MOS FET Relays G3VM-351G

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

- Upgraded G3VM-S2 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
	Surface-mounting			100	
	terminals		G3VM-351G(TR)		2,500

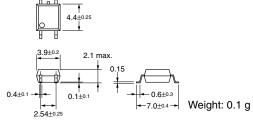
■ Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-351G

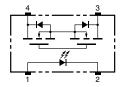


Note: The actual product is marked differently from the image shown here.



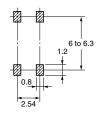
■ Terminal Arrangement/Internal Connections (Top View)

G3VM-351G



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

G3VM-351G



■ Absolute Maximum Ratings (Ta = 25°C)

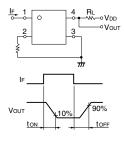
	Item	Symbol	Rating	Unit	Measurement conditions
Input	Input LED forward current I		50	mA	
	Repetitive peak LED forward current	I _{FP}	1	Α	100 μs pulses, 100 pps
	LED forward current reduction rate	Δ I _F /°C	-0.5	mA/°C	$T_a \ge 25^{\circ}C$
	LED reverse voltage	V_R	5	٧	
	Connection temperature	T _j	125	°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	350	٧	
	Continuous load current	Io	110	mA	
	ON current reduction rate	Δ I _{ON} /°C	-1.1	mA/°C	$T_a \ge 25^{\circ}C$
	Connection temperature	T _j	125	°C	
Dielectric strength between input and output (See note 1.)		V _{I-O}	1,500	V _{rms}	AC for 1 min
Operati	ng temperature	T _a	-40 to +85	°C	With no icing or condensation
Storage temperature T			-55 to +125	°C	With no icing or condensation
Solderii	ng 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
LED forward voltage	V _F	1.0	1.15	1.3	V	I _F = 10 mA
Reverse current				10	μΑ	V _R = 5 V
Capacity between terminals	C _T		30		pF	V = 0, f = 1 MHz
Trigger LED forward current	I _{FT}		1	3	mA	I _O = 100 mA
Maximum resistance with output ON	R _{ON}		25	35	Ω	I _F = 5 mA, I _O = 110 mA, t < 1 s
			35	50	Ω	I _F = 5 mA, I _O = 110 mA
Current leakage when the relay is open	I _{LEAK}		0.0015	1.0	μΑ	V _{OFF} = 350 V
Capacity between terminals	C _{OFF}		30		pF	V = 0, f = 1MHz
Capacity between I/O terminals			0.8		pF	f = 1 MHz, V _s = 0 V
Insulation resistance		1,000			ΜΩ	$\begin{aligned} &V_{\text{I-O}} = 500 \text{ VDC}, \\ &R_{\text{oH}} \leq 60\% \end{aligned}$
Turn-ON time			0.3	1.0	ms	$I_F = 5 \text{ mA}, R_L = 200 \Omega,$
FF time	t _{OFF}		0.1	1.0	ms	$V_{DD} = 20 \text{ V (See note 2.)}$
	LED forward voltage Reverse current Capacity between terminals Trigger LED forward current Maximum resistance with output ON Current leakage when the relay is open Capacity between terminals y between I/O terminals on resistance	LED forward voltage Reverse current I _R Capacity between terminals Trigger LED forward current Maximum resistance with output ON Current leakage when the relay is open Capacity between terminals Capacity between terminals Coppe On resistance N time Topic content of the content	LED forward voltage	LED forward voltage V_F 1.0 1.15 Reverse current I_R 30 Trigger LED forward current I_{FT} 1 Maximum resistance with output ON I_{CM} 35 Current leakage when the relay is open I_{LEAK} 0.0015 Capacity between terminals I_{CM} 30 Very between I/O terminals I_{CM} 0.8 On resistance I_{CM} 0.3	LED forward voltage V_F 1.0 1.15 1.3 Reverse current I_R 10 Capacity between terminals C_T 30 Trigger LED forward current I_{FT} 1 3 3 3 5 50 Current leakage when the relay is open I_{LEAK} 0.0015 1.0 Capacity between terminals C_{OFF} 30 10 7 5 1.0 Trigger Leakage when the relay is open I_{LEAK} 0.0015 1.0 Capacity between terminals I_{LEAK} 0.08 10 7 5 1.0 Trigger Leakage when the relay is open I_{LEAK} 0.0 8 10 7 1.0 Trigger Leakage when the relay is open I_{LEAK} 0.0 1.0 1.0 Trigger Leakage when the relay is open I_{LEAK} 0.0 1.0 1.0 Trigger Leakage when the relay is open I_{LEAK} 0.0 1.0 1.0 Trigger Leakage when the relay is open I_{LEAK} 0.0 1.0 1.0 Trigger Leakage when the relay is open I_{LEAK} 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	LED forward voltage V_F 1.0 1.15 1.3 V_F Reverse current I_R 10 μA Capacity between terminals C_T 30 μA Maximum resistance with output ON I_{EAK} 35 50 Ω Current leakage when the relay is open I_{LEAK} 0.0015 1.0 μA Capacity between terminals C_{OFF} 30 ΦF by between I/O terminals I_{FO} 0.8 I_{FO}

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



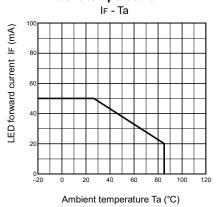
■ Recommended Operating Conditions

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

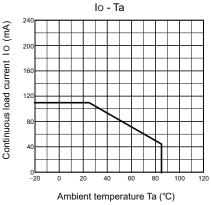
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}			280	V
Operating LED forward current	I _F	5	7.5	25	mA
Continuous load current (AC peak/DC)	Io			100	mA
Operating temperature	T _a	- 20		65	°C

■ Engineering Data

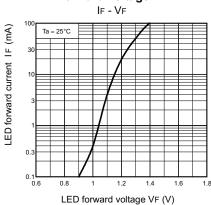
LED forward current vs. Ambient temperature



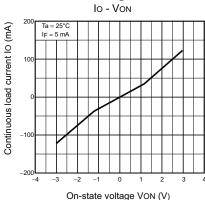
Continuous load current vs. Ambient temperature



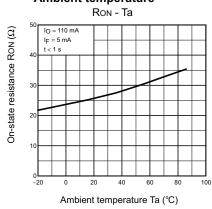
LED forward current vs. LED forward voltage



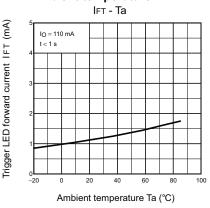
Continuous load current vs. On-state voltage



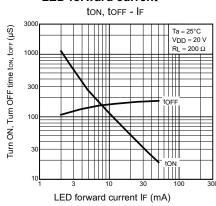
On-state resistance vs. Ambient temperature



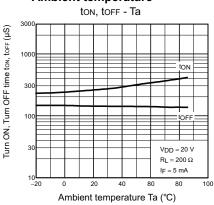
Trigger LED forward current vs. Ambient temperature



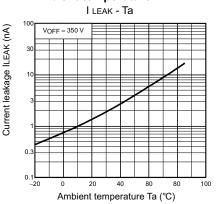
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Ambient temperature





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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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