

MOS FET Relays

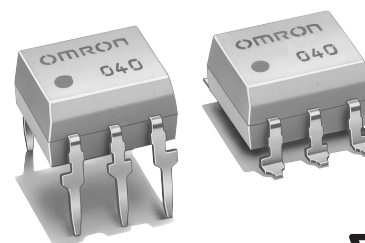
G3VM-601BY/EY

Analog-switching MOS FET Relay with a Dielectric Strength of 5 kVAC between I/O Using Optical Isolation

- Switches minute AC and DC analog signals.
- Peak load voltage of 600 V.
- Dielectric strength of 5 kVAC between I/O.
- RoHS Compliant.

■ Application Examples

- Electronic automatic exchange systems
- FA systems
- Measurement devices
- Security systems



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

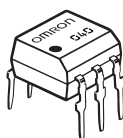
■ List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NO	PCB terminals	600 VAC	G3VM-601BY	50	---
	Surface-mounting terminals		G3VM-601EY		
			G3VM-601EY(TR)	---	1,500

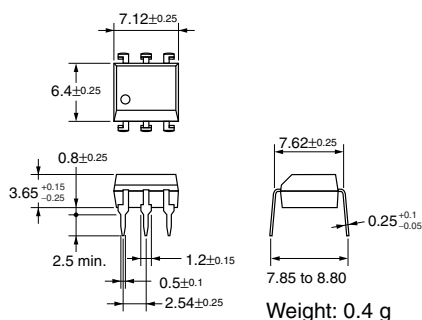
■ Dimensions

Note: All units are in millimeters unless otherwise indicated.

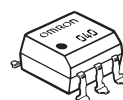
G3VM-601BY



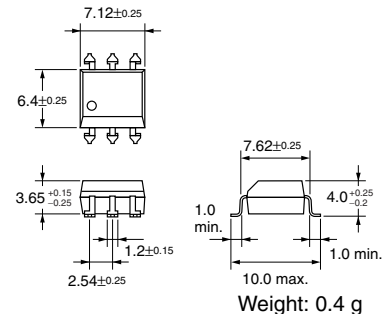
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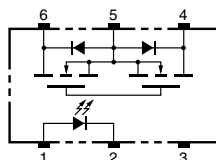


Note: The actual product is marked differently from the image shown here.

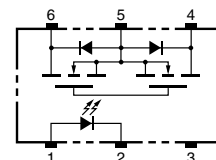


■ Terminal Arrangement/Internal Connections (Top View)

G3VM-601BY

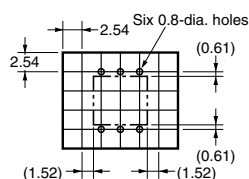


G3VM-601EY



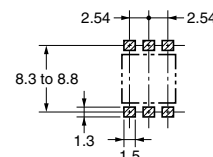
■ PCB Dimensions (Bottom View)

G3VM-601BY



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

G3VM-601EY

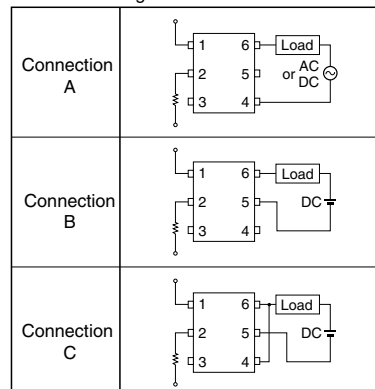


Absolute Maximum Ratings (Ta = 25°C)

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	Ta $\geq 25^\circ\text{C}$
	LED reverse voltage	V_R	5	V	
	Connection temperature	T_j	125	°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	600	V	
	Continuous load current	Connection A	I_O	100	mA
		Connection B		100	
		Connection C		200	
	ON current reduction rate	Connection A	$\Delta I_{ON}/^\circ\text{C}$	-1.0	mA/°C
		Connection B		-1.0	
		Connection C		-2.0	
	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
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.

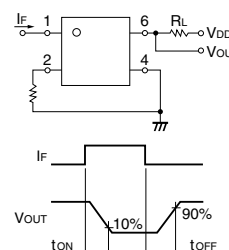
Connection Diagram



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 mA
	Reverse current		I _R	---	---	10	μA	V _R = 5 V
	Capacity between terminals		C _T	---	30	---	pF	V = 0, f = 1 MHz
	Trigger LED forward current		I _{FT}	---	1.6	5	mA	I _O = 100 mA
Output	Maximum resistance with output ON	Connection A	R _{ON}	---	25	35	Ω	I _F = 10 mA, I _O = 100 mA, t < 1 s
				---	30	45	Ω	I _F = 10 mA, I _O = 100 mA
		Connection B	---	23	35	Ω	I _F = 10 mA, I _O = 100 mA	
		Connection C	---	12	18	Ω	I _F = 10 mA, I _O = 200 mA	
	Current leakage when the relay is open		I _{LEAK}	---	0.0005	1.0	μA	V _{OFF} = 600 V
	Capacity between terminals A Connection		C _{OFF}	---	120	---	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}	---	0.2	1.5	ms	I _F = 5 mA, R _L = 200 Ω, V _{DD} = 20 V (See note 2.)	
Turn-OFF time		t _{OFF}	---	0.2	1.0	ms		

