

MOS FET Relays

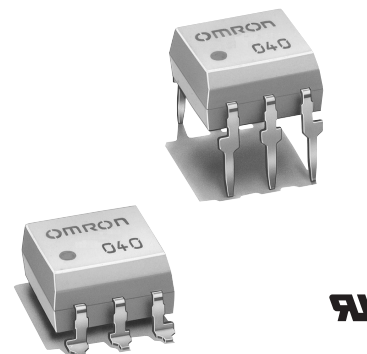
G3VM-353B/B1/E/E1

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.

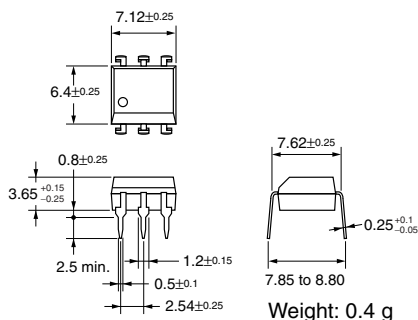
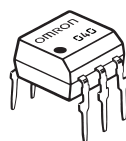
List of Models

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

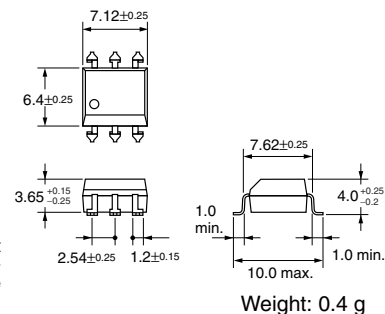
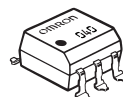
Note: All units are in millimeters unless otherwise indicated.

G3VM-353B/B1



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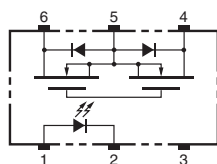
G3VM-353E/E1



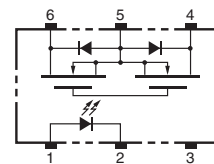
Note: The actual product is marked differently from the image shown here.

Terminal Arrangement/Internal Connections (Top View)

G3VM-353B/B1

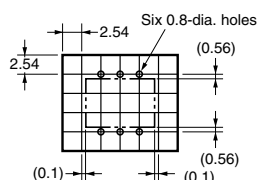


G3VM-353E/E1



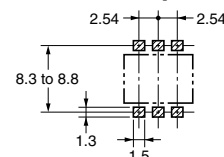
PCB Dimensions (Bottom View)

G3VM-353B/B1



Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-353E/E1

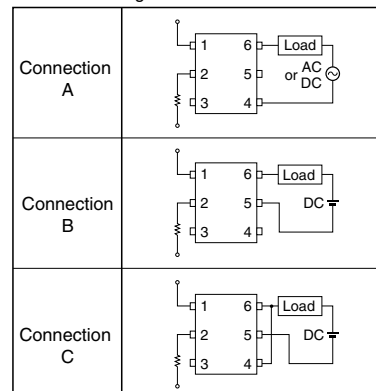


■ Absolute Maximum Ratings (Ta = 25°C)

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.

