

G3VM-21UV11/51UV/61UV

MOS FET Relays VSON(R), Voltage Driving Type

Very Small Outline Non-Leaded Package with Voltage Driving Type; VSON(R) MOS FET relay with current limiting internal resistor on the input side

- Operating input forward voltage: Recommendation 5V (Typical)
- Load voltage: 20 V, 50 V, 60 V
 - 20-V Relay: Continuous load current of 1 A max.
Low $C \times R = 7.2 \text{ pF} \cdot \Omega$, C_{OFF} (Typical) = 40 pF, R_{ON} (Typical) = 0.18 Ω
 - 50-V Relay: Continuous load current of 0.3 A max.
Low $C \times R = 12 \text{ pF} \cdot \Omega$, C_{OFF} (Typical) = 12 pF, R_{ON} (Typical) = 1 Ω
 - 60-V Relay: Continuous load current of 0.4 A max.
- High Ambient operating temperature: -40°C to +110°C



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

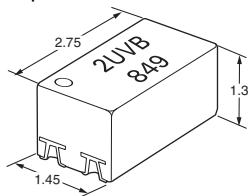
RoHS Compliant

Application Examples

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

Package (Unit : mm, Average)

VSON(R) 4-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

- 2: 20 V
- 5: 50 V
- 6: 60 V

2. Contact form

- 1: 1a (SPST-NO)

3. Package

- U: VSON(R) 4-pin

4. Additional functions

- V: Voltage Driving Type

5. Other information

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

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
VSON(R)4	1a (SPST-NO)	Surface-mounting Terminals	20 V	1,000 mA	G3VM-21UV11	1 pc.	G3VM-21UV11 (TR05)	500 pcs.
			50 V	300 mA	G3VM-51UV		G3VM-51UV (TR05)	
			60 V	400 mA	G3VM-61UV		G3VM-61UV (TR05)	

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut VSON(R)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.

VSON(R)

G3VM-21UV/51UV/61UV

Absolute Maximum Ratings (Ta = 25°C)

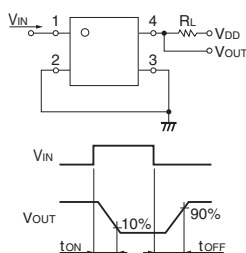
Item		Symbol	G3VM-21UV11	G3VM-51UV	G3VM-61UV	Unit	Measurement conditions
Input	Input forward voltage	V _{IN}	6			V	
	Input reverse voltage	V _{RIN}	5			V	
	Connection temperature	T _J	125			°C	
Output	Load voltage (AC peak/DC)	V _{OFF}	20	50	60	V	
	Continuous load current (AC peak/DC)	I _O	1,000	300	400	mA	
	ON current reduction rate	ΔI _O /°C	-10	-3	-4	mA/°C	Ta≥25°C
	Pulse ON current	I _{OP}	3,000	900	1,200	mA	t=100 ms, Duty=1/10
	Connection temperature	T _J	125			°C	
Dielectric strength between I/O *		V _{I-O}	500			V _{rms}	AC for 1 min
Ambient operating temperature		T _a	-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 on the LED side and all pins on the light-receiving side.

Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-21UV11	G3VM-51UV	G3VM-61UV	Unit	Measurement conditions
Input	Reverse current	I _R	Maximum	10			μA	V _R =5 V
	Capacity between terminals	C _T	Typical	30			pF	V=0, f=1 MHz
	Input forward current	I _F	Typical	6.3			mA	V _{IN} =5 V
	Operate voltage	V _{FON}	Typical	1.8			V	I _{ON} =100 mA
			Maximum	3				
	Release voltage	V _{FOFF}	Minimum	0.8			V	I _{OFF} =10 μA
Typical			1.8					
Output	Maximum resistance with output ON	R _{ON}	Typical	0.18	1		Ω	V _{IN} =5 V, t<1 s, I _O =Continuous load current ratings
			Maximum	0.22	1.5			
	Current leakage when the relay is open	I _{LEAK}	Maximum	1			nA	V _{OFF} =Load voltage ratings
	Capacity between terminals	C _{off}	Typical	40	12	20		pF
Maximum			—	20	—			
Capacity between I/O terminals		C _{I-O}	Typical	1			pF	f=1 MHz, V _S =0V
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}	Maximum	2	0.5		ms	V _{IN} =5 V, R _L =200 Ω, V _{DD} =10 V (G3VM-21UV11) V _{DD} =20 V (G3VM-51UV, -61UV) *
Turn-OFF time		t _{OFF}	Maximum	1	0.4	0.5		

