MOS FET Relays
G3VM-41AY/DY

Compact, General-purpose, Analog-switching MOS FET Relay, with Dielectric Strength of 5 kVAC between I/O Using Optical Isolation

- Trigger LED forward current of 2 mA (max.)
- Switches minute analog signals
- Continuous load current of 2A
- RoHS Compliant.

NEW

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

■ Application Examples

- Measurement devices
- Security systems and Power meters
- Industrial equipment and Medical equipment

■ List of Models

Package Type	Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
DIP4	SPST-NO	PCB terminals	40 V	**G3VM-41AY**	100	---
		Surface-mounting terminals		**G3VM-41DY**		
				G3VM-41DY(TR)	---	1,500

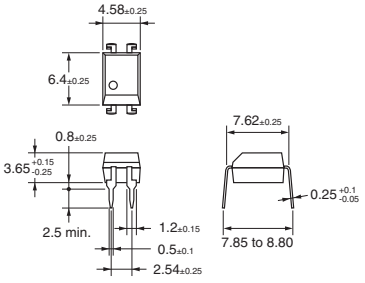
Note: The AC peak and DC value are given for the load voltage.

■ Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-41AY

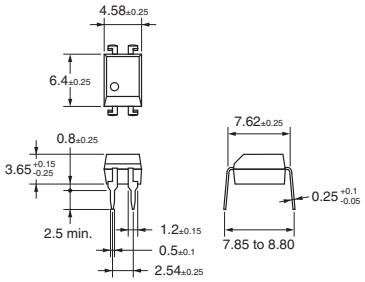
Note: The actual product is marked differently from the image shown here.



Weight: 0.25 g

G3VM-41DY

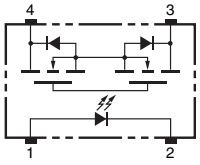
Note: The actual product is marked differently from the image shown here.



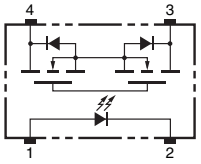
Weight: 0.25 g

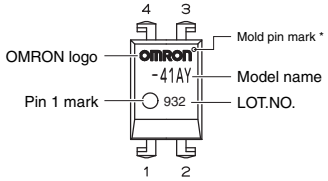
■ Terminal Arrangement/Internal Connections (Top View)

G3VM-41AY



G3VM-41DY

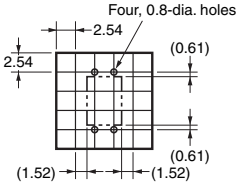




Note: The actual product is marked differently from the image shown here.

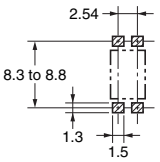
■ PCB Dimensions (Bottom View)

G3VM-41AY



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

G3VM-41DY



■ Absolute Maximum Ratings (Ta = 25°C)

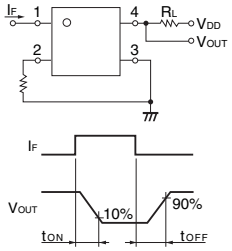
Item		Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	I_F	30	mA	
	Repetitive peak LED forward current	I_{FP}	1	A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔI_F/°C	–0.3	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5	V	
	Connection temperature	T_j	125	°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	40	V	
	Continuous load current (AC peak/DC)	I_O	2,000	mA	
	ON current reduction rate	ΔI_{ON}/°C	–20	mA/°C	Ta ≥ 25°C
	Pulse ON current	I_{OP}	6	A	t=100 ms, Duty=1/10
	Connection temperature	T_j	125	°C	
Dielectric strength between input and output (See note 1.)		V_{I-O}	5,000	V_{rms}	AC for 1 min
Ambient Operating temperature		T_a	–40 to +85	°C	With no icing or condensation
Ambient 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.

■ Electrical Characteristics (Ta = 25°C)

Item		Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions
Input	LED forward voltage	V_F	1.45	1.63	1.75	V	I_F = 10 mA
	Reverse current	I_R	---	---	10	μA	V_R = 5 V
	Capacity between terminals	C_T	---	40	---	pF	V = 0, f = 1 MHz
	Trigger LED forward current	I_{FT}	---	0.3	2	mA	I_O = 500 mA
Output	Maximum resistance with output ON	R_{ON}	---	60	100	mΩ	I_F = 5 mA, I_O = 2 mA, t < 1 s
			---	90	150		I_F = 5 mA, I_O = 2 mA
	Current leakage when the relay is open	I_{LEAK}	---	300	1.0	μA	V_{OFF} = 40 V
	Capacity between terminals	C_{OFF}	---	130	---	pF	V = 0, f = 1MHz
Capacity between I/O terminals		C_{I-O}	---	0.8	---	pF	f = 1 MHz, V_s = 0 V
Insulation resistance		R_{I-O}	1,000	---	---	MΩ	V_{I-O} = 500 VDC, R_{oH} ≤ 60%
Turn-ON time		t_{ON}	---	2	5	ms	I_F = 5 mA, R_L = 200 Ω, V_{DD} = 20 V (See note 2.)
Turn-OFF time		t_{OFF}	---	0.3	1	ms	