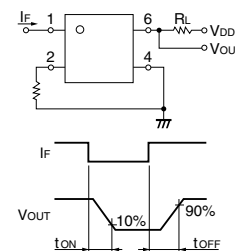
■ Recommended Operating Conditions

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

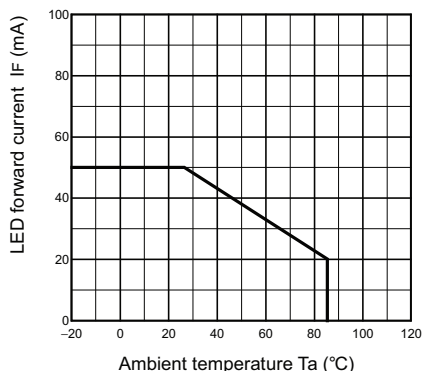
Note: 2. Turn-ON and Turn-OFF Times



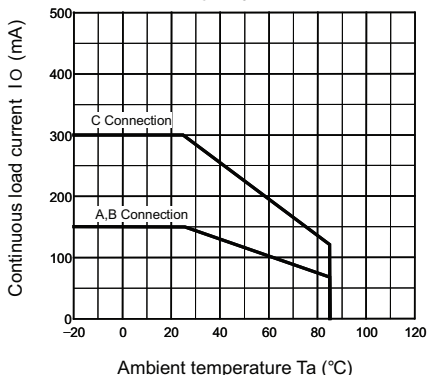
Engineering Data

G3VM-353B/E

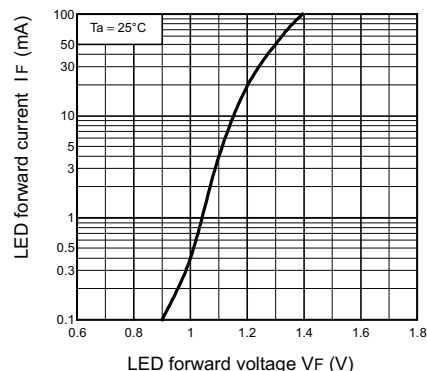
LED forward current vs. Ambient temperature
IF - Ta



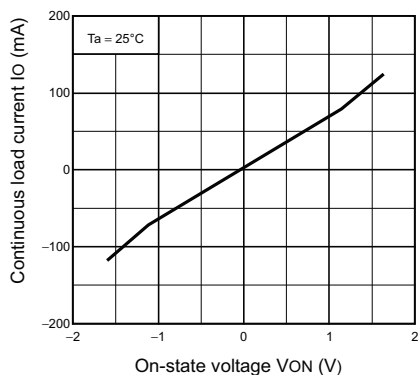
Continuous load current vs. Ambient temperature
IO - Ta



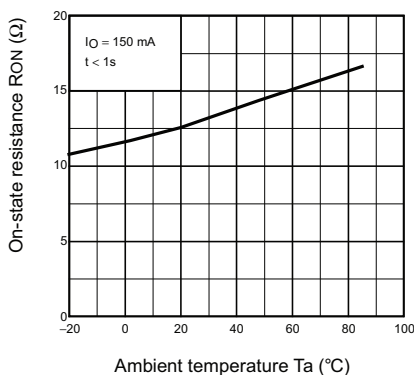
LED forward current vs. LED forward voltage
IF - VF



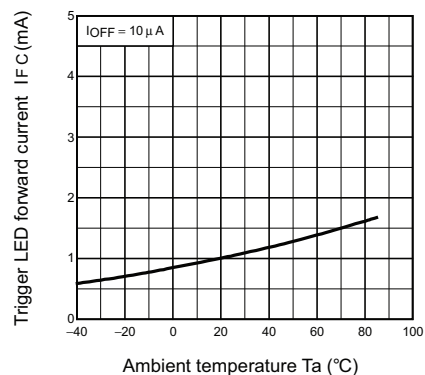
Continuous load current vs. On-state voltage
IO - VON



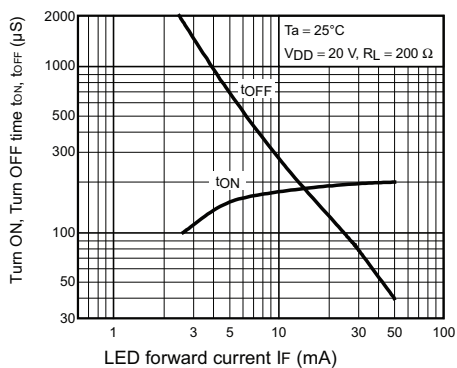
On-state resistance vs. Ambient temperature
RON - Ta



