

■ Absolute Maximum Ratings (Ta = 25°C)

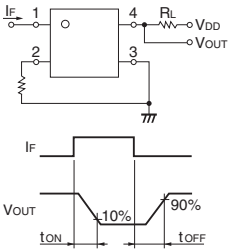
Item		Symbol	G3VM-21AR G3VM-21DR	G3VM-31AR G3VM-31DR	G3VM-41AR G3VM-41DR	G3VM-61AR G3VM-61DR	G3VM-61AR1 G3VM-61DR1	G3VM-101AR G3VM-101DR	G3VM-101AR1 G3VM-101DR1	G3VM-201AR G3VM-201DR	Unit	Measurement conditions
Input	LED forward current	I _F	30								mA	
	Repetitive peak LED forward current	I _{FP}	1								A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔI _F /°C	-0.3								mA/°C	T _a ≥ 25°C
	LED reverse voltage	V _R	5	6	5	6	5	6	V			
	Connection temperature	T _J	125								°C	
Output	Load voltage (AC peak/DC)	V _{OFF}	20	30	40	60	60	100	200	V		
	Continuous load current (AC peak/DC)	I _o	3	4	2.5	2	3	1	2	0.7	A	
	ON current reduction rate	ΔI _o /°C	-30	-40	-25	-20	-30	-10	-20	-7	mA/°C	T _a ≥ 25°C
	Pulse ON current	I _{op}	9	9	7.5	6	9	3	6	2.1	A	t=100 ms, Duty=1/10
	Connection temperature	T _J	125								°C	
Dielectric strength between I/O *		V _{I-O}	2,500								V _{rms}	AC for 1 min
Ambient operating temperature		T _a	-40 to +85	-40 to +110	-40 to +85		-40 to +110	-40 to +85	-40 to +110		°C	With no icing or condensation
Ambient storage temperature		T _{stg}	-55 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-21AR G3VM-21DR	G3VM-31AR G3VM-31DR	G3VM-41AR G3VM-41DR	G3VM-61AR G3VM-61DR	G3VM-61AR1 G3VM-61DR1	G3VM-101AR G3VM-101DR	G3VM-101AR1 G3VM-101DR1	G3VM-201AR G3VM-201DR	Unit	Measurement conditions	
Input	LED forward voltage	V _F	Minimum	1.18	1.5	1.18		1.5	1.18	1.5		V	I _F =10 mA	
			Typical	1.33	1.64	1.33		1.64	1.33	1.64				
			Maximum	1.48	1.8	1.48		1.8	1.48	1.8				
	Reverse current	I _R	Maximum	10									μA	V _R =5 V
	Capacitance between terminals	C _T	Typical	70									pF	V=0, f=1 MHz
	Trigger LED forward current	I _{FT} (I _{FC})	Typical	0.7	0.3	0.5		0.3	0.5	0.4	0.3	mA	G3VM-201AR/201DR: I _o =0.7A Others: I _o =1A	
Maximum			3											
Release LED forward current	I _{FC} (I _{FT})	Minimum	0.1									mA	I _{OFF} =10 μA	
		Typical	0.1	0.2	0.1		0.2	0.1	0.2					
Output	Maximum resistance with output ON	R _{ON}	Typical	40	25	50	80	45	250	110	900	mΩ	G3VM-31AR/31DR I _F =5mA, t<1s, I _o =4A G3VM-61AR1/61DR1 I _F =5mA, t<1s, I _o =3A G3VM-21AR/21DR/ 41AR/41DR/61AR/ 61DR/101AR1/101DR1: I _F =5mA, t<1s, I _o =2A G3VM-101AR/101DR: I _F =5mA, t<1s, I _o =1A G3VM-201AR/201DR: I _F =5mA, t<1s, I _o =0.7A	
			Maximum	80	50	150	200	100	700	200	2000			
	Current leakage when the relay is open	I _{LEAK}	Typical	—	0.01	—		0.005	—	0.01	0.04	μA	V _{OFF} =Load voltage ratings	
			Maximum	1										
	Capacitance between terminals	C _{OFF}	Typical	300	450	300	250		200	110		pF	V=0, f=1 MHz	
Capacitance between I/O terminals	C _{I-O}	Typical	0.8									pF	f=1 MHz, V _S =0 V	
Insulation resistance between I/O terminals	R _{I-O}	Minimum	1000									MΩ	V _{I-O} =500 VDC, R _{oH} ≤60%	
		Typical	10 ⁸											
Turn-ON time	t _{ON}	Typical	1	0.6	0.8		0.45	0.8	0.4	0.13	ms	I _F =5 mA, R _L =200 Ω, V _{DD} =20 V *		
		Maximum	5	3	5		2	5	2	1				
Turn-OFF time	t _{OFF}	Typical	0.3				0.2	0.3	0.2	0.14				
		Maximum	1						0.5					

