

# MOS FET Relays G3VM-71PR

## Smallest 75V MOS FET Relay In The Market (USOP Package Size)

- Specifically Designed for low ON resistance of 1 Ω (typical).
- Continuous load current of 400 mA.
- Dielectric strength of 500 Vrms between I/O.
- RoHS compliant.

### Application Examples

- Semiconductor test equipment
- Test & Measurement devices and Data loggers
- Communication equipment



**NEW**

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

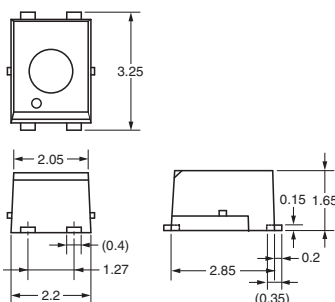
### List of Models

Package type	Contact form	Terminals	Load voltage (peak value)	Model	Number per tape
USOP4	SPST-NO (1FormA)	Surface-mounting terminals	75 VAC or VDC	G3VM-71PR	---
				G3VM-71PR(TR05)	500

### Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

#### G3VM-71PR

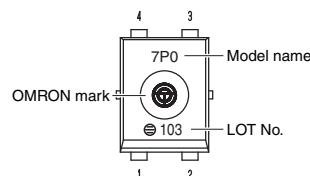
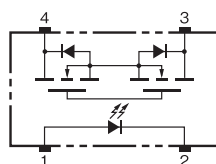


Weight: 0.03 g

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

### Terminal Arrangement/Internal Connections (Top View)

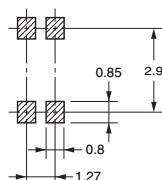
#### G3VM-71PR



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

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

#### G3VM-71PR



■ Absolute Maximum Ratings (Ta = 25°C)

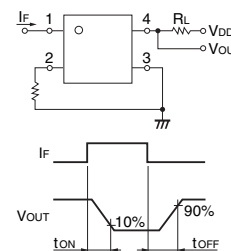
Item		Symbol	Rating	Unit	Measurement Conditions
Input	LED forward current	$I_F$	50	mA	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/°C	$T_a \geq 25^\circ\text{C}$
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_j$	125	°C	
Output	Load voltage (AC peak/DC)	$V_{OFF}$	75	V	
	Continuous load current	$I_O$	400	mA	
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-4.0	mA/°C	$T_a \geq 25^\circ\text{C}$
	Pulse ON current	$I_{OP}$	1.2	A	$t=100\text{ms}$ , Duty=1/10
	Connection temperature	$T_j$	125	°C	
Dielectric strength between input and output (See note 1.)		$V_{I-O}$	500	$V_{rms}$	AC for 1 min
Ambient operating temperature		$T_a$	-40 to +85	°C	With no icing or condensation
Ambient storage temperature		$T_{stg}$	-40 to +125	°C	With no icing or condensation
Soldering temperature		---	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	$V_F$	1.0	1.15	1.3	V	$I_F = 10 \text{ mA}$
	Reverse current	$I_R$	---	---	10	$\mu\text{A}$	$V_R = 5 \text{ V}$
	Capacity between terminals	$C_T$	---	15	---	pF	$V = 0$ , $f = 1 \text{ MHz}$
	Trigger LED forward current	$I_{FT}$	---	0.5	3	mA	$I_O = 100 \text{ mA}$
Output	Maximum resistance with output ON	$R_{ON}$	---	1.0	1.5	$\Omega$	$I_F = 5 \text{ mA}$ , $I_O = 400 \text{ mA}$ $t < 1 \text{ s}$
	Current leakage when the relay is open	$I_{LEAK}$	---	---	1	nA	$V_{OFF} = 75 \text{ V}$
	Capacity between terminals	$C_{OFF}$	---	30	---	pF	$V = 0$ , $f = 100 \text{ MHz}$ , $t < 1 \text{ s}$
Capacity between I/O terminals		$C_{I-O}$	---	0.4	---	pF	$f = 1 \text{ MHz}$ , $V_s = 0 \text{ V}$
Insulation resistance between I/O terminals		$R_{I-O}$	1,000	---	---	M $\Omega$	$V_{I-O} = 500 \text{ VDC}$ , $R_{OH} \leq 60\%$
Turn-ON time		$t_{ON}$	---	0.4	2	ms	$I_F = 5 \text{ mA}$ , $R_L = 200 \Omega$ , $V_{DD} = 20 \text{ V}$ (See note 2.)
Turn-OFF time		$t_{OFF}$	---	0.2	1	ms	