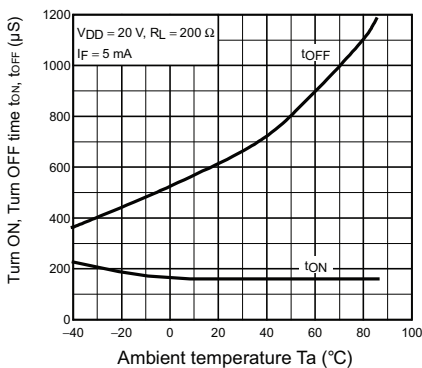
Trigger LED forward current vs. Ambient temperature
IFC - Ta



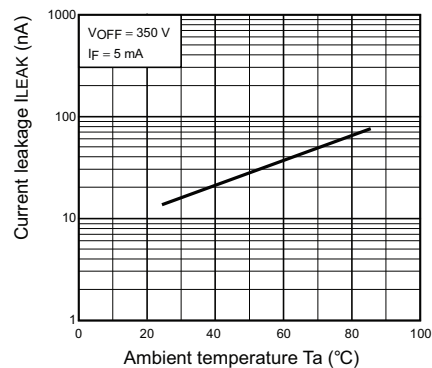
Turn ON, Turn OFF time vs. LED forward current
tON, tOFF - IF



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



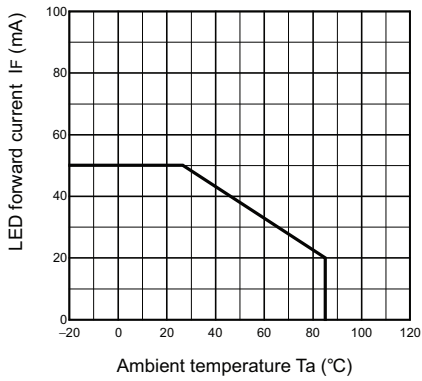
Current leakage vs. Ambient temperature
ILEAK - Ta



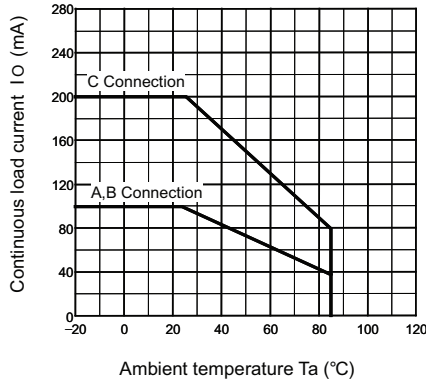
■ Engineering Data

G3VM-353B1/E1

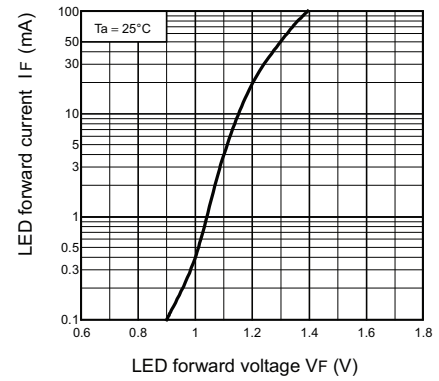
LED forward current vs. Ambient temperature
IF - Ta



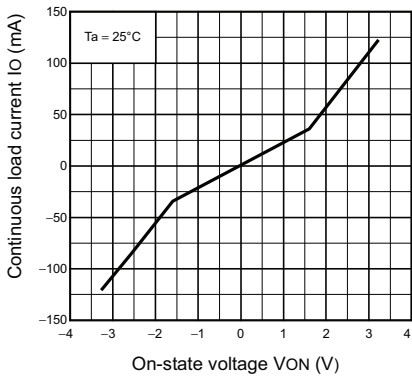
Continuous load current vs. Ambient temperature
IO - Ta



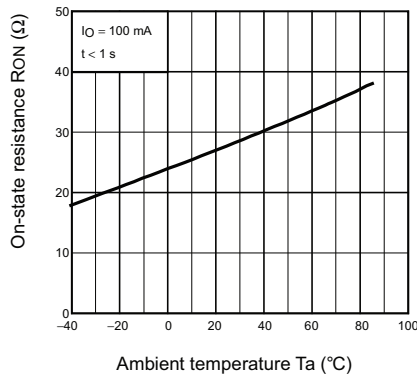
LED forward current vs. LED forward voltage
IF - VF



