

# MOS FET Relays

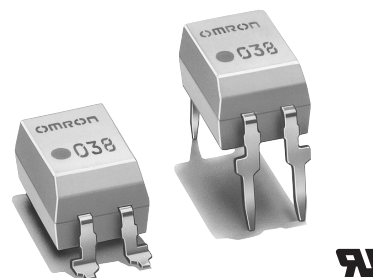
## G3VM-353A/D

### Analog-switching MOS FET Relays with SPST-NC Contact.

- Switches AC and DC minute analog signals.
- 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.

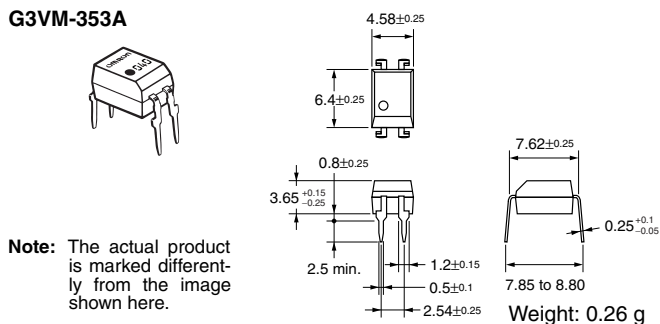
#### ■ List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NC	PCB terminals	350 VAC	G3VM-353A	100	---
	Surface-mounting terminals		G3VM-353D		
			G3VM-353D(TR)	---	1,500

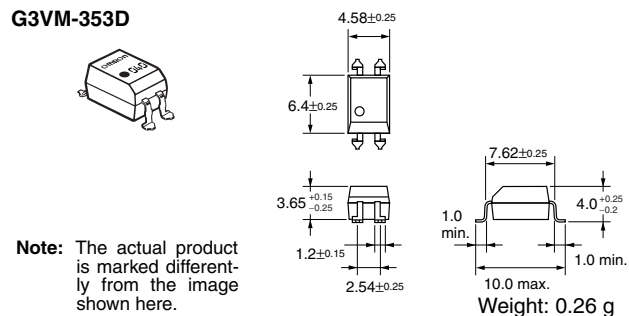
#### ■ Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

##### G3VM-353A

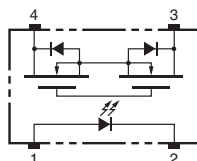


##### G3VM-353D

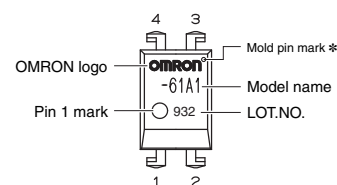
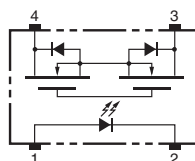


#### ■ Terminal Arrangement/Internal Connections (Top View)

##### G3VM-353A



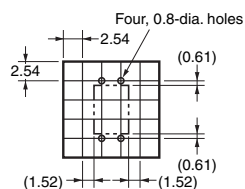
##### G3VM-353D



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

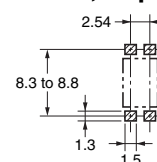
#### ■ PCB Dimensions (Bottom View)

##### G3VM-353A



#### ■ Actual Mounting Pad Dimensions (Recommended Value, Top View)

##### G3VM-353D



## ■ Absolute Maximum Ratings (Ta = 25°C)

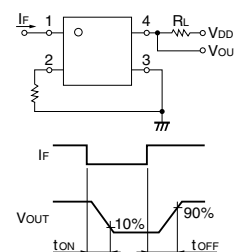
Item		Symbol	Rating	Unit	Measurement Conditions
Input	LED forward current	$I_F$	50	mA	
	Repetitive peak LED forward current	$I_{FP}$	1	A	100 $\mu$ s pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	- 0.5	mA/ $^\circ\text{C}$	$T_a \geq 25^\circ\text{C}$
	LED reverse voltage	$V_R$	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	mA	
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	- 1.5	mA/ $^\circ\text{C}$	$T_a \geq 25^\circ\text{C}$
	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.

## ■ 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	$\mu\text{A}$	$V_R = 5 \text{ V}$
	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	25	$\Omega$	$I_O = 150 \text{ mA}$
	Current leakage when the relay is open	$I_{LEAK}$	---	---	1.0	$\mu\text{A}$	$I_F = 5 \text{ mA}, V_{OFF} = 350 \text{ V}$
	Capacity between terminals	$C_{OFF}$	---	85	---	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 $\Omega$	$V_{I-O} = 500 \text{ VDC}, R_{OH} \leq 60\%$
Turn-ON time		$t_{ON}$	---	0.1	1.0	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	3.0	ms	

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



## ■ Recommended Operating Conditions

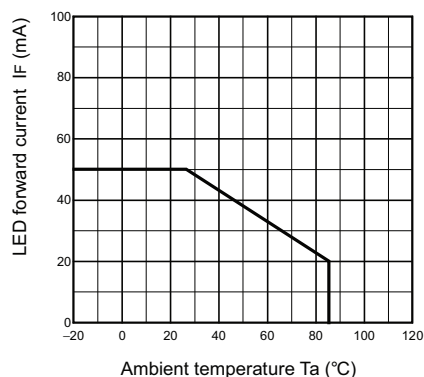
Use the G3VM under the following conditions so that the Relay will operate properly.

