

MOS FET Relays

G3VM-353B/B1/E/E1

6-pin Analog-switching MOS FET Relay with SPST-NC (Single-pole, Single-throw, Normally Closed) Contacts
General-purpose Series Added

- Switches minute analog signals.
- Switching AC and DC.
- General-purpose series (high ON-resistance) added.

Caution

Refer to "Common Precautions" on page 2.

Application Examples

- Electronic automatic exchange systems
- Security systems
- Datacom (modem) systems
- FA systems
- Measurement devices

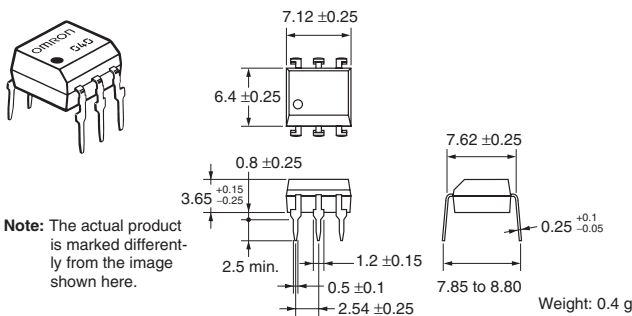
List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Minimum packaging unit		
				Number per stick	Number per tape	
SPST-NC	PCB terminals	350 V AC	G3VM-353B	50	---	
			G3VM-353B1			
			G3VM-353E			
			G3VM-353E1			
	Surface-mounting terminals		G3VM-353E(TR)	---		1,500
			G3VM-353E1(TR)			

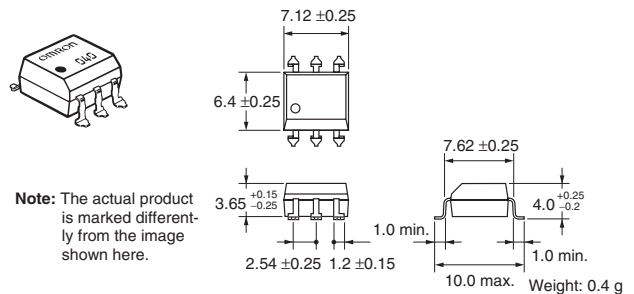
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-353B/B1

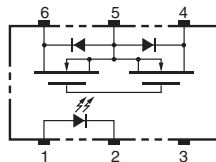


G3VM-353E/E1

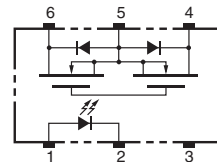


Terminal Arrangement/Internal Connections (Top View)

G3VM-353B/B1

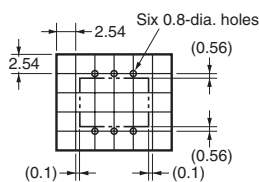


G3VM-353E/E1



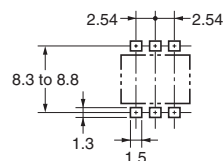
PCB Dimensions (Bottom View)

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Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-353E/E1

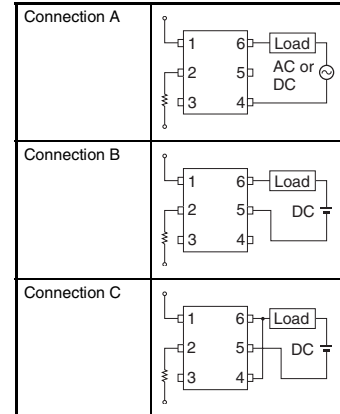


Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	Unit	Measurement Conditions		
Input	LED forward current	I_F	50	mA		
	Repetitive peak LED forward current	I_{FP}	1	A	100 μ s pulses, 100 pps	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/ $^\circ\text{C}$	Ta \geq 25°C	
	LED reverse voltage	V_R	5	V		
	Connection temperature	T_J	125	$^\circ\text{C}$		
Output	Output dielectric strength	V_{OFF}	350	V		
	Continuous load current	Connection A	I_O	150 (100)	mA	Ta \geq 25°C
		Connection B		150 (100)		
		Connection C		300 (200)		
	ON current reduction rate	Connection A	$\Delta I_{ON}/^\circ\text{C}$	-1.5 (-1)	mA/ $^\circ\text{C}$	
		Connection B		-1.5 (-1)		
Connection C			-3.0 (-2)			
Connection temperature	T_J	125	$^\circ\text{C}$			
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	$^\circ\text{C}$	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

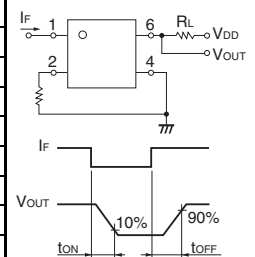


Values inside parentheses () are for G3VM-353B1/E1.

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	μA	$V_R = 5$ V	
	Capacity between terminals	C_T	---	30	---	pF	$V = 0, f = 1$ MHz	
	Trigger LED forward current	I_{FT}	---	1	3	mA	$I_{OFF} = 10$ μA	
Output	Maximum resistance with output ON	Connection A	R_{ON}	---	15 (27)	25 (50)	Ω	$I_O = 150$ mA
		Connection B		---	8 (20)	14 (43)	Ω	$I_O = 150$ mA
		Connection C		---	4 (10)	7 (---)	Ω	$I_O = 300$ mA
Current leakage when the relay is open		I_{LEAK}	---	---	1.0	μA	$I_F = 5$ mA, $V_{OFF} = 350$ V	
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 Ω	$V_{I,O} = 500$ V DC, $R_{OH} \leq 60\%$	
Turn-ON time		tON	---	0.1 (0.25)	1.0 (0.5)	ms	$I_F = 5$ mA, $R_L = 200$ Ω , $V_{DD} = 20$ V (See note 2.)	
Turn-OFF time		tOFF	---	1.0 (0.5)	3.0 (1)	ms		

Note 2. Turn-ON and Turn-OFF Times



Values inside parentheses () are for G3VM-353B1/E1.

Recommended Operating Conditions

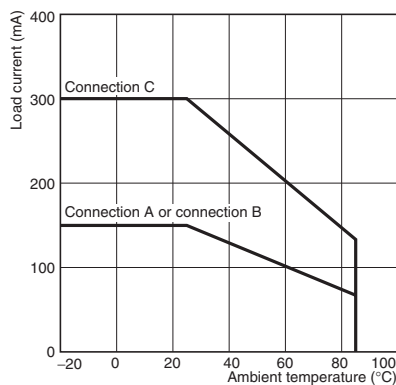
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	V_{DD}	---	---	280	V
Operating LED forward current	I_F	5	---	25	mA
Continuous load current	I_O	---	---	150 (100)	mA
Operating temperature	T_a	-20	---	65	$^\circ\text{C}$

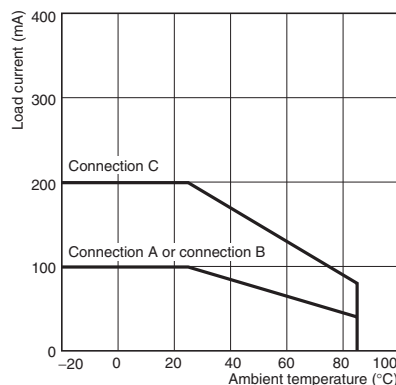
Values inside parentheses () are for G3VM-353B1/E1.

Engineering Data

Load Current vs. Ambient Temperature G3VM-353B/E



Load Current vs. Ambient Temperature G3VM-353B1/E1



Safety Precautions

Refer to page 2 for precautions common to all G3VM models.