* 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-21AR G3VM-21DR	G3VM-31AR G3VM-31DR	G3VM-41AR G3VM-41DR	G3VM-61AR G3VM-61DR	G3VM-61AR1 G3VM-61DR1	G3VM-101AR G3VM-101DR	G3VM-101AR1 G3VM-101DR1	G3VM-201AR G3VM-201DR	Unit
Load voltage (AC peak/DC)	V _{DD}	Maximum	16	24	32	48		80		160	V
Operating LED forward current	I _F	Minimum	5								mA
		Typical	10								
		Maximum	25								
Continuous load current (AC peak/DC)	I _O	Maximum	3	4	2.5	2	3	1	2	0.7	A
Ambient operating temperature	T _a	Minimum	-20								°C
		Maximum	65	85	65		85	65	85		

Spacing and Insulation

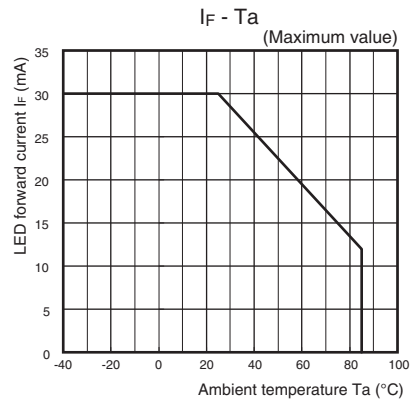
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

DIP
G3VM-□AR□/□DR□

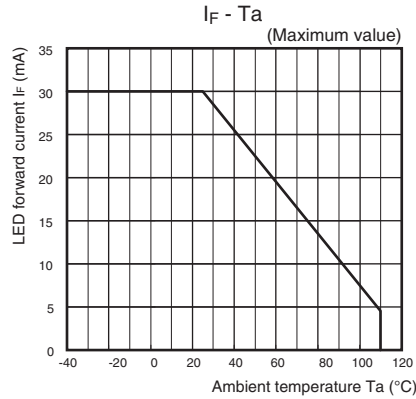
Engineering Data

LED forward current vs. Ambient temperature

G3VM-21AR/21DR/41AR/41DR/61AR/61DR/101AR/101DR

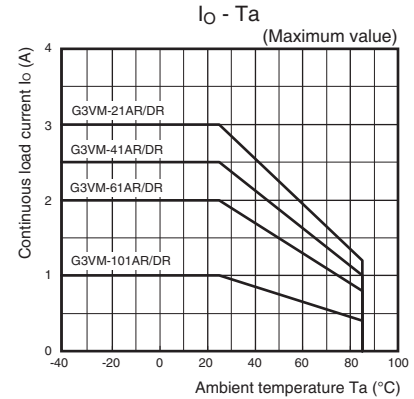


G3VM-31AR/31DR/61AR1/61DR1/101AR1/101DR1/201AR/201DR



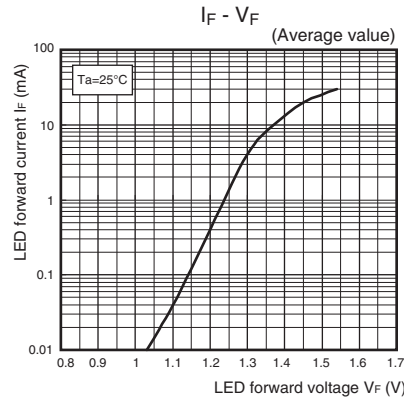
Continuous load current vs. Ambient temperature

