

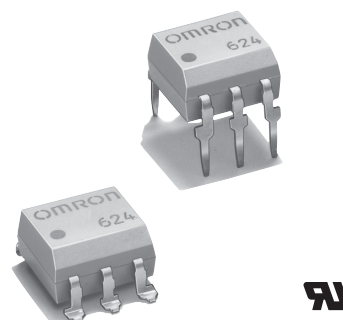
# MOS FET Relays G3VM-351B/E

## MOS FET Relay Series with 350-V Load Voltage

- Upgraded G3VM-3 Series.
- Continuous load current of 120 mA.
- Dielectric strength of 2,500 Vrms between I/O.
- Operating time of 0.3 ms (typical).
- RoHS Compliant.

### Application Examples

- Measurement devices
- Security systems
- Amusement machines



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

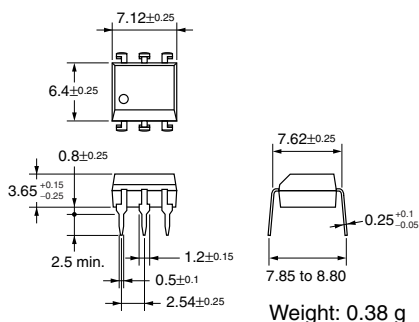
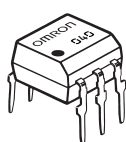
### List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NO	PCB terminals	350 VAC	G3VM-351B	50	---
	Surface-mounting terminals		G3VM-351E		
				G3VM-351E(TR)	---

### Dimensions

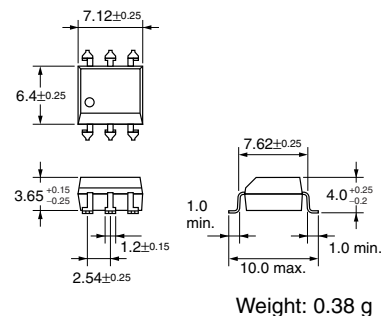
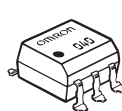
Note: All units are in millimeters unless otherwise indicated.

#### G3VM-351B



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

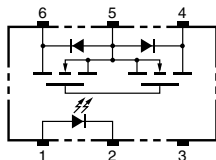
#### G3VM-351E



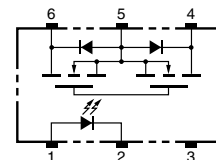
Note: The actual product is marked differently from the image shown here.

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

#### G3VM-351B

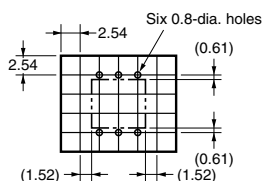


#### G3VM-351E



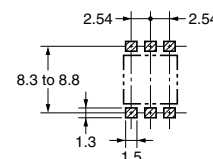
### PCB Dimensions (Bottom View)

#### G3VM-351B



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

#### G3VM-351E

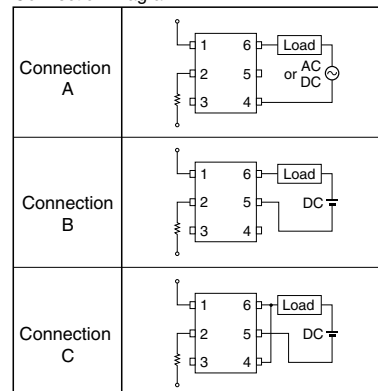


■ Absolute Maximum Ratings (Ta = 25°C)

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/ $^\circ\text{C}$	Ta $\geq$ 25 $^\circ\text{C}$	
	LED reverse voltage	$V_R$	5	V		
	Connection temperature	$T_j$	125	$^\circ\text{C}$		
Output	Load voltage (AC peak/DC)	$V_{OFF}$	350	V		
	Continuous load current	Connection A	$I_O$	120	mA	
		Connection B		120		
		Connection C		240		
	ON current reduction rate	Connection A	$\Delta I_{ON}/^\circ\text{C}$	-1.2	mA/ $^\circ\text{C}$	Ta $\geq$ 25 $^\circ\text{C}$
Connection B			-1.2			
Connection C			-2.4			
Connection temperature	$T_j$	125	$^\circ\text{C}$			
Dielectric strength between input and output (See note 1.)		$V_{I-O}$	2,500	$V_{rms}$	AC for 1 min	
Operating temperature		$T_a$	-40 to +85	$^\circ\text{C}$	With no icing or condensation	
Storage temperature		$T_{stg}$	-55 to +125	$^\circ\text{C}$	With no icing or condensation	
Soldering temperature (10 s)		---	260	$^\circ\text{C}$	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.