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



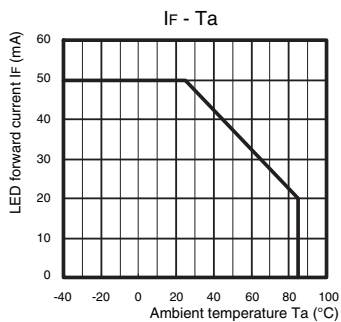
■ Recommended Operating Conditions

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

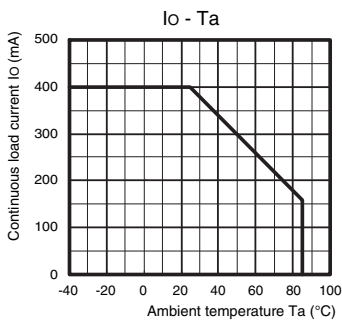
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	$V_{DD}$	---	---	60	V
Operating LED forward current	$I_F$	5	7.5	20	mA
Continuous load current (AC peak/DC)	$I_O$	---	---	400	mA
Operating temperature	$T_a$	-20	---	65	°C

■ Engineering Data

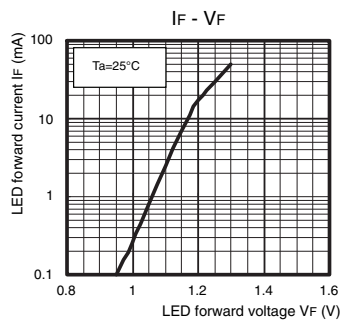
LED forward current vs. Ambient temperature



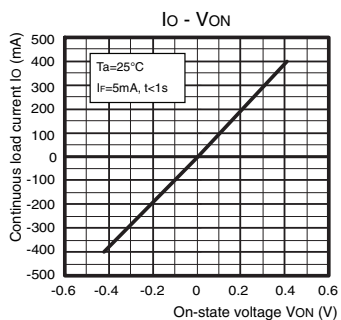
Continuous load current vs. Ambient temperature



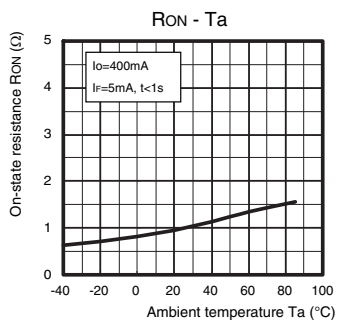
LED forward current vs. LED forward voltage



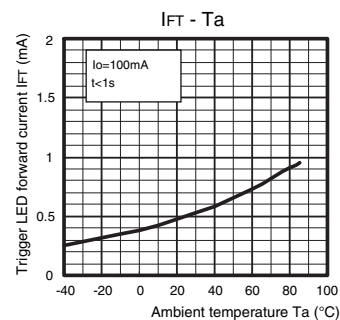
Continuous load current vs. On-state voltage



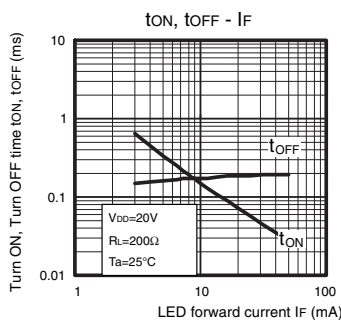
On-state resistance vs. Ambient temperature



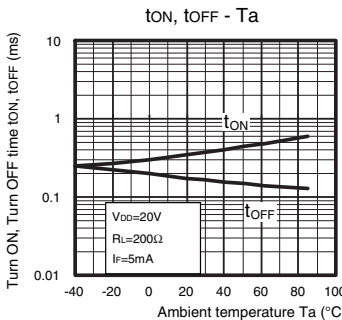
Trigger LED forward current vs. Ambient temperature



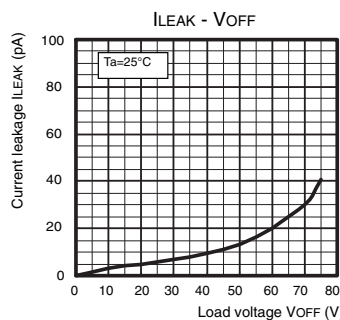
Turn ON, Turn OFF time vs. LED forward current



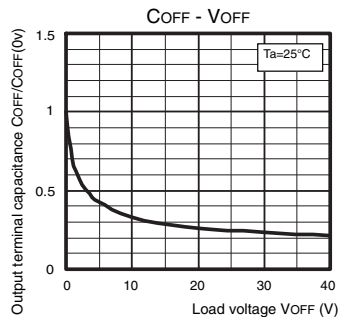
Turn ON, Turn OFF time vs. Ambient temperature



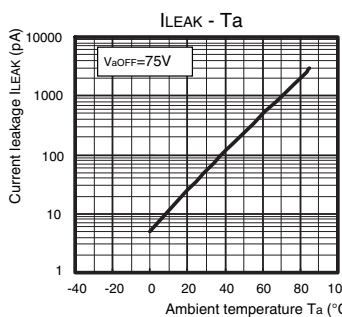
Current leakage vs. Load voltage



Output terminal capacitance COFF/COFF(0v) vs. Load voltage



Current leakage vs. Ambient temperature



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**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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03/14

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