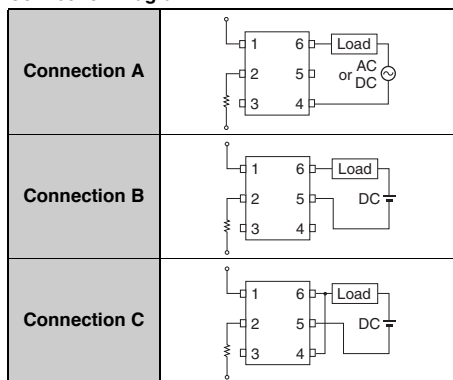


■ Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	G3VM-21BR G3VM-21ER	G3VM-31BR G3VM-31ER	G3VM-41BR G3VM-41ER	G3VM-61BR G3VM-61ER	G3VM-61BR1 G3VM-61ER1	G3VM-61BR2 G3VM-61ER2	G3VM-101BR G3VM-101ER	G3VM-101BR1 G3VM-101ER1	Unit	Measurement conditions	
Input	LED forward current	IF	30								mA		
	Repetitive peak LED forward current	IFP	1								A	100 μs pulses, 100 pps	
	LED forward current reduction rate	ΔIF/°C	-0.3								mA/°C	Ta ≥ 25°C	
	LED reverse voltage	VR	5	6	5			6	5	6	V		
	Connection temperature	TJ	125								°C		
Output	Load voltage (AC peak/DC)		VOFF	20	30	40	60			100		V	
	Continuous load current	Connection A	Io	4	5	3.5	2.5	3	4	2	3.5	A	Connection A: AC peak/DC Connection B and C: DC
		Connection B					—						
		Connection C		8	10	7		6	8	4	7		
	ON current reduction rate	Connection A	ΔIo/°C	-40	-50	-35	-22	-30	-40	-20	-35	mA/°C	Ta ≥ 25°C
		Connection B					—						
		Connection C		-80	-100	-70		-60	-80	-40	-70		
	Pulse ON current		Iop	12	15	10.5	7.5	9	12	6	10.5	A	t=100 ms, Duty=1/10
	Connection temperature		TJ	125								°C	
Dielectric strength between I/O *		VI-o	2,500								Vrms	AC for 1 min	
Ambient operating temperature		Ta	-40 to +85	-40 to +110	-40 to +85	-20 to +85	-40 to +85	-40 to +110	-40 to +85	-40 to +110	°C	With no icing or condensation	
Ambient storage temperature		Tstg	-55 to +125			-40 to +125	-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.

Connection Diagram



Note: Only connection A can be used for the G3VM-61BR/ER.

