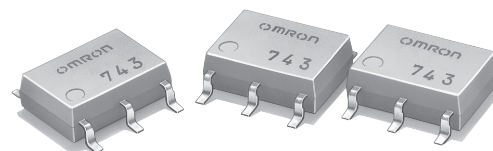


# MOS FET Relays

## 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.
- RoHS Compliant.



### ■ Application Examples

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

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

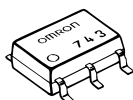
### ■ List of Models

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

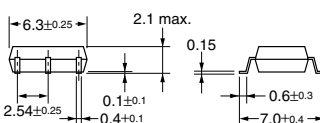
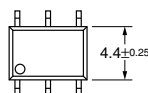
### ■ Dimensions

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

#### G3VM-351H



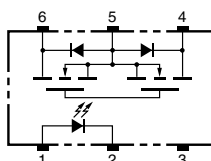
**Note:** The actual product is marked differently from the image shown here.



Weight: 0.13 g

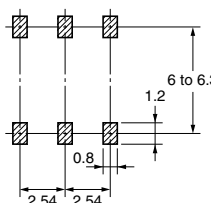
### ■ Terminal Arrangement/Internal Connections (Top View)

#### G3VM-351H



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

#### G3VM-351H

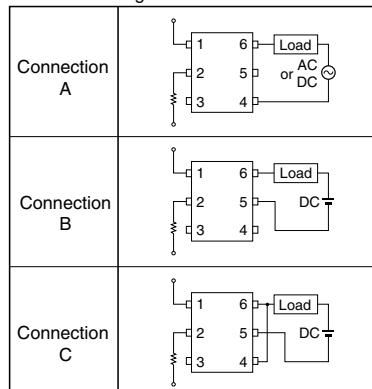


## Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	$I_F$	50	mA	
	Repetitive peak LED forward current	$I_{FP}$	1	A	100 $\mu$ s pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	$T_a \geq 25^\circ\text{C}$
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_j$	125	°C	
Output	Load voltage (AC peak/DC)	$V_{OFF}$	350	V	
	Continuous load current	Connection A	$I_O$	110	mA
		Connection B		110	
		Connection C		220	
	ON current reduction rate	Connection A	$\Delta I_{ON}/^\circ\text{C}$	-1.1	mA/°C
		Connection B		-1.1	
		Connection C		-2.2	
	Connection temperature	$T_j$	125	°C	
Dielectric strength between input and output (See note 1.)		$V_{I-O}$	1,500	$V_{rms}$	AC for 1 min
Operating temperature		$T_a$	-40 to +85	°C	With no icing or condensation
Storage temperature		$T_{stg}$	-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.

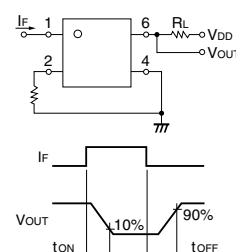
Connection Diagram



## Electrical Characteristics (Ta = 25°C)

Item			Symbol	Mini- mum	Typical	Maxi- mum	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
				---	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>	---	0.0018	1.0	μA	V <sub>OFF</sub> = 350 V
	Capacity between terminals A Connection		C <sub>OFF</sub>	---	30	---	pF	V = 0, f = 1MHz
	Capacity between I/O terminals		C <sub>I-O</sub>	---	0.8	---	pF	f = 1 MHz, V <sub>s</sub> = 0 V
Insulation resistance			R <sub>I-O</sub>	1,000	---	---	MΩ	V <sub>I-O</sub> = 500 VDC, R <sub>oH</sub> ≤ 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



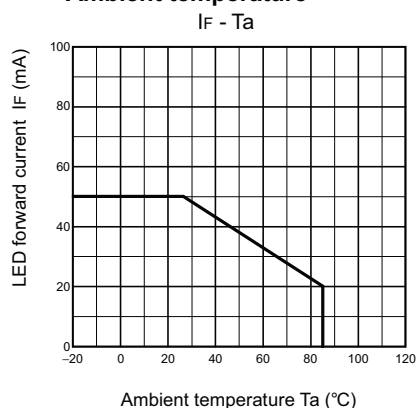
## Recommended Operating Conditions

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

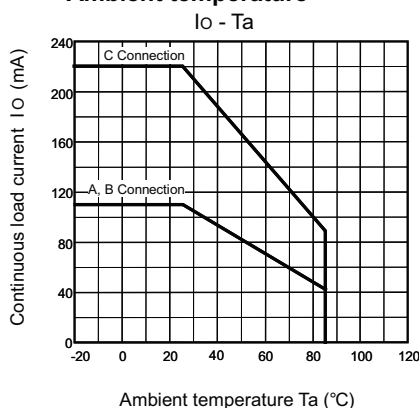
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	$V_{DD}$	---	---	280	V
Operating LED forward current	$I_F$	5	10	25	mA
Continuous load current (AC peak/DC)	$I_O$	---	---	100	mA
Operating temperature	$T_a$	-20	---	65	°C

