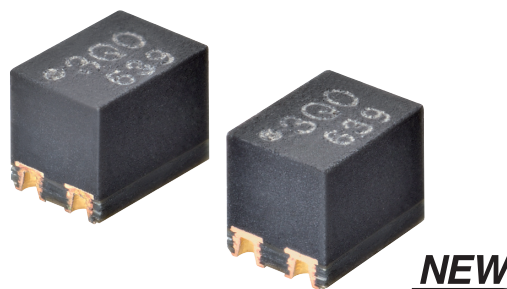


G3VM-31QR/61QR2/101QR1

MOS FET Relays S-VSON 4-pin, High-current and Low-ON-resistance Type

World's smallest * class New S-VSON Package

- Load voltage 30 V/60 V/100 V.
- 30-V Relay: Continuous load current of 1.5 A max.
- 60-V Relay: Continuous load current of 1.0 A max.
- 100-V Relay: Continuous load current of 0.65 A max.
- High Ambient operating temperature: -40°C to +110°C



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

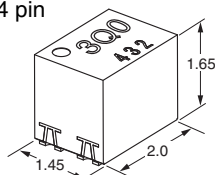
* As of March 2018 Survey by OMRON.

Application Examples

- Semiconductor test equipment
- Test & measurement equipment
- Communication equipment
- Data loggers

Package (Unit : mm, Average)

S-VSON4 pin



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

Model Number Legend

G3VM-

1	2	3	4	5
---	---	---	---	---

1. Load Voltage

3: 30 V
6: 60 V
10: 100 V

2. Contact form Package type

1: 1a (SPST-NO)

3. Package type

Q: S-VSON 4 pin

5. Other informations

When specifications overlap, serial code is added in the recorded order.

4. Additional functions

R: Low On-resistance

Ordering Information

Package type	Contact form	Terminals	Load voltage (peak value) *	Continuous load current (peak value) *	Packing/Tape cut		Packing/Tape & reel	
					Model	Minimum package quantity	Model	Minimum package quantity
S-VSON4	1a (SPST-NO)	Surface-mounting Terminals	30 V	1,500 mA	G3VM-31QR	1 pc.	G3VM-31QR (TR05)	500 pcs.
			60 V	1,000 mA	G3VM-61QR2		G3VM-61QR2 (TR05)	
			100 V	650 mA	G3VM-101QR1		G3VM-101QR1 (TR05)	

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

Note: When ordering tape packing, add "(TR05)" (500 pcs/reel) to the model number.

Ask your OMRON representative for orders under 500 pcs. We can supply products with the tape already cut.

Tape-cut S-VSON is packaged without humidity resistance. Use manual soldering to mount them.

Refer to common precautions.

G3VM-31QR/61QR2/101QR1

S-VSON

■ Absolute Maximum Ratings (Ta = 25°C)

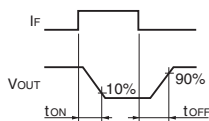
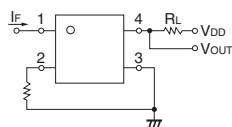
Item	Symbol	G3VM-31QR	G3VM-61QR2	G3VM-101QR1	Unit	Measurement conditions
Input	LED forward current	IF			30	mA
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$			-0.3	mA/°C
	LED reverse voltage	VR			5	V
	Connection temperature	TJ			125	°C
Output	Load voltage (AC peak/DC)	VOFF			30 60 100	V
	Continuous load current (AC peak/DC)	IO			1500 1000 650	mA
	ON current reduction rate	$\Delta I_O/^\circ\text{C}$			-15 -10 -6.5	mA/°C
	Pulse ON current	IOP			4.5 3 2	A
	Connection temperature	TJ			125	°C
Dielectric strength between I/O *		VI-O			500	Vrms
Ambient operating temperature		Ta			-40 to +110	°C
Ambient storage temperature		Tstg			-40 to +125	°C
Soldering temperature		-			260	°C

* 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		G3VM-31QR	G3VM-61QR2	G3VM-101QR1	Unit	Measurement conditions
Input	LED forward voltage	V _F	Minimum	1.1			V	I _F =10 mA
			Typical	1.21				
			Maximum	1.4				
	Reverse current	I _R	Maximum	10			μA	V _R =5 V
	Capacity between terminals	C _T	Typical	30			pF	V=0, f=1 MHz
	Trigger LED forward current	I _{FT}	Typical	0.6	0.7		mA	I _o =100 mA
			Maximum	3				
Release LED forward current	I _{FC}	Minimum	0.1			mA	I _{OFF} =10 μA	
Output	Maximum resistance with output ON	R _{ON}	Typical	0.1	0.2	0.4	Ω	G3VM-31QR/61QR2, I _o =1000 mA, I _F =5 mA, t<1 s G3VM-101QR1, I _o =650 mA, I _F =5 mA, t<1 s
			Maximum	0.2	0.3	0.6		
	Current leakage when the relay is open	I _{LEAK}	Maximum	1	1000 (1)		nA	G3VM-31QR :V _{OFF} = 20 V G3VM-61QR2 :V _{OFF} = 60 V (V _{OFF} =50 V) G3VM-101QR1 :V _{OFF} = 100 V (V _{OFF} =80 V)
	Capacity between terminals	C _{off}	Typical	120	80	50	pF	V=0, f=100 MHz, t<1 s
			Maximum	—	150	—		
	Capacity between I/O terminals		C _{I-O}	Typical	1	0.9		pF
Insulation resistance between I/O terminals		R _{I-O}	Typical	10 ⁸			MΩ	V _{I-O} =500 VDC, R _{oH} ≤60%
Turn-ON time		t _{ON}	Typical	0.8	0.75	0.6	ms	I _F =5 mA, R _L =200 Ω, V _{DD} =20 V *
			Maximum	2				
Turn-OFF time		t _{OFF}	Typical	0.05	0.04		ms	
			Maximum	1	0.3			

