

G3VM-□AY□/□DY□

MOS FET Relays Small DIP4 package with High dielectric strength type

Small DIP4 package with Dielectric Strength of 5,000 VAC between I/O

- Load voltage 40V/60V/200V/350V/400V/600V
- High-temperature type which can withstand temperatures up to 110°C is added to the product lineup



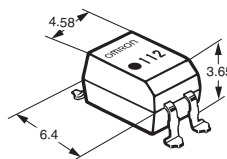
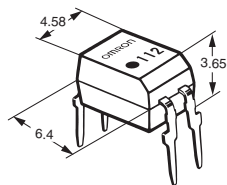
Note: The actual product is marked differently from the image shown here.

Refer to "Common Precautions".

Application Examples

- Smart meter
- PLC
- Security equipment
- Communication equipment

Package (Unit : mm, Average)



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

Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage

- 4: 40V
- 6: 60V
- 20: 200V
- 35: 350V
- 40: 400V
- 60: 600V

2. Contact form

- 1: 1a (SPST-NO)

3. Package type

- A: DIP4 pin PCB terminals
- D: DIP4 pin Surface-mounting Terminals

4. Additional functions

- Y: Dielectric strength between I/O above 2,500V type

5. Other informations

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

Ordering Information

Standard Type

Package type	Contact form	Load voltage (peak value) *	Continuous load current (peak value) *	Packing/Tube		Packing/Tape & reel		
				Model		Minimum package quantity	Model	
				PCB terminals	Surface-mounting Terminals		Surface-mounting Terminals	Minimum package quantity
DIP4	1a	40V	2000mA	G3VM-41AY1	G3VM-41DY1	100 pcs.	G3VM-41DY1(TR05)	500 pcs.
		60V	500mA	G3VM-61AY1	G3VM-61DY1		G3VM-61DY1(TR05)	
		200V	250mA	G3VM-201AY1	G3VM-201DY1		G3VM-201DY1(TR05)	
		350V	100mA	G3VM-351AY1	G3VM-351DY1		G3VM-351DY1(TR05)	
		400V	120mA	G3VM-401AY1	G3VM-401DY1		G3VM-401DY1(TR05)	
		600V	90mA	G3VM-601AY1	G3VM-601DY1		G3VM-601DY1(TR05)	

High Temperature Type

Package type	Contact form	Load voltage (peak value) *	Continuous load current (peak value) *	Packing/Tube		Packing/Tape & reel		
				Model		Minimum package quantity	Model	
				PCB terminals	Surface-mounting Terminals		Surface-mounting Terminals	Minimum package quantity
DIP4	1a	400V	120mA	G3VM-401AY2	G3VM-401DY2	100 pcs.	G3VM-401DY2(TR05)	500 pcs.
		600V	90mA	G3VM-601AY2	G3VM-601DY2		G3VM-601DY2(TR05)	

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

* The AC peak and DC value are given for the load voltage and continuous load current.

■ Absolute Maximum Ratings (Ta = 25°C)

● Standard Type

Item		Symbol	G3VM-41AY1 G3VM-41DY1	G3VM-61AY1 G3VM-61DY1	G3VM-201AY1 G3VM-201DY1	G3VM-351AY1 G3VM-351DY1	G3VM-401AY1 G3VM-401DY1	G3VM-601AY1 G3VM-601DY1	Unit	Measurement conditions	
Input	LED forward current	IF	30							mA	
	LED forward current reduction rate	ΔIF/°C	-0.3							mA/°C	Ta≥25°C
	LED reverse voltage	VR	5							V	
	Junction temperature	TJ	125							°C	
Output	Load voltage (AC peak/DC)	V _{OFF}	40	60	200	350	400	600	V		
	Continuous load current (AC peak/DC)	I _o	2,000	500	250	100	120	90	mA		
	ON current reduction rate	ΔI _o /°C	-20	-5	-2.5	-1	-1.2	-0.9	mA/°C	Ta≥25°C	
	Pulse ON current	I _{op}	6	1.5	0.75	0.3	0.36	0.27	A	t=100ms, Duty=1/10	
	Junction temperature	TJ	125							°C	
Dielectric strength between I/O *		V _{I-O}	5,000							V _{rms}	AC for 1 min
Ambient operating temperature		Ta	-40~+85							°C	With no icing or condensation
Ambient storage temperature		Tstg	-55~+125							°C	
Soldering temperature		-	260							°C	10s

