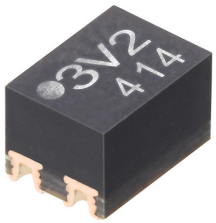
G3VM-31QV2H/61QV3H/61QV4H/61QV3L

MOSFET Relays S-VSON(L), Voltage Driven Type

Voltage driven type MOSFET relay suitable for high-temperatures of 125°C

Ultra-compact S-VSON (L) package

Equipped with current limiting internal resistor on the input side



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

- Load voltage: 30 V/60 V
  G3VM-31QV2H: Continuous Load current of 1.5 A max.
  G3VM-61QV3H: Continuous Load current of 1.0 A max.
  G3VM-61QV4H: Continuous Load current of 0.4 A max.
  G3VM-61QV3L: Continuous Load current of 0.4 A max.
- Operating input forward voltage: H/Recommendation 5 V(Typical),
  L/Recommendation2.5 V(Typical)
- High Ambient operating temperature: -40°C to +125°C

Model Number Legend

G3VM - □ □ □ □ □ □

(1) (2) (3) (4) (5) (6)

(1) Load Voltage
3: 30 V
6: 60 V

(2) Contact form
1: 1a (SPST-NO)

(3) Package
Q: S-VSON(L)4-pin

(4) Additional functions
V: Voltage Driven Type

(5) Serial code
When specifications overlap, serial code is added in the recorded order.

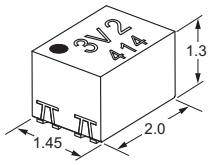
(6) Input forward voltage
H: High input forward voltage type
L: Low input forward voltage type

Application Examples

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

Package (Unit : mm, Average)

S-VSON(L)4 pin



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

Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
S-VSON(L)4	1a (SPST-NO)	surface-mounting Terminals	30 V	1,500 mA	G3VM-31QV2H	1 pc.	G3VM-31QV2H(TR05)	500 pcs.
			60 V	1,000 mA	G3VM-61QV3H		G3VM-61QV3H(TR05)	
				400 mA	G3VM-61QV4H		G3VM-61QV4H(TR05)	
					G3VM-61QV3L		G3VM-61QV3L(TR05)	

Note: Tape-cut S-VSON(L)s 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 and continuous load current.

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Absolute Maximum Ratings (Ta = 25°C)

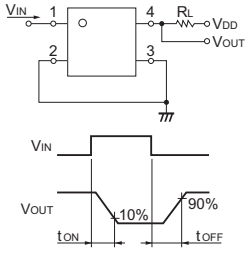
	Item	Symbol	G3VM-31QV2H	G3VM-61QV3H	G3VM-61QV4H	G3VM-61QV3L	Unit	Measurement conditions
Input	Input forward voltage	V_{IN}	6			4	V	
	Input reverse voltage	V_{RIN}	6				V	
	Connection temperature	T_J	135				°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	30	60			V	
	Continuous load current (AC peak/DC)	I_O	1,500	1,000	400		mA	
	ON current reduction rate	ΔI_O/°C	-14	-9.1	-3.6	-3.64	mA/°C	$T_a \geq 25$°C
	Pulse ON current	I_{OP}	4,500	3,000	1,200		mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	135				°C	
Dielectric strength between I/O (✻)		V_{I-O}	500				Vrms	AC for 1 min
Ambient operating temperature		T_a	-40 to +125				°C	With no icing or condensation
Ambient storage temperature		T_{stg}	-40 to +135				°C	
Soldering temperature		–	260				°C	10 s

Note: In terms of its structure, this product is sensitive to static electricity. Therefore, be sure to take measures against static electricity for workbenches, people, soldering irons, solder mounting equipment, etc.

✻ The dielectric strength between the input and output was checked by applying voltage between all pins on the LED side and all pins on the light-receiving side.

Electrical Characteristics (Ta = 25°C)

