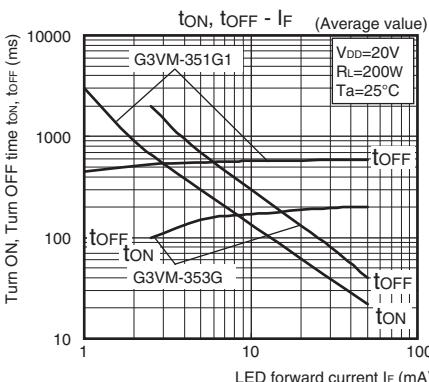
● On-state resistance vs.  
Ambient temperature

G3VM-351G1/353G

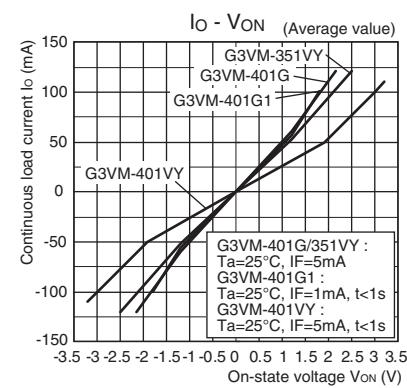


● Turn ON, Turn OFF time vs.  
LED forward current

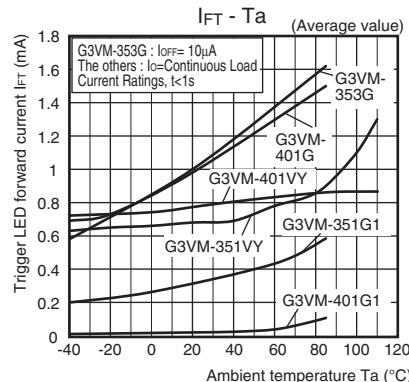
G3VM-351G1/353G



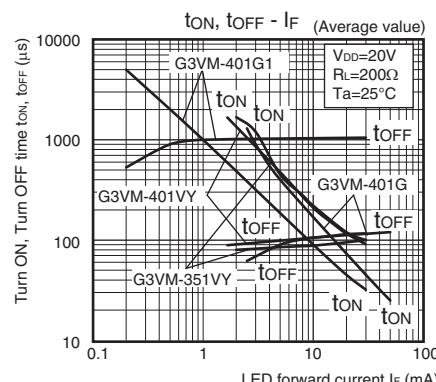
G3VM-351VY/401G/401G1/401VY



● Trigger LED forward current vs.  
Ambient temperature



G3VM-351VY/401G/401G1/401VY

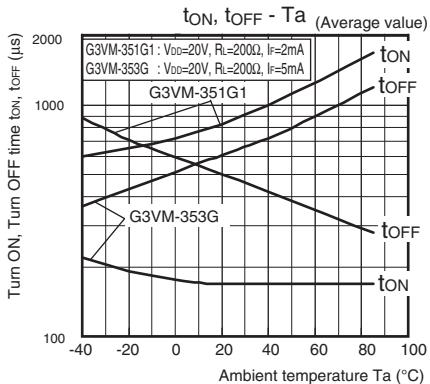


### ■Engineering Data

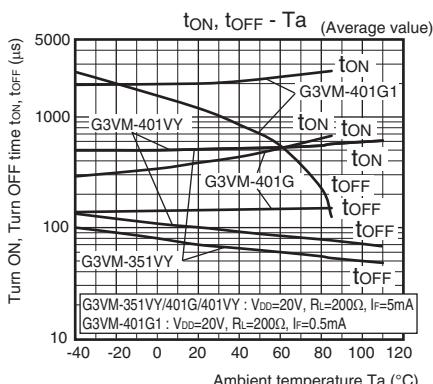
#### ● Turn ON, Turn OFF time vs.

