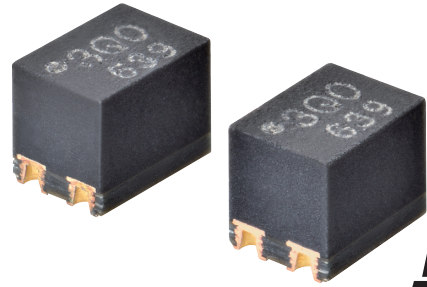


G3VM-31QR/61QR2/101QR1

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



NEW

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

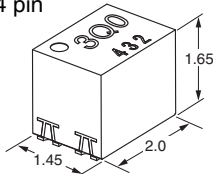
* As of March 2018 Survey by OMRON.

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

- Load Voltage**
3: 30 V
6: 60 V
10: 100 V
- Contact form Package type**
1: 1a (SPST-NO)
- Package type**
Q: S-VSON 4 pin
- Additional functions**
R: Low On-resistance
- Other informations**
When specifications overlap, serial code is added in the recorded order.

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.

G
3
V
M
-
3
1
Q
R
/
6
1
Q
R
2
/
1
0
1
Q
R
1

S-
V-
S-
O-
N

Absolute Maximum Ratings (Ta = 25°C)

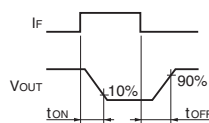
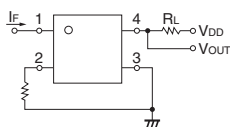
Item		Symbol	G3VM-31QR	G3VM-61QR2	G3VM-101QR1	Unit	Measurement conditions
Input	LED forward current	IF	30			mA	
	LED forward current reduction rate	ΔIF/°C	-0.3			mA/°C	Ta≥25°C
	LED reverse voltage	VR	5			V	
	Connection temperature	TJ	125			°C	
Output	Load voltage (AC peak/DC)	V _{OFF}	30	60	100	V	
	Continuous load current (AC peak/DC)	Io	1500	1000	650	mA	
	ON current reduction rate	ΔIo/°C	-15	-10	-6.5	mA/°C	Ta≥25°C
	Pulse ON current	I _{op}	4.5	3	2	A	t=100 ms, Duty=1/10
	Connection temperature	TJ	125			°C	
Dielectric strength between I/O *		V _{I-O}	500			V _{rms}	AC for 1 min
Ambient operating temperature		Ta	-40 to +110			°C	With no icing or condensation
Ambient storage temperature		T _{stg}	-40 to +125			°C	
Soldering temperature		-	260			°C	10 s

* 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	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	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	0.9		pF	f=1 MHz, V _S =0 V	
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

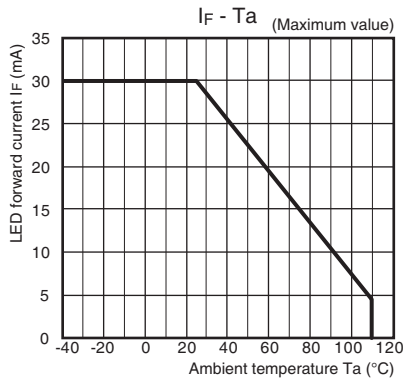
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

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

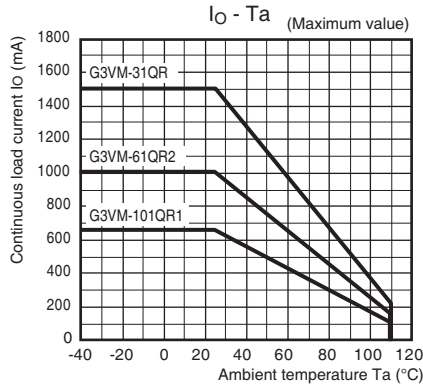
Item	Symbol	G3VM-31QR	G3VM-61QR2	G3VM-101QR1	Unit	
Load voltage (AC peak/DC)	V _{DD}	Maximum	24	48	80	V
Operating LED forward current	I _F	Minimum	5			mA
		Typical	7.5			
		Maximum	20			
Continuous load current (AC peak/DC)	I _o	Maximum	1300	1000	650	
Ambient operating temperature	Ta	Minimum	-20			°C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

Engineering Data

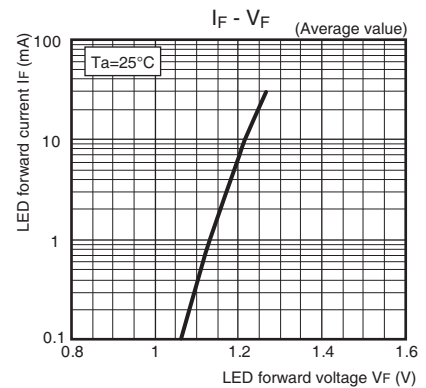
● LED forward current vs. Ambient temperature



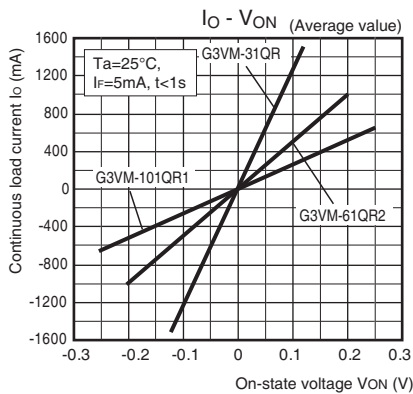
● Continuous load current vs. Ambient temperature