* Turn-ON and Turn-OFF Times



■ Recommended Operating Conditions

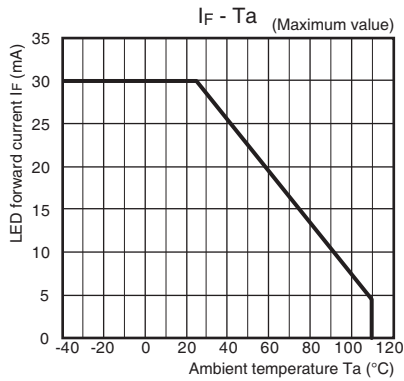
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

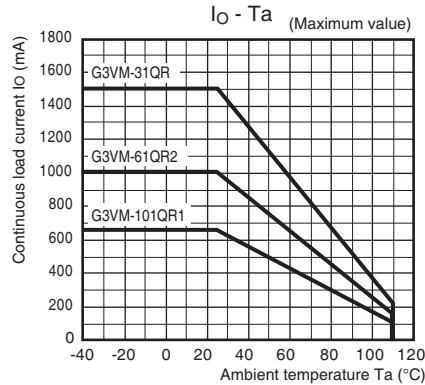
Item	Symbol		G3VM-31QR	G3VM-61QR2	G3VM-101QR1	Unit
Load voltage (AC peak/DC)	V _{DD}	Maximum	24	48	80	V
Operating LED forward current	I _F	Minimum	5			mA
		Typical	7.5			
		Maximum	20			
Continuous load current (AC peak/DC)	I _O	Maximum	1300	1000	650	
Ambient operating temperature	T _a	Minimum	−20			°C
		Maximum	100			

Engineering Data

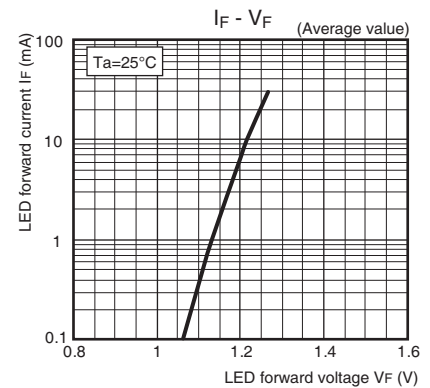
LED forward current vs. Ambient temperature



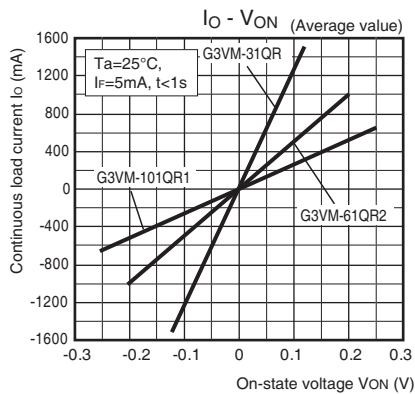
Continuous load current vs. Ambient temperature



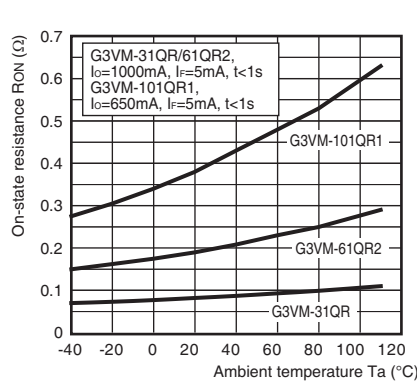
LED forward current vs. LED forward voltage



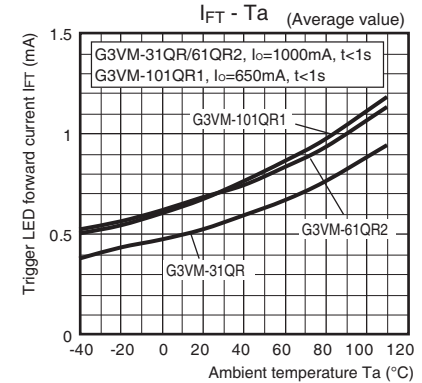
Continuous load current vs. On-state voltage



