# MOS FET Relays G3VM-202J1

### Slim, 2.1-mm High MOS FET Relay with Miniature, Flat, 8-pin SOP Package

- 2 channels and an 8-pin SOP package in the 200-V load voltage series.
- Continuous load current of 200 mA.
- Dielectric strength of 1,500 Vrms between I/O.
- · RoHS Compliant.

#### ■ Application Examples

- · Broadband systems
- Measurement devices and Data loggers
- Amusement machines



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

#### **■** List of Models

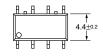
Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
DPST-NO		200 VAC	G3VM-202J1	50	
	terminals		G3VM-202J1(TR)		2,500

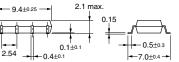
#### **■** Dimensions

Note: All units are in millimeters unless otherwise indicated.

#### G3VM-202J1





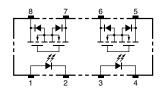


**Note:** The actual product is marked differently from the image shown here.

Weight: 0.2 g

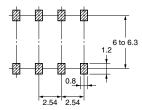
#### ■ Terminal Arrangement/Internal Connections (Top View)

#### G3VM-202J1



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

G3VM-202J1



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

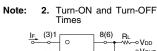
Item		Symbol	Rating	Unit	Measurement conditions		
Input	out LED forward current		50	mA			
	Repetitive peak LED forward current	I <sub>FP</sub>	1	Α	100 μs pulses, 100 pps		
	LED forward current reduction rate	Δ I <sub>F</sub> /°C	-0.5	mA/°C	$T_a \ge 25^{\circ}C$		
	LED reverse voltage	$V_R$	5	V			
	Connection temperature	T <sub>j</sub>	125	°C			
Output	Load voltage (AC peak/DC)	$V_{OFF}$	200	٧			
	Continuous load current	I <sub>o</sub>	200	mA			
	ON current reduction rate	Δ I <sub>ON</sub> /°C	-2.0	mA/°C	$T_a \ge 25^{\circ}C$		
	ic strength between input and See note 1.)	V <sub>I-O</sub>	1,500	V <sub>rms</sub>	AC for 1 min		
Operating temperature		T <sub>a</sub>	-40 to +85	°C	With no icing or condensation		
Storage temperature		T <sub>stg</sub>	-55 to +125	°C	With no icing or condensation		
Soldering temperature (10 s)			260	°C	10 s		

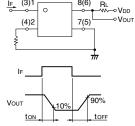
Note:

 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)

ltem		Symbol	Mini- mum	Typical	Maxi- mum	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	μΑ	V <sub>R</sub> = 5 V	
	Capacity between terminals	C <sub>T</sub>		30		pF	V = 0, f = 1 MHz	
	Trigger LED forward current	I <sub>FT</sub>		1	3	mA	I <sub>O</sub> = 200 mA	
Output	Maximum resistance with output ON	R <sub>ON</sub>		5	8	Ω	I <sub>F</sub> = 5 mA, I <sub>O</sub> = 200 mA	
	Current leakage when the relay is open	I <sub>LEAK</sub>		0.0031	1.0	μΑ	V <sub>OFF</sub> = 200 V	
	Capacity between terminals	C <sub>OFF</sub>		100		pF	V = 0, f = 1MHz	
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			ΜΩ	$V_{I-O} = 500 \text{ VDC},$ $R_{oH} \le 60\%$	
Turn-ON time		t <sub>ON</sub>		0.6	1.5	ms	$I_F = 5 \text{ mA}, R_L = 200 \Omega.$ $V_{DD} = 20 \text{ V (See note 2)}$	
Turn-OFF time		t <sub>OFF</sub>		0.1	1	ms		





### **■** 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)	$V_{DD}$		150	200	V
Operating LED forward current	I <sub>F</sub>	5	7.5	25	mA
Continuous load current (AC peak/DC)	Io			130	mA
Operating temperature	T <sub>a</sub>	- 20		65	°C

#### **■** Engineering Data

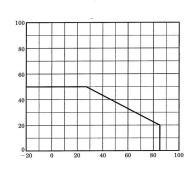
LED forward current IF (mA)

Continuous load current IO (mA)

Turn ON, Turn OFF time ton, toff (µS)

### LED forward current vs. Ambient temperature

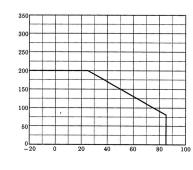
IF - Ta



Ambient temperature Ta (°C)

## Continuous load current vs. Ambient temperature

lo - Ta



Continuous load current 10 (mA)

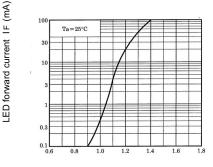
On-state resistance RON (Ω)

Turn ON, Turn OFF time ton, torr (µS)

Ambient temperature Ta (°C)

### LED forward current vs. LED forward voltage

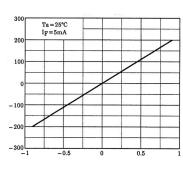
IF - VF



LED forward voltage VF (V)

### Continuous load current vs. On-state voltage

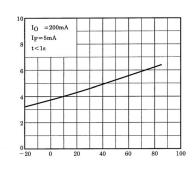
Io - Von



On-state voltage VON (V)

### On-state resistance vs. Ambient temperature

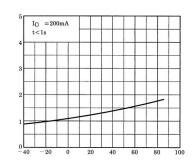
Ron - Ta



Ambient temperature Ta (°C)

### Trigger LED forward current vs. Ambient temperature

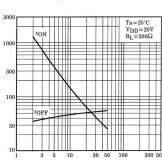
IFT - Ta



Ambient temperature Ta (°C)

### Turn ON, Turn OFF time vs. LED forward current

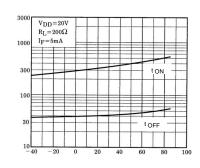
ton, toff - If



LED forward current IF (mA)

### Turn ON, Turn OFF time vs. Ambient temperature

ton, toff - Ta



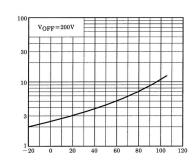
Ambient temperature Ta (°C)

### Current leakage vs. Ambient temperature

Trigger LED forward current IFT (mA)

Current leakage ILEAK (nA)

temperati I <sub>LEAK</sub> - Ta



Ambient temperature Ta (°C)



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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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