

# MOS FET Relays

# G3VM-41LR6

**World's Smallest SSOP Package MOS FET Relay\***  
**with Low Output Capacitance and ON Resistance**  
**(C<sub>ON</sub>R = 10pF•Ω) in a 40-V Load Voltage Model**

- Output capacitance of 1 pF (typical) allows high-frequency applications.
- RoHS Compliant.

\*Information correct as of May 2007, according to data obtained by OMRON.



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

## ■ Application Examples

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

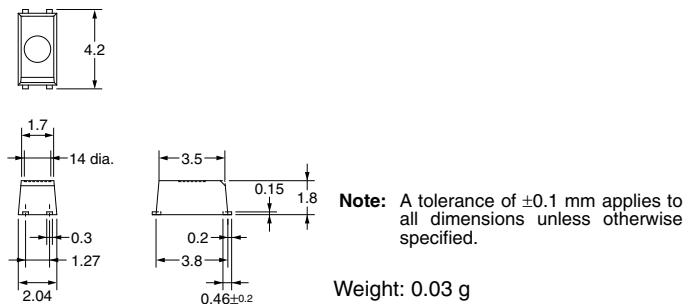
## ■ List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per tape
SPST-NO	Surface-mounting terminals	40 VAC	G3VM-41LR6	---
			G3VM-41LR6(TR)	1,500
			G3VM-41LR6(TR05)	500
			G3VM-41LR6(TR10)	1,000

## ■ Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

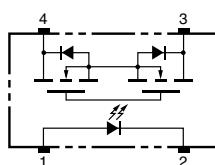
**G3VM-41LR6**



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

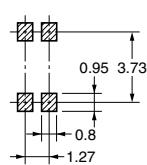
## ■ Terminal Arrangement/Internal Connections (Top View)

**G3VM-41LR6**



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

**G3VM-41LR6**



## ■ Absolute Maximum Ratings (Ta = 25°C)

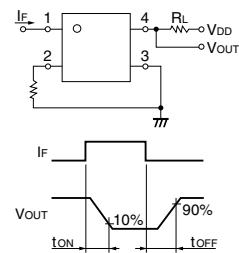
Item	Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	I <sub>F</sub>	50	mA
	Repetitive peak LED forward current	I <sub>FP</sub>	1	A
	LED forward current reduction rate	Δ I <sub>F</sub> /°C	-0.5	mA/°C
	LED reverse voltage	V <sub>R</sub>	5	V
	Connection temperature	T <sub>j</sub>	125	°C
Output	Load voltage (AC peak/DC)	V <sub>OFF</sub>	40	V
	Continuous load current	I <sub>O</sub>	120	mA
	ON current reduction rate	Δ I <sub>ON</sub> /°C	-1.2	mA/°C
	Connection temperature	T <sub>j</sub>	125	°C
Dielectric strength between input and output (See note 1.)	V <sub>I-O</sub>	1,500	V <sub>rms</sub>	AC for 1 min
Operating temperature	T <sub>a</sub>	-20 to +85	°C	With no icing or condensation
Storage temperature	T <sub>stg</sub>	-40 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 <sub>F</sub>	1.0	1.15	1.3	V I <sub>F</sub> = 10 mA
	Reverse current	I <sub>R</sub>	---	---	10	μA V <sub>R</sub> = 5 V
	Capacity between terminals	C <sub>T</sub>	---	15	---	pF V = 0, f = 1 MHz
	Trigger LED forward current	I <sub>FT</sub>	---	---	4	mA I <sub>O</sub> = 100 mA
Output	Maximum resistance with output ON	R <sub>ON</sub>	---	10	15	Ω I <sub>F</sub> = 5 mA, I <sub>O</sub> = 120 mA, t = 10 ms
	Current leakage when the relay is open	I <sub>LEAK</sub>	---	0.2	1.0	nA V <sub>OFF</sub> = 30 V, Ta = 50°C
	Capacity between terminals	C <sub>OFF</sub>	---	1.0	2.0	pF V = 0, f = 100 MHz, t < 1 s
Capacity between I/O terminals	C <sub>I-O</sub>	---	0.8	---	pF	f = 1 MHz, V <sub>s</sub> = 0 V
Insulation resistance	R <sub>I-O</sub>	1,000	---	---	MΩ	V <sub>I-O</sub> = 500 VDC, R <sub>OH</sub> ≤ 60%
Turn-ON time	t <sub>ON</sub>	---	0.05	0.5	ms	I <sub>F</sub> = 10 mA, R <sub>L</sub> = 200 Ω, V <sub>DD</sub> = 20 V (See note 2.)
Turn-OFF time	t <sub>OFF</sub>	---	0.12	0.5	ms	

