

World’s Smallest SSOP Package
MOSFET Relays with Low Output
Capacitance and ON Resistance
($C_{xR} = 10\text{pF} \cdot \Omega$) in a 40-V Load
Voltage Model.

- ON resistance of 2 Ω (typical) suppresses output signal attenuation.
- Information correct as of October, 2002, according to data obtained by OMRON.
- RoHS compliant



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

■ Application Examples

- Semiconductor inspection tools
- Measurement devices
- Broadband systems
- Data loggers

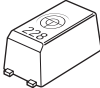
■ List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per tape
SPST-NO	Surface-mounting terminals	40 VAC	G3VM-41LR4	-
			G3VM-41LR4(TR)	1,500

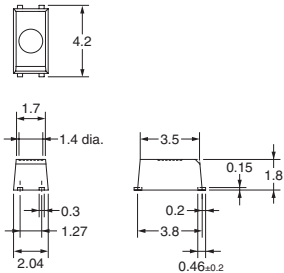
■ Dimensions

Note. All units are in millimeters unless otherwise indicated.

G3VM-41LR4

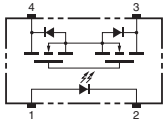


Note. The actual product is marked differently from the image shown here.



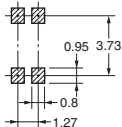
■ Terminal Arrangement/Internal Connections (Top View)

G3VM-41LR4



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

G3VM-41LR4



Absolute Maximum Ratings (Ta = 25°C)

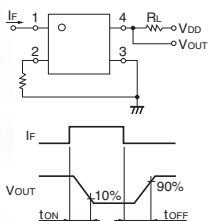
Item	Symbol	Rating	Unit	Measurement Conditions
Input	LED forward current	I_F	50	mA
	Repetitive peak LED forward current	I_{FP}	1	A
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/ $^\circ\text{C}$
	LED reverse voltage	V_R	5	V
	Connection temperature	T_J	125	$^\circ\text{C}$
Output	Output dielectric strength	V_{OFF}	40	V
	Continuous load current	I_O	250	mA
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-2.5	mA/ $^\circ\text{C}$
	Connection temperature	T_J	125	$^\circ\text{C}$
	Dielectric strength between input and output (See note 1.)	V_{I-O}	1,500	Vrms
Operating temperature		T_a	-20 to +85	$^\circ\text{C}$
Storage temperature		T_{stg}	-40 to +125	$^\circ\text{C}$
Soldering temperature (10 s)		—	260	$^\circ\text{C}$

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	1.15	V	$I_F = 10\text{ mA}$
	Reverse current	I_R	—	10	μA	$V_R = 5\text{ V}$
	Capacity between terminals	C_T	15	—	pF	$V = 0, f = 1\text{ MHz}$
	Trigger LED forward current	I_{FT}	—	4	mA	$I_O = 100\text{ mA}$
Output	Maximum resistance with output ON	R_{ON}	2	3	Ω	$I_F = 5\text{ mA}, I_O = 250\text{ mA}, t = 10\text{ ms}$
	Current leakage when the relay is open	I_{LEAK}	—	1.0	nA	$V_{OFF} = 30\text{ V}, T_a = 50^\circ\text{C}$
	Capacity between terminals	C_{OFF}	5	7	pF	$V = 0, f = 100\text{ MHz}, t \leq 1\text{ s}$
	Capacity between I/O terminals	C_{I-O}	0.8	—	pF	$f = 1\text{ MHz}, V_b = 0\text{ V}$
Insulation resistance		R_{I-O}	1,000	—	M Ω	$V_{I-O} = 500\text{ VDC}, \text{RoH} \geq 50\%$
Turn-ON time		t_{ON}	—	0.5	ms	$I_F = 10\text{ mA}, R_L = 200\text{ }\Omega, V_{DD} = 20\text{ V}$ (See note 2.)
Turn-OFF time		t_{OFF}	—	0.5	ms	

Note 2. Turn-ON and Turn-OFF Times



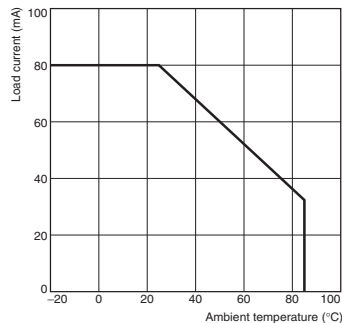
Recommended Operating Conditions

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}	—	—	32	V
Operating LED forward current	I_F	10	—	30	mA
Continuous load current	I_O	—	—	250	mA
Operating temperature	T_a	25	—	60	$^\circ\text{C}$

Engineering Data

Load Current vs. Ambient Temperature
G3VM-41LR4



Safety Precautions

Refer to "Common Precautions" for all G3VM models.