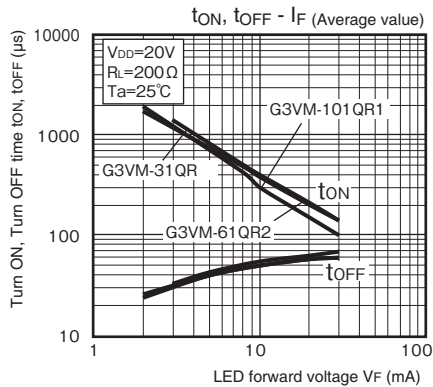
On-state resistance vs. Ambient temperature



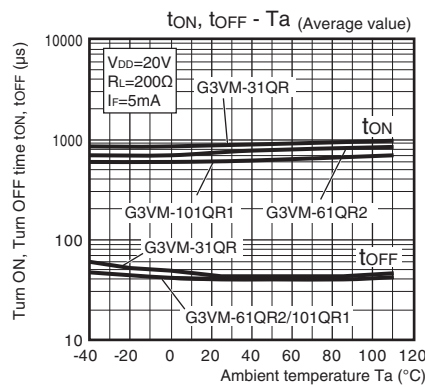
Trigger LED forward current vs. Ambient temperature



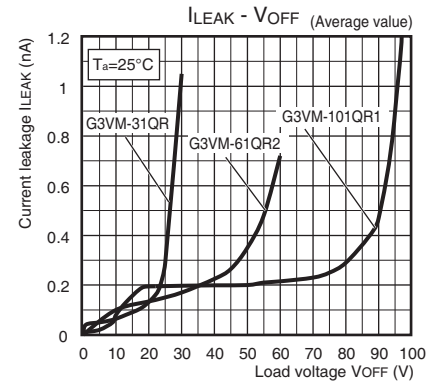
Turn ON, Turn OFF time vs. LED forward current



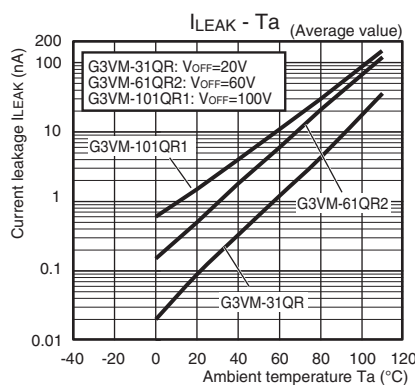
Turn ON, Turn OFF time vs. Ambient temperature



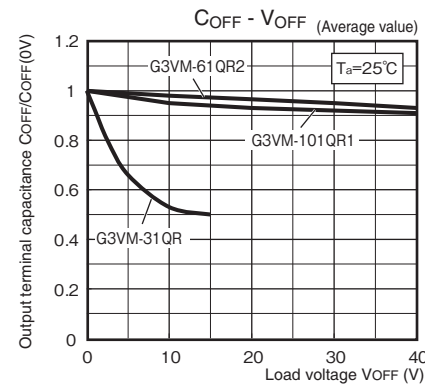
Current leakage vs. Load voltage



Current leakage vs. Ambient temperature



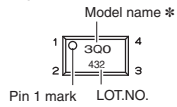
Output terminal capacitance vs. Load voltage



■Appearance / Terminal Arrangement / Internal Connections

■Appearance

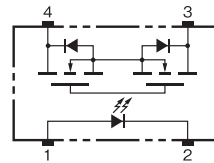
S-VSON (Super-Very Small Outline Non-leaded)
S-VSON4 pin



* Actual model name marking for each model

Model	Marking
G3VM-31QR	3Q0
G3VM-61QR2	6Q2
G3VM-101QR1	AQ1

■Terminal Arrangement/Internal Connections (Top View)

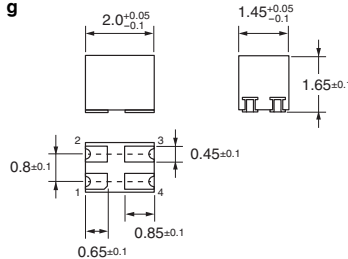
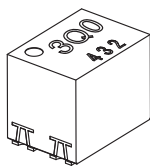


Note 1. The actual product is marked differently from the image shown here.
2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

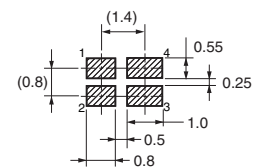
Surface-mounting Terminals

Weight: 0.01 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



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

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

■Safety Precautions

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

Please check each region's Terms & Conditions by region website.

OMRON Corporation
Device & Module Solutions Company

Regional Contact

Americas

<https://components.omron.com/us>

Asia-Pacific

<https://components.omron.com/ap>

Korea

<https://components.omron.com/kr>

Europe

<https://components.omron.com/eu>

China

<https://components.omron.com.cn>

Japan

<https://components.omron.com/jp>