

G3VM-21AR/DR

MOS FET Relays

**Higher power, 3-A switching with a 20-V
load voltage, DIP package.
Low 40 mΩ ON Resistance.**

- Continuous load current of 3 A.
- Switches minute analog signals.
- Dielectric strength of 2,500 Vrms between I/O.

RoHS compliant

Application Examples

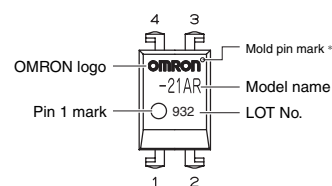
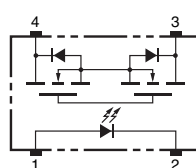
- Communication equipment
- Test & Measurement equipment
- Security equipment
- Factory Automation equipment
- Power circuit



NEW

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

Terminal Arrangement/Internal Connections



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

* The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

List of Models

Package type	Contact form	Terminals	Load voltage (peak value) *	Model	Minimum package quantity	
					Number per stick	Number per tape and reel
DIP4	1a (SPST-NO)	PCB terminals	20 V	G3VM-21AR	100	---
		Surface-mounting terminals		G3VM-21DR		
				G3VM-21DR (TR)	---	1,500

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

Absolute Maximum Ratings (Ta = 25°C)

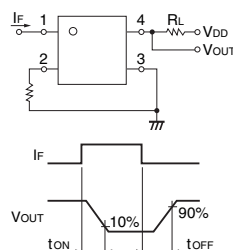
Item	Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	IF	30	mA
	Repetitive peak LED forward current	IFP	1	A
	LED forward current reduction rate	ΔIF/°C	-0.3	mA/°C
	LED reverse voltage	VR	5	V
Output	Connection temperature	TJ	125	°C
	Load voltage (AC peak/DC)	VOFF	20	V
	Continuous load current (AC peak/DC)	IO	3	A
	ON current reduction rate	ΔIO/°C	-30	mA/°C
Output	Pulse ON current	IOP	9	A
	Connection temperature	TJ	125	°C
	Dielectric strength between I/O (See note 1.)	VI-O	2500	Vrms
	Operating temperature	Ta	-40 to +85	°C
Storage	Storage temperature	Tstg	-55 to +125	°C
	Soldering temperature	---	260	°C

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	VF	1.18	1.48	V	IF = 10 mA
	Reverse current	IR	---	10	μA	VR = 5 V
	Capacity between terminals	CT	70	---	pF	V = 0, f = 1 MHz
	Trigger LED forward current	IFT	0.7	3	mA	IO = 1 A
Output	Maximum resistance with output ON	RON	40	80	mΩ	IF = 5 mA, IO = 2 A, t < 1 s
	Current leakage when the relay is open	ILEAK	---	1.0	μA	VOFF = 20 V
	Capacity between terminals	COFF	300	---	pF	V = 0, f = 1 MHz
	Capacity between I/O terminals	CI-O	0.8	---	pF	f = 1 MHz, Vs = 0 V
Insulation	Insulation resistance between I/O terminals	RI-O	1000	---	MΩ	VI-O = 500 VDC, RoH ≤ 60%
	Turn-ON time	TON	1	5	ms	IF = 5 mA, RL = 200 Ω, VDD = 20 V (See note 2.)
Turn-OFF	Turn-OFF time	TOFF	0.3	1	ms	

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



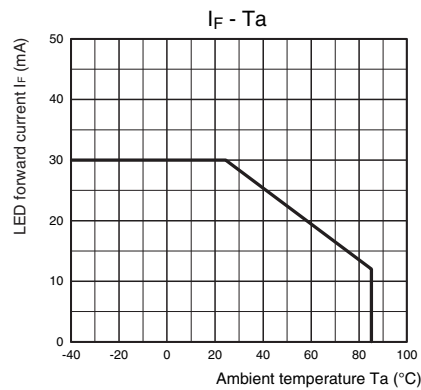
Recommended Operating Conditions

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

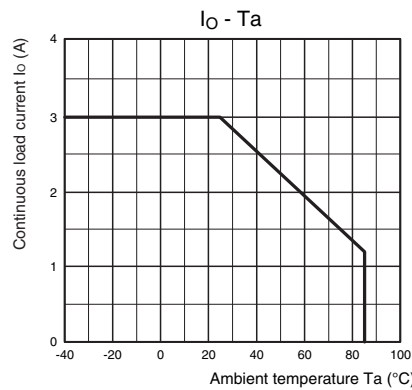
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	---	---	16	V
Operating LED forward current	I_F	5	10	25	mA
Continuous load current (AC peak/DC)	I_O	---	---	3	A
Operating temperature	T_a	-20	---	65	°C

Engineering Data

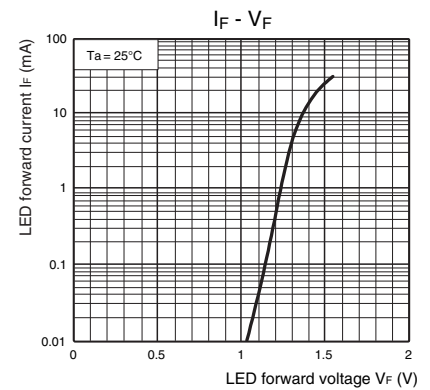
LED forward current vs. Ambient temperature



