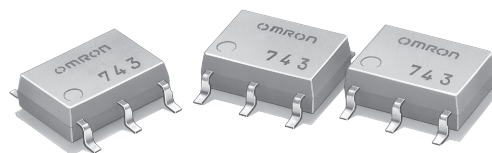


MOS FET Relays G3VM-401H

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

- New models with a 6-pin SOP package in a 400-V load voltage series.
- Continuous load current of 120 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.

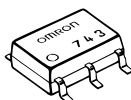
List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NO	Surface-mounting terminals	400 VAC	G3VM-401H	75	---
			G3VM-401H(TR)	---	2,500

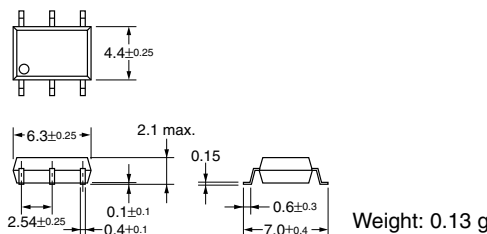
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-401H

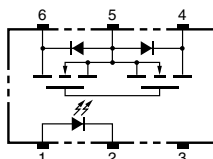


Note: The actual product is marked differently from the image shown here.



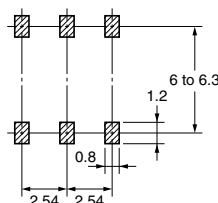
Terminal Arrangement/Internal Connections (Top View)

G3VM-401H



Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-401H

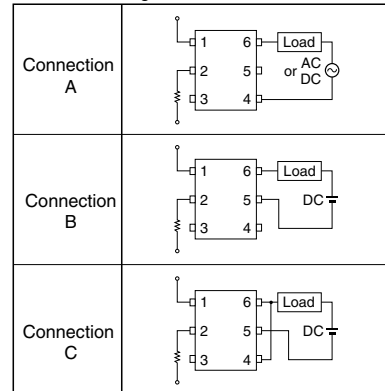


■ Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rating	Unit	Measurement conditions	
Input	LED forward current	I_F	50	mA		
	Repetitive peak LED forward current	I_{FP}	1	A	100 μ s pulses, 100 pps	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	$T_a \geq 25^\circ\text{C}$	
	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	Connection A	I_O	120	mA	
		Connection B		120		
		Connection C		240		
	ON current reduction rate	Connection A	$\Delta I_{ON}/^\circ\text{C}$	-1.2	mA/°C	$T_a \geq 25^\circ\text{C}$
		Connection B		-1.2		
		Connection C		-2.4		
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	
Operating temperature		T_a	-40 to +85	°C	With no icing or condensation	
Storage temperature		T_{stg}	-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.

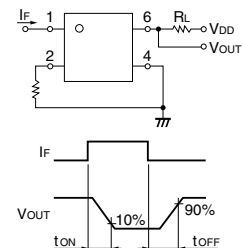
Connection Diagram



■ 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	$I_F = 10 \text{ mA}$	
	Reverse current	I_R	---	---	10	μA	$V_R = 5 \text{ V}$	
	Capacity between terminals	C_T	---	30	---	pF	$V = 0, f = 1 \text{ MHz}$	
	Trigger LED forward current	I_{FT}	---	1	3	mA	$I_O = 120 \text{ mA}$	
Output	Maximum resistance with output ON	Connection A	R_{ON}	---	17	35	Ω	$I_F = 5 \text{ mA}, I_O = 120 \text{ mA}$
		Connection B		---	11	20	Ω	$I_F = 5 \text{ mA}, I_O = 120 \text{ mA}$
		Connection C		---	6	---	Ω	$I_F = 5 \text{ mA}, I_O = 240 \text{ mA}$
Current leakage when the relay is open		I_{LEAK}	---	0.003	1.0	μA	$V_{OFF} = 400 \text{ V}$	
Capacity between terminals A Connection		C_{OFF}	---	70	---	pF	$V = 0, f = 1 \text{ MHz}$	
Capacity between I/O terminals		C_{I-O}	---	0.8	---	pF	$f = 1 \text{ MHz}, V_s = 0 \text{ V}$	
Insulation resistance		R_{I-O}	1,000	---	---	M Ω	$V_{I-O} = 500 \text{ VDC}, R_{OH} \leq 60\%$	
Turn-ON time		t_{ON}	---	0.3	1.0	ms	$I_F = 5 \text{ mA}, R_L = 200 \Omega, V_{DD} = 20 \text{ V}$ (See note 2.)	
Turn-OFF time		t_{OFF}	---	0.1	1.0	ms		

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



■ Recommended Operating Conditions

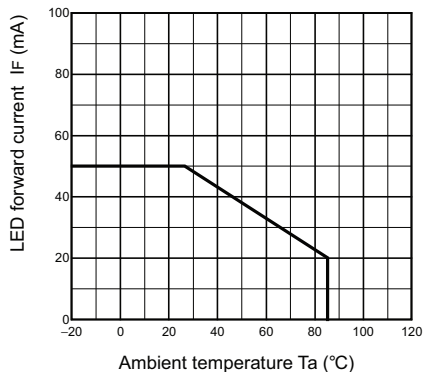
Use the G3VM under the following conditions so that the Relay will operate properly.

