

G3VM-61UR□/81UR□/101UR

MOS FET Relays VSON, Small and High-load-voltage Type

World's smallest * class New VSON Package with High Load voltage

* As of November 2016 Survey by OMRON.

- Load voltage: 60 V, 80 V, or 100 V
- G3VM-61UR1: Low $C \times R = 7 \text{ pF} \cdot \Omega$, C_{OFF} (standard) = 0.7 pF, R_{ON} (standard) = 10 Ω
- High Ambient operating temperature: -40°C to +110°C



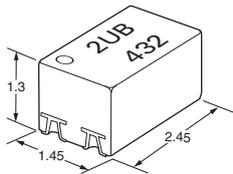
Note: The actual product is marked differently from the image shown here.

Application Examples

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

Package (Unit : mm, Average)

VSON 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

- 6: 60 V
- 8: 80 V
- 10: 100 V

2. Contact form

- 1: 1a (SPST-NO)

4. Additional functions

- R: Low On-resistance

3. Package

- U: VSON 4-pin

5. Other informations

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
VSON4	1a (SPST-NO)	Surface-mounting Terminals	60 V	120 mA	G3VM-61UR1	1 pc.	G3VM-61UR1(TR05)	500 pcs.
				400 mA	G3VM-61UR		G3VM-61UR(TR05)	
			80 V	120 mA	G3VM-81UR		G3VM-81UR(TR05)	
				200 mA	G3VM-81UR1		G3VM-81UR1(TR05)	
			100 V	100 mA	G3VM-101UR		G3VM-101UR(TR05)	

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

Tape-cut VSONs 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.

Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	G3VM-61UR1	G3VM-61UR	G3VM-81UR	G3VM-81UR1	G3VM-101UR	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	Ta≥25°C
	LED reverse voltage	VR	5					V	
	Connection temperature	TJ	125					°C	
Output	Load voltage (AC peak/DC)	V _{OFF}	60		80		100	V	
	Continuous load current (AC peak/DC)	Io	120	400	120	200	100	mA	
	ON current reduction rate	$\Delta I_o/^\circ\text{C}$	-1.2	-4.0	-1.2	-2	-1	mA/°C	Ta≥25°C
	Pulse ON current	I _{op}	360	1200	360	600	300	mA	t=100 ms, Duty=1/10
	Connection temperature	TJ	125					°C	
Dielectric strength between I/O *1 *2		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

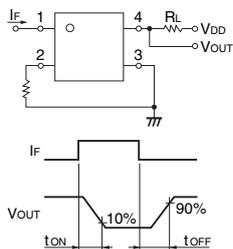
*1. The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

*2. Dielectric strength between I/O 500V_{rms} is applied from production in December 2016. (Before changes are 300V_{rms}.)

Electrical Characteristics (Ta = 25°C)

Item		Symbol	G3VM-61UR1	G3VM-61UR	G3VM-81UR	G3VM-81UR1	G3VM-101UR	Unit	Measurement conditions
Input	LED forward voltage	Minimum	1.1					V	I _F =10 mA
		Typical	1.22						
		Maximum	1.4						
	Reverse current	I _R	10					μA	V _R =5 V
	Capacitance between terminals	C _T	30					pF	V=0, f=1 MHz
	Trigger LED forward current	I _{FT}	Typical	0.9	-	1.1	-	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	10	1.0	7	6	8	Ω	I _F =5 mA, t<1 s, I _o =Continuous load current ratings
		Maximum	15	1.5	12	8	14		
	Current leakage when the relay is open	I _{LEAK}	Maximum	1		0.02	1	0.2	nA
Capacitance between terminals	C _{OFF}	Typical	0.7	20	5	6.5	6	pF	V=0, f=100 MHz, t<1 s
		Maximum	1.3	-	7	11	8		
Capacitance between I/O terminals	C _{I-O}	Typical	1					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	0.05	-	0.13	-	ms	I _F =5 mA, R _L =200 Ω, V _{DD} =20 V *	
		Maximum	0.2	0.5	0.4	0.3			
Turn-OFF time	t _{OFF}	Typical	0.015	-	0.02	-			
		Maximum	0.2	0.5	0.2	0.4	0.3		

* Turn-ON and Turn-OFF Times



Recommended Operating Conditions

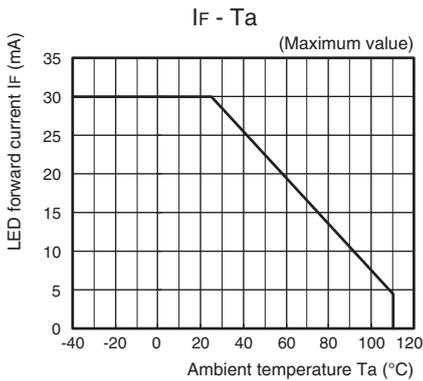
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

