

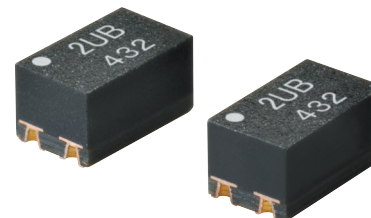
MOS FET Relays G3VM-61UR/81UR/101UR

World's Smallest New VSON Package with Low Output Capacitance and Low ON Resistance (Low $C \times R$)

- RoHS Compliant

■ **Application Examples**

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



NEW

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

■ **List of Models**

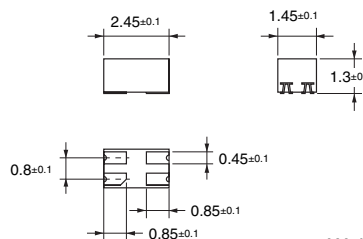
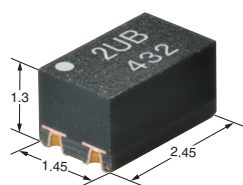
Package type	Contact form	Terminals	Load voltage (peak value)	Continuous Load Current (peak value)	Model	Minimum Packaging Quantity
VSON4	SPST-NO (1FormA)	Surface-mounting terminals	60 VAC or VDC	400 mA	G3VM-61UR	---
					G3VM-61UR(TR05)	500
			80 VAC or VDC	120 mA	G3VM-81UR	---
					G3VM-81UR(TR05)	500
			100 VAC or VDC	100 mA	G3VM-101UR	---
					G3VM-101UR(TR05)	500

Note: G3VM-61UR, G3VM-81UR and G3VM-101UR, without "(TR05)", are provided as a Tape-cut versions, for sample purposes. Tape-cut VSON's are packaged without humidity resistance. Use manual soldering to mount them.

■ **Dimensions**

Note: All units are in millimeters unless otherwise indicated.

G3VM-61UR
G3VM-81UR
G3VM-101UR

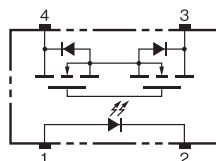


Weight: 0.01 g

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

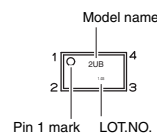
■ **Terminal Arrangement/Internal Connections (Top View)**

G3VM-61UR
G3VM-81UR
G3VM-101UR



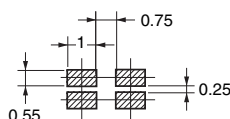
Note: The actual product is marked differently from the image shown here.

VSON (Very Small Outline Non-leaded)
VSON4



■ **Actual Mounting Pad Dimensions (Recommended Value, Top View)**

G3VM-61UR
G3VM-81UR
G3VM-101UR



■ Absolute Maximum Ratings (Ta = 25°C)

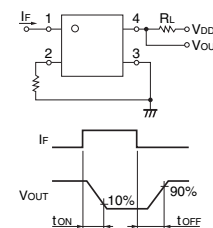
Item		Symbol	G3VM-61UR	G3VM-81UR	G3VM-101UR	Unit	Measurement Conditions	
Input	LED forward current	I_F	30			mA	$T_a \geq 25^\circ\text{C}$	
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.3			mA/°C		
	LED reverse voltage	V_R	5			V		
	Connection temperature	T_J	125			°C		
Output	Load voltage (AC peak/DC)	V_{OFF}	60	80	100	V	$T_a \geq 25^\circ\text{C}$	
	Continuous load current	I_O	400	120	100	mA		
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-4.0	-1.2	-1	mA/°C		
	Pulse ON current	I_{OP}	1200	360	300	mA		t=100ms, Duty=1/10
	Connection temperature	T_J	125			°C		
Dielectric strength between input and output (See note 1.)		V_{I-O}	300			V_{rms}	AC for 1 min	
Ambient operating temperature		T_a	-40 to +85			°C	With no icing or condensation	
Ambient storage temperature		T_{stg}	-40 to +125			°C		
Soldering temperature		---	260			°C	10 s	

Note: 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.

