

Solid State Relays G3□-VD

G3B/G3BD

CSM_G3B_G3BD_DS_E_5_1

International Standards for G3B Series, Same Profile as MK Power Relays

- Shape-compatible with mechanical relays.
- Certified by UL, CSA, and VDE (models numbers with a suffix of “-VD”).
- Plug-in type, same size as MK Power Relays.
- Operation indicator provided to confirm input.
- DC Output model available with 3 to 125-VDC load voltage range for high-voltage applications.

 Refer to *Safety Precautions* on page 4.



Note: The socket is optional.

For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Model Number Structure

■ Model Number Legend

G3B□-□□□□-□
1 2 3 4 5 6

1. Basic Model Name

G3B: Solid State Relay

2. Load Power Supply Type

Blank: Switches AC loads

D: Switches DC loads

3. Rated Load Power Supply Voltage

2: 200 V

1: 100 V

4. Rated Load Current

03: 3 A

05: 5 A

5. Terminal Type

S: Plug-in terminals

6. Certification

VD: Certified by UL, CSA, and VDE

Ordering Information

■ List of Models

Isolation	Zero cross function	Indicator	Rated output load	Rated input voltage	Model
Photocoupler	Yes	Yes	5 A at 100 to 240 VAC *	5 to 24 VDC	G3B-205S-VD
	-		3 A at 5 to 110 VDC		G3BD-103S-VD

* Product is labelled “250 VAC”.

■ Accessories (Order Separately)

Connecting Sockets/Hold-Down Clips

	Front-mounting Sockets	Back-mounting Sockets		
Socket	PF083A(-E)	PL08	PLE08-0	PL08-Q
Hold-down Clip	PFC-A1	PLC	PLC-10	PLC

Specifications

■ Ratings (at an Ambient Temperature of 25°C)

Input

Model	Rated voltage	Operating voltage	Input current	Voltage levels	
				Must operate voltage	Must release voltage
G3B-205S-VD	5 to 24 VDC	4 to 30 VDC	15 mA max. (See note.)	4 VDC max.	1 VDC min.
G3BD-103S-VD			1.5 kΩ+20%/-10%		

Note: 1. The input impedance is given for the maximum operating voltage. For details, refer to the *Technical Guide for Solid State Relays*.
2. Constant-current input circuit.

Output

Model	Applicable load			
	Rated load voltage	Load voltage range	Load current (See note.)	Inrush current
G3B-205S-VD	100 to 240 VAC	75 to 264 VAC	0.1 to 5 A at 40°C	80 A, 60 Hz for 1 cycle
G3BD-103S-VD	5 to 110 VDC	3 to 125 VDC	0.1 to 3 A at 40°C	12 A (10 ms)

Note: The load current depends on the ambient temperature. Refer to *Load Current vs. Ambient Temperature* under *Engineering Data* for details.

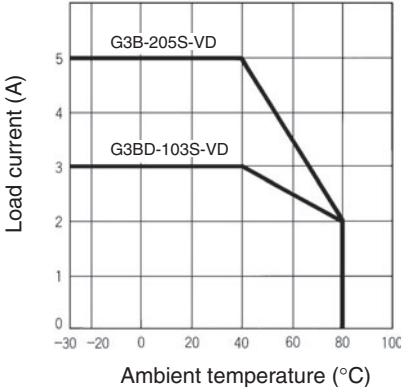
■ Characteristics

Model	G3B-205S-VD	G3BD-103S-VD
Operate time	1/2 cycle of load power source + 1 ms max.	0.5 ms max.
Release time	1/2 cycle of load power source + 1 ms max.	2.5 ms max.
Output ON voltage drop	1.6 V (RMS) max.	1.5 V max.
Leakage current	5 mA max. (at 100 VAC); 10 mA max. (at 200 VAC)	5 mA max. (at 125 VDC)
Insulation resistance	100 MΩ min. (at 500 VDC)	
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min	1,500 VAC, 50/60 Hz for 1 min
Vibration resistance	Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude	
Shock resistance	1,000 m/s ²	
Ambient temperature	Operating: -30°C to 80°C (with no icing or condensation) Storage: -30°C to 100°C (with no icing or condensation)	
Ambient humidity	45% to 85%	
Certified standards	G3B: UL508, CSA C22.2 No. 14, EN60947-4-3 G3BD: UL508, CSA C22.2 No. 14, EN60950-1	
EMC	Emission: EN55011 Group 1 Class B Immunity: EN61000-6-2	
Weight	Approx. 70 g	