	Item	Symbol		G3VM-31QV2H	G3VM-61QV3H	G3VM-61QV4H	G3VM-61QV3L	Unit	Measurement conditions
Input	Reverse current	I_R	Maximum	10				μA	V_R=5 V
	Capacity between terminals	C_T	Typical	30			80	pF	V=0 V, f=1 MHz
	Input forward current	I_F	Typical	3.5	0.54	3.5	6.6	mA	V_{IN}=3.3 V (G3VM-31QV2H/-61QV3H/-61QV4H) V_{IN}=1.8 V (G3VM-61QV3L)
	Operate voltage	V_{FON}	Typical	1.4	1.2	1.5	1.2	V	I_O=100 mA
			Maximum	3			1.6		
	Release voltage	V_{FOFF}	Minimum	0.8					I_{OFF}=10 μA
			Typical	1.4	1.1	1.5	1.2		
Output	Maximum resistance with output ON	R_{ON}	Typical	0.1	0.2	1		Ω	I_O=Continuous load current ratings, t<1 s V_{IN}=5 V (G3VM-31QV2H/-61QV4H) V_{IN}=3.3 V (G3VM-61QV3H) V_{IN}=1.8 V (G3VM-61QV3L)
			Maximum	0.2	0.3	1.5			
	Current leakage when the relay is open	I_{LEAK}	Maximum	1,000 (1)				nA	V_{OFF} = 60 V (V_{OFF} = 50 V) (G3VM-61QV3H/61QV4H/61QV3L) V_{OFF} = 30 V (V_{OFF} = 20 V) (G3VM-31QV2H)
	Capacity between terminals	C_{OFF}	Typical	120	80	12	17	pF	V=0 V, f=1 MHz, t<1 s
			Maximum	150		20			
Capacity between I/O terminals		C_{I-O}	Typical	1				pF	V_S=0 V, f=1 MHz
Insulation resistance between I/O terminals		R_{I-O}	Typical	10^8				MΩ	V_{I-O}=500 VDC, RoH≤60%
Turn-ON time		t_{ON}	Typical	0.7	6.5	0.22	0.11	ms	V_{DD}=20 V, R_L=200 Ω V_{IN}=5 V (G3VM-31QV2H/-61QV4H) V_{IN}=3.3 V (G3VM-61QV3H) V_{IN}=1.8 V (G3VM-61QV3L)
			Maximum	2	20	0.5	0.35		
Turn-OFF time		t_{OFF}	Typical	0.1	0.5	0.05	0.045		
			Maximum	0.2	1	0.2	0.15		



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Recommended Operating Conditions

To ensure highest 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-31QV2H	G3VM-61QV3H	G3VM-61QV4H	G3VM-61QV3L	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	24	48			V
Input forward voltage	V_{IN}	Minimum	4			2	V
		Typical	5			2.5	
		Maximum	6			3	
Continuous load current (AC peak/DC)	I_O	Maximum	1,500	1,000	400		mA
Ambient operating temperature	T_a	Minimum	-40				°C
		Maximum	120				

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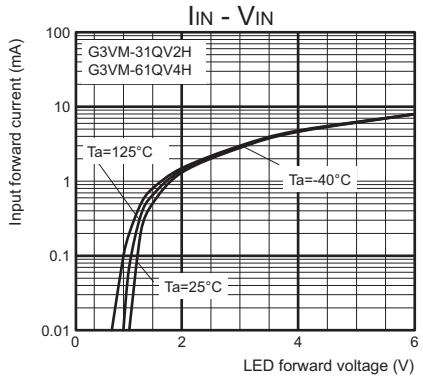
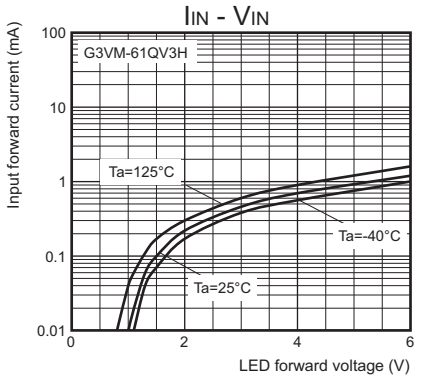
Engineering Data

