

MOS FET Relays

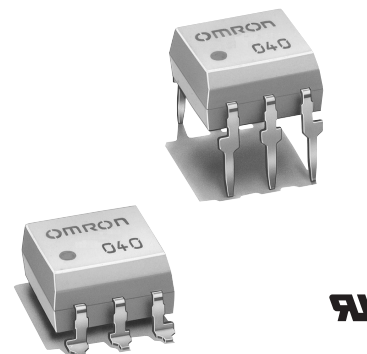
G3VM-353B/B1/E/E1

Analog-switching MOS FET Relay with SPST-NC Contact. General-purpose Models Added.

- Switches minute AC and DC analog signals.
- General-purpose models (with 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.

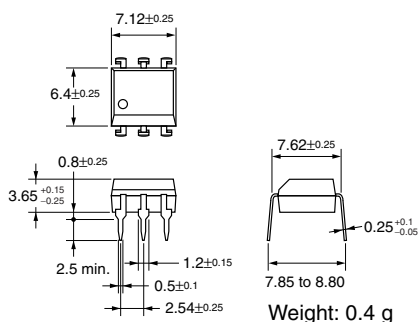
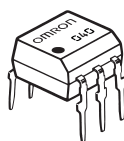
List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NC	PCB terminals	350 VAC	G3VM-353B	50	---
			G3VM-353B1		
			G3VM-353E		
			G3VM-353E1		
	Surface-mounting terminals		G3VM-353E(TR)	---	1,500
			G3VM-353E1(TR)		

Dimensions

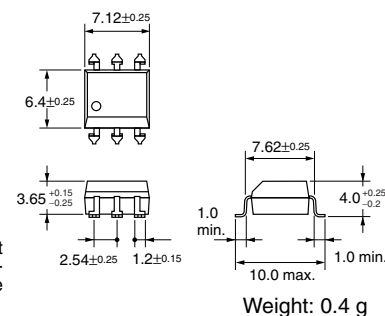
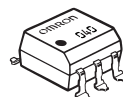
Note: All units are in millimeters unless otherwise indicated.

G3VM-353B/B1



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

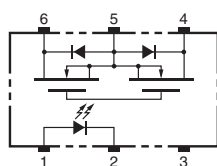
G3VM-353E/E1



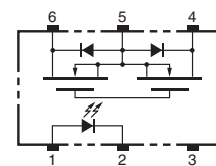
Note: The actual product is marked differently from the image shown here.

Terminal Arrangement/Internal Connections (Top View)

G3VM-353B/B1

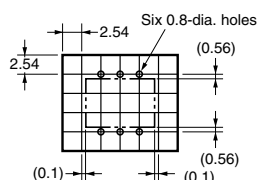


G3VM-353E/E1



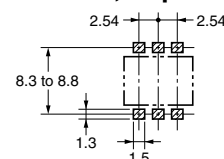
PCB Dimensions (Bottom View)

G3VM-353B/B1



Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-353E/E1

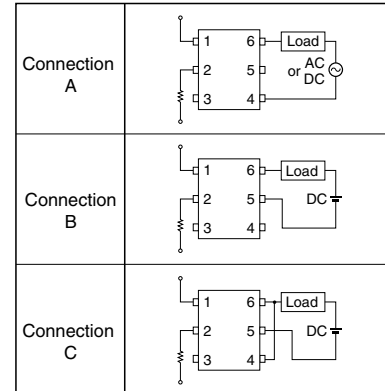


■ Absolute Maximum Ratings (Ta = 25°C)

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/°C	$T_a \geq 25^\circ\text{C}$	
	LED reverse voltage	V_R	5	V		
	Connection temperature	T_j	125	°C		
Output	Load voltage (AC peak/DC)	V_{OFF}	350	V		
	Continuous load current (AC peak/DC)	Connection A	I_O	150 (100)	mA	
		Connection B		150 (100)		
		Connection C		300 (200)		
	ON current reduction rate	Connection A	$\Delta I_{ON}/^\circ\text{C}$	-1.5 (-1)	mA/°C	$T_a \geq 25^\circ\text{C}$
		Connection B		-1.5 (-1)		
		Connection C		-3.0 (-2)		
	Connection temperature	T_j	125	°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	°C	With no icing or condensation	
Storage temperature		T_{stg}	-55 to +125	°C	With no icing or condensation	
Soldering temperature (10 s)		---	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.