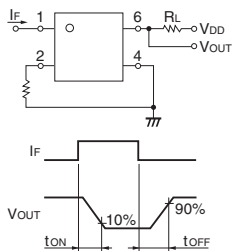
DIP

G3VM-□1BR□/□1ER□

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-21BR G3VM-21ER	G3VM-31BR G3VM-31ER	G3VM-41BR G3VM-41ER	G3VM-61BR G3VM-61ER	G3VM-61BR1 G3VM-61ER1	G3VM-61BR2 G3VM-61ER2	G3VM-101BR G3VM-101ER	G3VM-101BR1 G3VM-101ER1	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}	Typical	0.5	0.2	0.5	1	0.5	0.3	0.5	0.2	mA	I _o =1 A	
Maximum			3											
Release LED forward current		I _{FC}	Minimum	0.1	0.01	0.1			0.01	0.1	0.01	mA	I _{OFF} =10 μA	
Output	Maximum resistance with output ON	Connection A	R _{ON}	Typical	20		30	65	40	35	100	50	mΩ	G3VM-21BR/21ER/ 41BR/41ER/61BR1/ 61ER1/101BR/101ER: I _F =5 mA,I _o =2 A G3VM-61BR/61ER I _F =10 mA, t=10 ms, I _o =2 A G3VM-31BR/31ER/ 61BR2/61ER2/ 101BR1/101ER1: I _F =5 mA I _o =3 A t < 1s
				Maximum	50	40	60	100	70	60	200	80		
		Connection B	Typical	10		15	—	20	18	50	24	G3VM-21BR/21ER/ 41BR/41ER/61BR1/ 61ER1/101BR/101ER: I _F =5 mA, I _o =5 A, t < 1s G3VM-61BR2/61ER2: I _F =5 mA, I _o =4 A, t < 1s G3VM-101BR1/101ER1: I _F =5 mA, I _o =3.5 A, t < 1s		
				5		8		10	9	25	12			
		Connection C	Typical	5		8	10	9	25	12	G3VM-21BR/21ER/ 41BR/41ER/61BR1/ 61ER1/101BR/101ER: I _F =5 mA, I _o =4 A, t<1s G3VM-31BR/31ER: I _F =5 mA, I _o =10 A, t < 1s G3VM-61BR2/61ER2: I _F =5 mA, I _o =8 A, t < 1s G3VM-101BR1/101ER1: I _F =5 mA, I _o =7 A, t < 1s			
	Current leakage when the relay is open		I _{LEAK}	Typical	—	0.01	—	0.001	—	0.01	—	0.01	μA	V _{OFF} =Load voltage ratings
				Maximum	1			0.01	1					
	Capacitance between terminals		C _{OFF}	Typical	1000	1100	1000	400	1100	640	1000	450	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, RoH ≤ 60%
			Typical	10 ⁸										
Turn-ON time		t _{ON}	Typical	2.5	0.8	2	1.5	2	1.2	2	0.8	ms	I _F =5 mA, R _L =200 Ω, V _{DD} =20 V *	
			Maximum	5			3	5						
Turn-OFF time		t _{OFF}	Typical	0.1			0.2	0.1						
			Maximum	1	0.5	1	0.6	1	0.5	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-21BR G3VM-21ER	G3VM-31BR G3VM-31ER	G3VM-41BR G3VM-41ER	G3VM-61BR G3VM-61ER	G3VM-61BR1 G3VM-61ER1	G3VM-61BR2 G3VM-61ER2	G3VM-101BR G3VM-101ER	G3VM-101BR1 G3VM-101ER1	Unit
Load voltage (AC peak/DC)	V _{DD}	Maximum	16	24	32	48			80		V
Operating LED forward current	I _F	Minimum	5			10	5				mA
		Typical	10			—	10				
		Maximum	25			20	25				
Continuous load current (AC peak/DC)	I _O	Maximum	4	5	3.5	2.5	3	4	2	3.5	A
Ambient operating temperature	T _a	Minimum	-20	-40	-20			-40	-20	-40	°C
		Maximum	65	85	65	60	65	85	65	85	

Spacing and Insulation

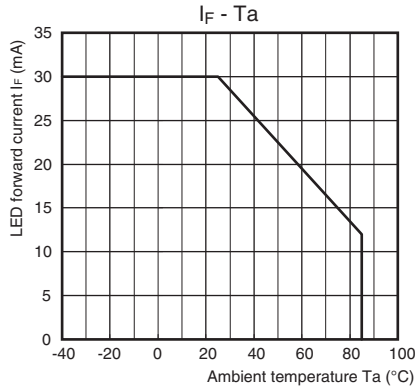
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

DIP
G3VM-1BR/1ER

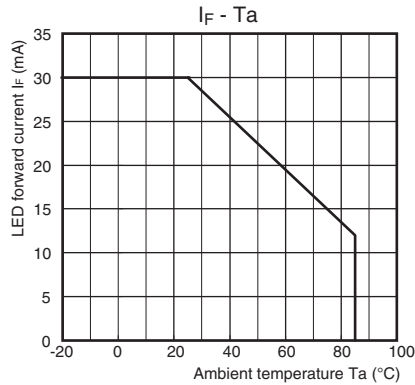
Engineering Data

LED forward current vs. Ambient temperature

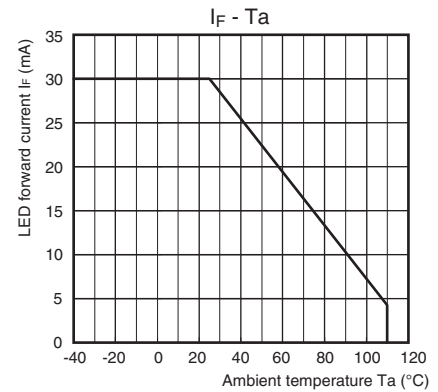
G3VM-21BR/21ER/41BR/41ER/
61BR1/61ER1/101BR/101ER