G3VM-21AR/21DR/41AR/41DR/61AR/61DR/101AR/101DR

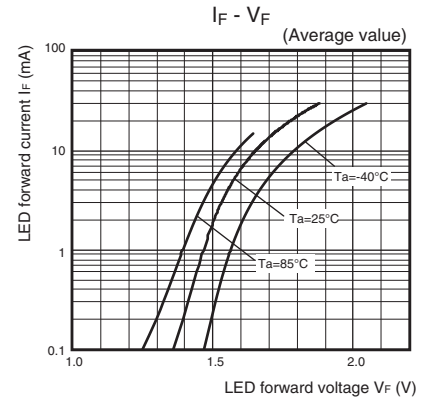


LED forward current vs. LED forward voltage

G3VM-21AR/21DR/41AR/41DR/61AR/61DR/101AR/101DR

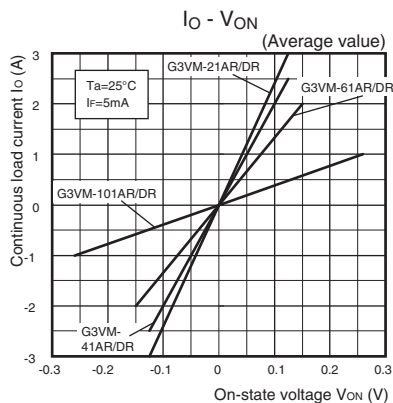


G3VM-31AR/31DR/61AR1/61DR1/101AR1/101DR1/201AR/201DR

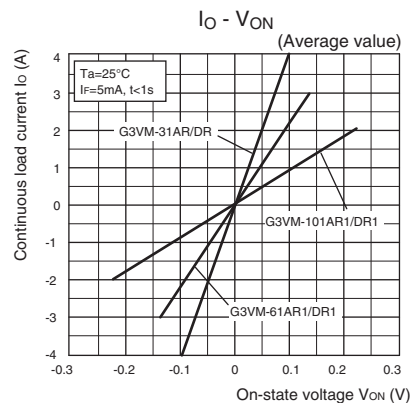


Continuous load current vs. On-state voltage

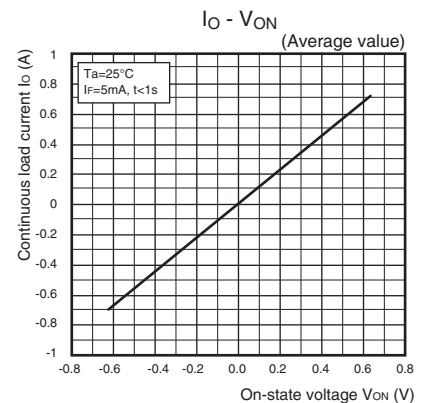
G3VM-21AR/21DR/41AR/41DR/61AR/61DR/101AR/101DR



G3VM-31AR/31DR/61AR1/61DR1/101AR1/101DR1



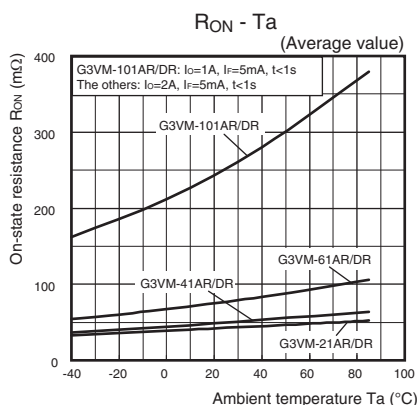
G3VM-201AR/201DR



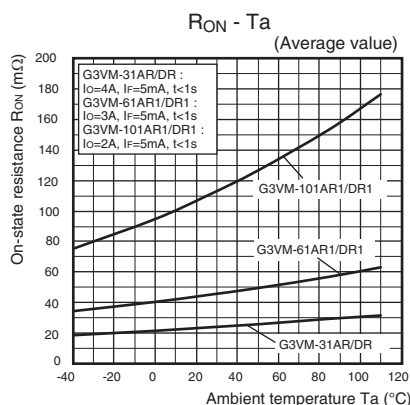
Engineering Data

On-state resistance vs. Ambient temperature

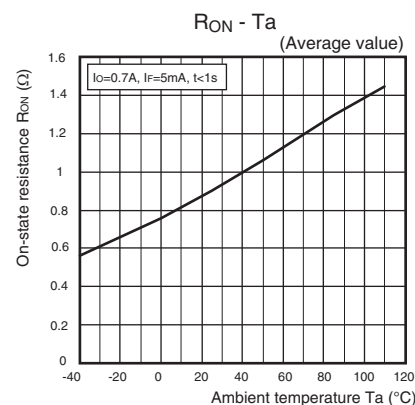
G3VM-21AR/21DR/41AR/41DR/61AR/61DR/101AR/101DR



