

MOS FET Relays

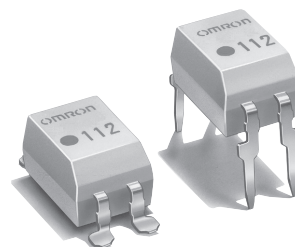
G3VM-401A/D

Analog-switching MOS FET Relays with 400-V Load Voltage

- A 4-pin Relay in the 400-V load voltage series.
- Continuous load current of 120 mA.
- Dielectric strength of 2,500 Vrms between I/O.
- RoHS Compliant.

■ Application Examples

- Measurement devices
- Security systems
- Amusement machines



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

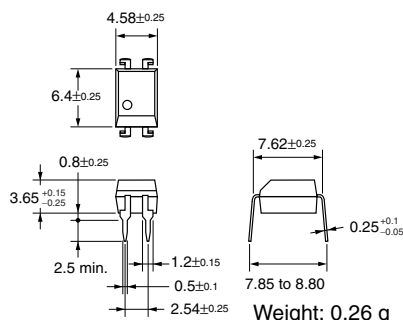
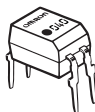
■ List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NO	PCB terminals	400 VAC	G3VM-401A	100	---
	Surface-mounting terminals		G3VM-401D		
				G3VM-401D(TR)	---

■ Dimensions

Note: All units are in millimeters unless otherwise indicated.

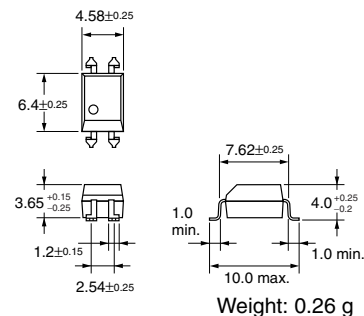
G3VM-401A



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

Weight: 0.26 g

G3VM-401D

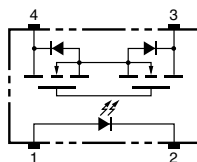


Note: The actual product is marked differently from the image shown here.

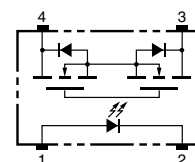
Weight: 0.26 g

■ Terminal Arrangement/Internal Connections (Top View)

G3VM-401A

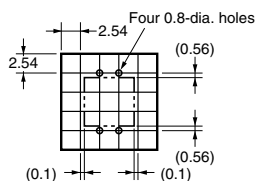


G3VM-401D



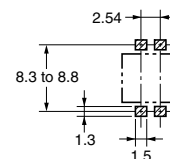
■ PCB Dimensions (Bottom View)

G3VM-401A



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

G3VM-401D



Absolute Maximum Ratings (Ta = 25°C)

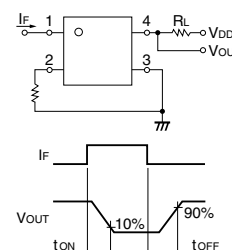
Item	Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	I_F	50	mA
	Repetitive peak LED forward current	I_{FP}	1	A
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C
	LED reverse voltage	V_R	5	V
	Connection temperature	T_j	125	°C
Output	Load voltage (AC peak/DC)	V_{OFF}	400	V
	Continuous load current	I_O	120	mA
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-1.2	mA/°C
	Connection temperature	T_j	125	°C
Dielectric strength between input and output (See note 1.)		V_{I-O}	2,500	V_{rms}
Operating temperature		T_a	-40 to +85	°C
Storage temperature		T_{slg}	-55 to +125	°C
Soldering temperature (10 s)		---	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	V_F	1.0	1.15	1.3	V
	Reverse current	I_R	---	---	10	μA
	Capacity between terminals	C_T	---	30	---	pF
	Trigger LED forward current	I_{FT}	---	1	3	mA
Output	Maximum resistance with output ON	R_{ON}	---	18	35	Ω
	Current leakage when the relay is open	I_{LEAK}	---	0.0008	1.0	μA
	Capacity between terminals	C_{OFF}	---	40	---	pF
Capacity between I/O terminals		C_{I-O}	---	0.8	---	pF
Insulation resistance		R_{I-O}	1,000	---	---	M Ω
Turn-ON time		t_{ON}	---	0.4	1.0	ms
Turn-OFF time		t_{OFF}	---	0.09	1.0	ms

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



Recommended Operating Conditions

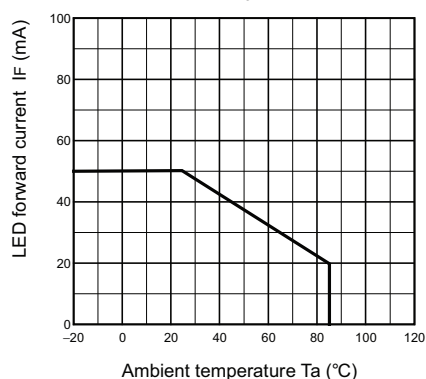
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	---	---	320	V
Operating LED forward current	I_F	5	7.5	25	mA
Continuous load current (AC peak/DC)	I_O	---	---	100	mA
Operating temperature	T_a	-20	---	65	°C

