

MOS FET Relays

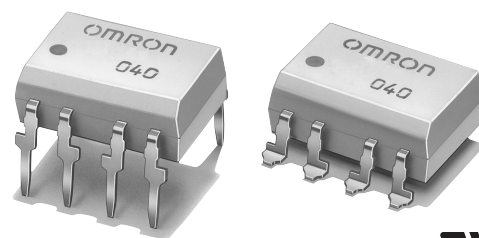
G3VM-354C/C1/F/F1

Analog-switching MOS FET Relay with DPST-NC Contacts. General-purpose models added.

- Switches minute analog signals.
- Switching AC and DC.
- General-purpose models (high ON resistance) added.
- RoHS Compliant.

Application Examples

- Electronic automatic exchange systems
- Security systems
- Datacom (modem) systems
- FA systems and Measurement devices



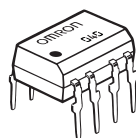
Note: The actual product is marked differently from the image shown here.

List of Models

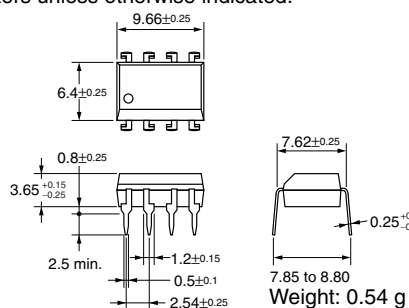
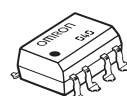
Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
DPST-NC	PCB terminals	350 VAC	G3VM-354C	50	---
	Surface-mounting terminals		G3VM-354C1		
			G3VM-354F		
			G3VM-354F1		
			G3VM-354F(TR)	---	1,500
			G3VM-354F1(TR)		

Dimensions

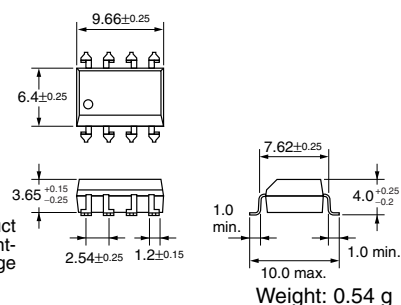
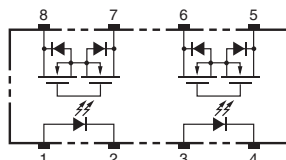
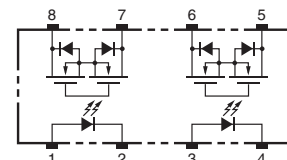
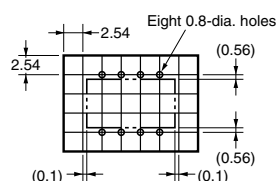
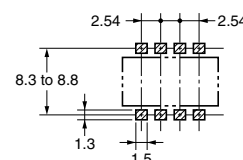
Note: All units are in millimeters unless otherwise indicated.

G3VM-354C/C1

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

**G3VM-354F/F1**

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

**Terminal Arrangement/Internal Connections (Top View)****G3VM-354C/C1****G3VM-354F/F1****PCB Dimensions (Bottom View)****G3VM-354C/C1****Actual Mounting Pad Dimensions (Recommended Value, Top View)****G3VM-354F/F1**

■ Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	I_F	50	mA	
	Repetitive peak LED forward current	I_{FP}	1	A	100 μ s pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/ $^\circ\text{C}$	Ta $\geq 25^\circ\text{C}$
	LED reverse voltage	V_R	5	V	
	Connection temperature	T_J	125	$^\circ\text{C}$	
Output	Load voltage (AC peak/DC)	V_{OFF}	350	V	
	Continuous load current (AC peak/DC)	I_O	150 (100)	mA	
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-1.5 (-1)	mA/ $^\circ\text{C}$	Ta $\geq 25^\circ\text{C}$
	Connection temperature	T_J	125	$^\circ\text{C}$	
Dielectric strength between input and output (See note 1.)		V_{I-O}	2,500	V_{rms}	AC for 1 min
Operating temperature		T_a	-40 to +85	$^\circ\text{C}$	With no icing or condensation
Storage temperature		T_{stg}	-55 to +125	$^\circ\text{C}$	With no icing or condensation
Soldering temperature (10 s)		---	260	$^\circ\text{C}$	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.