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	mA
Operating temperature	$T_a$	- 20	---	65	$^\circ\text{C}$

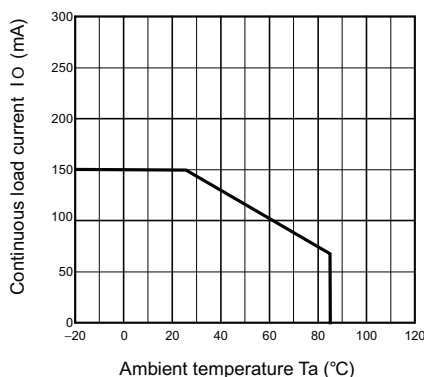
# Engineering Data

G3VM-353A/D

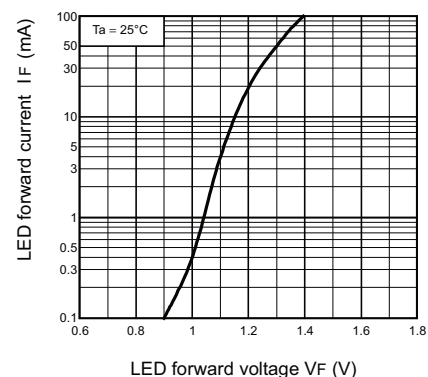
LED forward current vs.  
Ambient temperature  
 $I_F - T_a$



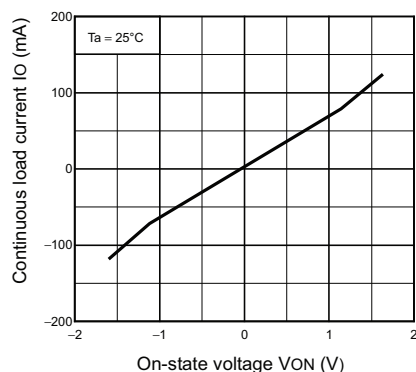
Continuous load current vs.  
Ambient temperature  
 $I_O - T_a$



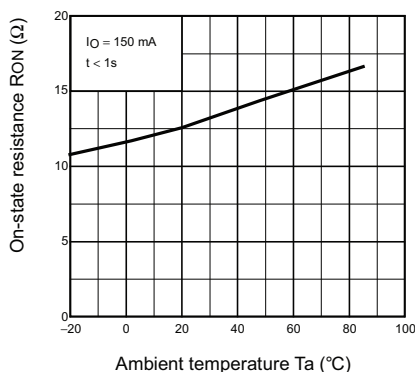
LED forward current vs.  
LED forward voltage  
 $I_F - V_F$



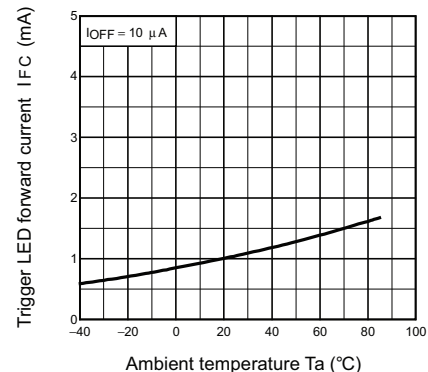
Continuous load current vs.  
On-state voltage  
 $I_O - V_{ON}$



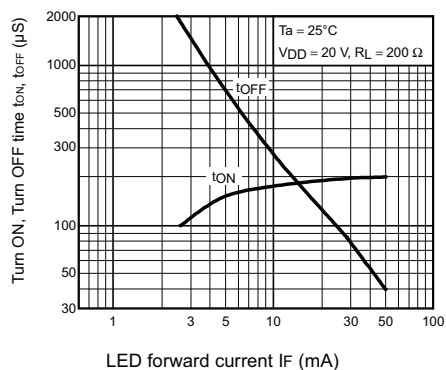
On-state resistance vs.  
Ambient temperature  
 $R_{ON} - T_a$



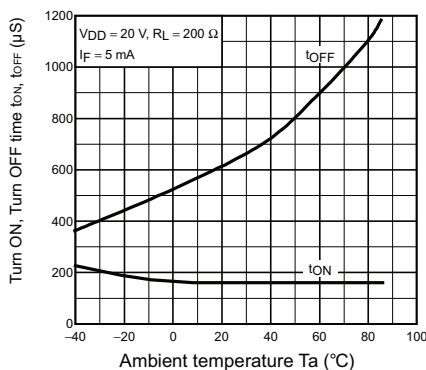
Trigger LED forward current vs.  
Ambient temperature  
 $I_{FC} - T_a$



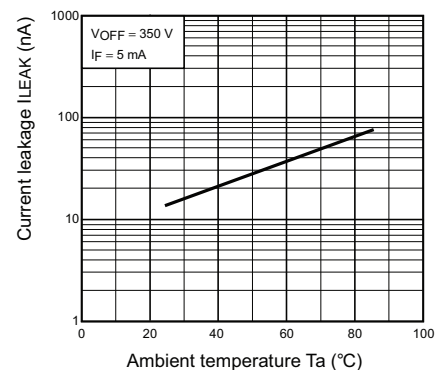
Turn ON, Turn OFF time vs.  
LED forward current  
 $t_{ON}, t_{OFF} - I_F$



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



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



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