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

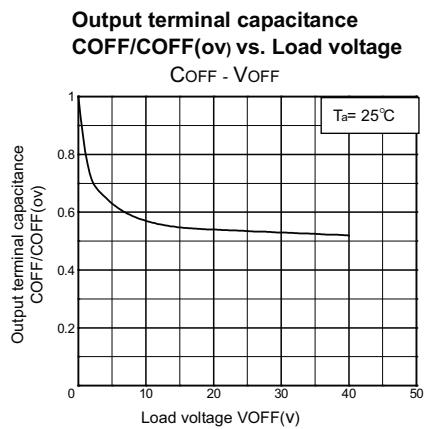
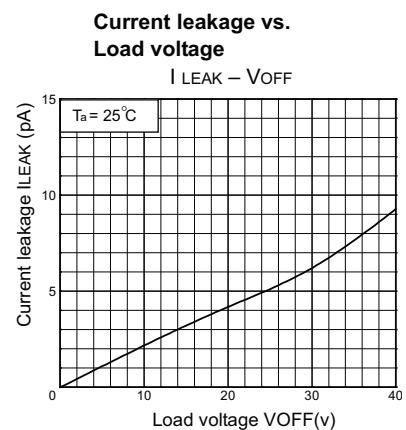
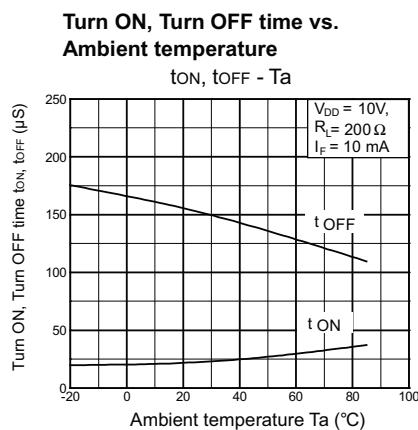
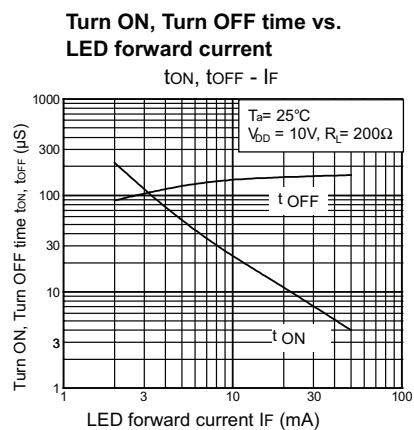
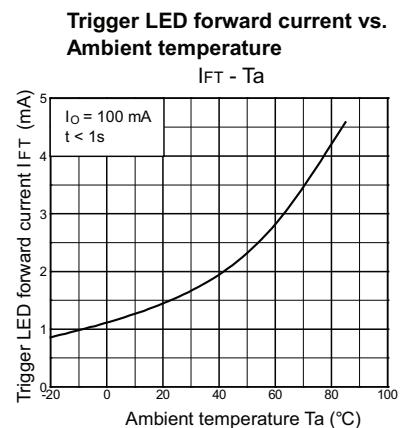
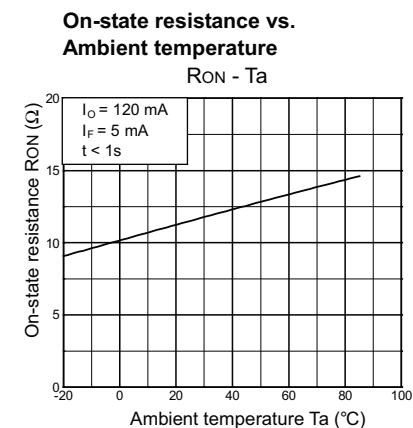
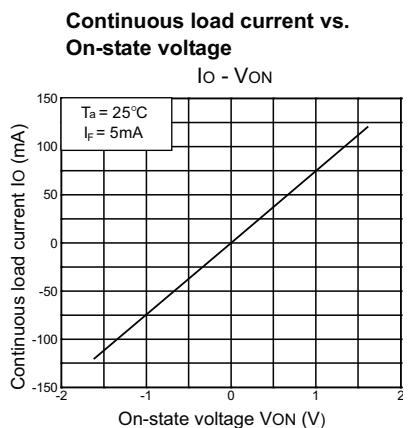
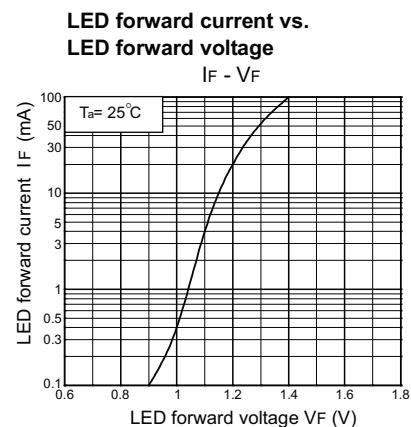
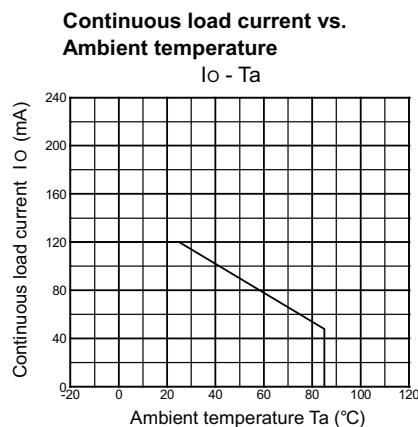
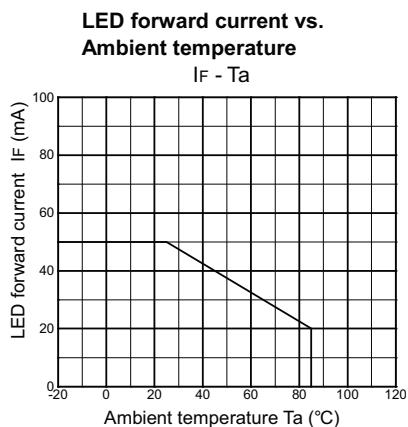


## ■ Recommended Operating Conditions

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

Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V <sub>DD</sub>	---	---	32	V
Operating LED forward current	I <sub>F</sub>	10	---	30	mA
Continuous load current (AC peak/DC)	I <sub>O</sub>	---	---	120	mA
Operating temperature	T <sub>a</sub>	25	---	60	°C

## ■ Engineering Data



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**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.



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