* Turn-ON and Turn-OFF Times



Recommended Operating Conditions

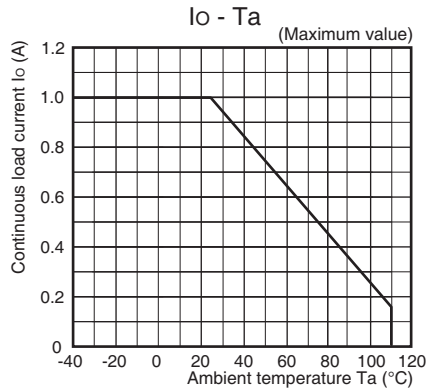
To ensure highest reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

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

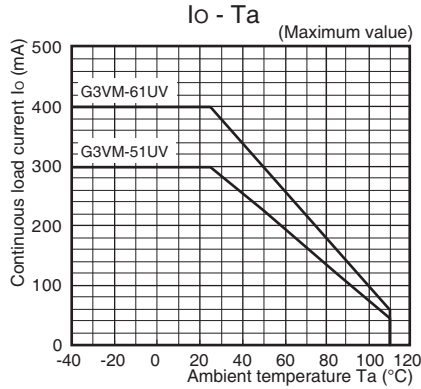
Item	Symbol		G3VM-21UV11	G3VM-51UV	G3VM-61UV	Unit
Load voltage (AC peak/DC)	V _{DD}	Maximum	16	40	48	V
Operating input forward voltage	V _{IN}	Minimum	4			V
		Typical	5			
		Maximum	6			
Continuous load current (AC peak/DC)	I _O	Maximum	1000	300	400	mA
Ambient operating temperature	T _a	Minimum	-20			°C
		Maximum	85			

Engineering Data

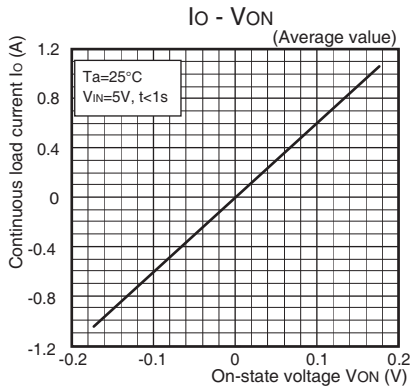
Continuous load current vs. Ambient temperature G3VM-21UV11



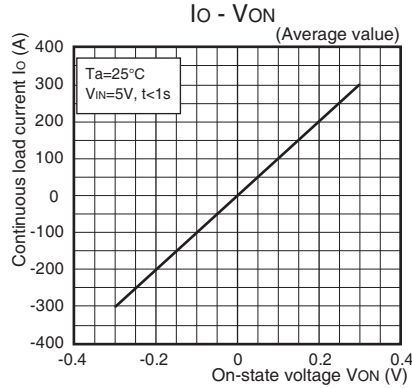
G3VM-51UV/61UV



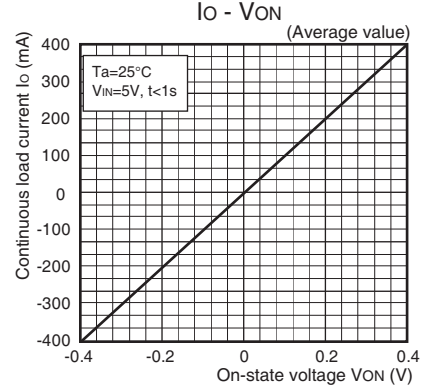
Continuous load current vs. On-state voltage G3VM-21UV11