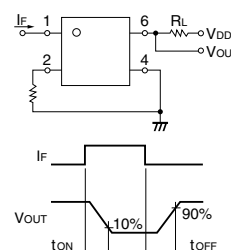
Connection Diagram



■ Electrical Characteristics (Ta = 25°C)

Item		Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions	
Input	LED forward voltage	$V_F$	1.0	1.15	1.3	V	$I_F = 10$ mA	
	Reverse current	$I_R$	---	---	10	$\mu\text{A}$	$V_R = 5$ V	
	Capacity between terminals	$C_T$	---	30	---	pF	$V = 0, f = 1$ MHz	
	Trigger LED forward current	$I_{FT}$	---	1	3	mA	$I_O = 120$ mA	
Output	Maximum resistance with output ON	Connection A	$R_{ON}$	---	25	35	$\Omega$	$I_F = 5$ mA, $I_O = 120$ mA, $t < 1$ s
			---	35	50	$\Omega$	$I_F = 5$ mA, $I_O = 120$ mA	
		Connection B	---	28	40	$\Omega$	$I_F = 5$ mA, $I_O = 120$ mA	
	Connection C	---	14	20	$\Omega$	$I_F = 5$ mA, $I_O = 240$ mA		
Current leakage when the relay is open	$I_{LEAK}$	---	0.0015	1.0	$\mu\text{A}$	$V_{OFF} = 350$ V		
Capacity between terminals A Connection	$C_{OFF}$	---	30	---	pF	$V = 0, f = 1$ MHz		
Capacity between I/O terminals		$C_{I-O}$	---	0.8	---	pF	$f = 1$ MHz, $V_s = 0$ V	
Insulation resistance		$R_{I-O}$	1,000	---	---	M $\Omega$	$V_{I-O} = 500$ VDC, $R_{OH} \leq 60\%$	
Turn-ON time		$t_{ON}$	---	0.3	1.0	ms	$I_F = 5$ mA, $R_L = 200 \Omega$ , $V_{DD} = 20$ V (See note 2.)	
Turn-OFF time		$t_{OFF}$	---	0.1	1.0	ms		

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



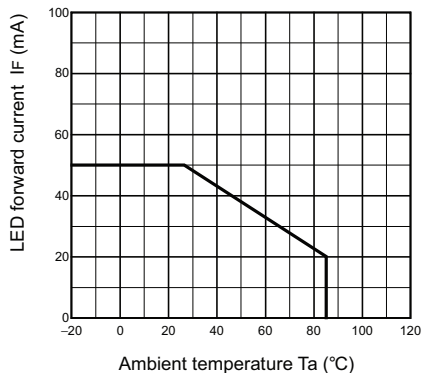
■ Recommended Operating Conditions

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

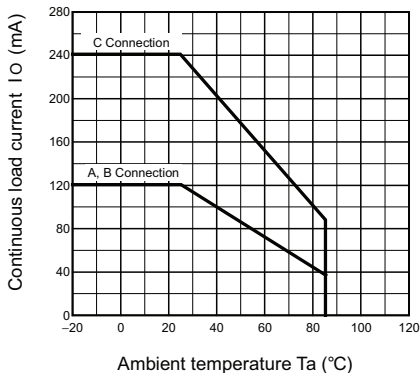
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	$V_{DD}$	---	---	280	V
Operating LED forward current	$I_F$	5	10	25	mA
Continuous load current (AC peak/DC)	$I_O$	---	---	100	mA
Operating temperature	$T_a$	-20	---	65	$^\circ\text{C}$

■ Engineering Data

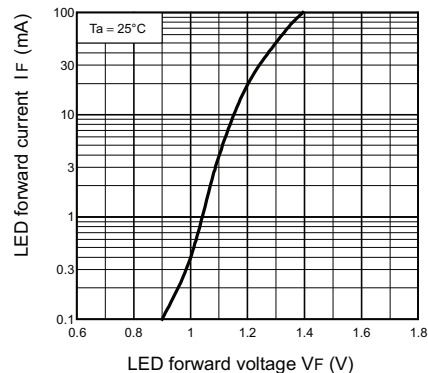
LED forward current vs. Ambient temperature  
IF - Ta