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	---	---	120	mA
Operating temperature	T_a	-20	---	65	°C

■ Engineering Data

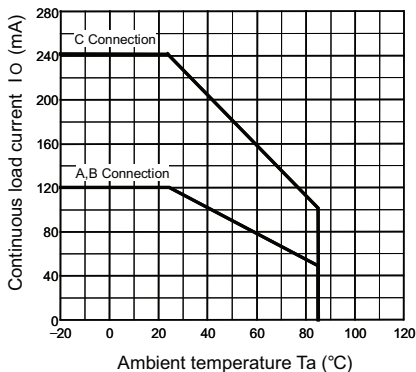
LED forward current vs. Ambient temperature

$I_F - T_a$



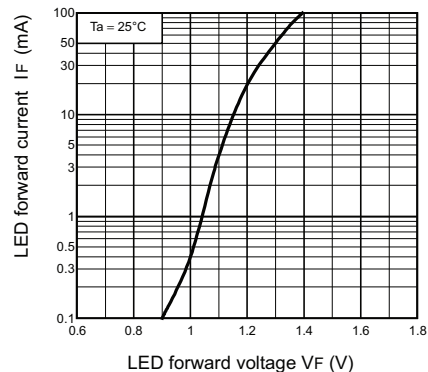
Continuous load current vs. Ambient temperature

$I_O - T_a$



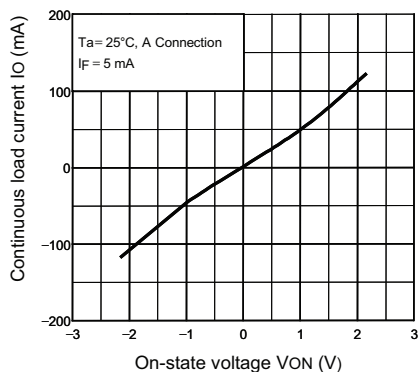
LED forward current vs. LED forward voltage

$I_F - V_F$



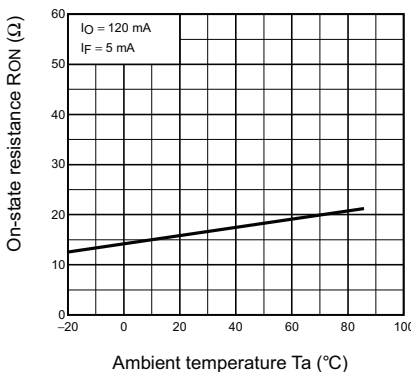
Continuous load current vs. On-state voltage

$I_O - V_{ON}$



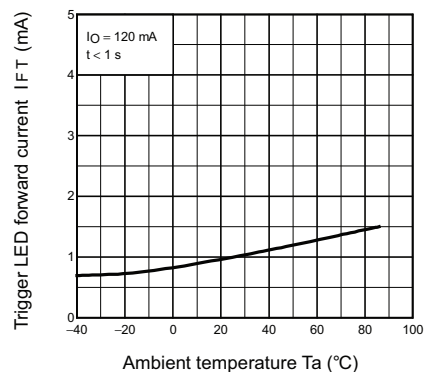
On-state resistance vs. Ambient temperature

$R_{ON} - T_a$



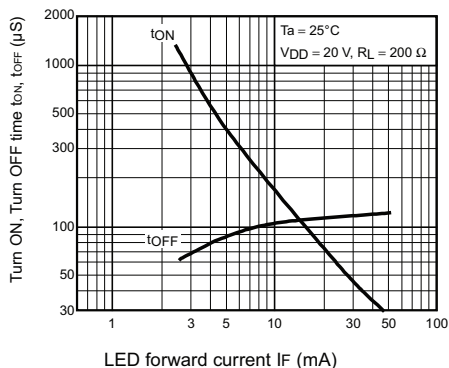
Trigger LED forward current vs. Ambient temperature

$I_{FT} - T_a$



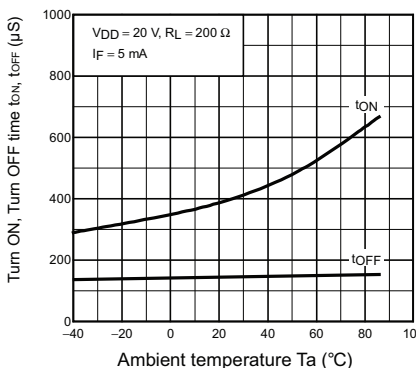
Turn ON, Turn OFF time vs. LED forward current

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



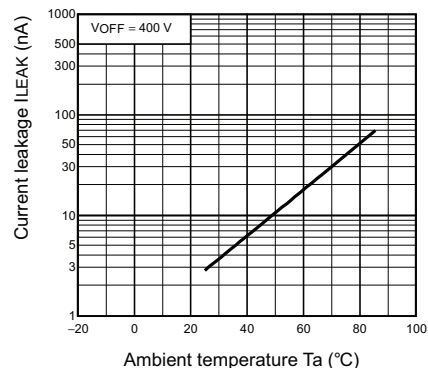
Turn ON, Turn OFF time vs. Ambient temperature

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



Current leakage vs. Ambient temperature

$I_{LEAK} - T_a$



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