G3VM-61BR/61ER

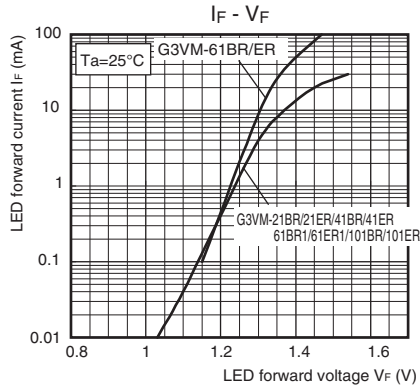


G3VM-31BR/31ER/61BR2/61ER2/
101BR1/101ER1

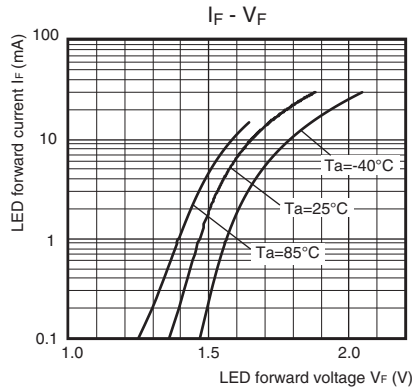


LED forward current vs. LED forward voltage

G3VM-21BR/21ER/41BR/41ER/61BR/
61ER/61BR1/61ER1/101BR/101ER

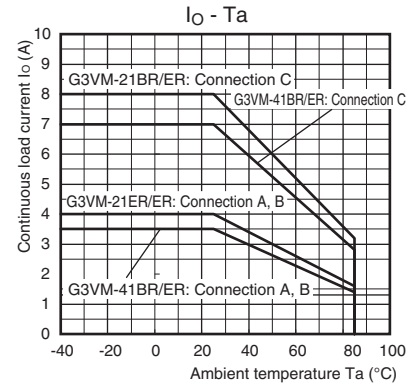


G3VM-31BR/31ER/61BR2/61ER2/
101BR1/101ER1

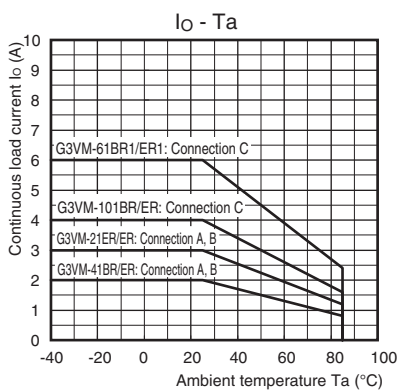


Continuous load current vs. Ambient temperature

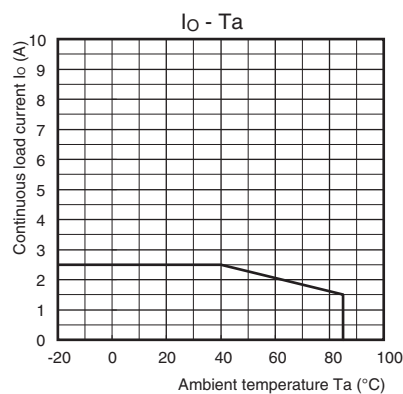
G3VM-21BR/21ER/41BR/41ER



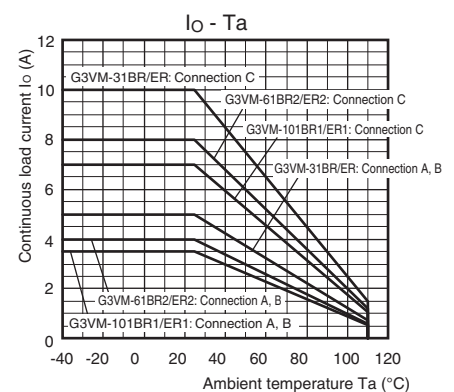
G3VM-61BR1/61ER1/101BR/101ER



G3VM-61BR/61ER



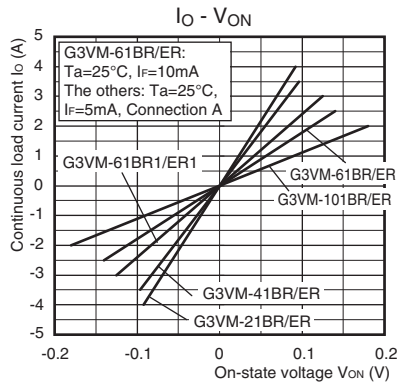
G3VM-31BR/31ER/61BR2/61ER2/
101BR1/101ER1



