

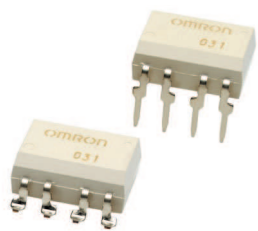
Introduction
General-purpose
High-voltage
Multi-contact pair
(2a, 2b, and 1a1b)
High-current and
low-ON resistance
Small and high-
dielectric strength
High dielectric
strength
Current-limiting
Low-voltage
and low-ON resistance
Small and high-
voltage
Certified Models with
standards certification

G3VM-□C□/□F□/□CR/□FR

MOS FET Relays DIP 8-pin, Multi-contact-pair Type

MOS FET Relays in DIP 8-pin packages with multiple contact pairs for a wide range of circuits

- Contact form: 2a (DPST-NO), 2b (DPST-NC), 1a1b (SPST-NO/SPST-NC)
- Load voltage: 60 V, 350 V, or 400 V



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

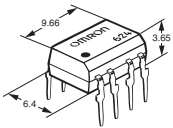
RoHS Compliant

Application Examples

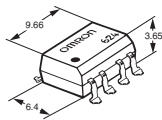
- Communication equipment
- Test & Measurement equipment

Package (Unit : mm, Average)

DIP 8-pin
PCB Terminals



Surface-mounting Terminals



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
35 : 350 V
40 : 400 V | 2. Contact form
2 : 2a (DPST-NO)
4 : 2b (DPST-NC)
5 : 1a1b (SPST-NO/SPST-NC) | 3. Package
C : DIP 8-pin with PCB terminals
F : DIP 8-pin with surface-mounting terminals |
| 4. Additional functions
R: Low ON resistance | 5. Other informations
When specifications overlap, serial code is added in the recorded order. | |

Ordering Information

Package	Contact form	Load voltage (peak value) *	Continuous load current (peak value) *	Stick packaging			Tape packaging		DIP
				Model	Model	Minimum package quantity	Model	Minimum package quantity	
DIP8	2a (DPST-NO)	60 V	500 mA	G3VM-62C1	G3VM-62F1	50 pcs.	G3VM-62F1(TR)	1,500 pcs.	DIP
			120 mA	G3VM-352C	G3VM-352F		G3VM-352F(TR)		SOP
	2b (DPST-NC)	350 V	150 mA	G3VM-354C	G3VM-354F		G3VM-354F(TR)		USOP
			120 mA	G3VM-355CR	G3VM-355FR		G3VM-355FR(TR)		VSOP
	1a1b (SPST-NO/SPST-NC)			G3VM-402C	G3VM-402F		G3VM-402F(TR)		
	2a (DPST-NO)	400 V							

* The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

Introduction

General-purpose

High-side voltage

Multi-output (2A, 2A, and 1A)

High-current and low-ON-resistance

Small and high-dielectric strength

High-dielectric strength

Current-limiting

Low-voltage-capacitors and low-ON-resistance

Small and high-side voltage

Certified models with Standards certification

DIP

SOP

SSOP

USOP

VSON

G3VM-□C□/□F□/□CR/□FR

G3VM-□C□/□F□/□CR/□FR

MOS FET Relays

■Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	G3VM-62C1 G3VM-62F1	G3VM-352C G3VM-352F	G3VM-354C G3VM-354F	G3VM-355CR G3VM-355FR	G3VM-402C G3VM-402F	Unit	Measurement conditions	
Input	LED forward current	IF	50						mA	
	Repetitive peak LED forward current	IFP	1						A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔIF/°C	-0.5						mA/°C	Ta ≥ 25°C
	LED reverse voltage	VR	5						V	
	Connection temperature	TJ	125						°C	
Output	Load voltage (AC peak/DC)	VOFF	60		350		400	V		
	Continuous load current (AC peak/DC)	Io	500	120	150	120		mA		
	ON current reduction rate	ΔIo/°C	-5	-1.2	-1.5	-1.2		mA/°C	Ta ≥ 25°C	
	Pulse ON current	Iop	1,500	360	450	360		mA	t=100 ms, Duty=1/10	
	Connection temperature	TJ	125						°C	
Dielectric strength between I/O (See note 1.)		Vi-o	2,500						Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85						°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125						°C	
Soldering temperature		—	260						°C	10 s