Values in parentheses are for the G3VM-354C1/F1

■ Electrical Characteristics (Ta = 25°C)

Item		Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions
Input	LED forward voltage	V_F	1.0	1.15	1.3	V	$I_F = 10 \text{ mA}$
	Reverse current	I_R	---	---	10	μA	$V_R = 5 \text{ V}$
	Capacity between terminals	C_T	---	30	---	pF	$V = 0, f = 1 \text{ MHz}$
	Trigger LED forward current	I_{FT}	---	1	3	mA	$I_{OFF} = 10 \mu\text{A}$
Output	Maximum resistance with output ON	R_{ON}	---	15 (30)	25 (50)	Ω	$I_O = 150 \text{ mA}$
	Current leakage when the relay is open	I_{LEAK}	---	0.0105 (0.003)	1.0	μA	$I_F = 5 \text{ mA}, V_{OFF} = 350 \text{ V}$
	Capacity between terminals	C_{OFF}	---	85 (30)	---	pF	$V = 0, f = 1 \text{ MHz}, I_F = 5 \text{ mA}$
Capacity between I/O terminals		C_{I-O}	---	0.8	---	pF	$f = 1 \text{ MHz}, V_s = 0 \text{ V}$
Insulation resistance		R_{I-O}	1,000	---	---	M Ω	$V_{I-O} = 500 \text{ VDC}, R_{OH} \leq 60\%$
Turn-ON time		t_{ON}	---	0.1 (0.25)	1.0 (0.5)	ms	$I_F = 5 \text{ mA}, R_L = 200 \Omega, V_{DD} = 20 \text{ V}$ (See note 2.)
Turn-OFF time		t_{OFF}	---	1.0 (0.5)	3.0 (0.1)	ms	

Values in parentheses are for the G3VM-354C1/F1

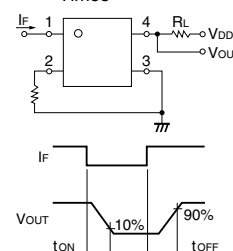
■ Recommended Operating Conditions

Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	---	---	280	V
Operating LED forward current	I_F	5	---	25	mA
Continuous load current (AC peak/DC)	I_O	---	---	150 (100)	mA
Operating temperature	T_a	-20	---	65	$^\circ\text{C}$

Values in parentheses are for the G3VM-354C1/F1

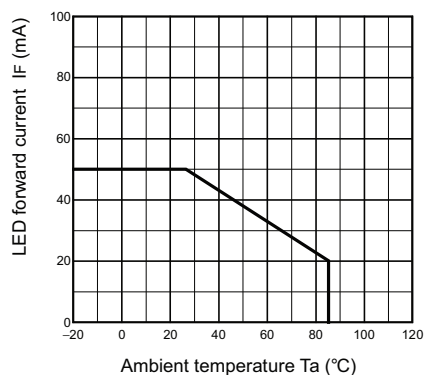
Note: 2. Turn-ON and Turn-OFF Times



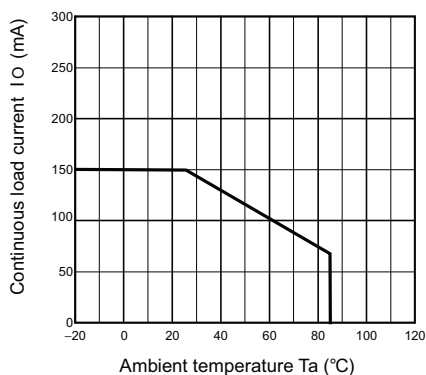
Engineering Data

G3VM-354C/F

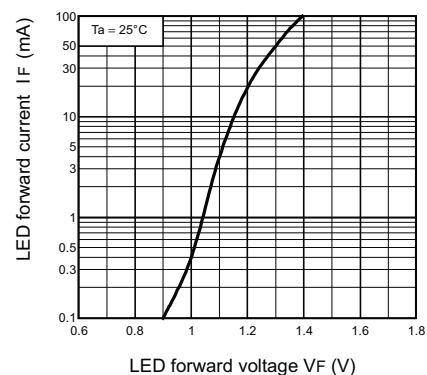
LED forward current vs.
Ambient temperature
 $I_F - T_a$



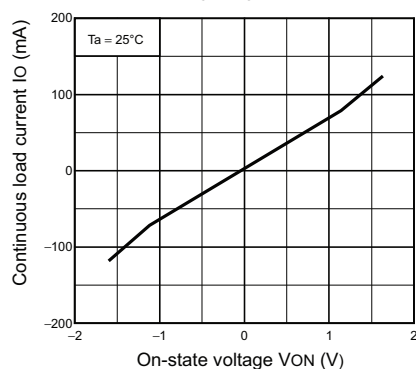
Continuous load current vs.
Ambient temperature
 $I_O - T_a$