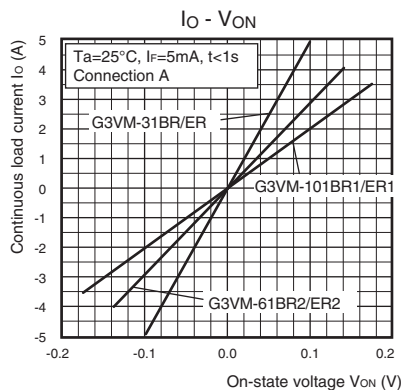
Engineering Data

Continuous load current vs. On-state voltage

G3VM-21BR/21ER/41BR/41ER/61BR/
61ER/61BR1/61ER1/101BR/101ER

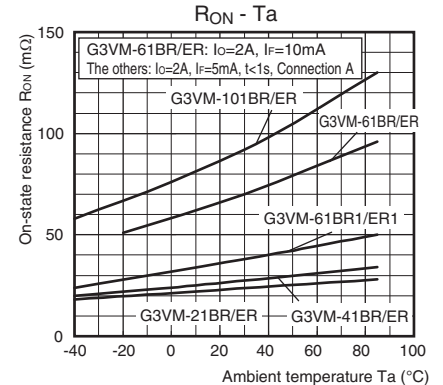


G3VM-31BR/31ER/61BR2/61ER2/
101BR1/101ER1



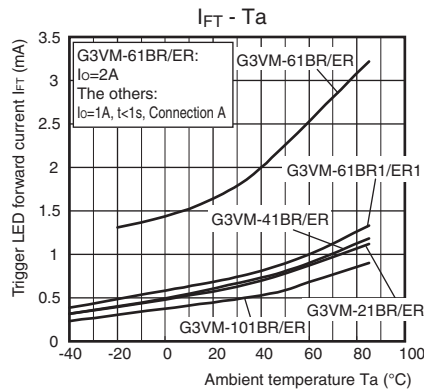
On-state resistance vs. Ambient temperature