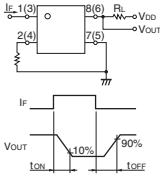
Note: 1. The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

Item Symbol			G3VM-62C1 G3VM-62F1	G3VM-352C G3VM-352F	G3VM-354C G3VM-354F	G3VM-355CR G3VM-355FR	G3VM-402C G3VM-402F	Unit	Measurement conditions	
Input	LED forward voltage	V _F	Minimum	1.0				V	I _F =10 mA	
			Typical	1.15						
			Maximum	1.3						
	Reverse current	I _R	Maximum	10				μA	V _R =5 V	
	Capacitance between terminals	C _T	Typical	30				pF	V=0, f=1 MHz	
Trigger LED forward current	I _{FT} (I _{FC}) (See note 3.)	Typical	1.6	1				mA	G3VM-62C1/62F1/352C/352F/402C/402F : I _o =Continuous load current ratings G3VM-354C/354F : I _{oFF} =10 μA G3VM-355CR/355FR : 1a : I _o =120 mA, 1b : I _{oFF} =10 μA	
		Maximum	3							
Release LED forward current	I _{FC} (I _{FT}) (See note 3.)	Minimum	0.1				mA	G3VM-62C1/62F1/352C/352F/402C/402F : I _{oFF} =100 μA G3VM-354C/354F : I _o =150 mA G3VM-355CR/355FR : 1a : I _{oFF} =10 μA, 1b : I _o =120 mA		
Output	Maximum resistance with output ON	R _{ON}	Typical	1	35 (25)	15		18	Ω	G3VM-62C1/62F1/402C/402F/352C/352F : I _F =5 mA, I _o =Continuous load current ratings Values in parentheses are for t < 1 s. G3VM-354C/354F : I _o =150 mA G3VM-355CR/355FR : 1a : I _F =5 mA, I _o =120 mA, 1b : I _F =0 mA, I _o =120 mA
			Maximum	2	50 (35)	25		35		
	Current leakage when the relay is open	I _{LEAK}	Maximum	1				μA	G3VM-354C/354F : V=0, f=1 MHz, I _F =5 mA G3VM-355CR/355FR : 1a : V=0, f=1 MHz, 1b : V=0, f=1 MHz, I _F =5 mA Others : V=0, f=1 MHz	
	Capacitance between terminals	C _{OFF}	Typical	130	30	85	65	40	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	0.8	0.3	0.1	—		ms	I _F =5 mA, R _L =200 Ω, V _{DD} =20 V (See note 2.)	
		Maximum	2	1		1a : 1, 1b : 1	1			
Turn-OFF time	t _{OFF}	Typical	0.1	0.1	1	—		ms		
		Maximum	0.5	1	3	1a : 1, 1b : 3	1			

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

Note: 3. These values are for Relays with NC contacts



■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-62C1 G3VM-62F1	G3VM-352C G3VM-352F	G3VM-354C G3VM-354F	G3VM-355CR G3VM-355FR	G3VM-402C G3VM-402F	Unit
Load voltage (AC peak/DC)	V _{DD}	48	280	320			V
Operating LED forward current	I _F	Maximum	5				mA
		Typical	7.5	—	7.5		
		Maximum	25				
Continuous load current (AC peak/DC)	I _o	500	100	150	120	100	
Ambient operating temperature	Ta	Minimum	-20				°C
		Maximum	65				

■Spacing and Insulation

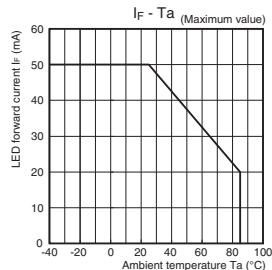
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