Connection Diagram



Values in parentheses are for the G3VM-353B1/E1.

■ 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	Connection A	R_{ON}	15 (27)	25 (50)	Ω	$I_O = 150 \text{ mA (100 mA)}$
		Connection B		8 (20)	14 (43)	Ω	$I_O = 150 \text{ mA (100 mA)}$
		Connection C		4 (10)	7 (---)	Ω	$I_O = 300 \text{ mA (200 mA)}$
	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 A Connection	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	---	---	$\text{M}\Omega$	$V_{I-O} = 500 \text{ VDC}, R_{OH} \leq 60\%$
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 (1)	ms	

Values in parentheses are for the G3VM-353B1/E1.

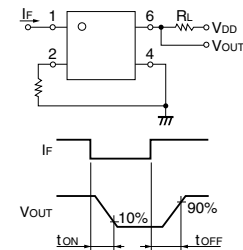
■ Recommended Operating Conditions

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	°C

Values in parentheses are for the G3VM-353B1/E1

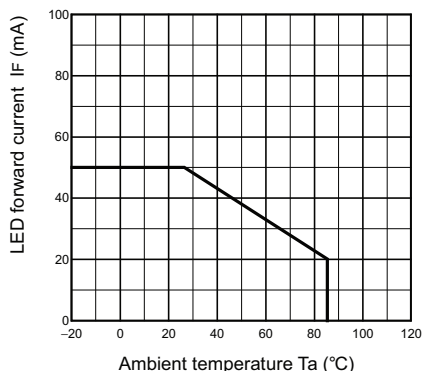
Note: 2. Turn-ON and Turn-OFF Times



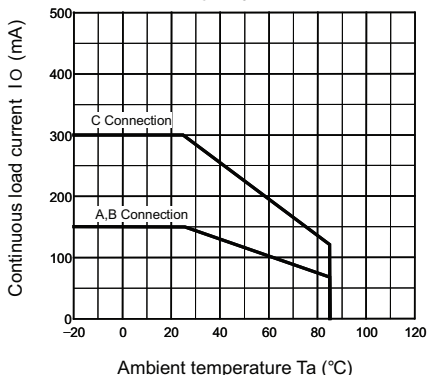
■ Engineering Data

G3VM-353B/E

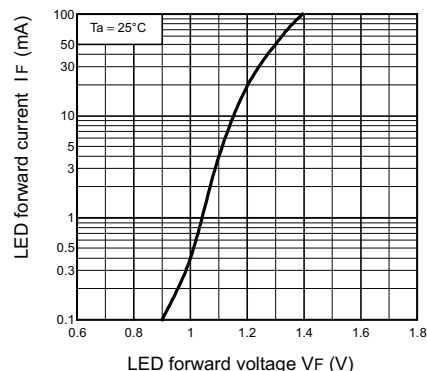
LED forward current vs. Ambient temperature
IF - Ta



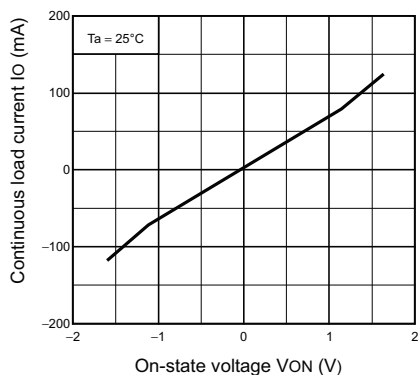
Continuous load current vs. Ambient temperature
IO - Ta



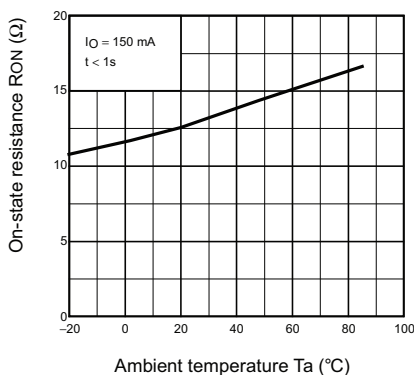
LED forward current vs. LED forward voltage
IF - VF