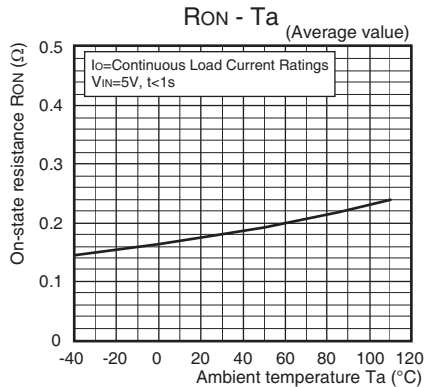
G3VM-51UV



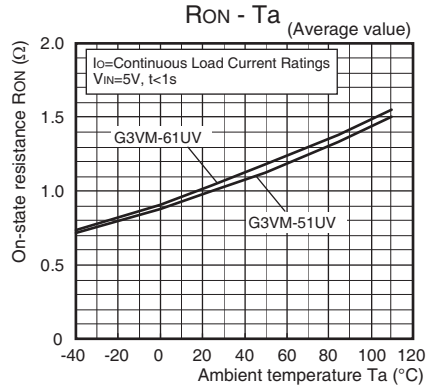
G3VM-61UV



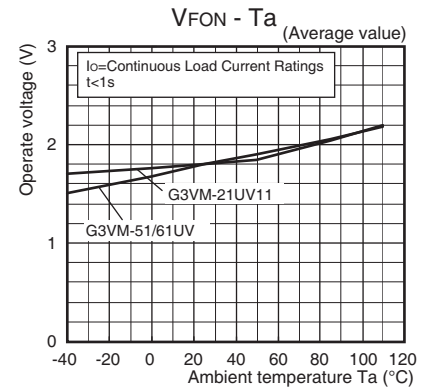
On-state resistance vs. Ambient temperature G3VM-21UV11



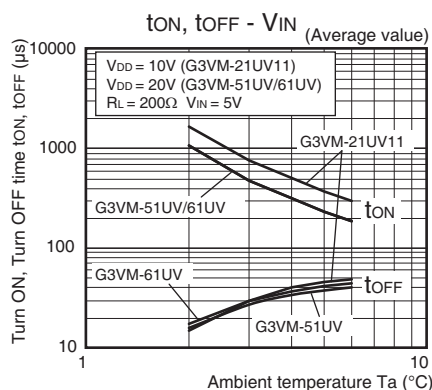
G3VM-51UV/61UV



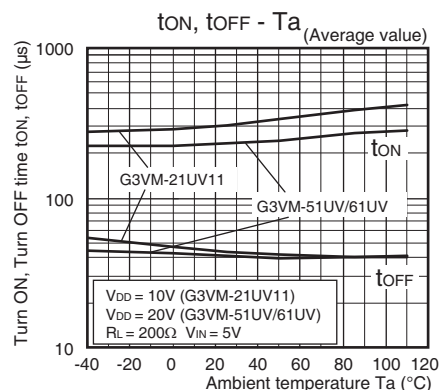
Operate voltage vs. Ambient temperature G3VM-21UV11/51UV/61UV



Turn ON, Turn OFF time vs. Input forward voltage

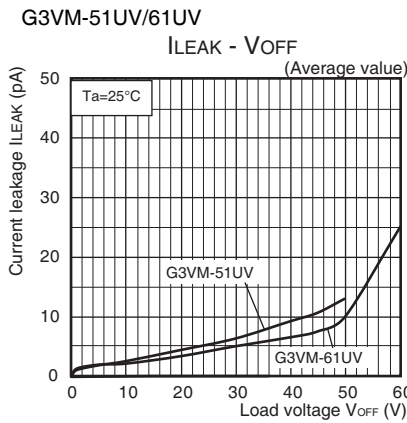
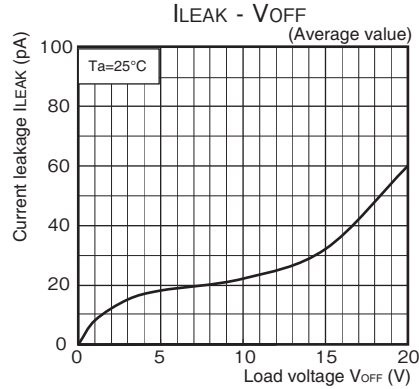