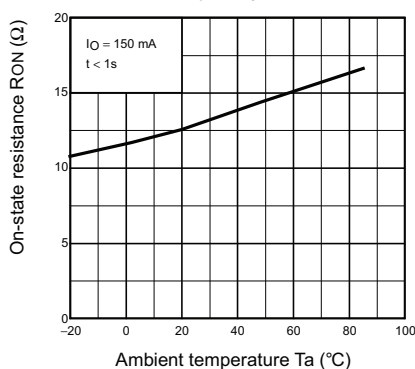
LED forward current vs.
LED forward voltage
 $I_F - V_F$



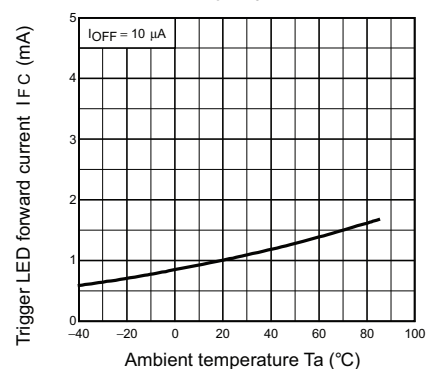
Continuous load current vs.
On-state voltage
 $I_O - V_{ON}$



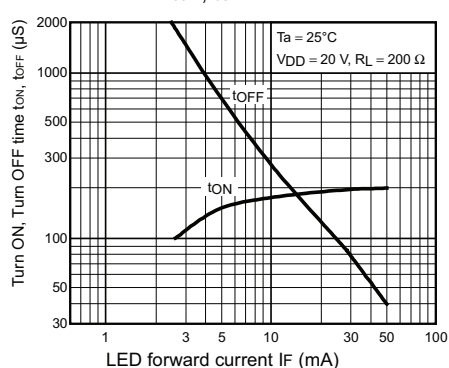
On-state resistance vs.
Ambient temperature
 $R_{ON} - T_a$



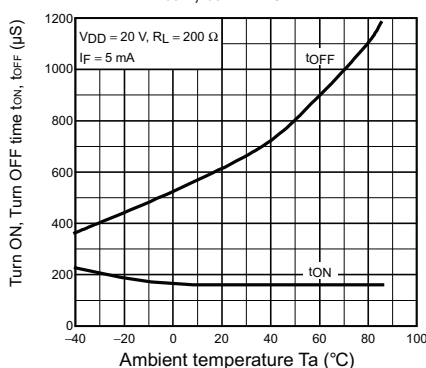
Trigger LED forward current vs.
Ambient temperature
 $I_{FC} - T_a$



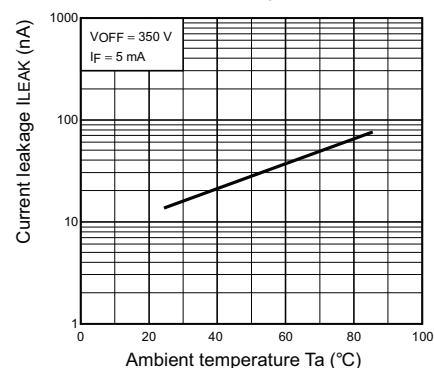
Turn ON, Turn OFF time vs.
LED forward current
 $t_{ON}, t_{OFF} - I_F$



Turn ON, Turn OFF time vs.
Ambient temperature
 $t_{ON}, t_{OFF} - T_a$



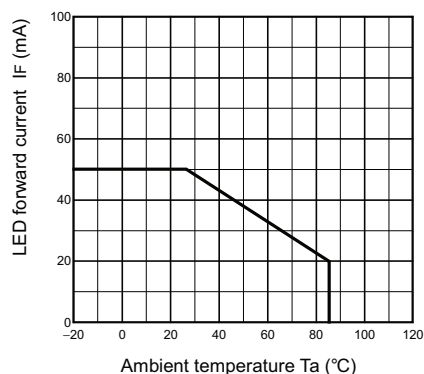
Current leakage vs.
Ambient temperature
 $I_{LEAK} - T_a$



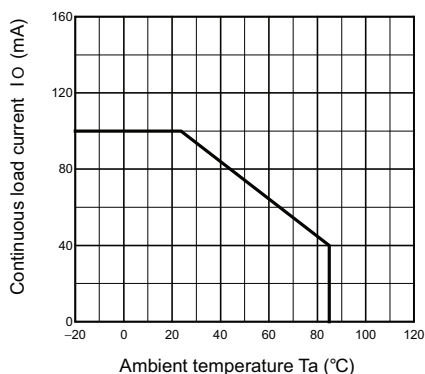
Engineering Data

G3VM-354C1/F1

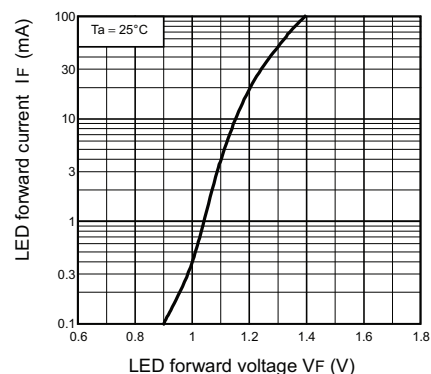
LED forward current vs. Ambient temperature
 $I_F - T_a$