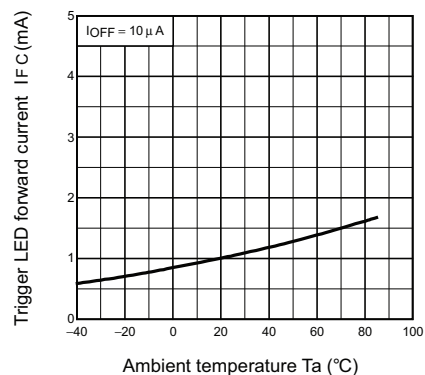
Continuous load current vs. On-state voltage
IO - VON



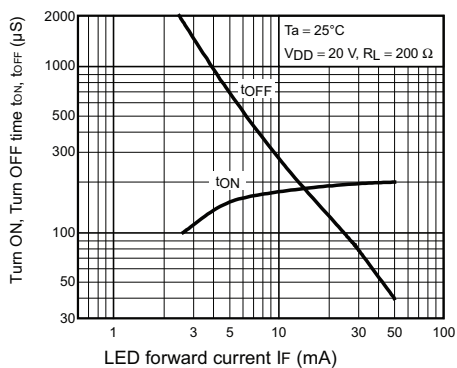
On-state resistance vs. Ambient temperature
RON - Ta



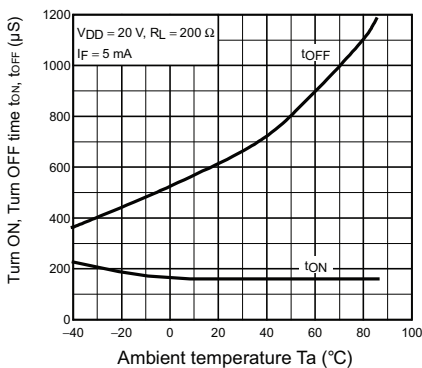
Trigger LED forward current vs. Ambient temperature
IFC - Ta



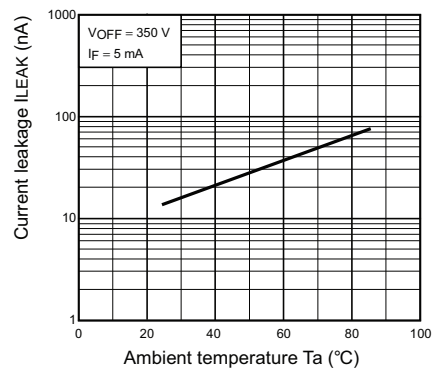
Turn ON, Turn OFF time vs. LED forward current
tON, tOFF - IF



Turn ON, Turn OFF time vs. Ambient temperature
tON, tOFF - Ta



Current leakage vs. Ambient temperature
ILEAK - Ta

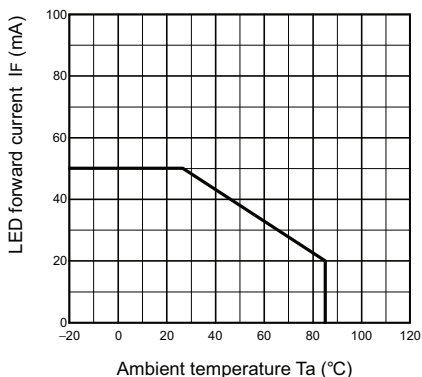


■ Engineering Data

G3VM-353B1/E1

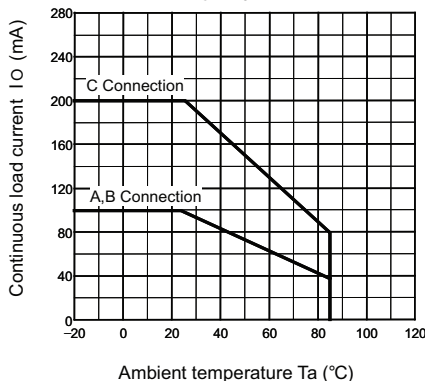
LED forward current vs. Ambient temperature

$I_F - T_a$



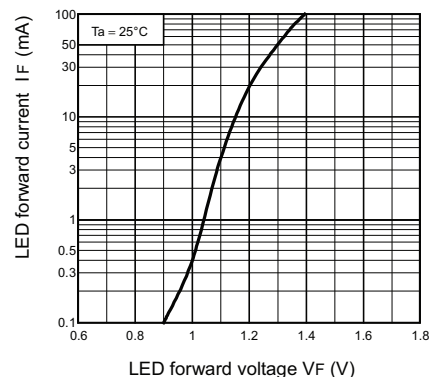
Continuous load current vs. Ambient temperature