■ Electrical Characteristics (Ta = 25°C)

Item		Symbol	G3VM-61UR	G3VM-81UR	G3VM-101UR	Unit	Measurement conditions	
Input	LED forward voltage	V_F	Minimum	1.1		V	$I_F = 10\text{ mA}$	
			Typical	1.27				
			Maximum	1.4				
	Reverse current	I_R	Maximum	10		μA	$V_R = 5\text{ V}$	
	Capacity between terminals	C_T	Typical	30		pF	$V = 0, f = 1\text{ MHz}$	
	Trigger LED forward current	I_{FT}	Maximum	3.0		mA	$I_O = 100\text{ mA}$	
Release LED forward current	I_{FC}	Minimum	0.1		mA	$I_{OFF} = 10\text{ }\mu\text{A}$		
Output	Maximum resistance with output ON	R_{ON}	Typical	1.0	7	8	Ω	$I_F = 5\text{ mA}, t < 1\text{ s}$ -61UR : $I_O = 400\text{ mA}$ -81UR : $I_O = 120\text{ mA}$ -101UR : $I_O = 100\text{ mA}$
			Maximum	1.5	12	14		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1	0.02	0.2	nA	-61UR : $V_{OFF} = 60\text{ V}$ -81UR : $V_{OFF} = 80\text{ V}$ -101UR : $V_{OFF} = 100\text{ V}$
Capacity between terminals	C_{OFF}	Typical	20	5	6	pF	$V = 0, f = 100\text{ MHz}, t < 1\text{ s}$	
		Maximum	---	7	8			
Capacity between I/O terminals		C_{I-O}	Typical		1		pF	$f = 1\text{ MHz}, V_s = 0\text{ V}$
Insulation resistance between I/O terminals		R_{I-O}	Typical		10^8		M Ω	$V_{I-O} = 500\text{ VDC}, R_{OH} \leq 60\%$
Turn-ON time		t_{ON}	Maximum	0.5	0.5	0.3	ms	$I_F = 5\text{ mA}, R_L = 200\text{ }\Omega, V_{DD} = 20\text{ V}$ (See note 2.)
Turn-OFF time		t_{OFF}	Maximum	0.5	0.2	0.3		

Note: 2. Turn-ON and Turn-OFF Times



■ Recommended Operating Conditions

For usage with high reliability, the Recommended Operating Conditions are measures that takes into account the derating of the Absolute Maximum ratings and the Electrical Characteristics. Each item on this list is an independent condition, not simultaneously satisfying several conditions.

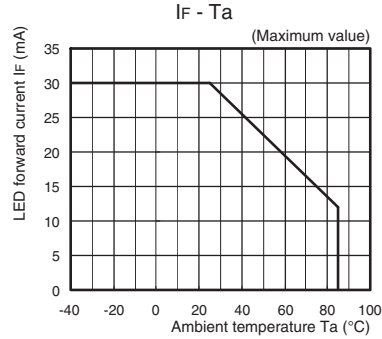
Item	Symbol	G3VM-61UR	G3VM-81UR	G3VM-101UR	Unit	
Load voltage (AC peak/DC)	V_{DD}	Maximum	48	64	80	V
Operating LED forward current	I_F	Minimum	5			mA
		Typical	7.5			
		Maximum	20			
Continuous load current (AC peak/DC)	I_O	Maximum	400	120	100	
Ambient Operating temperature	T_a	Minimum	-20			°C
		Maximum	65			

■ **Approved Standards**

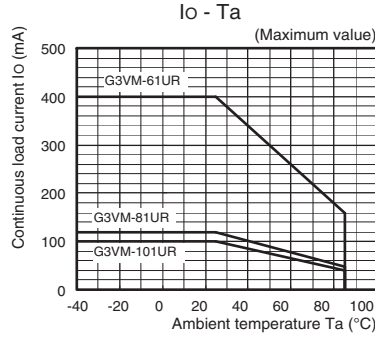
Applying for UL recognition

■ **Engineering Data**

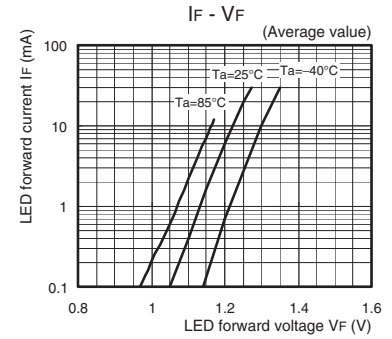
LED forward current vs. Ambient temperature
IF - Ta



