

## MOS FET Relays

**G3VM-351H**

**Slim, 2.1-mm High Relay Incorporating a MOS FET Optically Coupled with an Infrared LED in a Miniature, Flat SOP Package**

- Upgraded G3VM-S3 Series.
- Continuous load current of 110 mA.
- Dielectric strength of 1,500 Vrms between I/O.



**NEW**

### Application Examples

- Broadband systems
- Measurement devices
- Data loggers
- Amusement machines

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

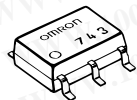
### List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NO	Surface-mounting terminals	350 VAC	G3VM-351H	75	---
			G3VM-351H(TR)	---	2,500

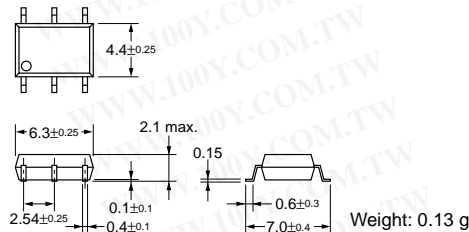
### Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

**G3VM-351H**

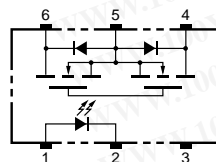


**Note:** The actual product is marked differently from the image shown



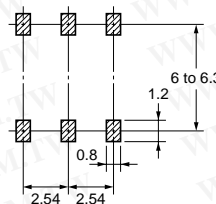
### Terminal Arrangement/Internal Connections (Top View)

**G3VM-351H**



### Actual Mounting Pad Dimensions (Recommended Value, Top View)

**G3VM-351H**

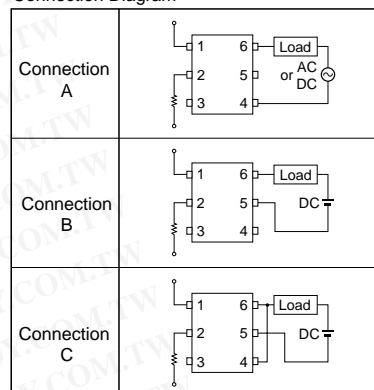


## Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	Rating	Unit	Measurement Conditions
Input	LED forward current		I <sub>F</sub>	50	mA	
	Repetitive peak LED forward current		I <sub>FP</sub>	1	A	100 μs pulses, 100 pps
	LED forward current reduction rate		Δ I <sub>F</sub> /°C	−0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage		V <sub>R</sub>	5	V	
	Connection temperature		T <sub>j</sub>	125	°C	
Output	Output dielectric strength		V <sub>OFF</sub>	350	V	
	Continuous load current	Connection A	I <sub>O</sub>	110	mA	
		Connection B		110		
		Connection C		220		
	ON current reduction rate	Connection A	Δ I <sub>ON</sub> /°C	−1.1	mA/°C	Ta ≥ 25°C
		Connection B		−1.1		
		Connection C		−2.2		
	Connection temperature		T <sub>j</sub>	125	°C	
Dielectric strength between input and output (See note 1.)			V <sub>I-O</sub>	1,500	V <sub>rms</sub>	AC for 1 min
Operating temperature			T <sub>a</sub>	−40 to +85	°C	With no icing or condensation
Storage temperature			T <sub>stg</sub>	−55 to +125	°C	With no icing or condensation
Soldering temperature (10 s)			---	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.

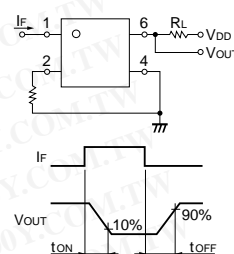
Connection Diagram



## 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	I <sub>F</sub> = 10 mA
	Reverse current		I <sub>R</sub>	---	---	10	μA	V <sub>R</sub> = 5 V
	Capacity between terminals		C <sub>T</sub>	---	30	---	pF	V = 0, f = 1 MHz
	Trigger LED forward current		I <sub>FT</sub>	---	1	3	mA	I <sub>O</sub> = 110 mA
Output	Maximum resistance with output ON	Connection A	R <sub>ON</sub>	---	25	35	Ω	I <sub>F</sub> = 5 mA, I <sub>O</sub> = 110 mA, t < 1 s
				---	35	50	Ω	I <sub>F</sub> = 5 mA, I <sub>O</sub> = 110 mA
		Connection B		---	28	40	Ω	I <sub>F</sub> = 5 mA, I <sub>O</sub> = 110 mA
		Connection C		---	14	20	Ω	I <sub>F</sub> = 5 mA, I <sub>O</sub> = 220 mA
	Current leakage when the relay is open		I <sub>LEAK</sub>	---	---	1.0	μA	V <sub>OFF</sub> = 350 V
	Capacity between I/O terminals			C <sub>I-O</sub>	---	0.8	---	pF
Insulation resistance			R <sub>I-O</sub>	1,000	---	---	MΩ	V <sub>I-O</sub> = 500 VDC, RoH ≤ 60%
Turn-ON time			t <sub>ON</sub>	---	0.3	1.0	ms	I <sub>F</sub> = 5 mA, R <sub>L</sub> = 200 Ω, V <sub>DD</sub> = 20 V (See note 2.)
Turn-OFF time			t <sub>OFF</sub>	---	0.1	1.0	ms	

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



## Recommended Operating Conditions

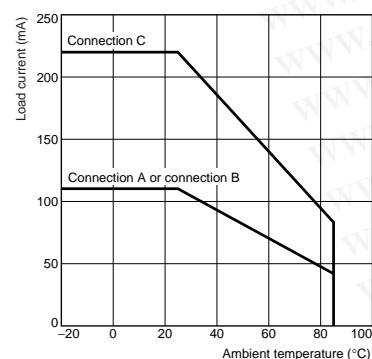
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	$V_{DD}$	---	---	280	V
Operating LED forward current	$I_F$	5	10	25	mA
Continuous load current	$I_O$	---	---	100	mA
Operating temperature	$T_a$	-20	---	65	$^\circ\text{C}$

## Engineering Data

### Load Current vs. Ambient Temperature

#### G3VM-351H



## Safety Precautions

Refer to page 6 for precautions common to all G3VM models.

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