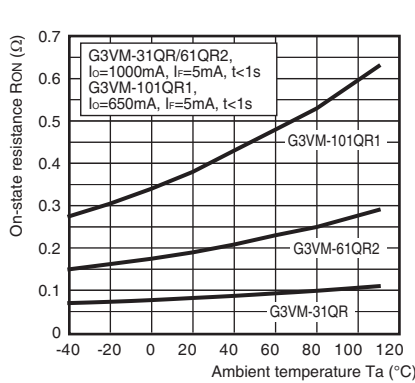
● LED forward current vs. LED forward voltage



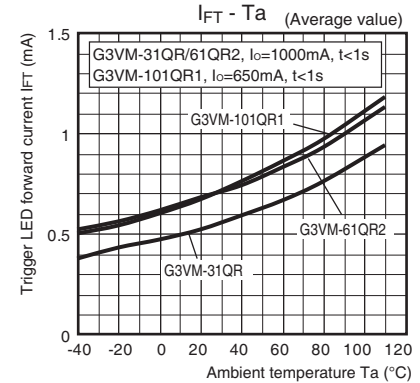
● Continuous load current vs. On-state voltage



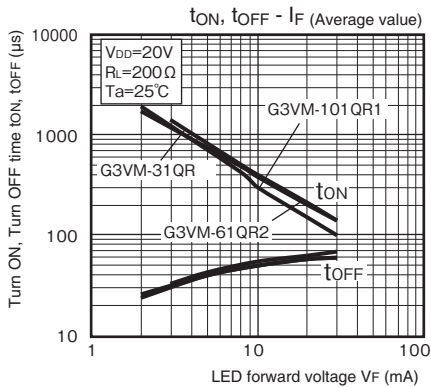
● On-state resistance vs. Ambient temperature



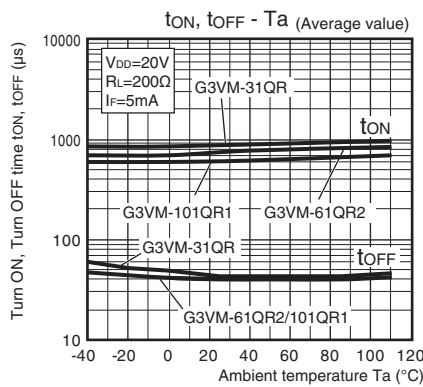
● Trigger LED forward current vs. Ambient temperature



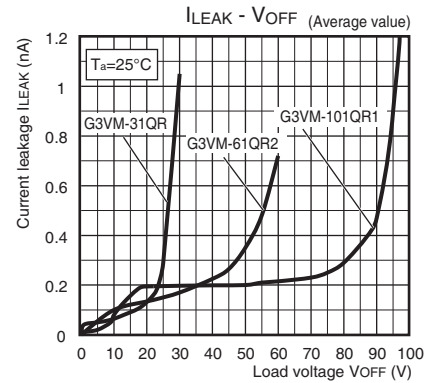
● Turn ON, Turn OFF time vs. LED forward current



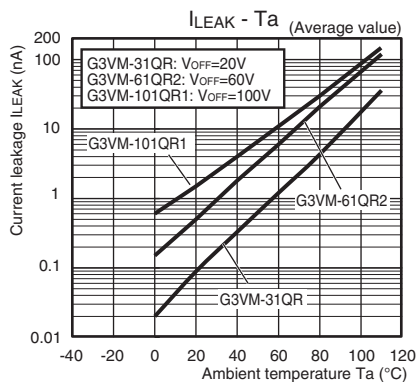
● Turn ON, Turn OFF time vs. Ambient temperature



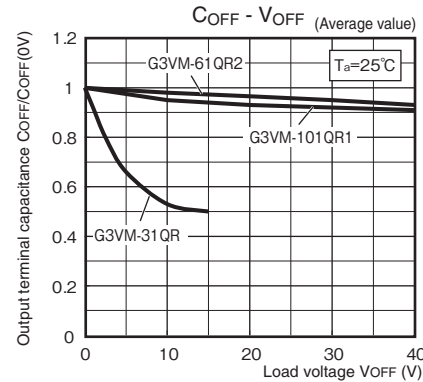
● Current leakage vs. Load voltage



● Current leakage vs. Ambient temperature



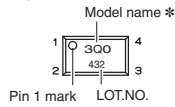
● Output terminal capacitance vs. Load voltage



Appearance / Terminal Arrangement / Internal Connections

Appearance

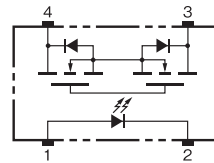
S-VSON (Super-Very Small Outline Non-leaded)
S-VSON4 pin



* Actual model name marking for each model

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

Terminal Arrangement/Internal Connections (Top View)

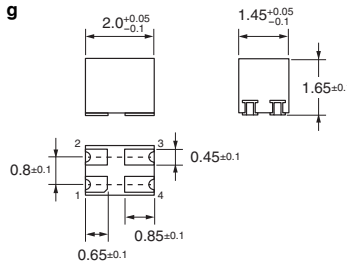
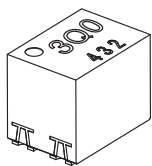


Note 1. The actual product is marked differently from the image shown here.
2. "G3VM" does not appear in the model number on the Relay.

Dimensions (Unit: mm)

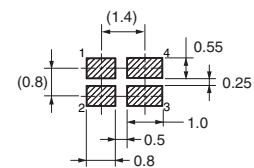
Surface-mounting Terminals

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.

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Device & Module Solutions Company

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Cat. No. K287-E1-06
1122 (1016)