Engineering Data

Load Current vs. Ambient Temperature Characteristics

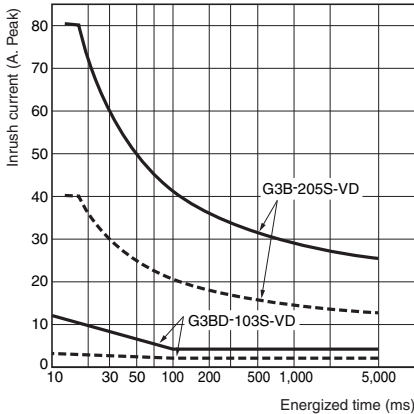
G3B-205S-VD, G3BD-103S-VD



One Cycle Surge Current: Non-repetitive

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

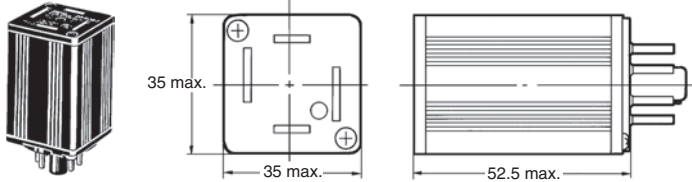
G3B-205S-VD, G3BD-103S-VD



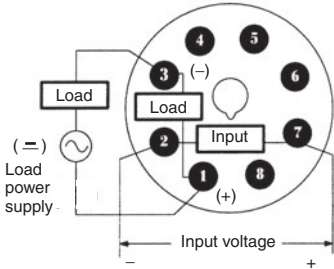
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3B-VD
G3BD-VD

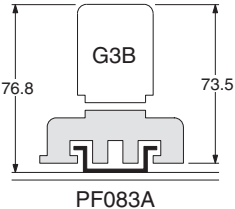


Terminal Arrangement (Bottom View)

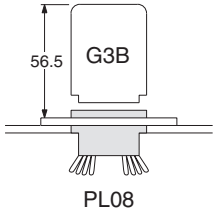


Note: The symbols shown in parentheses are for DC loads. The load is possible to connect either + side or - side.

Mounting Height with socket
Front Connecting Socket



Back Connecting Socket



Note: When mounting PF083A, mount the key track down.

Safety Precautions

Refer to *Safety Precautions for All Solid State Relays*.

■ Precautions for Correct Use

Please observe the following precautions to prevent failure to operate, malfunction, or undesirable effect on product performance.

The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current to half.

■ Precautions for Safe Use

Connection

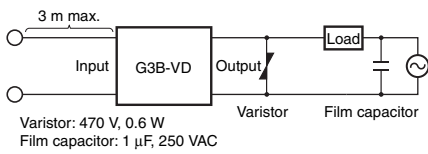
With an SSR for DC switching, the load can be connected to either the positive or negative side of the SSR output terminals.

Protective Element

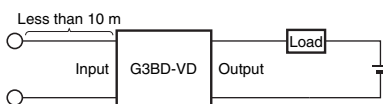
The SSR does not contain an overvoltage absorption element. Be sure to connect an overvoltage absorption element when using the SSR with an inductive load.

EMC Directive Compliance

1. AC-switching models comply with EMC Directives under the following conditions ("VD" models only).



- Connect a varistor between the output terminals.
 - Connect a film capacitor to the load power supply.
 - The input cable must be less than 3 m.
2. DC-switching models comply with EMC Directives under the following conditions ("VD" models only).



- The input cable must be less than 10 m.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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

In the interest of product improvement, specifications are subject to change without notice.

Terms and Conditions Agreement

Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

Limitation on Liability; Etc.

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

Performance Data.

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions.

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

2014.1

In the interest of product improvement, specifications are subject to change without notice.

OMRON Corporation
Industrial Automation Company

<http://www.ia.omron.com/>

(c)Copyright OMRON Corporation 2014 All Right Reserved.