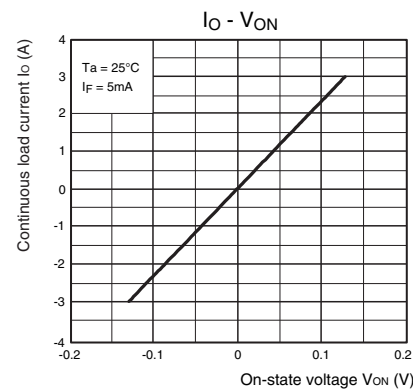
Continuous load current vs. Ambient temperature



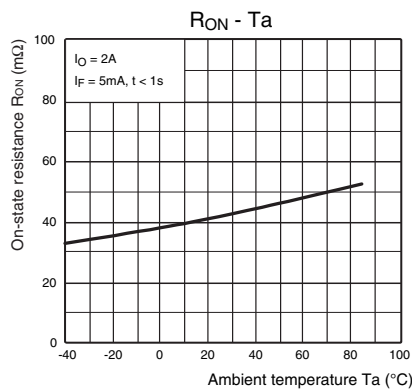
LED forward current vs. LED forward voltage



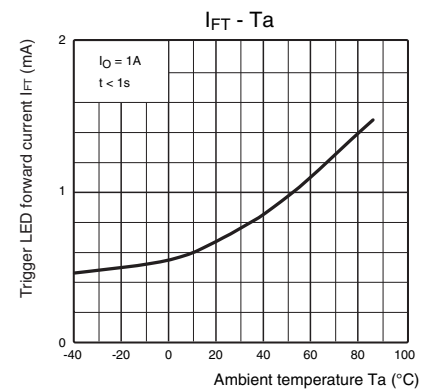
Continuous load current vs. On-state voltage



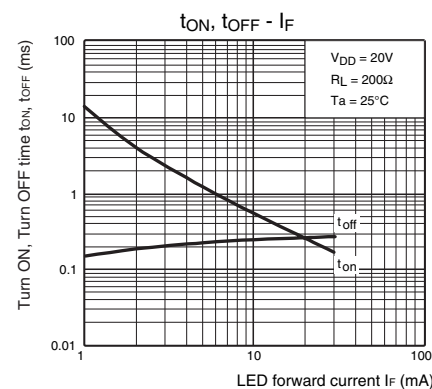
On-state resistance vs. Ambient temperature



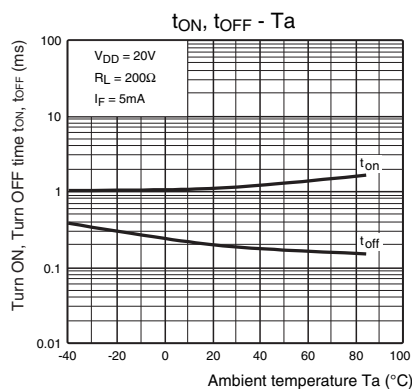
Trigger LED forward current vs. Ambient temperature



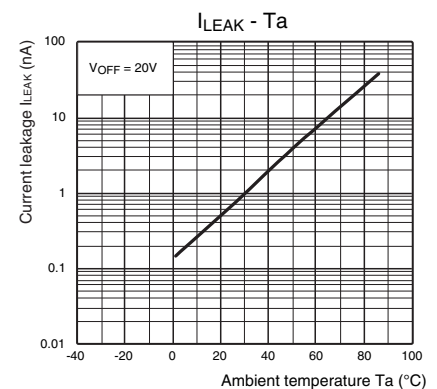
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Ambient temperature



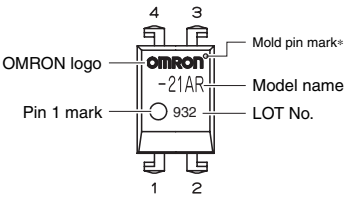
Safety Precautions

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

■ Appearance

DIP (Dual Inline Package)

DIP4

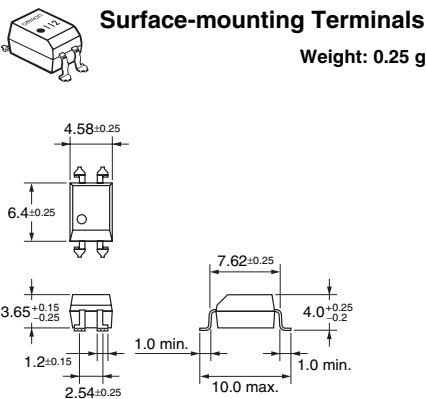
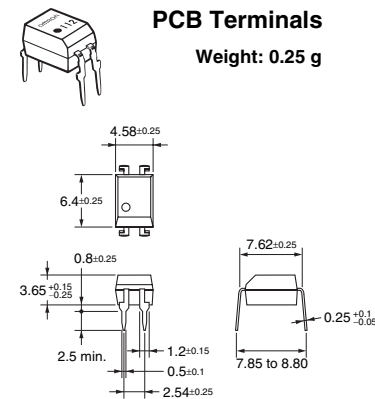


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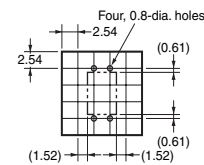
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■ Dimensions

(Unit: mm)

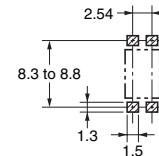


PCB Dimensions (Bottom View)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



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

- 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.

OMRON Corporation

ELECTRONIC AND MECHANICAL COMPONENTS COMPANY

Contact: www.omron.com/ecb

Cat. No. **K135-E1-02**
0412(0412)(O)

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