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sales@integrated-circuit.com

G3VM-101LR

MOS FET Relays

World's Smallest* SSOP Package MOS FET Relays with High Load Voltage of 100 V.

- Leakage current of 200 pA max. when output relay is open.

* As of March 2011 Survey by OMRON



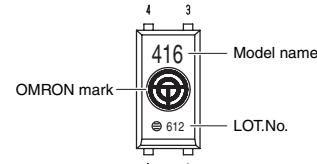
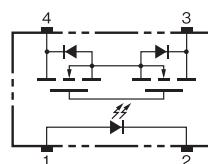
RoHS compliant

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

Application Examples

- Semiconductor test equipment
- Test & Measurement equipment
- Communication equipment
- Data loggers

Terminal Arrangement/Internal Connections



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

List of Models

Package type	Contact form	Terminals	Load voltage (peak value) *	Model	Minimum package quantity Number per tape and reel
SSOP4	1a (SPST-NO)	Surface-mounting Terminals	100 V	G3VM-101LR	-
				G3VM-101LR (TR05)	500
				G3VM-101LR (TR)	1,500

Note: Ask your OMRON representative for orders under 1500 pcs or 500 pcs. We can supply products with the tape already cut.

Tape-cut SSOPs are packaged without humidity resistance. Use manual soldering to mount them.

Refer to common precautions.

* The AC peak and DC value are given for the load voltage.

Absolute Maximum Ratings (Ta = 25 °C)

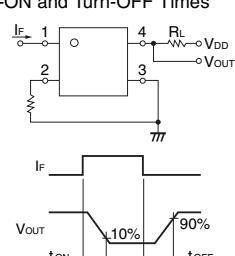
Item		Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	I _F	50	mA	
	LED forward current reduction rate	ΔI _F /°C	-0.5	mA/°C	Ta ≥ 25 °C
	LED reverse voltage	V _R	5	V	
	Connection temperature	T _J	125	°C	
Output	Load voltage (AC peak/DC)	V _{OFF}	100	V	
	Continuous load current (AC peak/DC)	I _O	80	mA	
	ON current reduction rate	ΔI _O /°C	-0.8	mA/°C	Ta ≥ 25 °C
	Connection temperature	T _J	125	°C	
Dielectric strength between I/O (See note 1.)		V _{i-o}	1500	Vrms	AC for 1 min
Ambient operating temperature		T _a	-20 to +85	°C	With no icing or condensation
Ambient storage temperature		T _{stg}	-40 to +125	°C	With no icing or condensation
Soldering temperature		-	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 _F	1.0	1.15	1.3	V I _F = 10 mA
	Reverse current	I _R	-	-	10	μA V _R = 5 V
	Capacity between terminals	C _T	-	15	-	pF V = 0, f = 1 MHz
	Trigger LED forward current	I _{FT}	-	1	5	mA I _O = 80 mA
Output	Maximum resistance with output ON	R _{ON}	-	8	14	Ω I _F = 10 mA, I _O = 80 mA, t = 10 ms
	Current leakage when the relay is open	I _{LEAK}	-	-	200	pA V _{OFF} = 80 V
	Capacity between terminals	C _{OFF}	-	6	8	pF V = 0, f = 100 MHz, t < 1 s
	Capacity between I/O terminals	C _{i-o}	-	0.6	-	pF f = 1 MHz, V _s = 0 V
Insulation resistance between I/O terminals		R _{i-o}	1000	-	-	MΩ V _{i-o} = 500 VDC, RoH ≤ 60 %
Turn-ON time		t _{ON}	-	0.1	0.3	ms I _F = 5 mA, R _L = 200 Ω, V _{DD} = 20 V (See note 2.)
Turn-OFF time		t _{OFF}	-	0.1	0.3	ms

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



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MOS FET Relays

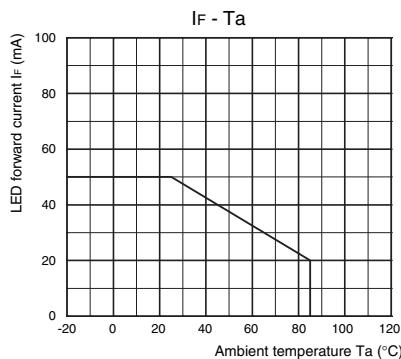
■ Recommended Operating Conditions

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

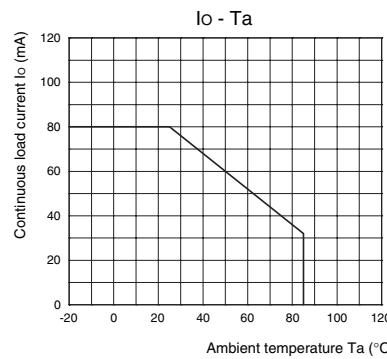
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	-	-	80	V
Operating LED forward current	I_F	10	-	30	mA
Continuous load current (AC peak/DC)	I_O	-	-	80	mA
Ambient operating temperature	T_a	25	-	60	°C