G3VM-31AR/31DR/61AR1/61DR1/101AR1/101DR1/201AR/201DR

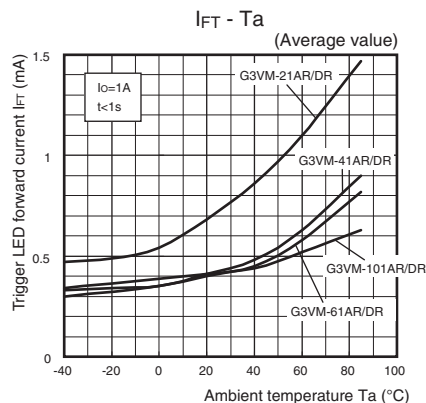


G3VM-201AR/201DR

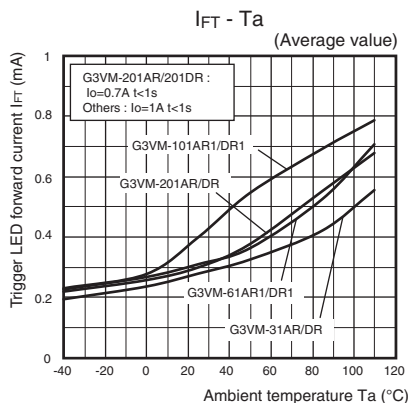


Trigger LED forward current vs. Ambient temperature

G3VM-21AR/21DR/41AR/41DR/61AR/61DR/101AR/101DR

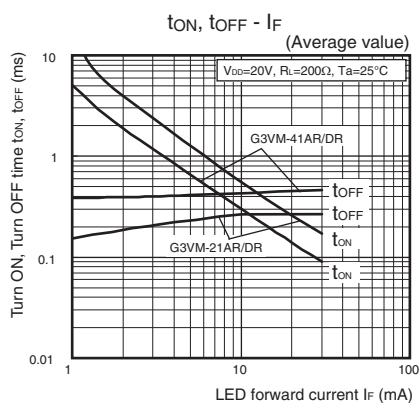


G3VM-31AR/31DR/61AR1/61DR1/101AR1/101DR1/201AR/201DR

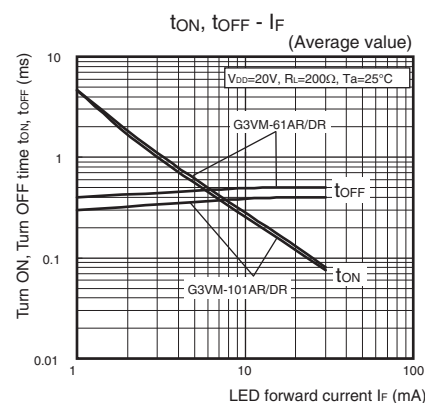


Turn ON, Turn OFF time vs. LED forward current

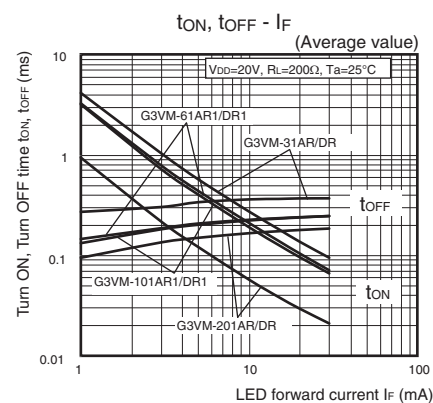
G3VM-21AR/21DR/41AR/41DR



G3VM-61AR/61DR/101AR/101DR



G3VM-31AR/31DR/61AR1/61DR1/101AR1/101DR1/201AR/201DR



DIP

G3VM-□AR□/□DR□

Engineering Data

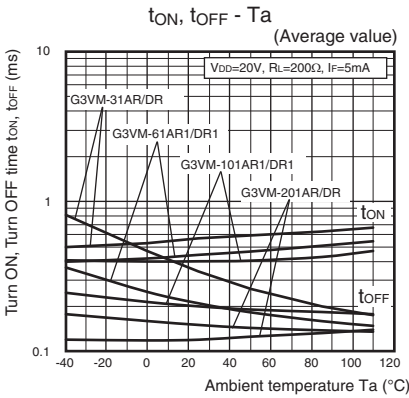
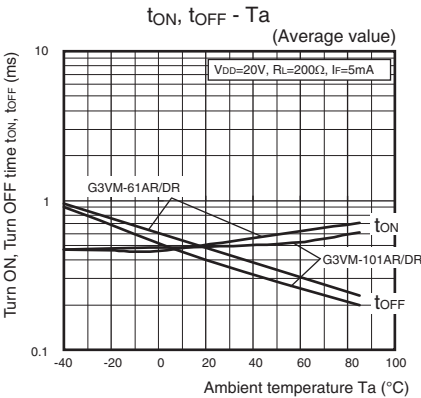
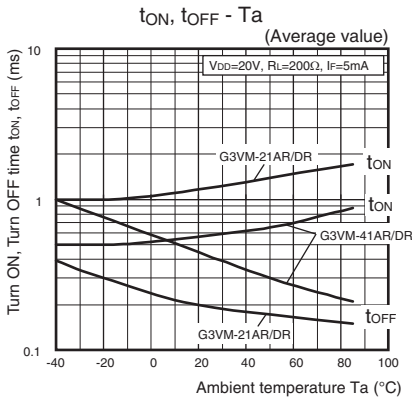
Turn ON, Turn OFF time vs. Ambient temperature
G3VM-21AR/21DR/41AR/41DR