● High Temperature Type

Item		Symbol	G3VM-401AY2 G3VM-401DY2		G3VM-601AY2 G3VM-601DY2		Unit	Measurement conditions	
Input	LED forward current	IF	30					mA	
	LED forward current reduction rate	ΔIF/°C	-1.2					mA/°C	Ta≥100°C
	LED reverse voltage	VR	6					V	
	Junction temperature	TJ	125					°C	
Output	Load voltage (AC peak/DC)	V _{OFF}	400		600			V	
	Continuous load current (AC peak/DC)	I _o	120		90			mA	
	ON current reduction rate	ΔI _o /°C	-1.2		-0.9			mA/°C	Ta≥25°C
	Pulse ON current	I _{op}	0.36		0.27			A	t=100ms, Duty=1/10
	Junction temperature	TJ	125					°C	
Dielectric strength between I/O *		V _{I-O}	5,000					V _{rms}	AC for 1 min
Ambient operating temperature		Ta	-40~+110					°C	With no icing or condensation
Ambient storage temperature		Tstg	-55~+125						
Soldering temperature		-	260						10s

* 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)

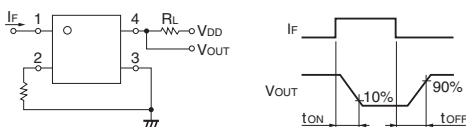
Standard Type

Item	Symbol	Model								Unit	Measurement conditions
		G3VM-41AY1 G3VM-41DY1	G3VM-61AY1 G3VM-61DY1	G3VM-201AY1 G3VM-201DY1	G3VM-351AY1 G3VM-351DY1	G3VM-401AY1 G3VM-401DY1	G3VM-601AY1 G3VM-601DY1				
Input	LED forward voltage	VF	Minimum	1.1						V	IF=10mA
			Typical	1.27							
			Maximum	1.4							
Input	Reverse current	IR	Maximum	10						μA	VR=5V
	Capacitance between terminals	CT	Typical	50						pF	V=0V, f=1MHz
Input	Trigger LED forward current	IFT	Typical	0.5	0.6				0.5	mA	G3VM-41AY1/DY1 : Io=1A Others : Io=Continuous load current ratings
			Maximum	3							
Input	Release LED forward current	IFC	Minimum	0.1						mA	IOFF=10μA
Output	Maximum resistance with output ON	RON	Typical	0.09(0.06)	0.6	5	35(25)	22(17)	45(30)	Ω	IF=5mA, Io=Continuous load current ratings (value at t<1s)
			Maximum	0.15(0.10)	2	8	50(35)	35(28)	60(40)		
	Current leakage when the relay is open	ILEAK	Maximum	1						μA	VOFF=Load voltage ratings
Output	Capacitance between terminals	COFF	Typical	300	130	90	30	80	75	pF	V=0V, f=1MHz
Output	Capacitance between I/O terminals	CI-O	Typical	0.8						pF	Vs=0V, f=1MHz
Output	Insulation resistance between I/O terminals	RI-O	Minimum	1000						MΩ	VI-O=500VDC, RoH≤60%
			Typical	10 ⁸							
Output	Turn-ON time	tON	Typical	2.8	1	0.3		0.6	0.5	ms	G3VM-41AY1/DY1 : RL=200Ω, IF=10mA, VDD=20V G3VM-601AY1/DY1 : RL=200Ω, IF=5mA, VDD=10V Others : RL=200Ω, IF=5mA, VDD=20V *
			Maximum	5	3	2					
Output	Turn-OFF time	tOFF	Typical	0.3	0.2	0.1		0.2		ms	G3VM-41AY1/DY1 : RL=200Ω, IF=10mA, VDD=20V G3VM-601AY1/DY1 : RL=200Ω, IF=5mA, VDD=10V Others : RL=200Ω, IF=5mA, VDD=20V *
			Maximum	1							

