# MOS FET Relays G3VM-352J

## Slim, 2.1-mm High Relay Incorporating a MOS FET Optically Coupled with an Infrared LED in a Miniature, Flat SOP Package

- 2 channels and an 8-pin SOP packageincluded in 350-V load voltage series.
- · Continuous load current of 110 mA.
- Dielectric strength of 1,500 Vrms between I/O.
- · RoHS Compliant.

#### ■ Application Examples

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



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		350 VAC	G3VM-352J	50	
	terminals		G3VM-352J(TR)		2,500

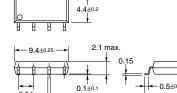
#### **■** Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-352J



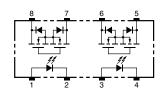
from the image shown here.



Weight: 0.2 g

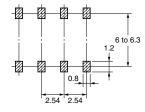
### ■ Terminal Arrangement/Internal Connections (Top View)

G3VM-352J



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

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

ltem		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	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	٧			
	Connection temperature	T <sub>j</sub>	125	°C			
Output	Load voltage (AC peak/DC)	$V_{OFF}$	350	٧			
	Continuous load current	I <sub>o</sub>	110	mA			
	ON current reduction rate	Δ I <sub>ON</sub> /°C	-1.1	mA/°C	$T_a \ge 25^{\circ}C$		
	ric 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		

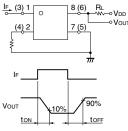
Note:

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	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> = 110 mA
Output	Maximum resistance with output ON	R <sub>on</sub>		25	35	Ω	I <sub>F</sub> = 5 mA, I <sub>O</sub> = 110 mA, t < 1 s
				35	50	Ω	I <sub>F</sub> = 5 mA, I <sub>O</sub> = 110 mA
	Current leakage when the relay is open	I <sub>LEAK</sub>		0.0015	1.0	μΑ	V <sub>OFF</sub> = 350 V
	Capacity between terminals	C <sub>OFF</sub>		30		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	$\begin{aligned} &V_{\text{I-O}} = 500 \text{ VDC}, \\ &R_{\text{oH}} \leq 60\% \end{aligned}$
Turn-ON time		t <sub>ON</sub>		0.3	1	ms	$I_F = 5 \text{ mA}, R_L = 200 \Omega,$
Turn-OFF time		t <sub>OFF</sub>		0.1	1	ms	V <sub>DD</sub> = 20 V (See note 2.)

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



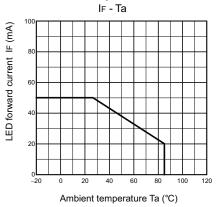
#### **■** Recommended Operating Conditions

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

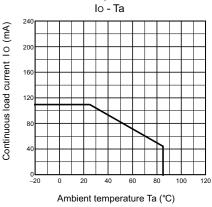
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	$V_{DD}$			280	V
Operating LED forward current	I <sub>F</sub>	5	10	25	mA
Continuous load current (AC peak/DC)	Io			100	mA
Operating temperature	T <sub>a</sub>	- 20		65	°C

#### **■** Engineering Data

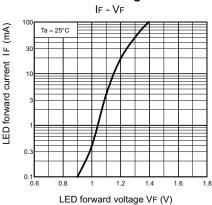
### LED forward current vs. Ambient temperature



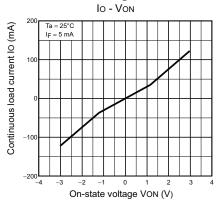
#### Continuous load current vs. Ambient temperature



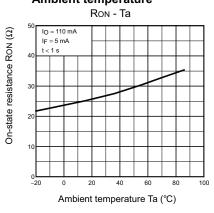
### LED forward current vs. LED forward voltage



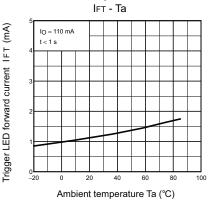
### Continuous load current vs. On-state voltage



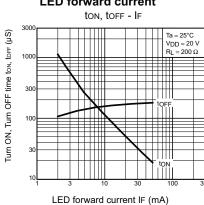
#### On-state resistance vs. Ambient temperature



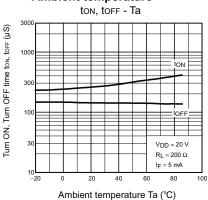
### Trigger LED forward current vs. Ambient temperature



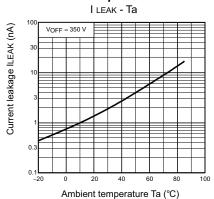
### Turn ON, Turn OFF time vs. LED forward current



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



### Current leakage vs. Ambient temperature





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