Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

G3VM-21LR10

MOS FET Relays

World's Smallest* SSOP Package MOS FET Relays (C_{OFF} (typical): 0.8 pF, R_{ON} (typical): 3 Ω) with Low Output Capacitance and ON Resistance (C × R = 2.5 pF • Ω) in a 20-V Load Voltage Model.

- **Output capacitance of 0.8 pF (typical) allows high-frequency applications.**

* As of August 2014 Survey by OMRON

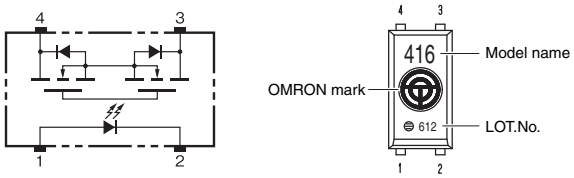
Note: The actual product is marked differently from the image shown here.

RoHS compliant

■ Application Examples

- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Data loggers**

■ Terminal Arrangement/Internal Connections



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	Minimum package quantity
					Number per tape and reel
SSOP4	1a (SPST-NO)	Surface-mounting Terminals	20 V	**G3VM-21LR10**	-
				G3VM-21LR10 (TR05)	500

Note: Ask your OMRON representative for orders under 500 pcs. We can supply products with the tape already cut.
Tape-cut SSOPs are packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.

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

■ Absolute Maximum Ratings (Ta = 25 °C)

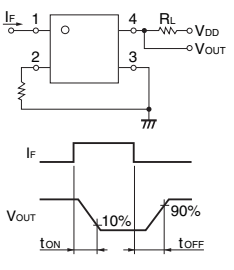
	Item	Symbol	Rating	Unit	Measurement conditions
Input	**LED forward current**	I_F	30	mA	
	LED forward current reduction rate	ΔI_F/°C	–0.3	mA/°C	Ta ≥ 25 °C
	LED reverse voltage	V_R	5	V	
	Connection temperature	T_J	125	°C	
Output	**Load voltage (AC peak/DC)**	V_{OFF}	20	V	
	Continuous load current (AC peak/DC)	I_O	200	mA	
	ON current reduction rate	ΔI_O/°C	–2.0	mA/°C	Ta ≥ 25 °C
	Pulse ON current	I_{op}	0.6	A	t = 100 ms, Duty = 1/10
	Connection temperature	T_J	125	°C	
Dielectric strength between I/O (See note 1.)		V_{I-O}	1500	Vrms	AC for 1 min
Ambient operating temperature		Ta	–20 to +85	°C	With no icing or condensation
Ambient storage temperature		Tstg	–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	1.15	1.35	1.45	V	I_F = 5 mA
	Reverse current	I_R	-	-	10	μA	V_R = 5 V
	Capacity between terminals	C_T	-	70	-	pF	V = 0, f = 1 MHz
	Trigger LED forward current	I_{FT}	-	-	3	mA	I_O = 100 mA
	Turn-OFF LED forward current	I_{FC}	0.1	-	-	mA	I_{OFF} = 10 μA
Output	**Maximum resistance with output ON**	R_{ON}	-	3	5	Ω	I_F = 5 mA, I_O = 200 mA, t < 1 s
	Current leakage when the relay is open	I_{LEAK}	-	10	200	pA	V_{OFF} = 20 V
	Capacity between terminals	C_{OFF}	-	0.8	1.1	pF	V = 0, f = 100 MHz
Capacity between I/O terminals		C_{I-O}	-	0.3	-	pF	f = 1 MHz, V_S = 0 V
Insulation resistance between I/O terminals		R_{I-O}	1000	10^8	-	MΩ	V_{I-O} = 500 VDC, RoH ≤ 60 %
Turn-ON time		t_{ON}	-	-	0.2	ms	I_F = 5 mA, R_L = 200 Ω,
Turn-OFF time		t_{OFF}	-	-	0.2	ms	V_{DD} = 10 V (See note 2.)

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



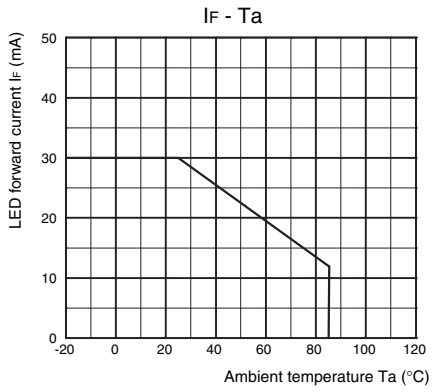
■ Recommended Operating Conditions

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

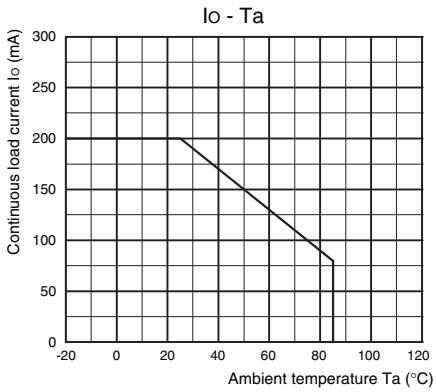
Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	-	-	20	V
Operating LED forward current	I_F	-	-	20	mA
Continuous load current (AC peak/DC)	I_O	-	-	200	mA
Ambient operating temperature	Ta	-20	-	60	°C