G3VM-□C□/□F□/□CR□/FR

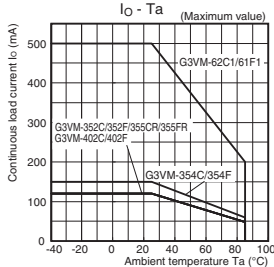
MOS FET Relays

■Engineering Data

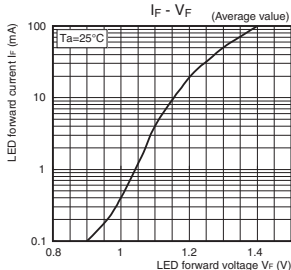
● LED forward current vs. Ambient temperature



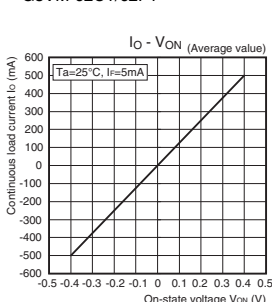
● Continuous load current vs. Ambient temperature



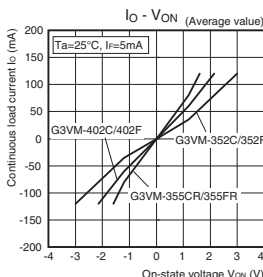
● LED forward current vs. LED forward voltage



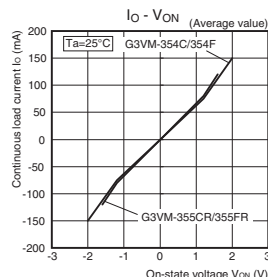
● Continuous load current vs. On-state voltage



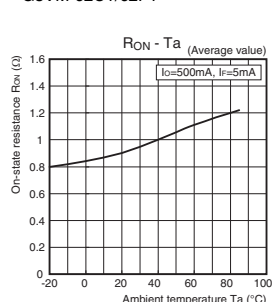
G3VM-352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]



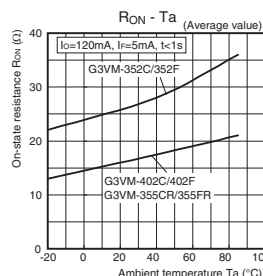
G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



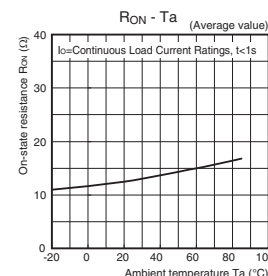
● On-state resistance vs. Ambient temperature



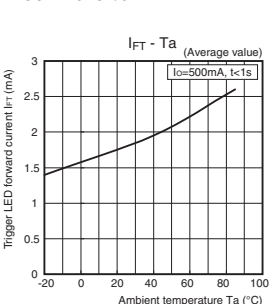
G3VM-352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]



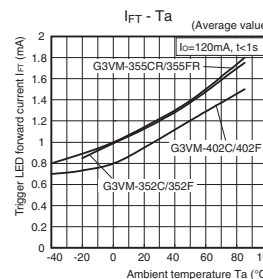
G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



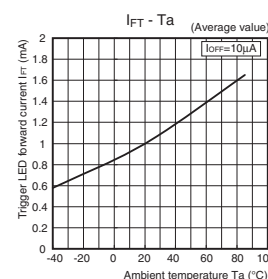
● Trigger LED forward current vs. Ambient temperature



G3VM-352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]

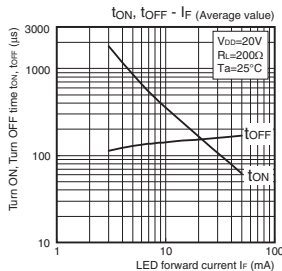


G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]

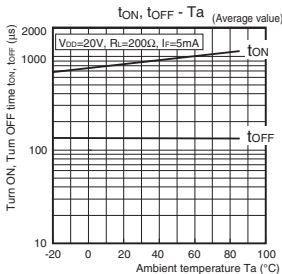


Engineering Data

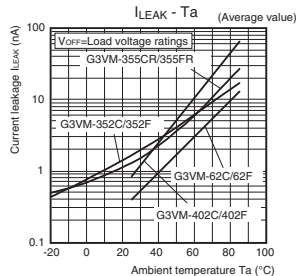
● Turn ON, Turn OFF time vs. LED forward current G3VM-62C1/62F1



