

MOS FET Relays

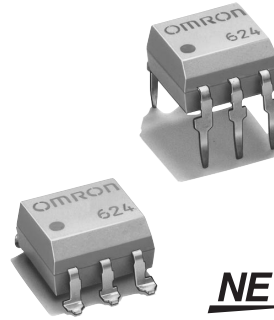
G3VM-351B/E

New 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).

Application Examples

- Measurement devices
- Security systems
- Amusement machines



NEW  Approval pending

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

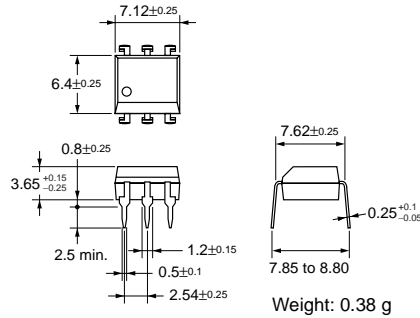
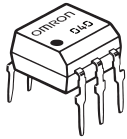
List of Models

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

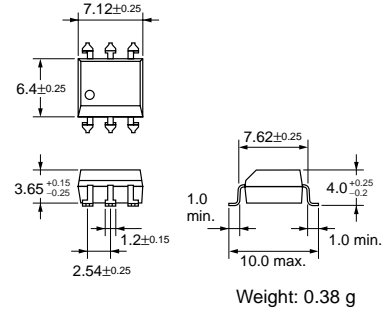
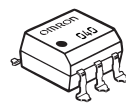
Note: All units are in millimeters unless otherwise indicated.

G3VM-351B



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

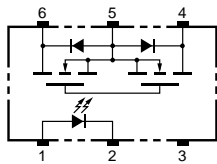
G3VM-351E



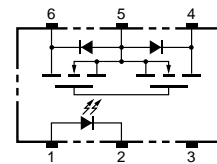
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Terminal Arrangement/Internal Connections (Top View)

G3VM-351B

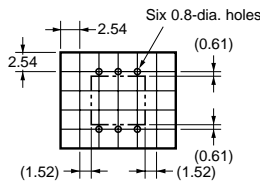


G3VM-351E



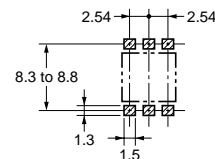
PCB Dimensions (Bottom View)

G3VM-351B



Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-351E

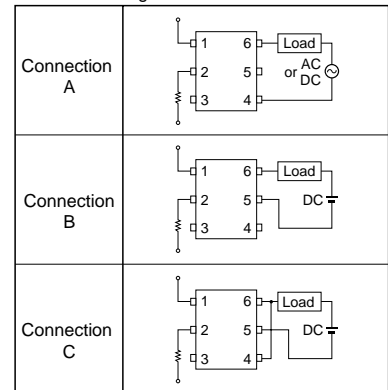


Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	Unit	Measurement Conditions		
Input	LED forward current	I_F	50	mA		
	Repetitive peak LED forward current	I_{FP}	1	A		
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	Ta ≥ 25°C	
	LED reverse voltage	V_R	5	V		
	Connection temperature	T_j	125	°C		
Output	Output dielectric strength	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/°C	Ta ≥ 25°C
		Connection B		-1.2		
Connection C			-2.4			
Connection temperature	T_j	125	°C			
Dielectric strength between input and output (See note 1.)	V_{I-O}	2,500	Vrms	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.

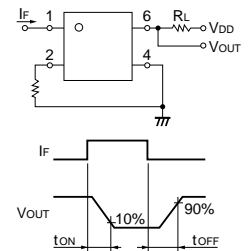
Connection Diagram



Electrical Characteristics (Ta = 25°C)

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

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



Recommended Operating Conditions

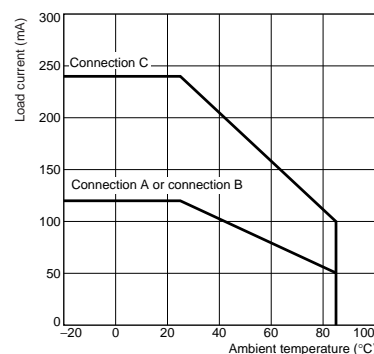
Use the G3VM under the following conditions so that the Relay will operate properly.

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	°C

Engineering Data

Load Current vs. Ambient Temperature

G3VM-351B(E)



Safety Precautions

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