Turn ON, Turn OFF time vs. Ambient temperature

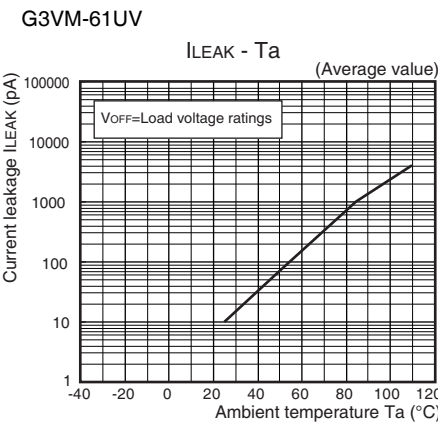
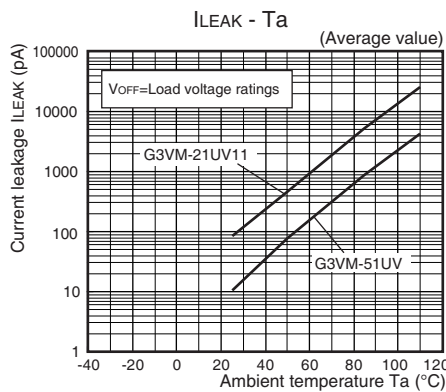


Engineering Data

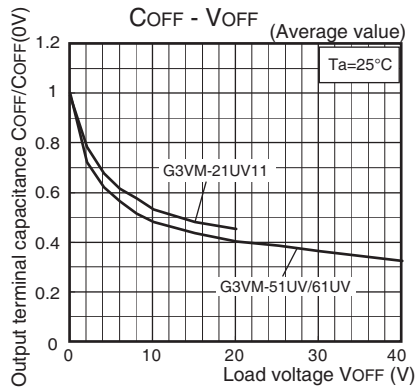
Current leakage vs. Load voltage
G3VM-21UV11



Current leakage vs. Ambient temperature
G3VM-21UV/51UV



Output terminal capacitance vs. Load voltage

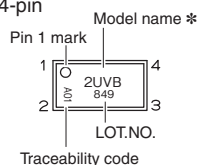


■ Appearance / Terminal Arrangement / Internal Connections

● Appearance

VSON(R) (Very Small Outline Non-leaded with Resistance)

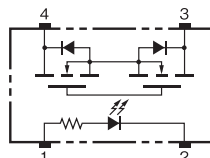
VSON(R) 4-pin



* Actual model name marking for each model

Model	Marking
G3VM-21UV11	2UVB
G3VM-51UV	5UV0
G3VM-61UV	6UV0

● Terminal Arrangement/Internal Connections (Top View)



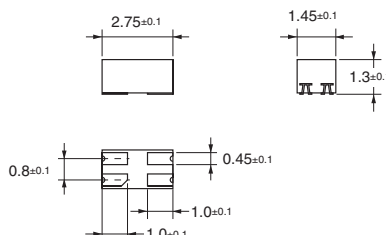
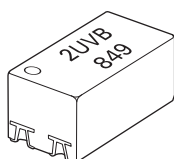
Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

■ Dimensions (Unit: mm)

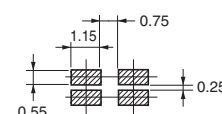
Surface-mounting Terminals

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 the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

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

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In the interest of product improvement, specifications are subject to change without notice.

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