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



■ Recommended Operating Conditions

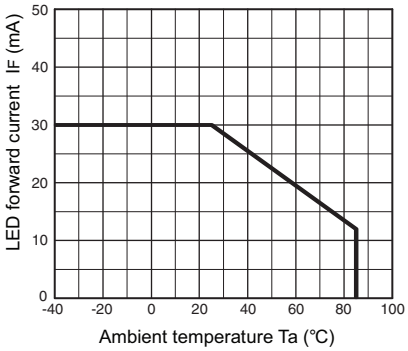
Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	---	---	32	V
Operating LED forward current	I_F	3	5	15	mA
Continuous load current (AC peak/DC)	I_O	---	---	2	A
Ambient Operating temperature	T_a	– 20	---	65	°C

■ Engineering Data

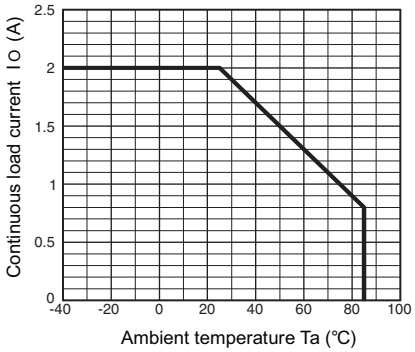
LED forward current vs. Ambient temperature

I_F - Ta



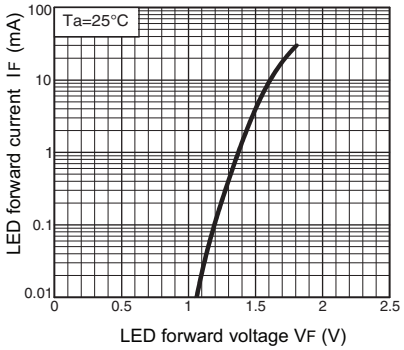
Continuous load current vs. Ambient temperature

I_O - Ta



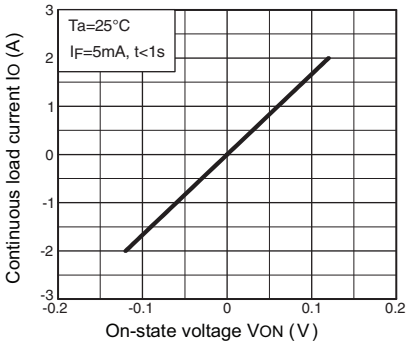
LED forward current vs. LED forward voltage

I_F - V_F



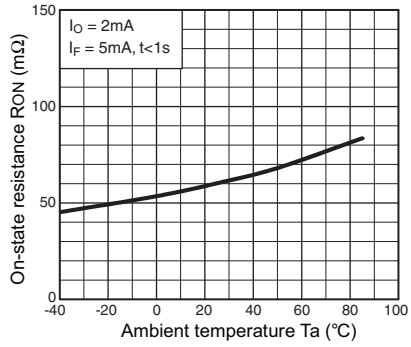
Continuous load current vs. On-state voltage

I_O - V_{ON}



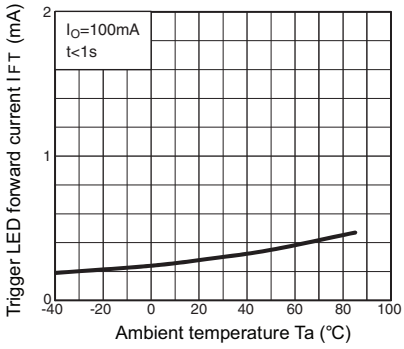
On-state resistance vs. Ambient temperature

R_{ON} - Ta



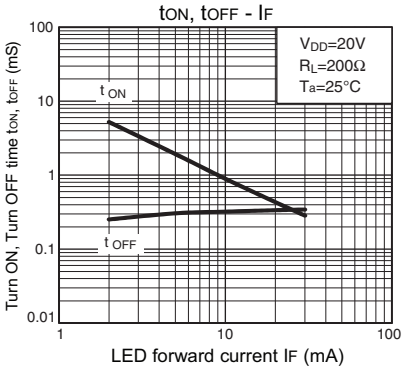
Trigger LED forward current vs. Ambient temperature

I_{FT} - Ta



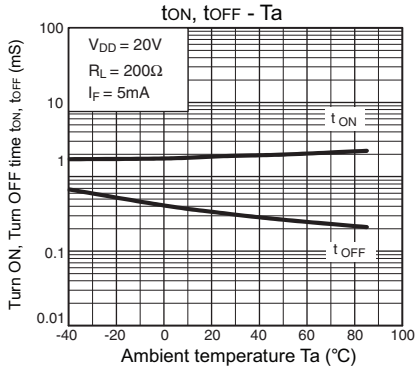
Turn ON, Turn OFF time vs. LED forward current

t_{ON}, t_{OFF} - I_F



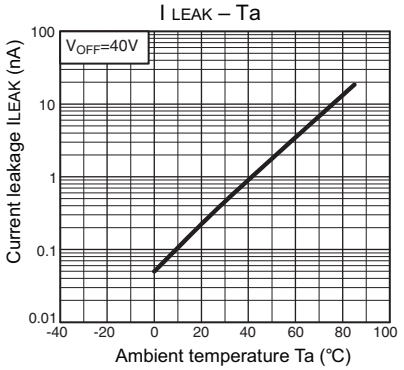
Turn ON, Turn OFF time vs. Ambient temperature

t_{ON}, t_{OFF} - Ta



Current leakage vs. Ambient Temperature

I_{LEAK} – Ta



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