High Temperature Type

Item	Symbol	G3VM-401AY2 G3VM-401DY2		G3VM-601AY2 G3VM-601DY2		Unit	Measurement conditions	
Input	LED forward voltage	VF	Minimum	-		V	IF=10mA	
			Typical	1.27				
			Maximum	1.5				
Input	Reverse current	IR	Maximum	10		μA	VR=6V	
	Capacitance between terminals	CT	Typical	50		pF	V=0V, f=1MHz	
Input	Trigger LED forward current	IFT	Typical	0.6	0.5		mA	Io=Continuous load current ratings
			Maximum	2				
Input	Release LED forward current	IFC	Minimum	0.1		mA	IOFF=10μA	
Output	Maximum resistance with output ON	RON	Typical	22(17)	45(30)		Ω	IF=5mA, Io=Continuous load current ratings (value at t<1s)
			Maximum	35(28)	60(40)			
Output	Current leakage when relay is open	ILEAK	Maximum	1		μA	VOFF=Load voltage ratings	
Output	Capacitance between terminals	COFF	Typical	80	75		pF	V=0V, f=1MHz
Output	Capacitance between I/O terminals	CI-O	Typical	0.8		pF	Vs=0V, f=1MHz	
Output	Insulation resistance between I/O terminals	RI-O	Minimum	1000		MΩ	VI-O=500VDC, RoH≤60%	
			Typical	10 ⁸				
Output	Turn-ON time	tON	Typical	0.2		ms	G3VM-601AY2/DY2 RL=200Ω, IF=5mA, VDD=10V G3VM-401AY2/DY2 RL=200Ω, IF=5mA, VDD=20V	
			Maximum	1	0.5			
Output	Turn-OFF time	tOFF	Typical	0.2	0.1		ms	G3VM-601AY2/DY2 RL=200Ω, IF=5mA, VDD=10V G3VM-401AY2/DY2 RL=200Ω, IF=5mA, VDD=20V
			Maximum	0.5	0.2			

* 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, it does not satisfy several conditions simultaneously.

Standard Type

Item	Symbol		G3VM-41AY1	G3VM-61AY1	G3VM-201AY1	G3VM-351AY1	G3VM-401AY1	G3VM-601AY1	Unit
			G3VM-41DY1	G3VM-61DY1	G3VM-201DY1	G3VM-351DY1	G3VM-401DY1	G3VM-601DY1	
Load voltage (AC peak/DC)	V _{DD}	Maximum	32	48	160	280	320	480	V
Operating LED forward current	I _F	Minimum	5						mA
		Typical	7.5						
		Maximum	25						
Continuous load current (AC peak/DC)	I _o	Maximum	2000	500	250	100	120	90	
Ambient operating temperature	T _a	Minimum	-20						°C
		Maximum	65						

High Temperature Type

Item	Symbol		G3VM-401AY2 G3VM-401DY2		G3VM-601AY2 G3VM-601DY2		Unit
Load voltage (AC peak/DC)	V _{DD}	Maximum	320		480		V
Operating LED forward current	I _F	Minimum	5				mA
		Typical	7.5				
		Maximum	25				
Continuous load current (AC peak/DC)	I _o	Maximum	120		90		
Ambient operating temperature	T _a	Minimum	-20				°C
		Maximum	100				

Spacing and Insulation

Standard Type, High Temperature Type

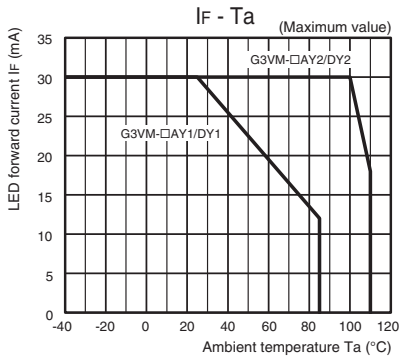
Item		Standard	Unit
Creepage distances	Minimum	7.0	mm
Clearance distances	Minimum	7.0	
Internal isolation thickness	Minimum	0.4	