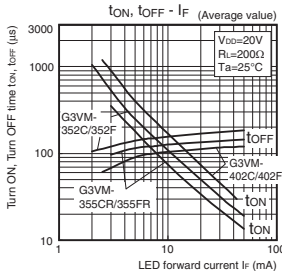
● Turn ON, Turn OFF time vs. Ambient temperature G3VM-62C1/62F1



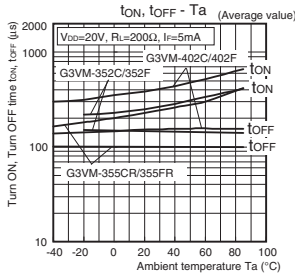
● Current leakage vs. Ambient temperature G3VM-62C1/62F1/352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]



G3VM-352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]

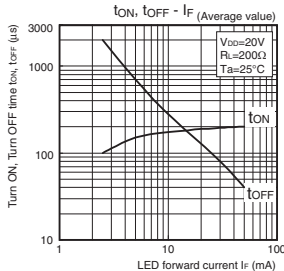


G3VM-352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]

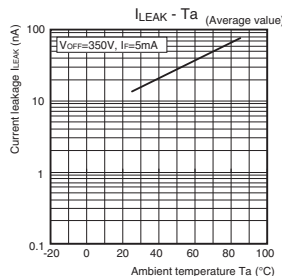
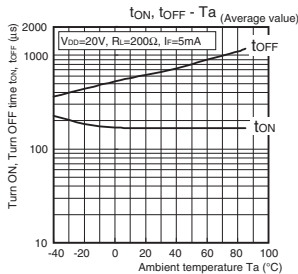


G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]

G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



G3VM-□C□/□F□/□CR/□FR

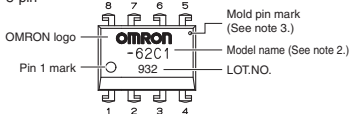
MOS FET Relays

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

DIP (Dual Inline Package)

DIP 8-pin



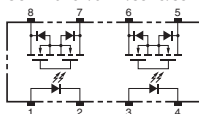
Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

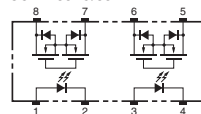
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

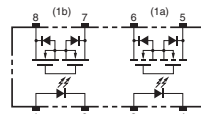
G3VM-62C1/62F1/352C/352F/402C/402F



G3VM-354C/354F



G3VM-355CR/355FR



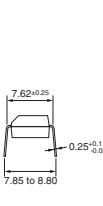
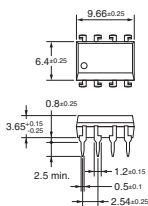
■Dimensions (Unit: mm)

DIP 8-pin



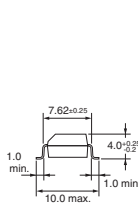
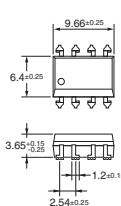
PCB Terminals

Weight: 0.54 g

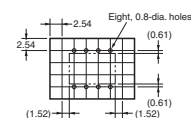


Surface-mounting Terminals

Weight: 0.54 g

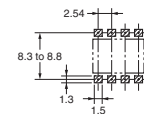


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



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

■Approved Standards

UL recognized



Model	Approved Standards	Contact form	File No.
G3VM-62C1 G3VM-62F1 G3VM-352C G3VM-352F G3VM-402C G3VM-402F	UL (recognized)	2a (DPST-NO)	E80555
G3VM-354C G3VM-354F		2b (DPST-NC)	
G3VM-355CR G3VM-355FR		1a1b (SPST-NO/SPST-NC)	

Models Certified by BSI for EN/IEC Standards

Model	Approved Standards	Contact form	File No.
G3VM-352C G3VM-352F	EN 60950/EN 60065 (BSI certified)	2a (DPST-NO)	8816 8817

■Safety Precautions

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