G3VM-21BR/21ER/41BR/41ER/61BR/
61ER/61BR1/61ER1/101BR/101ER

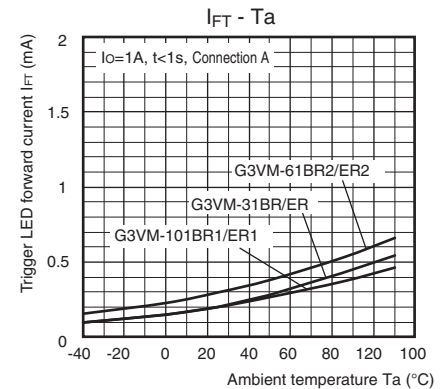


Trigger LED forward current vs. Ambient temperature

G3VM-21BR/21ER/41BR/41ER/61BR/
61ER/61BR1/61ER1/101BR/101ER

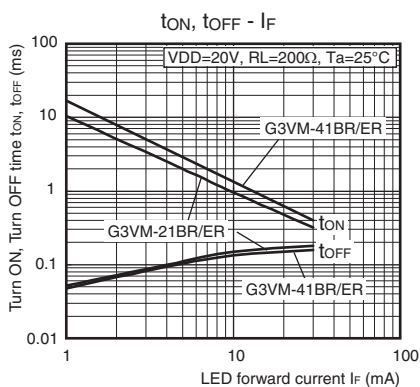


G3VM-31BR/31ER/61BR2/61ER2/
101BR1/101ER1

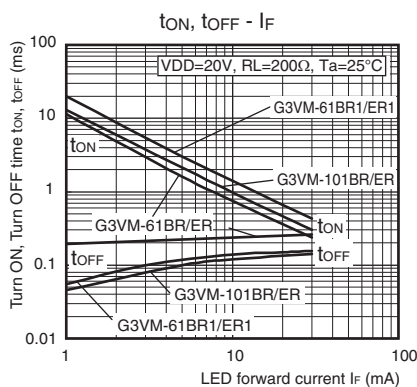


Turn ON, Turn OFF time vs. LED forward current

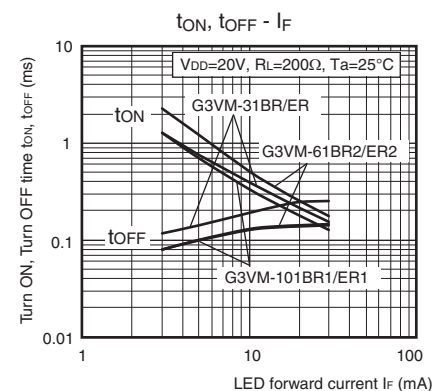
G3VM-21BR/21ER/41BR/41ER



G3VM-61BR/61ER/61BR1/61ER1/
101BR/101ER



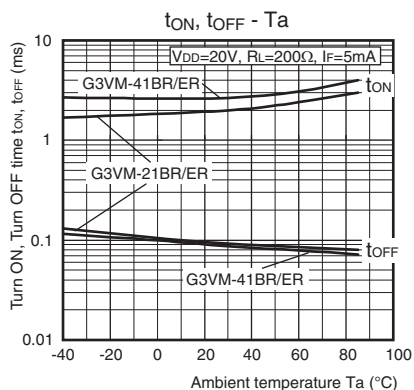
G3VM-31BR/31ER/61BR2/61ER2/
101BR1/101ER1



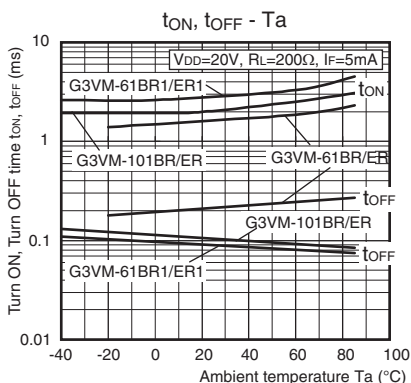
Engineering Data

Turn ON, Turn OFF time vs. Ambient temperature

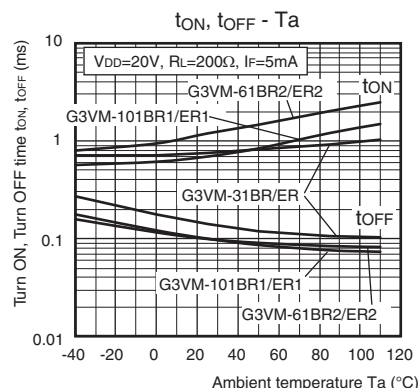
G3VM-21BR/21ER/41BR/41ER



G3VM-61BR/61ER/61BR1/61ER1/101BR/101ER

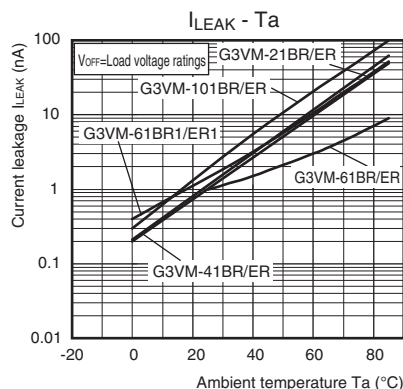


G3VM-31BR/31ER/61BR2/61ER2/101BR1/101ER1

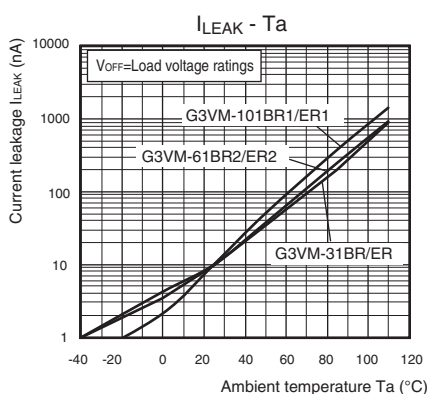


Current leakage vs. Ambient temperature

G3VM-21BR/21ER/41BR/41ER/61BR/61ER/61BR1/61ER1/101BR/101ER



G3VM-31BR/31ER/61BR2/61ER2/101BR1/101ER1



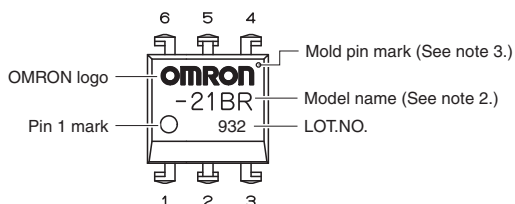
Appearance / Terminal Arrangement / Internal Connections

