

## MOS FET Relays

G3VM-355C/CR/F/FR

**New MOS FET Relay with Both SPST-NO and SPST-NC Contacts Incorporated in a Single DIP Package**

### General-purpose Series Added

- SPST-NO/SPST-NC models now included in the 350-V load voltage series.
- Continuous load current of 120 mA (90 mA).
- Dielectric strength of 2,500 Vrms between I/O.
- General-purpose series (high ON-resistance) added.

### Caution

Refer to "Common Precautions" on page 2.

### Application Examples

- Measurement devices
- Security systems
- Amusement machines

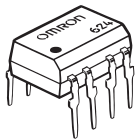
### List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Minimum packaging unit		
				Number per stick	Number per tape	
SPST-NO/SPST-NC	PCB terminals	350 V AC	G3VM-355CR	50	---	
			G3VM-355C			
			G3VM-355FR			
	Surface-mounting terminals		G3VM-355F	---		1,500
			G3VM-355FR(TR)			
			G3VM-355F(TR)			

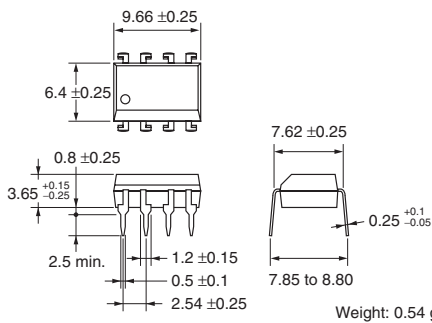
### Dimensions

Note: All units are in millimeters unless otherwise indicated.

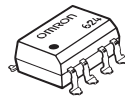
#### G3VM-355C/CR



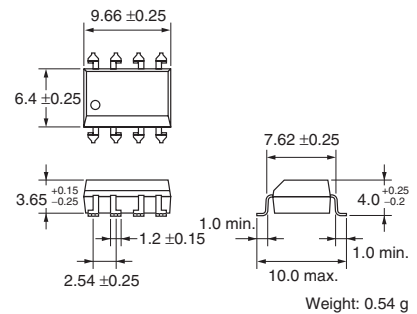
Note: The actual product is marked differently from the image shown here.



#### G3VM-355F/FR

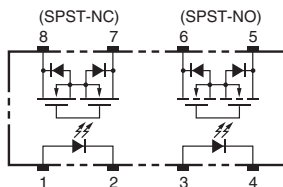


Note: The actual product is marked differently from the image shown here.

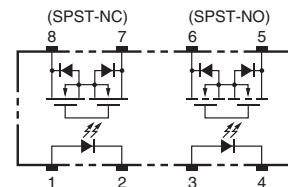


### Terminal Arrangement/Internal Connections (Top View)

#### G3VM-355C/CR

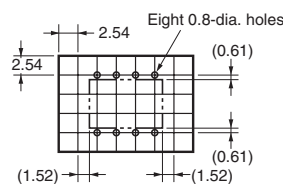


#### G3VM-355F/FR



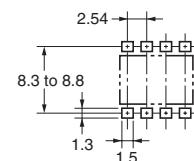
### PCB Dimensions (Bottom View)

#### G3VM-355C/CR



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

#### G3VM-355F/FR



**■ 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	Ta $\geq$ 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	$I_O$	120 (100)	mA	
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-1.2 (-1)	mA/°C	Ta $\geq$ 25°C
	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

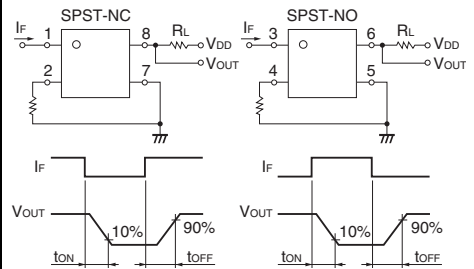
**Note 1.** The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Values inside parentheses ( ) are for G3VM-355C/F.

**■ 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	$\mu$ 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	SPST-NO: $I_O = 120$ mA SPST-NC: $I_{OFF} = 10$ $\mu$ A
Output	Maximum resistance with output ON	$R_{ON}$	---	15 (40)	25 (50)	$\Omega$	SPST-NO: $I_F = 5$ mA, $I_O = 120$ mA SPST-NC: $I_F = 0$ mA, $I_O = 120$ mA
	Current leakage when the relay is open	$I_{LEAK}$	---	---	1.0	$\mu$ A	$V_{OFF} = 350$ 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 $\Omega$	$V_{I,O} = 500$ V DC, $R_{OH} \leq 60\%$
Turn-ON time	SPST-NO	$t_{ON}$	---	(0.3)	1.0	ms	$I_F = 5$ mA, $R_L = 200$ $\Omega$ , $V_{DD} = 20$ V (See note 2.)
	SPST-NC	$t_{ON}$	---	(0.25)	1.0	ms	
Turn-OFF time	SPST-NO	$t_{OFF}$	---	(0.15)	1.0	ms	
	SPST-NC	$t_{OFF}$	---	(0.5)	3.0 (1)	ms	

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



Values inside parentheses ( ) are for G3VM-355C/F.

**■ Recommended Operating Conditions**

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

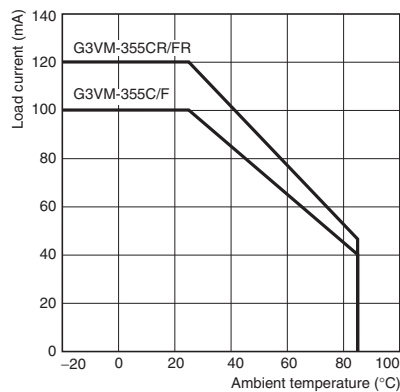
Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	$V_{DD}$	---	---	280	V
Operating LED forward current	$I_F$	5	---	25	mA
Continuous load current	$I_O$	---	---	120 (100)	mA
Operating temperature	$T_a$	-20	---	65	°C

Values inside parentheses ( ) are for G3VM-355C/F.

**■ Engineering Data**

**Load Current vs. Ambient Temperature**

G3VM-355C/F  
G3VM-355CR/FR



**■ Safety Precautions**

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