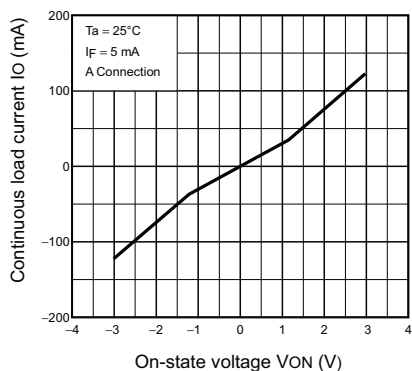
Continuous load current vs. Ambient temperature  
IO - Ta



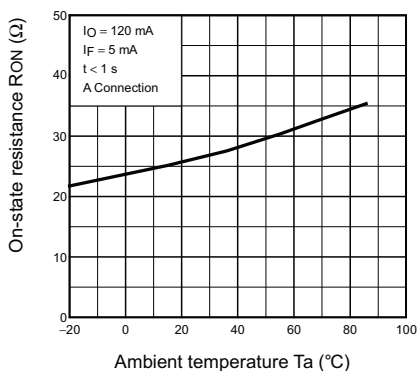
LED forward current vs. LED forward voltage  
IF - VF



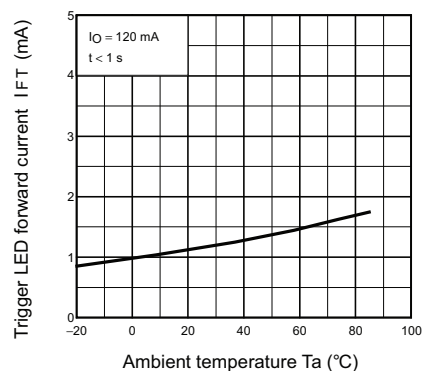
Continuous load current vs. On-state voltage  
IO - VON



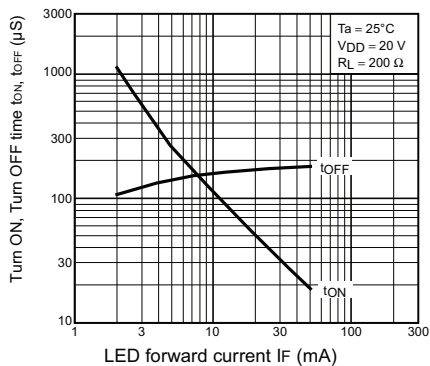
On-state resistance vs. Ambient temperature  
RON - Ta



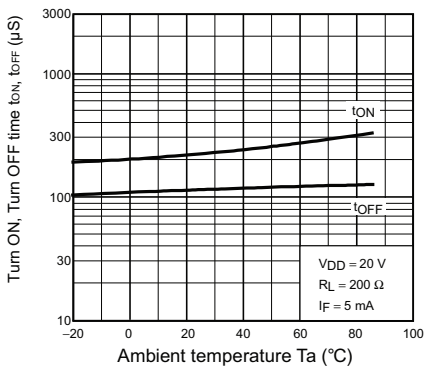
Trigger LED forward current vs. Ambient temperature  
IFT - Ta



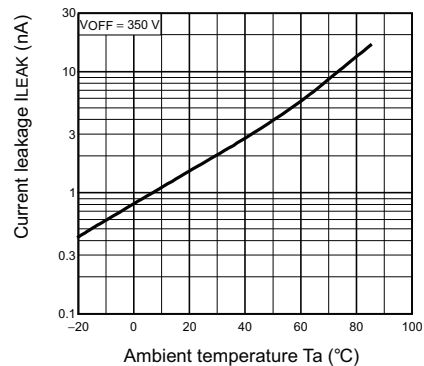
Turn ON, Turn OFF time vs. LED forward current  
tON, tOFF - IF



Turn ON, Turn OFF time vs. Ambient temperature  
tON, tOFF - Ta



Current leakage vs. Ambient temperature  
ILEAK - Ta



MEMO

A large grid of dashed lines for taking notes, consisting of 20 columns and 30 rows of small squares.

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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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**OMRON ELECTRONIC  
COMPONENTS LLC**

55 E. Commerce Drive, Suite B  
Schaumburg, IL 60173

**847-882-2288**

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