Engineering Data

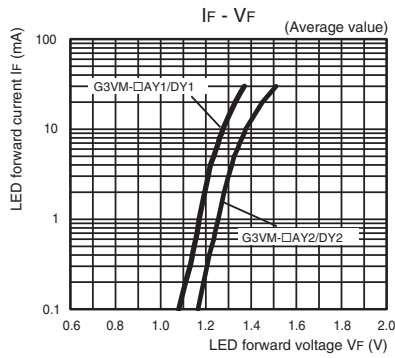
DIP

G3VM-□AY□/□DY□

LED forward current vs. Ambient temperature

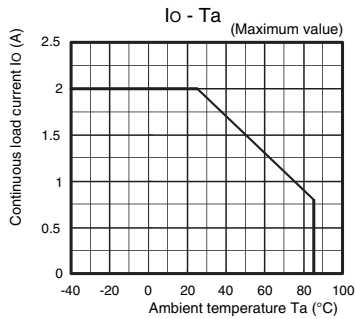


LED forward current vs. LED forward voltage

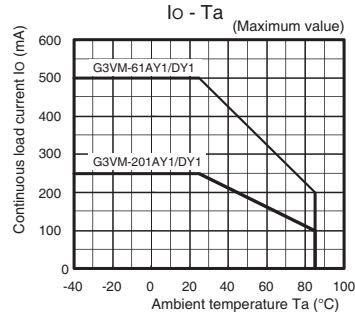


Continuous load current vs. Ambient temperature

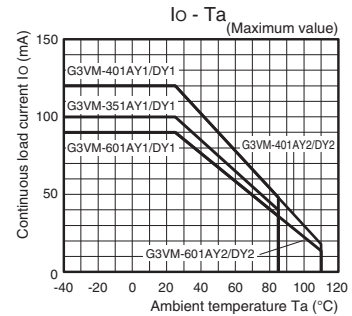
G3VM-41AY1/DY1



G3VM-61AY1/DY1
G3VM-201AY1/DY1

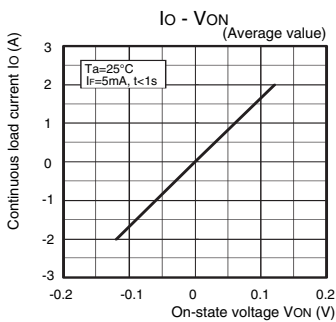


G3VM-351AY1/DY1
G3VM-401AY1/DY1/A2/DY2
G3VM-601AY1/DY1/A2/DY2

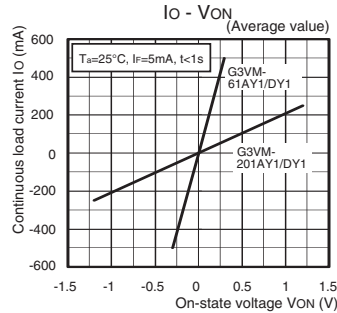


Continuous load current vs. On-state voltage

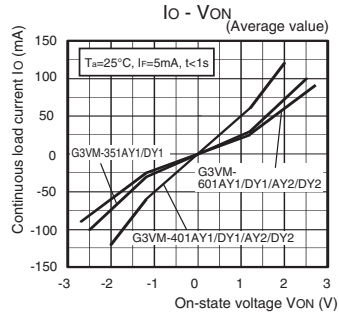
G3VM-41AY1/DY1



G3VM-61AY1/DY1
G3VM-201AY1/DY1

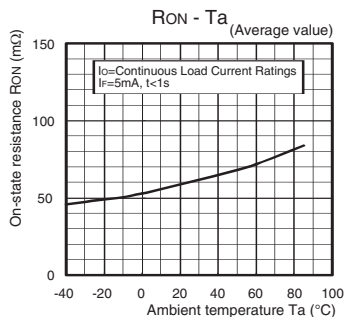


G3VM-351AY1/DY1
G3VM-401AY1/DY1/A2/DY2
G3VM-601AY1/DY1/A2/DY2

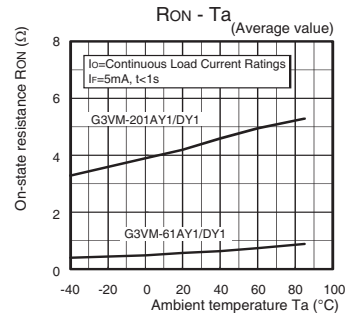


On-state resistance vs. Ambient temperature

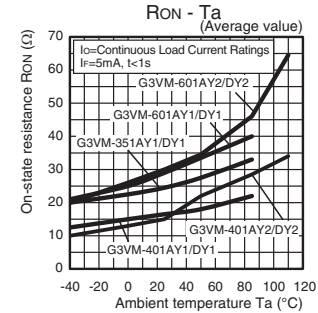
G3VM-41AY1/DY1



G3VM-61AY1/DY1
G3VM-201AY1/DY1



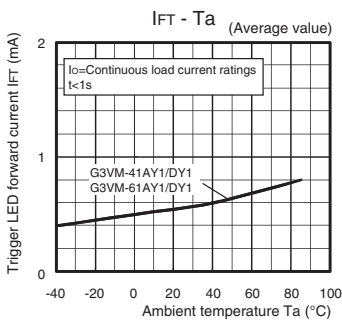
G3VM-351AY1/DY1
G3VM-401AY1/DY1/A2/DY2
G3VM-601AY1/DY1/A2/DY2