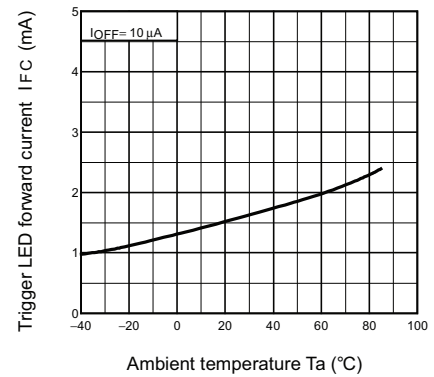
Continuous load current vs. On-state voltage
IO - VON



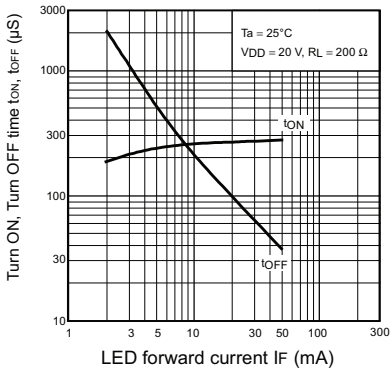
On-state resistance vs. Ambient temperature
RON - Ta



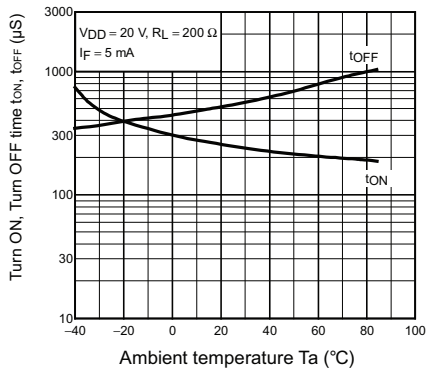
Trigger LED forward current vs. Ambient temperature
IFC - Ta



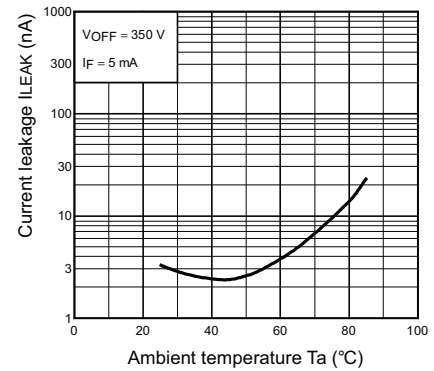
Turn ON, Turn OFF time vs. LED forward current
tON, tOFF - IF



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



Current leakage vs. Ambient temperature
ILEAK - Ta



Omron Electronic Components, LLC

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- Definitions:** The words used herein are defined as follows.
 - Terms:** These terms and conditions
 - Seller:** Omron Electronic Components LLC and its subsidiaries
 - Buyer:** The buyer of Products, including any end user in section III through VI
 - Products:** Products and/or services of Seller
 - Including:** Including without limitation
- Offer; Acceptance:** These Terms are deemed part of all quotations, acknowledgments, invoices, purchase orders and other documents, whether electronic or in writing, relating to the sale of Products by Seller. Seller hereby objects to any Terms proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
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 - Delivery and shipping dates are estimates only; and
 - Seller will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
- 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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 - Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
 - Systems, machines, and equipment that could present a risk to life or property.
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- Change In Specifications:** Product specifications and descriptions may be changed at any time based on improvements or other reasons. It is Seller's practice to change part numbers when published ratings or features are changed, or when significant engineering changes are made. However, some specifications of the Product may be changed without any notice.
- Errors And Omissions:** The information on Seller's website or in other documentation has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.
- Export Controls:** Buyer shall comply with all applicable laws, regulations and licenses regarding (a) export of the Products or information provided by Seller; (b) sale of Products to forbidden or other proscribed persons or organizations; (c) disclosure to non-citizens of regulated technology or information.

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 - (iii) Use in consumer products or any use in significant quantities.
 - (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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