■ Engineering Data

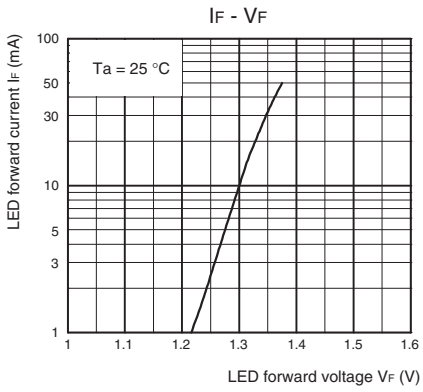
LED forward current vs. Ambient temperature



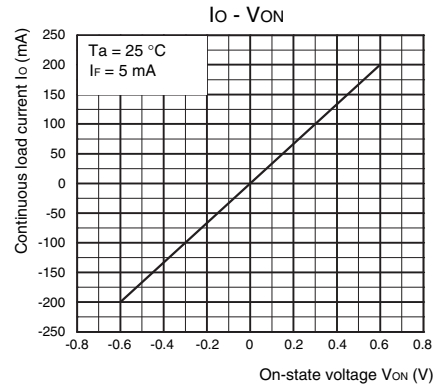
Continuous load current vs. Ambient temperature



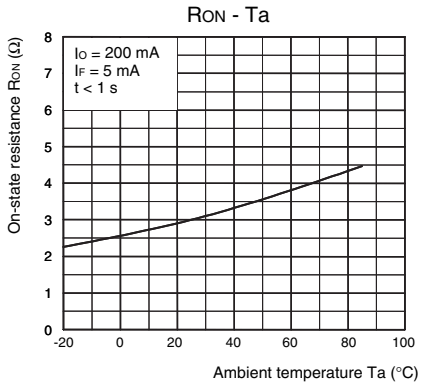
LED forward current vs. LED forward voltage



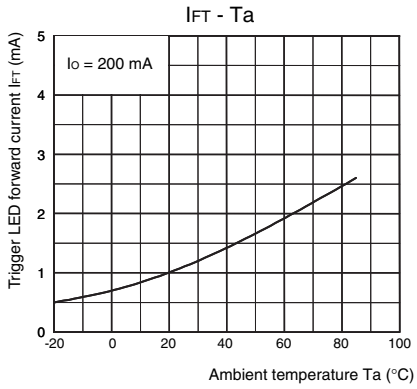
Continuous load current vs. On-state voltage



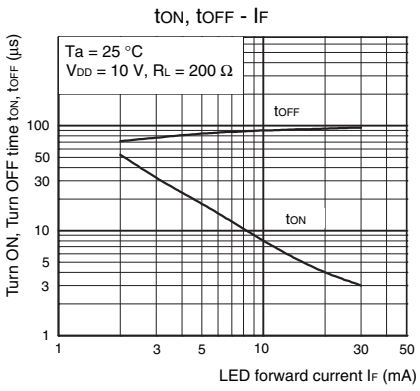
On-state resistance vs. Ambient temperature



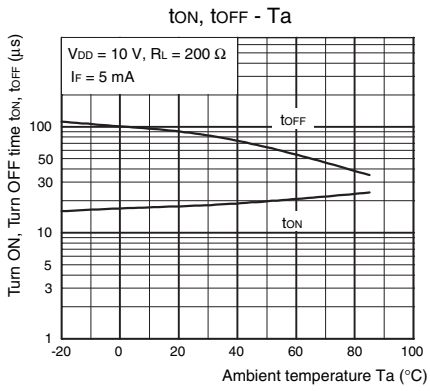
Trigger LED forward current vs. Ambient temperature



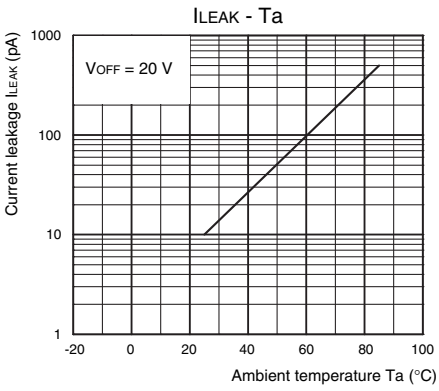
Turn ON, Turn OFF time vs. LED forward current



Turn ON, Turn OFF time vs. Ambient temperature



Current leakage vs. Ambient temperature



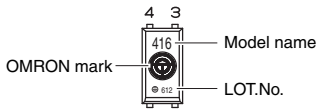
■ Safety Precautions

- Refer to **"Common Precautions"** for all G3VM models.

Appearance/Dimensions SSOP4 type

■ Appearance

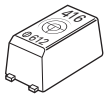
SSOP (Shrink Small Outline Package)
SSOP4



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

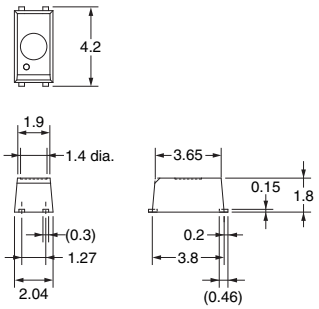
■ Dimensions

(Unit: mm)



Surface-mounting Terminals

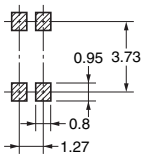
Weight: 0.03 g



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



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

OMRON Corporation
Electronic and Mechanical Components Company
Contact: www.omron.com/ecb

Cat. No. K194-E1-02
1014(0412)(O)