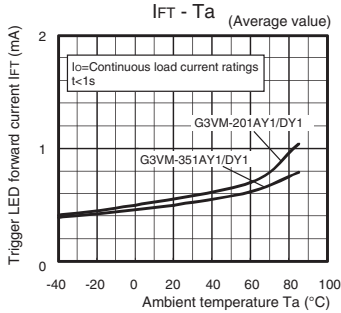
Engineering Data

Trigger LED forward current vs. Ambient temperature

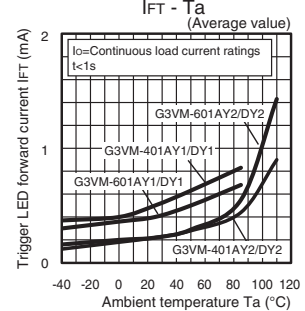
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G3VM-61AY1/DY1



G3VM-201AY1/DY1
G3VM-351AY1/DY1

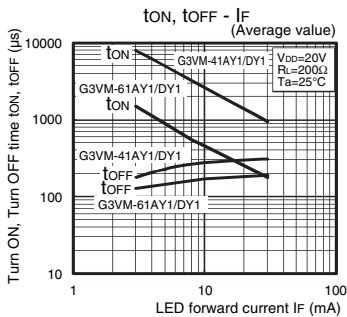


G3VM-401AY1/DY1/AY2/DY2
G3VM-601AY1/DY1/AY2/DY2

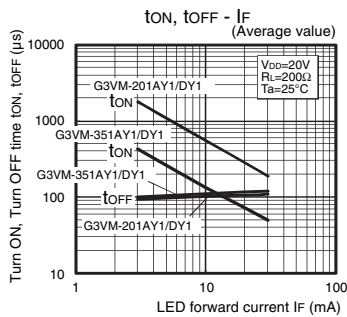


Turn ON, Turn OFF time vs. LED forward current

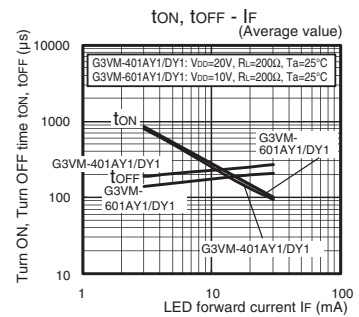
G3VM-41AY1/DY1
G3VM-61AY1/DY1



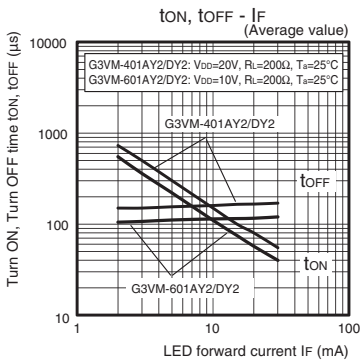
G3VM-201AY1/DY1
G3VM-351AY1/DY1



G3VM-401AY1/DY1
G3VM-601AY1/DY1

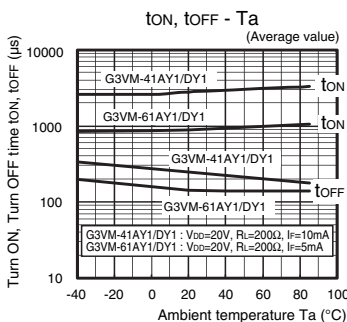


G3VM-401AY2/DY2
G3VM-601AY2/DY2

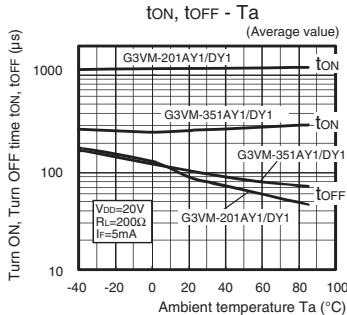


Turn ON, Turn OFF time vs. Ambient temperature

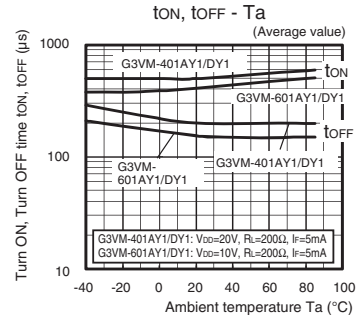
G3VM-41AY1/DY1
G3VM-61AY1/DY1



G3VM-201AY1/DY1
G3VM-351AY1/DY1



G3VM-401AY1/DY1
G3VM-601AY1/DY1

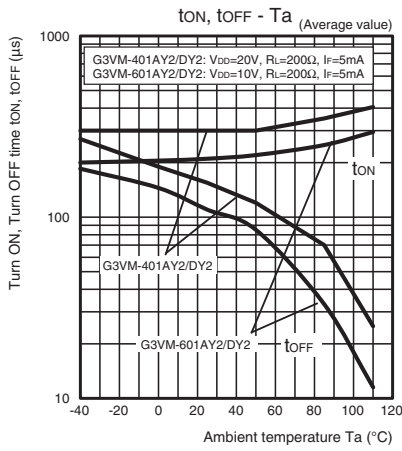


DIP G3VM-□AY□/□DY□

Engineering Data

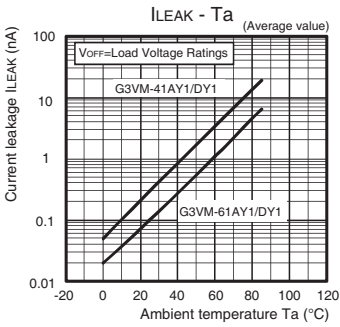
● Turn ON, Turn OFF time vs. Ambient temperature

G3VM-401AY2/DY2
G3VM-601AY2/DY2

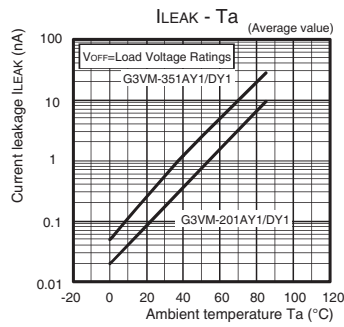


● Current leakage vs. Ambient temperature

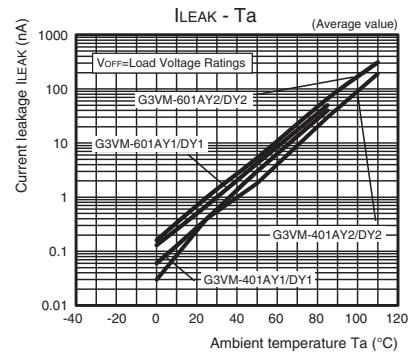
G3VM-41AY1/DY1
G3VM-61AY1/DY1