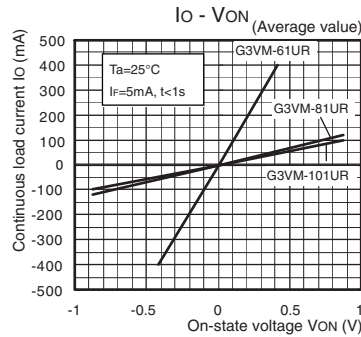
Continuous load current vs. Ambient temperature
IO - Ta



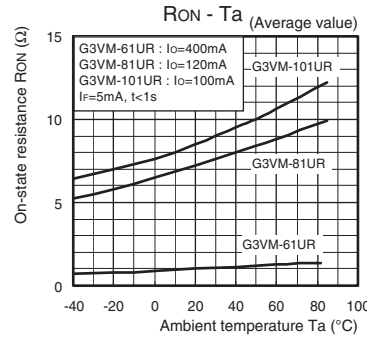
LED forward current vs. LED forward voltage
IF - VF



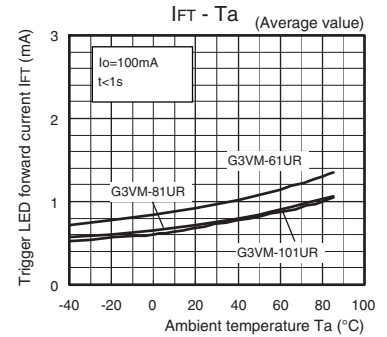
Continuous load current vs. On-state voltage
IO - VON



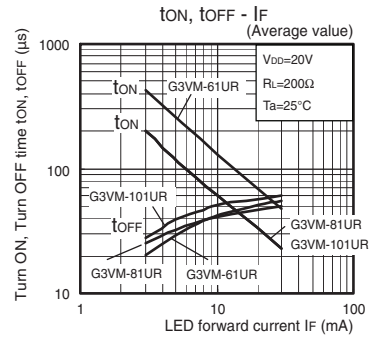
On-state resistance vs. Ambient temperature
RON - Ta



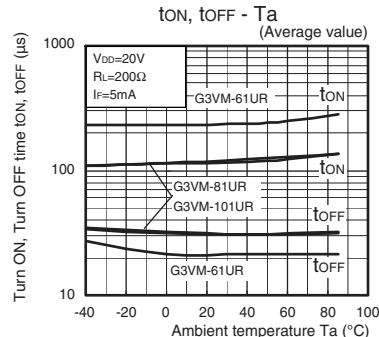
Trigger LED forward current vs. Ambient temperature
IFT - Ta



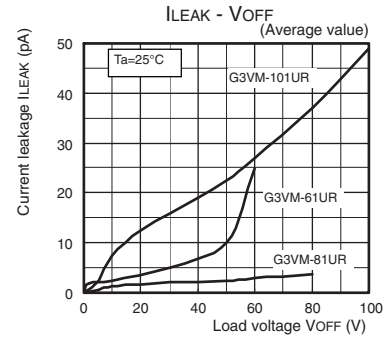
Turn ON, Turn OFF time vs. LED forward current
tON, tOFF - IF



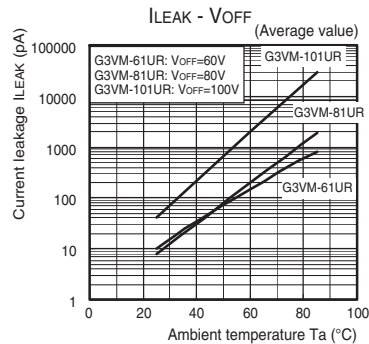
Turn ON, Turn OFF time vs. Ambient temperature
tON, tOFF - Ta



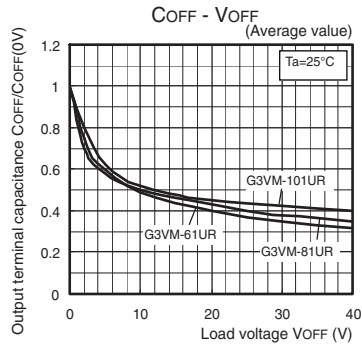
Current leakage vs. Load voltage
ILEAK - VOFF



Current Leakage vs. Ambient Temperature
ILEAK - VOFF



Output terminal capacitance vs. Load voltage
COFF - VOFF



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