■ Engineering Data

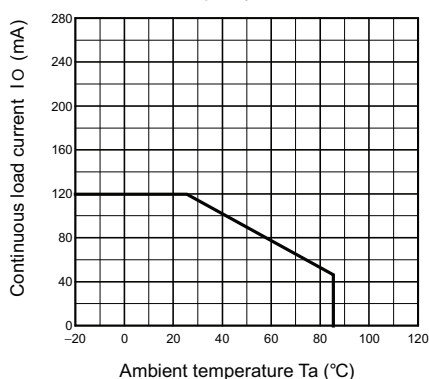
LED forward current vs.
Ambient temperature

$I_F - T_a$



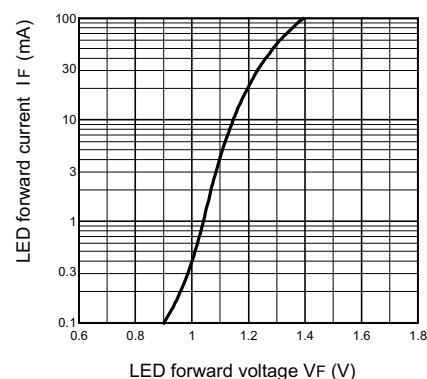
Continuous load current vs.
Ambient temperature

$I_O - T_a$



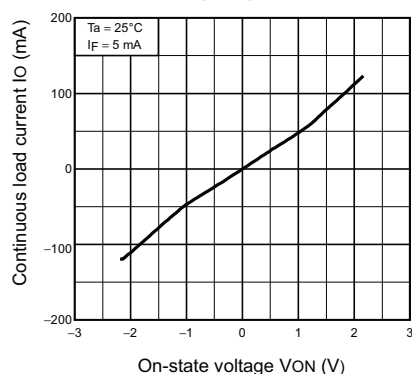
LED forward current vs.
LED forward voltage

$I_F - V_F$



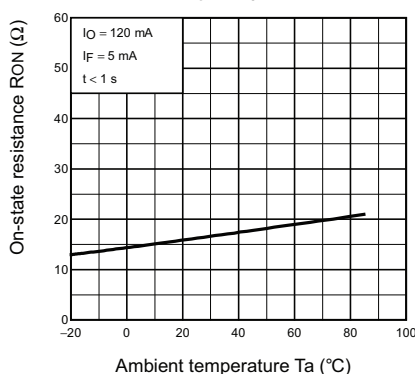
Continuous load current vs.
On-state voltage

$I_O - V_{ON}$



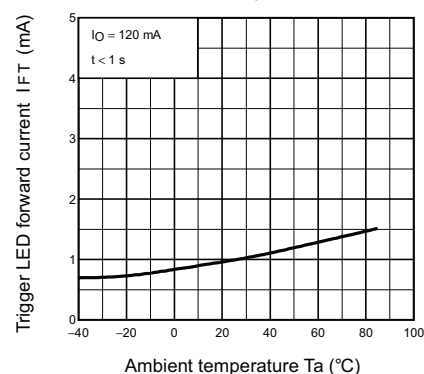
On-state resistance vs.
Ambient temperature

$R_{ON} - T_a$



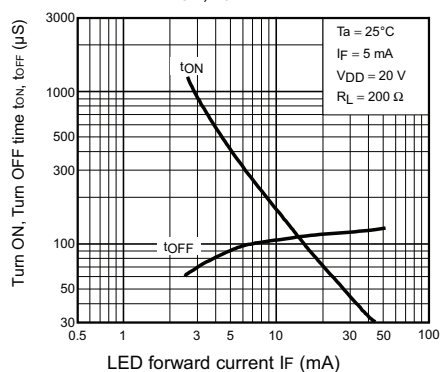
Trigger LED forward current vs.
Ambient temperature

$I_{FT} - T_a$



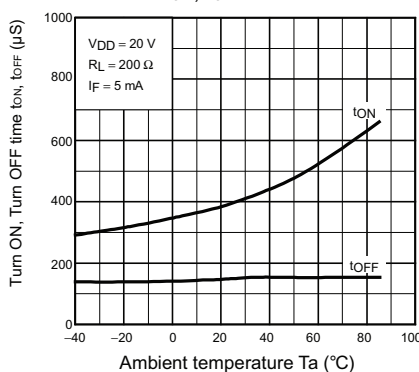
Turn ON, Turn OFF time vs.
LED forward current

$t_{ON}, t_{OFF} - I_F$



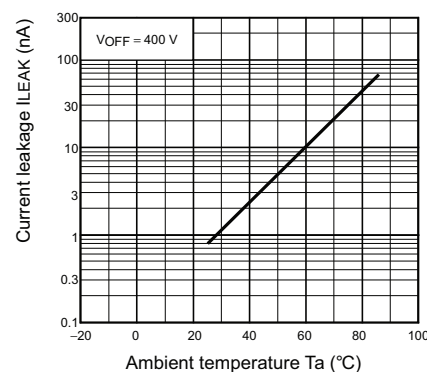
Turn ON, Turn OFF time vs.
Ambient temperature

$t_{ON}, t_{OFF} - T_a$



Current leakage vs.
Ambient temperature

$I_{LEAK} - T_a$



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