##### Ambient temperature

G3VM-351G1/353G

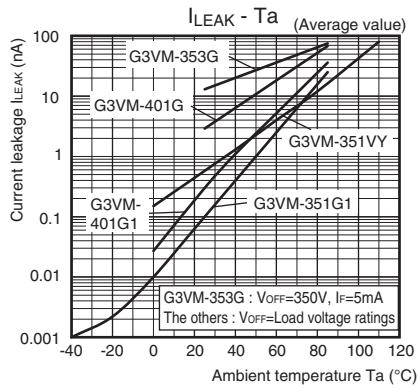


G3VM-351VY/401G1/401VY

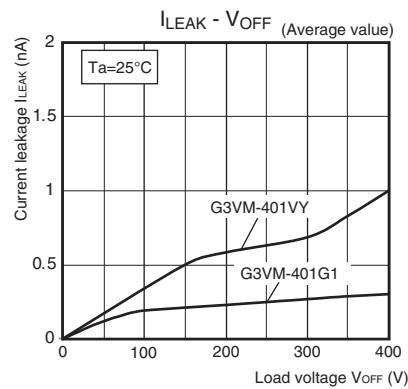
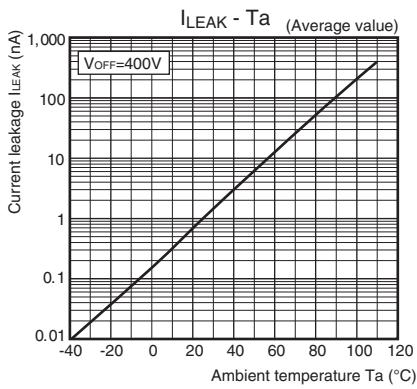


#### ● Current leakage vs. Ambient temperature

G3VM-351G1/353G/351VY/401G/  
401G1



G3VM-401VY

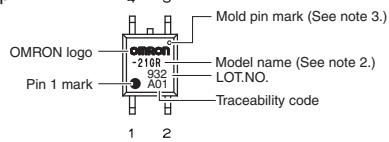


### ■Appearance / Terminal Arrangement / Internal Connections

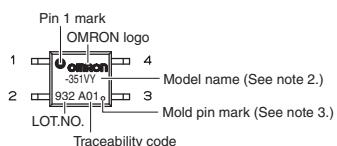
#### ● Appearance

##### SOP (Small Outline Package)

SOP 4-pin



Special SOP 4-pin (G3VM-351VY/401VY)



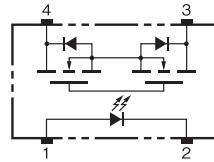
Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

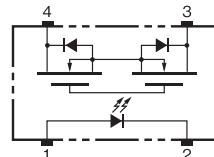
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

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

G3VM-351G1/VY  
G3VM-401G1/G/VY



G3VM-353G



SOP

G3VM-35□G□/351VY/401G□/401VY

### ■ Dimensions (Unit: mm)

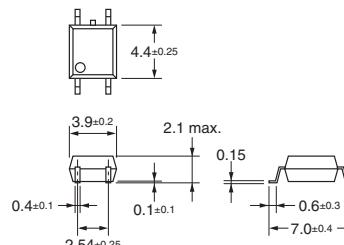
#### SOP (Small Outline Package)

SOP 4-pin



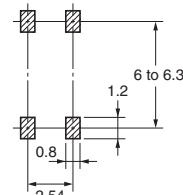
#### Surface-mounting Terminals

Weight: 0.1 g



#### Actual Mounting Pad Dimensions

(Recommended Value, Top View)



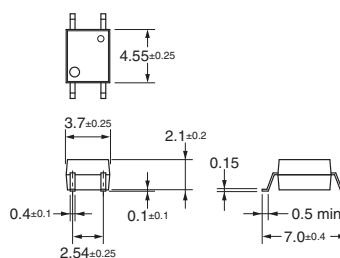
Note: The actual product is marked differently from the image shown here.

#### Special SOP 4-pin \* (G3VM-351VY/401VY)



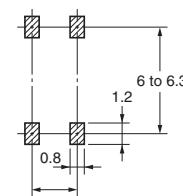
#### Surface-mounting Terminals

Weight: 0.1 g



#### Actual Mounting Pad Dimensions

(Recommended Value, Top View)



\* The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same.

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

### ■ Approved Standards

UL recognized

Model	Approved Standards	Contact form	File No.
G3VM-351G1 G3VM-401G G3VM-351VY G3VM-401VY	UL (recognized)	1a (SPST-NO)	E80555
G3VM-353G		1b (SPST-NC)	

Models Certified by BSI for EN/IEC Standards

Model	Approved Standards	Contact form	File No.
G3VM-401G	EN62368-1 (BSI certified)	1a (SPST-NO)	VC669262

### ■Safety Precautions

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

SOP

G3VM-35□G□/351VY/401G□/401VY

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

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#### Regional Contact

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##### Asia-Pacific

<https://ecb.omron.com.sg/>

##### Korea

<https://www.omron-ecb.co.kr/>

##### Europe

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- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
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- Поставка сложных, дефицитных, либо снятых с производства позиций;
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- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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