■ Engineering Data

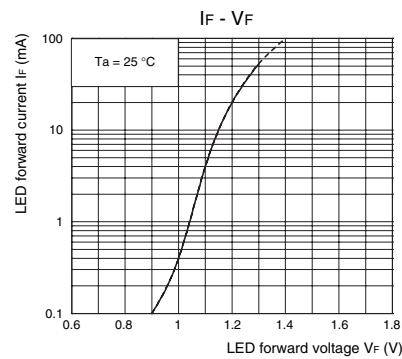
LED forward current vs. Ambient temperature



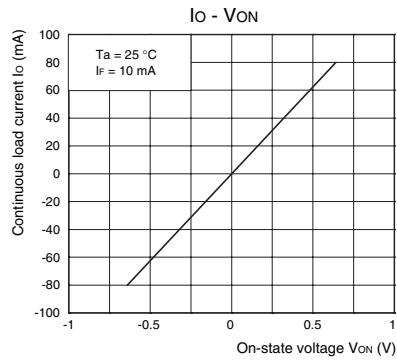
Continuous load current vs. Ambient temperature



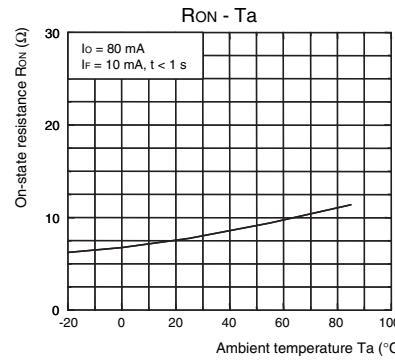
LED forward current vs. LED forward voltage



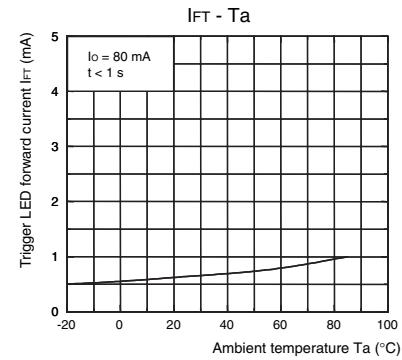
Continuous load current vs. On-state voltage



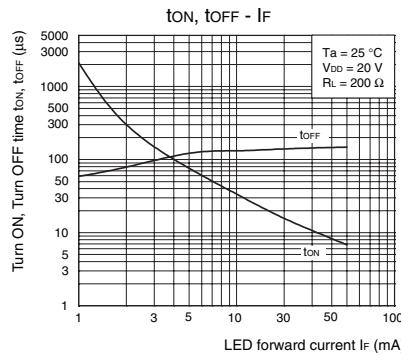
On-state resistance vs. Ambient temperature



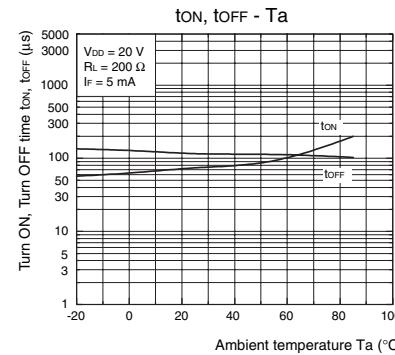
Trigger LED forward current vs. Ambient temperature



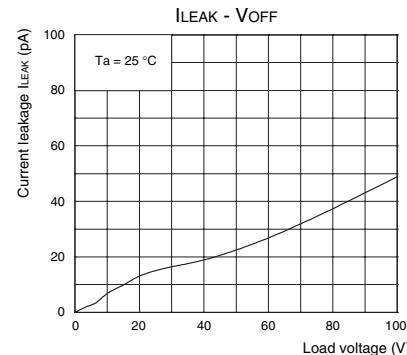
Turn ON, Turn OFF time vs. LED forward current



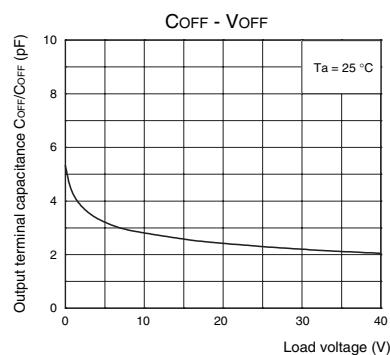
Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Load voltage



Output terminal capacitance vs. Load voltage



■ Safety Precautions

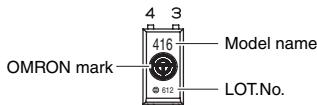
- Refer to "Common Precautions" for all G3VM models.

Appearance/Dimensions

SSOP4 type

■ Appearance

SSOP (Shrink Small Outline Package) SSOP4



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

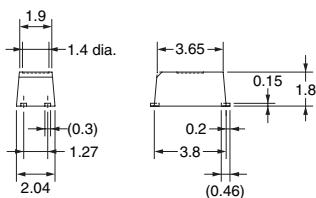
■ Dimensions

(Unit: mm)



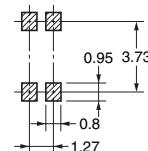
Surface-mounting Terminals

Weight: 0.03 g



Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

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- Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
 - Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Note: Do not use this document to operate the Unit.