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

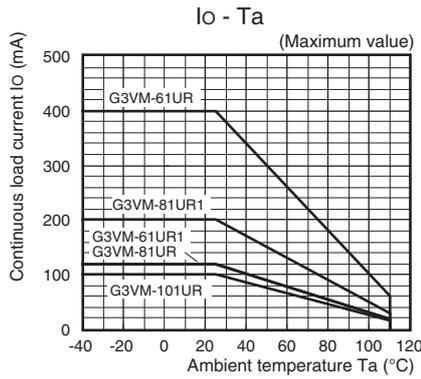
Item	Symbol		G3VM-61UR1	G3VM-61UR	G3VM-81UR	G3VM-81UR1	G3VM-101UR	Unit	
Load voltage (AC peak/DC)	V _{DD}	Maximum	48				64	80	V
Operating LED forward current	I _F	Minimum	5					mA	
		Typical	7.5						
		Maximum	20						
Continuous load current (AC peak/DC)	I _o	Maximum	120	400	120	200	100		
Ambient operating temperature	Ta	Minimum	-20					°C	
		Maximum	85						

Engineering Data

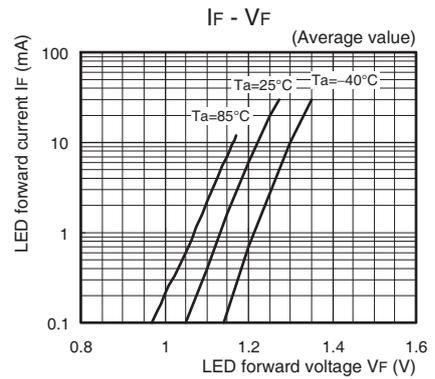
LED forward current vs. Ambient temperature



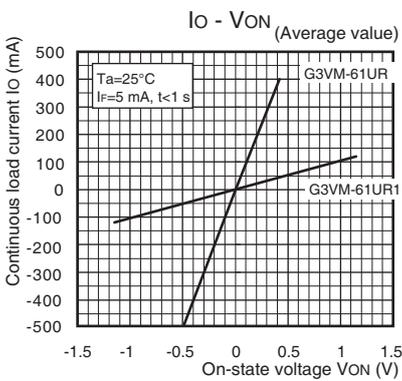
Continuous load current vs. Ambient temperature



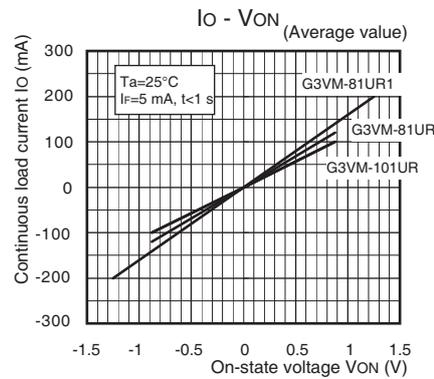
LED forward current vs. LED forward voltage



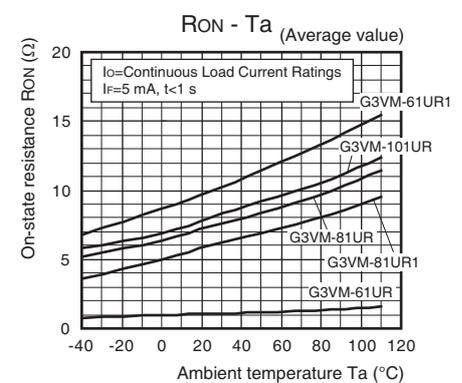
Continuous load current vs. On-state voltage



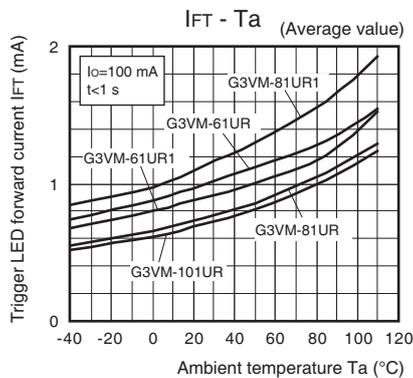
G3VM-81UR/81UR1/101UR



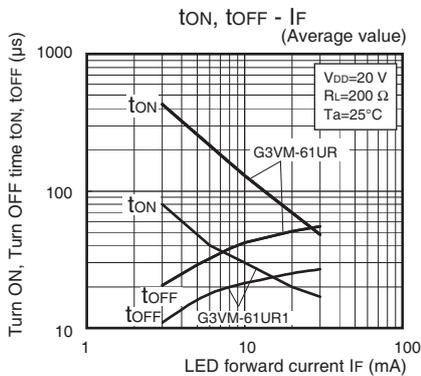
On-state resistance vs. Ambient temperature