Appearance

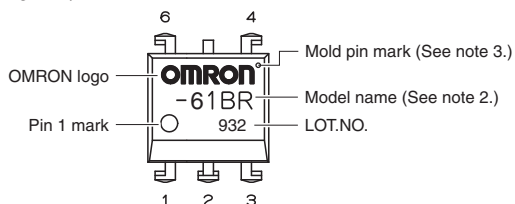
DIP (Dual Inline Package)

DIP 6-pin

G3VM-21BR/ER, -31BR/ER, -41BR/ER, -61BR1/ER1, -61BR2/ER2, -101BR/ER, -101BR1/ER1

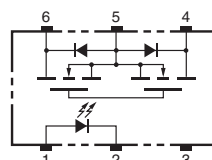


Special DIP 6-pin *
G3VM-61BR/ER

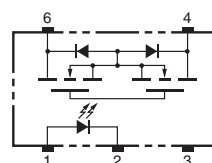


Terminal Arrangement/Internal Connections (Top View)

G3VM-21BR/ER, -31BR/ER, -41BR/ER, -61BR1/ER1, -61BR2/ER2, -101BR/ER, -101BR1/ER1



G3VM-61BR/ER



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.

* The external dimensions of the standard DIP 6-pin are the same, but the number of terminals is different.

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)

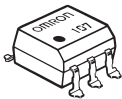
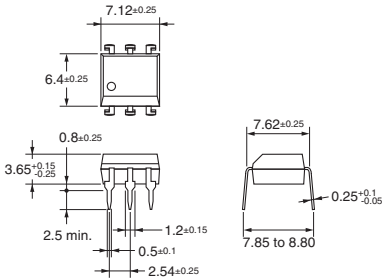
G3VM-21BR/31BR/41BR/61BR1/61BR2/
101BR/101BR1

G3VM-21ER/31ER/41ER/61ER1/61ER2/
101ER/101ER1



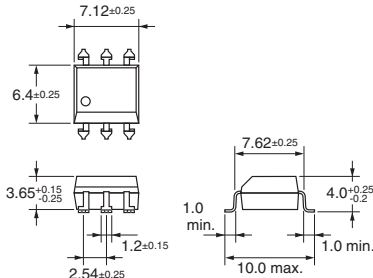
PCB Terminals

Weight: 0.4 g

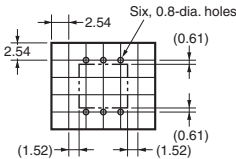


Surface-mounting Terminals

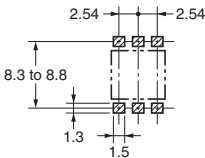
Weight: 0.4 g



PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions
(Recommended Value, Top View)



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

CAD Data

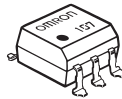
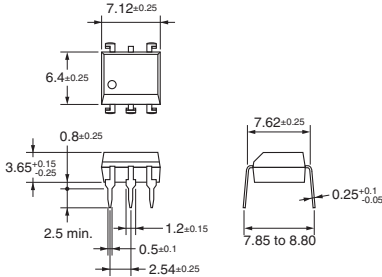
G3VM-61BR

G3VM-61ER



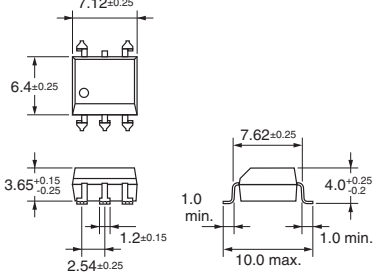
PCB Terminals

Weight: 0.4 g

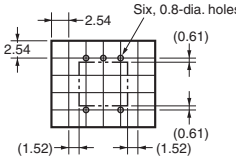


Surface-mounting Terminals

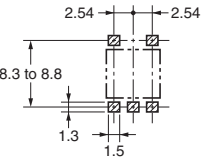
Weight: 0.4 g



PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions
(Recommended Value, Top View)



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

CAD Data

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* (www.fa.omron.co.jp/) for precautions that apply to all MOS FET Relays.

DIP

G3VM-1BR/1ER

DIP

G3VM-□1BR□/□1ER□

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

OMRON Corporation
Electronic and Mechanical Components Company

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