# ■ Engineering Data

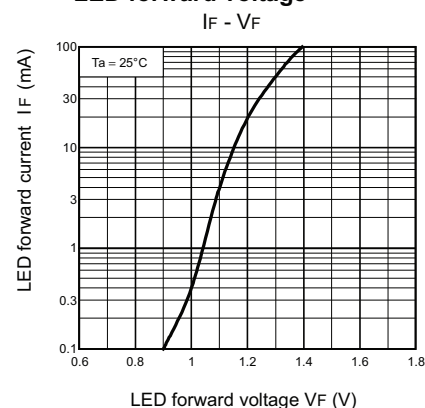
LED forward current vs.  
Ambient temperature



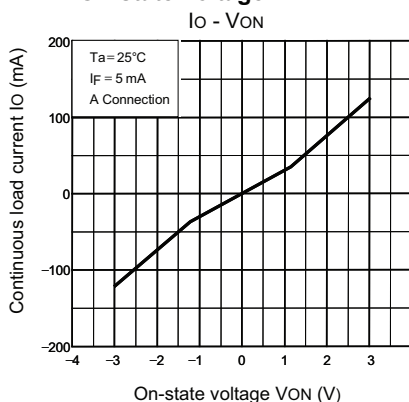
Continuous load current vs.  
Ambient temperature



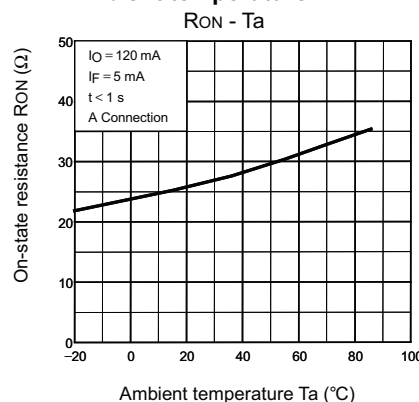
LED forward current vs.  
LED forward voltage



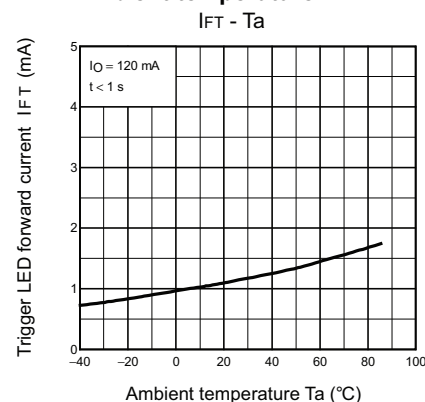
Continuous load current vs.  
On-state voltage



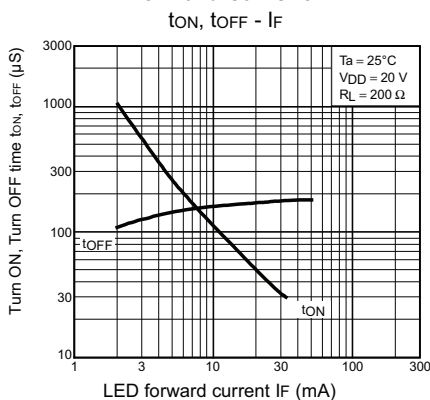
On-state resistance vs.  
Ambient temperature



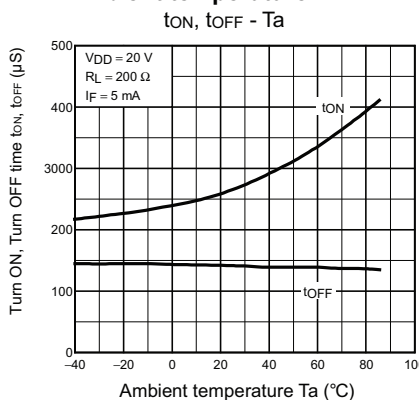
Trigger LED forward current vs.  
Ambient temperature



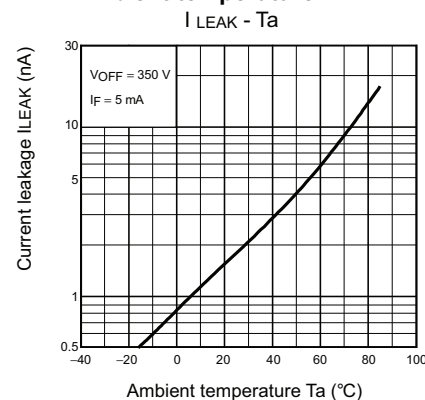
Turn ON, Turn OFF time vs.  
LED forward current



Turn ON, Turn OFF time vs.  
Ambient temperature



Current leakage vs.  
Ambient temperature



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To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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