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MOS FET Relays G3VM-61CR/FR

New High-capacity MOS FET Relay Allowing Switching of a 2-A Continuous Load Current

- Package designed with 1 channel and 8 pins.
- Low ON-resistance of 0.12 Ω max.
- Leakage current of 1.0 nA (typical) between output terminals when they are open.
- RoHS Compliant.

Application Examples

- Semiconductor testers
- Measurement devices
- Security systems

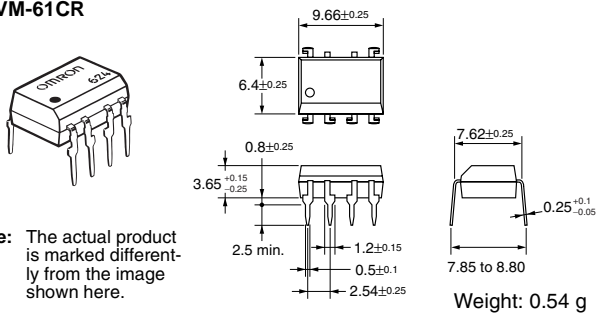
List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NO	PCB terminals	60 VAC	G3VM-61CR	50	---
	Surface-mounting terminals		G3VM-61FR		
			G3VM-61FR(TR)	---	

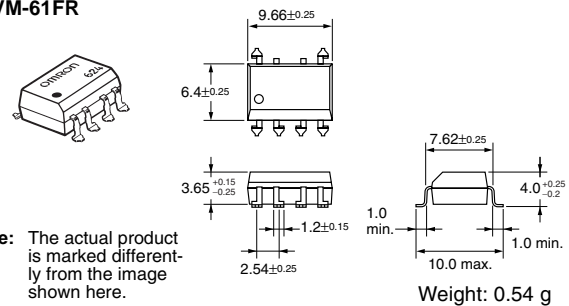
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-61CR

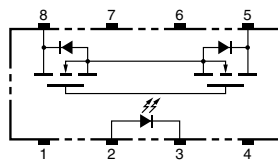


G3VM-61FR

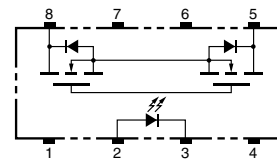


Terminal Arrangement/Internal Connections (Top View)

G3VM-61CR

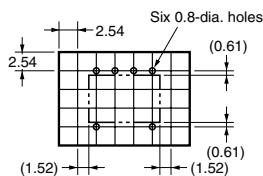


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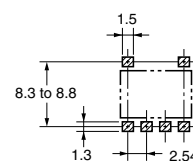
PCB Dimensions (Bottom View)

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Actual Mounting Pad Dimensions (Recommended Value, Top View)

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Absolute Maximum Ratings (Ta = 25°C)

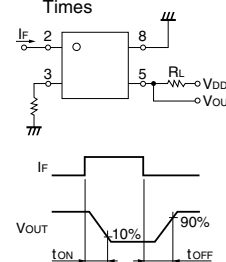
Item	Symbol	Rating	Unit	Measurement conditions	
Input	LED forward current	I_F	50	mA	
	Repetitive peak LED forward current	I_{FP}	1	A	100 μ s pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	Ta \geq 25°C
	LED reverse voltage	V_R	6	V	
	Connection temperature	T_J	125	°C	
Output	Output dielectric strength	V_{OFF}	60	V	
	Continuous load current	I_O	2,000	mA	
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-20	mA/°C	Ta \geq 25°C
	Connection temperature	T_J	125	°C	
Dielectric strength between input and output (See note 1.)		V_{I-O}	1,500	Vrms	AC for 1 min
Operating temperature		T_a	-20 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.

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions	
Input	LED forward voltage	V_F	1.0	1.2	1.4	V	$I_F = 20$ mA
	Reverse current	I_R	---	---	10	μ A	$V_R = 6$ V
	Capacity between terminals	C_T	---	15	---	pF	$V = 0$, $f = 1$ MHz
	Trigger LED forward current	I_{FT}	---	---	5	mA	$I_O = 1$ A
Output	Maximum resistance with output ON	R_{ON}	---	---	0.12	Ω	$I_F = 10$ mA, $I_O = 1$ A
	Current leakage when the relay is open	I_{LEAK}	---	1.0	4.0	nA	$V_{OFF} = 20$ V, Ta = 50°C
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	$V_{I-O} = 500$ VDC, RoH \leq 60%
Turn-ON time		tON	---	---	5.0	ms	$I_F = 10$ mA, $R_L = 200$ Ω , $V_{DD} = 20$ V (See note 2.)
Turn-OFF time		tOFF	---	---	3.0	ms	

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



Recommended Operating Conditions

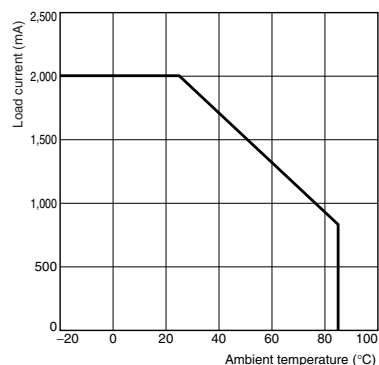
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Output dielectric strength	V_{DD}	---	---	48	V
Operating LED forward current	I_F	10	---	30	mA
Continuous load current	I_O	---	---	2	A
Operating temperature	T_a	25	---	50	°C

Engineering Data

Load Current vs. Ambient Temperature

G3VM-61CR(FR)



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