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



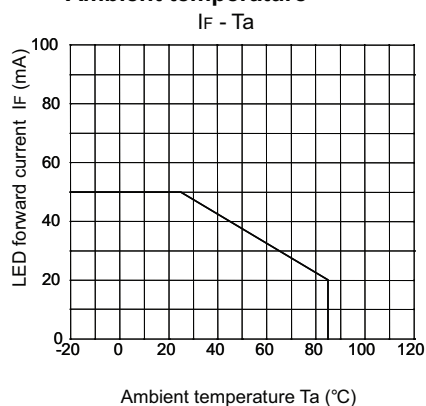
Recommended Operating Conditions

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

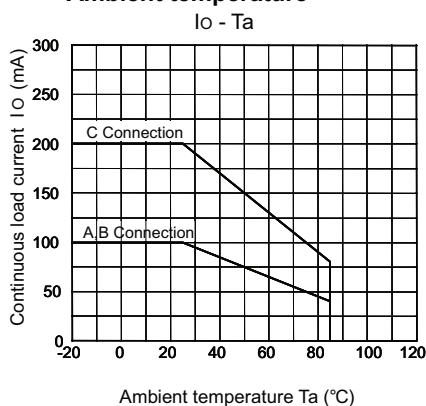
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	---	---	480	V
Operating LED forward current	I_F	7.5	15	25	mA
Continuous load current (AC peak/DC)	I_O	---	---	100	mA
Operating temperature	T_a	-20	---	65	°C

Engineering Data

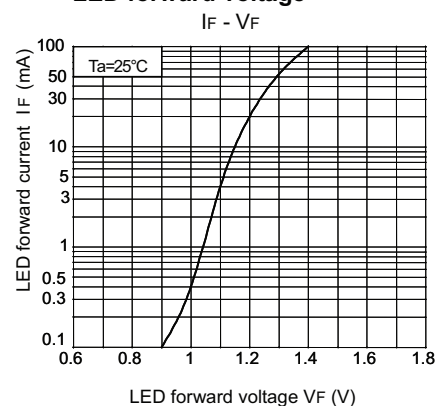
LED forward current vs. Ambient temperature



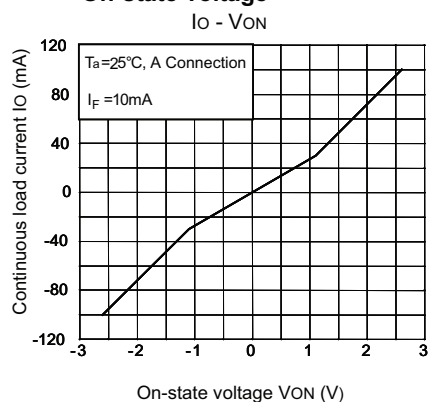
Continuous load current vs. Ambient temperature



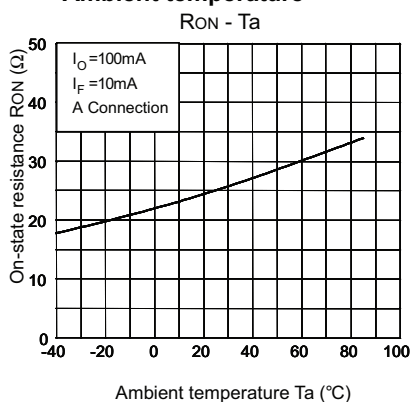
LED forward current vs. LED forward voltage



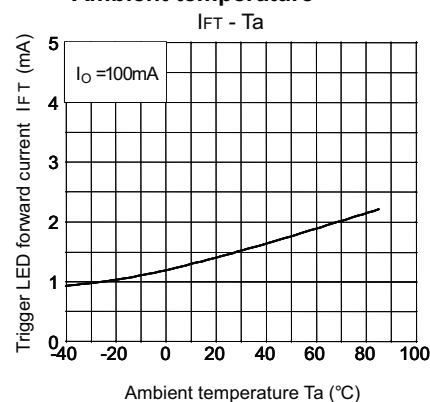
Continuous load current vs. On-state voltage



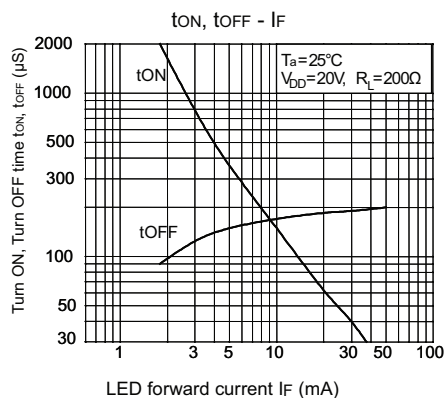
On-state resistance vs. Ambient temperature



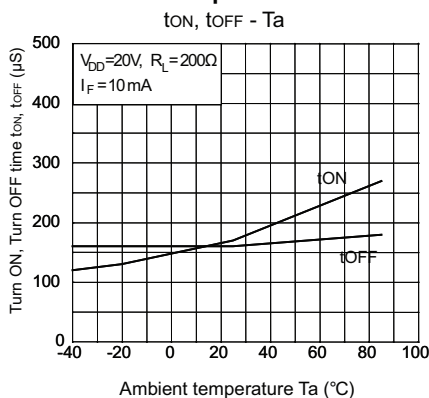
Trigger LED forward current vs. Ambient temperature



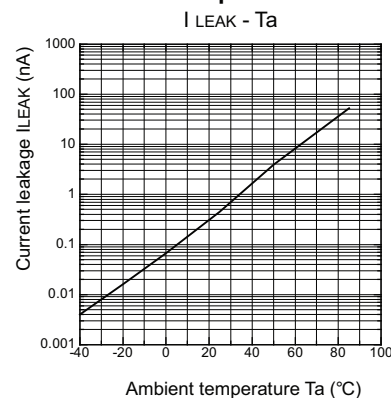
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Ambient temperature



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