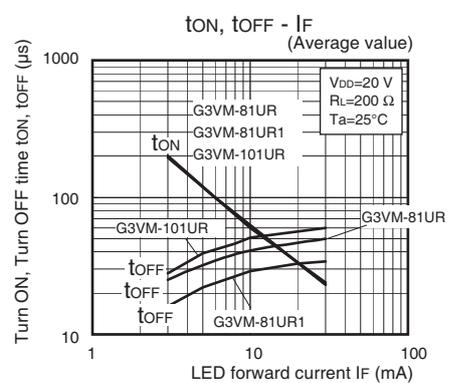
Trigger LED forward current vs. Ambient temperature



Turn ON, Turn OFF time vs. LED forward current

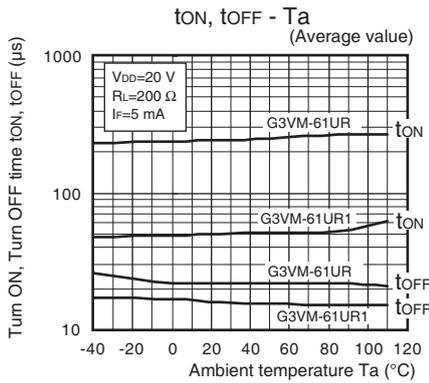


G3VM-81UR/81UR1/101UR

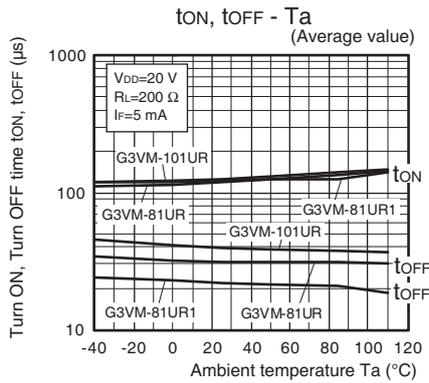


Engineering Data

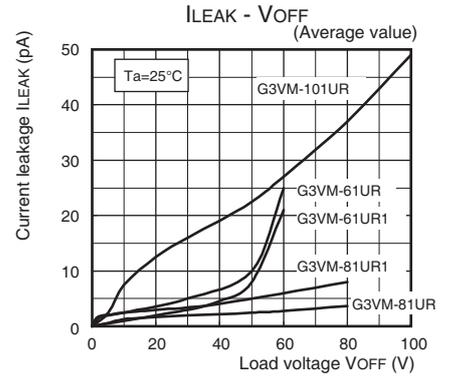
Turn ON, Turn OFF time vs. Ambient temperature G3VM-61UR1/61UR



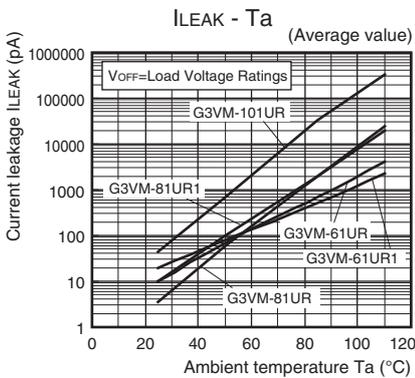
G3VM-81UR/81UR1/101UR



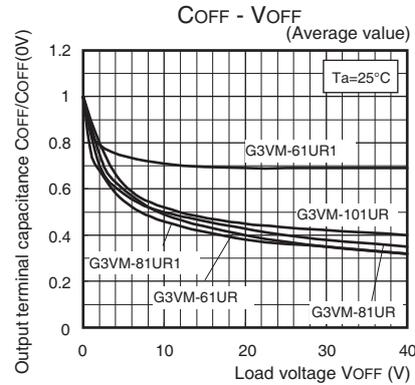
Current leakage vs. Load voltage



Current leakage vs. Ambient temperature



Output terminal capacitance vs. Load voltage

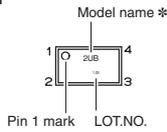


Appearance / Terminal Arrangement / Internal Connections

Appearance

VSON (Very Small Outline Non-leaded)

VSON 4-pin



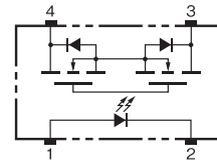
* Actual model name marking for each model

Model	Marking
G3VM-61UR1	6U1
G3VM-61UR	6U0
G3VM-81UR	8U0
G3VM-81UR1	8U1
G3VM-101UR	AU0

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.

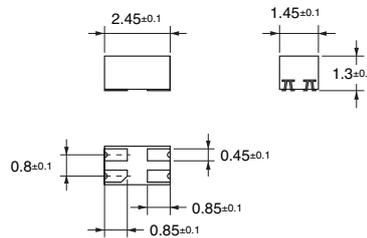
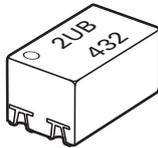
Terminal Arrangement/Internal Connections (Top View)



Dimensions (Unit: mm)

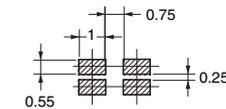
Surface-mounting Terminals

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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