$I_O - T_a$



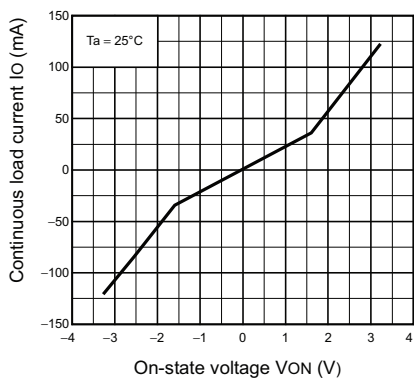
LED forward current vs. LED forward voltage

$I_F - V_F$



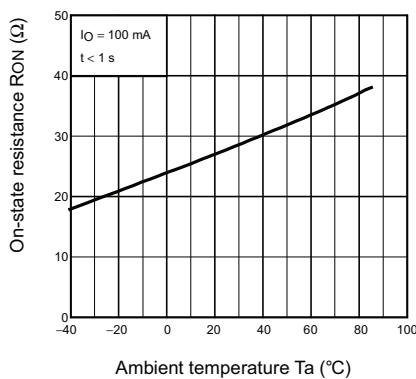
Continuous load current vs. On-state voltage

$I_O - V_{ON}$



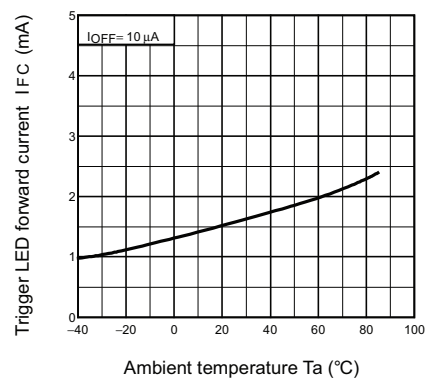
On-state resistance vs. Ambient temperature

$R_{ON} - T_a$



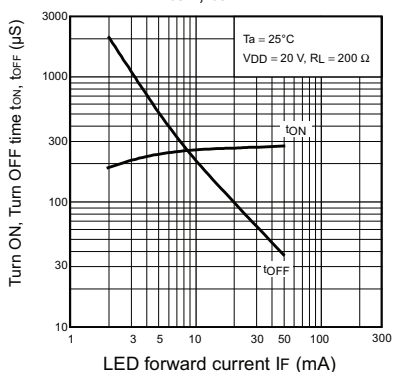
Trigger LED forward current vs. Ambient temperature

$I_{FC} - T_a$



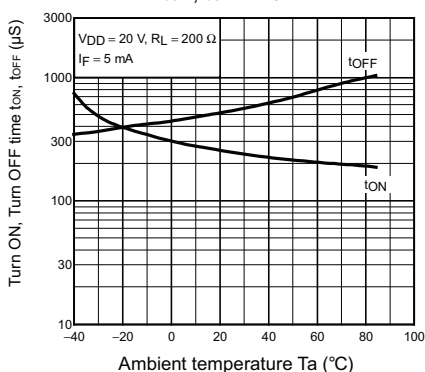
Turn ON, Turn OFF time vs. LED forward current

$t_{ON}, t_{OFF} - I_F$



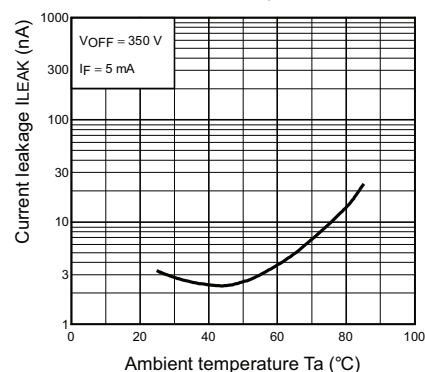
Turn ON, Turn OFF time vs. Ambient temperature

$t_{ON}, t_{OFF} - T_a$



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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 - Delivery and shipping dates are estimates only; and
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- Claims:** Any claim by Buyer against Seller for shortage or damage to the Products occurring before delivery to the carrier or any claim related to pricing or other charges must be presented in detail in writing to Seller within 30 days of receipt of shipment.

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 - (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this product.

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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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