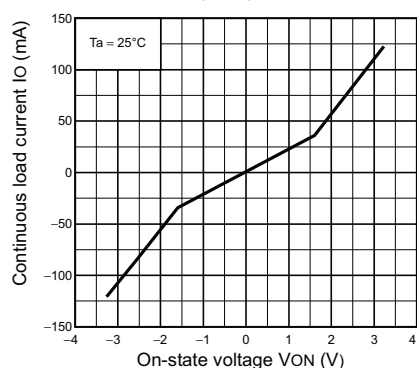
Continuous load current vs. Ambient temperature
 $I_O - T_a$



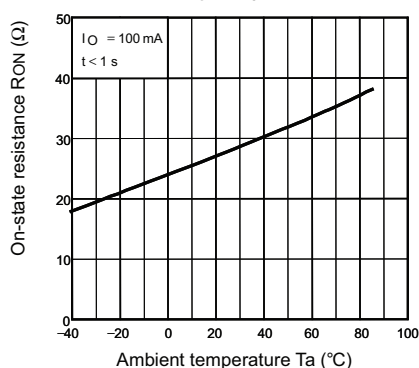
LED forward current vs. LED forward voltage
 $I_F - V_F$



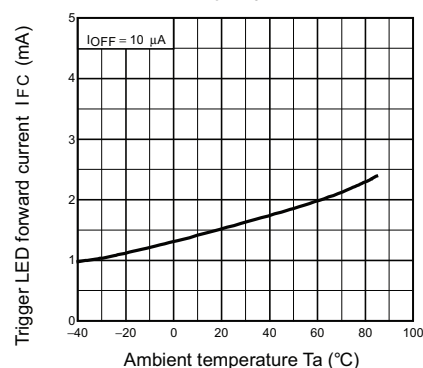
Continuous load current vs. On-state voltage
 $I_O - V_{ON}$



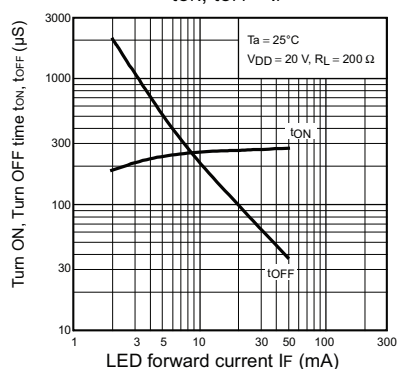
On-state resistance vs. Ambient temperature
 $R_{ON} - T_a$



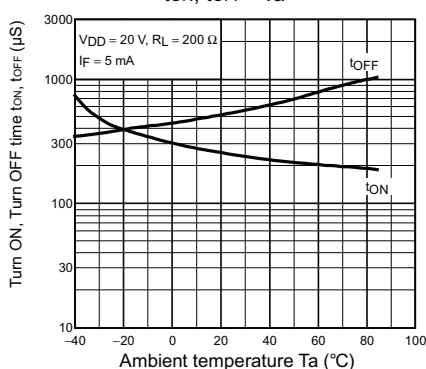
Trigger LED forward current vs. Ambient temperature
 $I_{FC} - T_a$



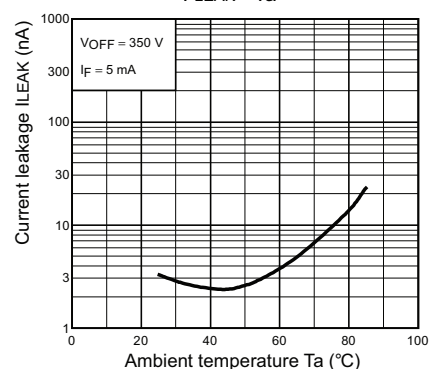
Turn ON, Turn OFF time vs. LED forward current
 $t_{ON}, t_{OFF} - I_F$



Turn ON, Turn OFF time vs. Ambient temperature
 $t_{ON}, t_{OFF} - T_a$



Current leakage vs. Ambient temperature
 $I_{LEAK} - T_a$



Omron Electronic Components, LLC

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 - Terms:** These terms and conditions
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 - Buyer:** The buyer of Products, including any end user in section III through VI
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 - (iii) Use in consumer products or any use in significant quantities.
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ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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