- **Input forward current vs. Input forward voltage**

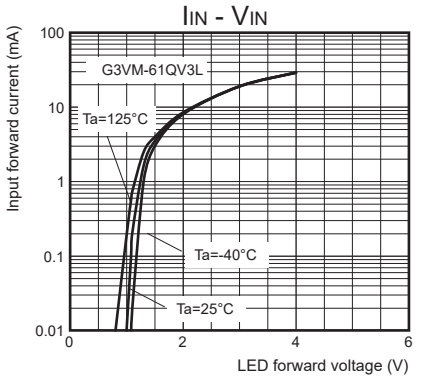
G3VM-31QV2H/61QV4H



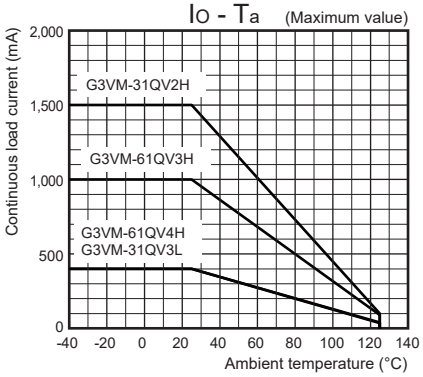
G3VM-61QV3H



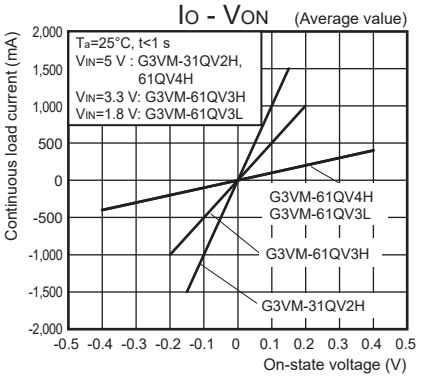
G3VM-61QV3L



- **Continuous load current vs. Ambient temperature**

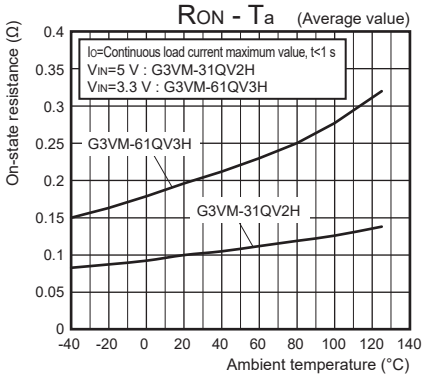


- **Continuous load current vs. On-state voltage**



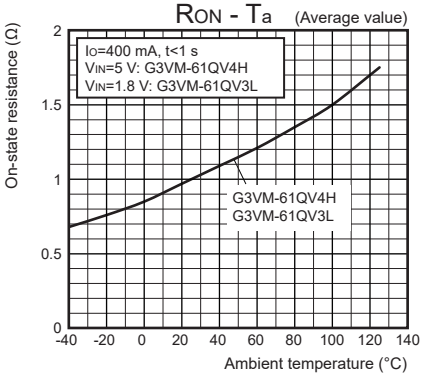
- **On-state resistance vs. Ambient temperature**

G3VM-31QV2H/61QV3H

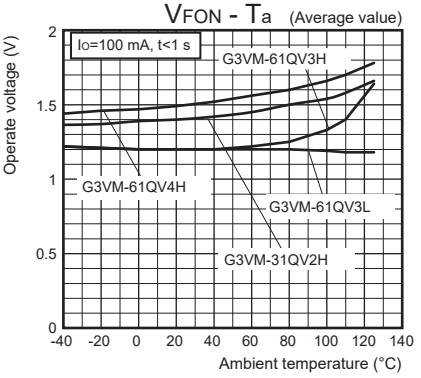


- **On-state resistance vs. Ambient temperature**

G3VM-61QV4H/61QV3L

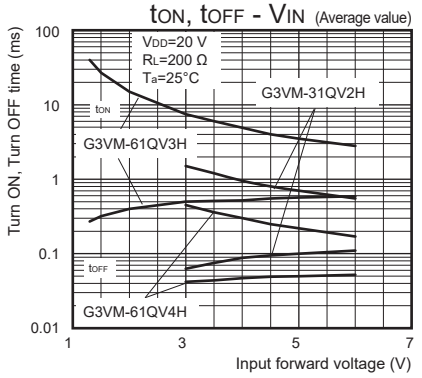


- **Operate voltage vs. Ambient temperature**



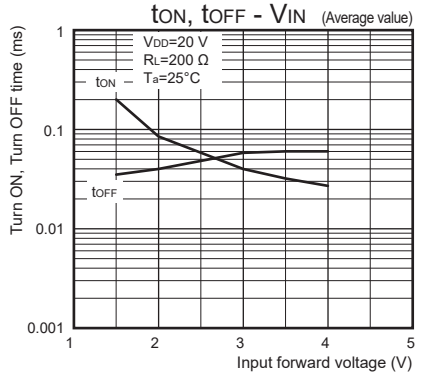
- **Turn ON, Turn OFF time vs. Input forward voltage**

G3VM-31QV2H/61QV3H/61QV4H



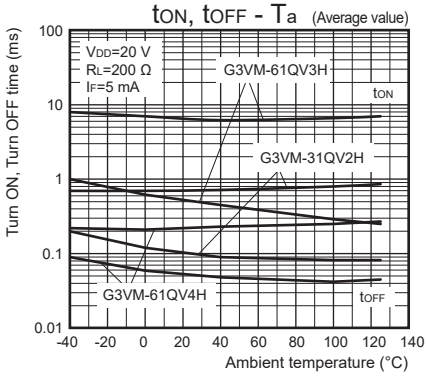
- **Turn ON, Turn OFF time vs. Input forward voltage**