G3VM-61AR/61DR/101AR/101DR

G3VM-31AR/31DR/61AR1/61DR1/101AR1/101DR1/201AR/201DR

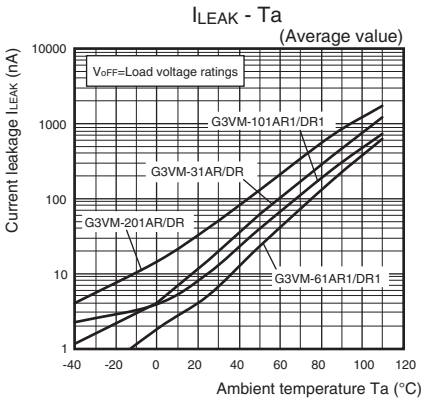
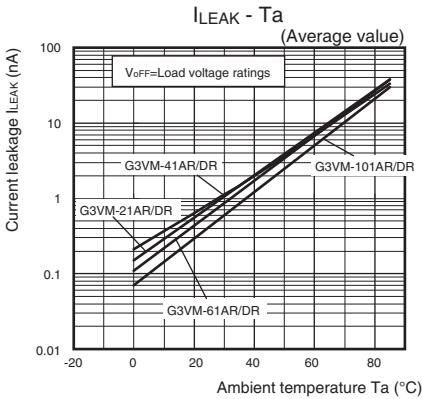
DIP

G3VM-AR/DR



Current leakage vs. Ambient temperature
G3VM-21AR/21DR/41AR/41DR/61AR/61DR/101AR/101DR

G3VM-31AR/31DR/61AR1/61DR1/101AR1/101DR1/201AR/201DR

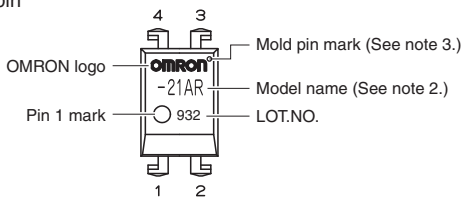


■Appearance / Terminal Arrangement / Internal Connections

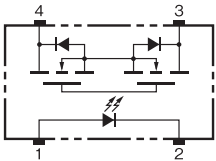
●Appearance

DIP (Dual Inline Package)

DIP 4-pin



●Terminal Arrangement/Internal Connections
(Top View)



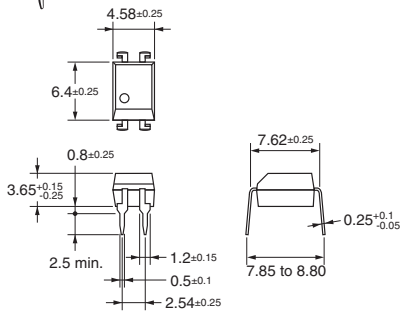
- Note: 1.** The actual product is marked differently from the image shown here.
Note: 2. “G3VM” does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)



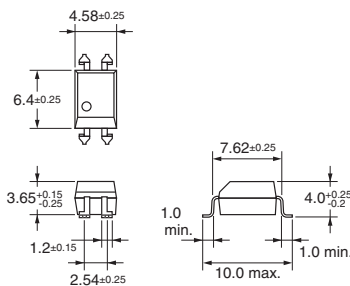
PCB Terminals

Weight: 0.25 g

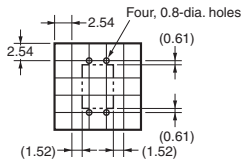


Surface-mounting Terminals

Weight: 0.25 g

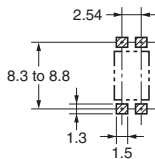


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



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

■Approved Standards

UL recognized 

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

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

DIP

G3VM-□AR□/□DR□

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

OMRON Corporation
Electronic and Mechanical Components Company

Regional Contact	
Americas https://www.components.omron.com/	Europe http://components.omron.eu/
Asia-Pacific https://ecb.omron.com.sg/	China https://www.ecb.omron.com.cn/
Korea https://www.omron-ecb.co.kr/	Japan https://www.omron.co.jp/ecb/