G3VM-201AY1/DY1
G3VM-351AY1/DY1



G3VM-401AY1/DY1/AY2/DY2
G3VM-601AY1/DY1/AY2/DY2

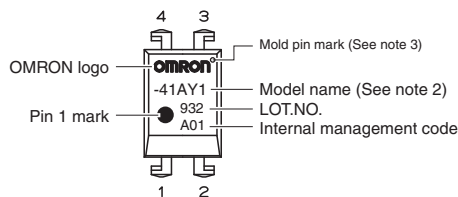


■ Appearance/Terminal Arrangement/Internal Connections

■ Appearance

DIP (Dual Inline Package)

DIP4

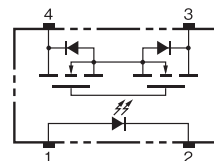


Note 1. The actual product is marked differently from the image shown here.

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.

■ Terminal Arrangement/Internal Connections

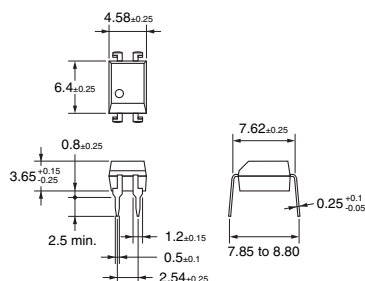


■ Dimensions (Unit: mm)



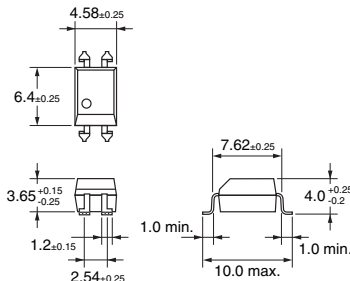
PCB Terminals

Weight: 0.25 g

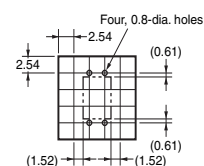


Surface-mounting Terminals

Weight: 0.25 g

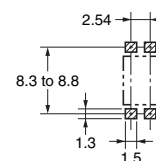


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



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

■ Approved Standards

UL recognized

● Standard Type, High Temperature Type

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

■ Safety Precautions

- Refer to "Common Precautions" for all G3VM models.

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

OMRON Corporation

Electronic and Mechanical Components Company

Regional Contact

Americas

<https://components.omron.com/us-en/>

Asia-Pacific

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