G3VM-61QV3L



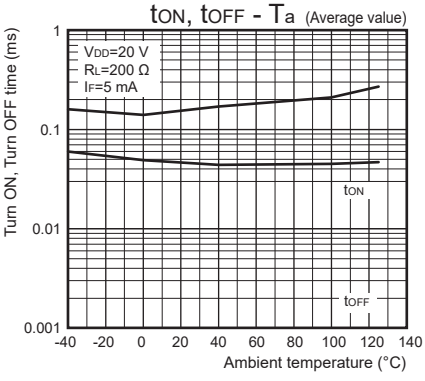
- **Turn ON, Turn OFF time vs. Ambient temperature**

G3VM-31QV2H/61QV3H/61QV4H



- **Turn ON, Turn OFF time vs. Ambient temperature**

G3VM-61QV3L



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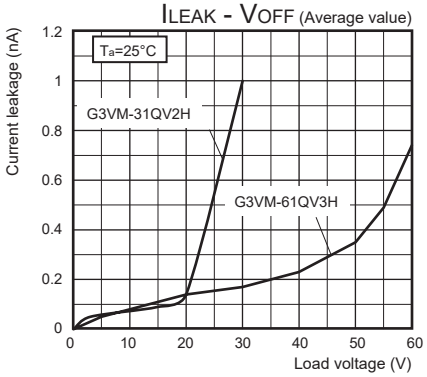
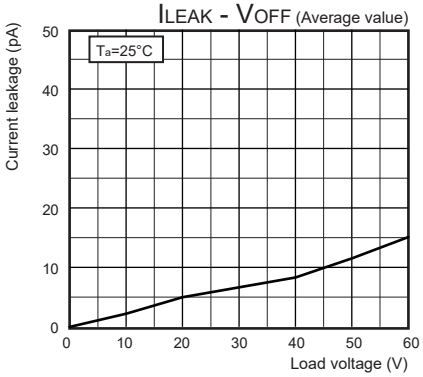
Engineering Data

● Current leakage vs. Load voltage

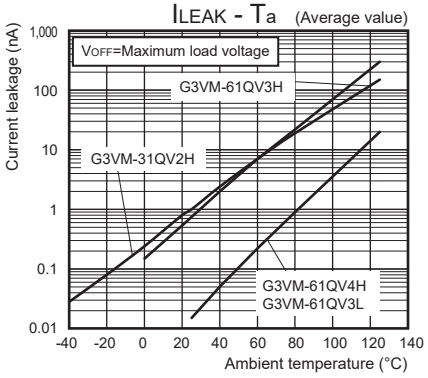
G3VM-31QV2H/61QV3H



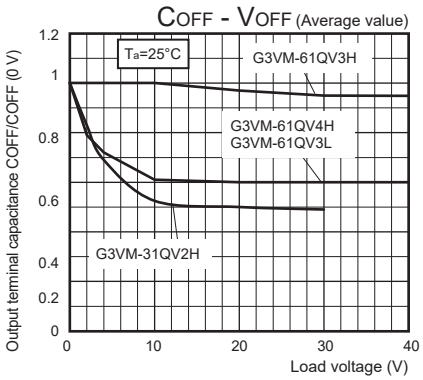
G3VM-61QV4H/61QV3L



● Current leakage vs. Ambient temperature



● Output terminal capacitance vs.Load voltage



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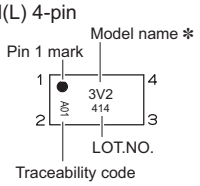
G3VM-31QV2H/61QV3H/61QV4H/61QV3L

Appearance / Terminal Arrangement / Internal Connections

Appearance

S-VSON(L) (Super-Very Small Outline Non-leaded)

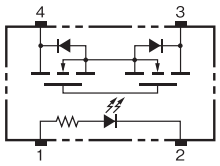
S-VSON(L) 4-pin



✻ Actual model name marking for each model

Model	Marking
G3VM-31QV2H	3V2
G3VM-61QV3H	6V3
G3VM-61QV4H	6V4
G3VM-61QV3L	6V5

Terminal Arrangement/Internal Connections (Top View)



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

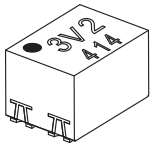
Dimensions

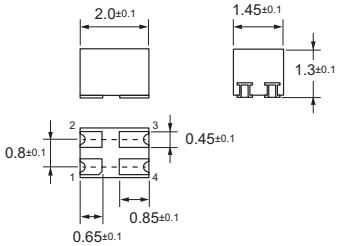
CAD Data marked products, 2D drawings and 3D CAD models are available.
For CAD information, please visit our website, which is noted on the last page.

(Unit: mm)

Surface-mounting Terminals

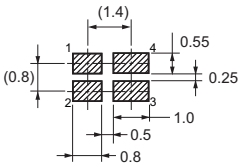
Weight: 0.01 g





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.

CAD Data

Safety Precautions

Refer to the *Common Precautions for All MOSFET Relays* for precautions that apply to all MOSFET Relays.

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