Solid State Relays G3□-VD
G3F/G3FD

CSM_G3F_G3FD_DS_E_5_8

Solid State Relays Featuring the Same Profile as MY Power Relays

- Reduces wiring work by 60% when combined with the PFY-08-PU Push-In Plus Socket (according to actual OMRON measurements).
- Shape-compatible with mechanical relays.
- Certified by UL, CSA, and VDE (model numbers with a suffix of "-VD").
- Socket type, same size as MY Power Relays.
- Operation indicator provided to confirm input (model numbers with "N" before the suffix).

⚠ Refer to *Safety Precautions for All Solid State Relays* and *Safety Precautions* on page 7.

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

G3F-□□□□□-□
1 2 3 4 5 6 7

1. **Basic Model Name**
   G3F: Solid State Relay
2. **Rated Load Power Supply Voltage**
   2: 200 VAC
3. **Rated Load Current**
   02: 2 A
   03: 3 A
4. **Terminal Type**
   S: Plug-in terminals
5. **Zero Cross Function**
   Blank: Equipped with zero cross functions
   L: Not equipped with zero cross function
6. **Operation Indicator**
   Blank: Not equipped with operation indicator
   N: Equipped with operation indicator
7. **Certification**
   VD: Certified by UL, CSA, and VDE

G3FD-□□□□-□
1 2 3 4 5 6 7

1. **Basic Model Name**
   G3F: Solid State Relay
2. **Load Power Supply Type**
   D: DC
3. **Rated Load Power Supply Voltage**
   X: 50 VDC
   1: 100 VDC
4. **Rated Load Current**
   02: 2 A
   03: 3 A
5. **Terminal Type**
   S: Plug-in terminals
6. **Operation Indicator**
   Blank: Not equipped with operation indicator
   N: Equipped with operation indicator
7. **Certification**
   VD: Certified by UL, CSA, and VDE

Ordering Information

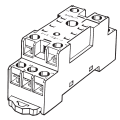
■ List of Models

Isolation	Zero cross function	Indicator	Rated output load	Rated input voltage	Scheduled to be no longer available to order after March 2023	Recommended Replacement/certified for safety standard products
Photocoupler	Yes	Yes	3 A at 100 to 240 VAC (See note 1.)	5 to 24 VDC	G3F-203SN DC5-24	G3F-203SN-VD DC5-24
			2 A at 100 to 240 VAC (See note 1.)	100/110 VAC	G3F-202SN AC100/110	G3F-202SN-VD AC100/110
				200/220 VAC	G3F-202SN AC200/220	G3F-202SN-VD AC200/220
Phototriac coupler	No		3 A at 100 to 240 VAC (See note 1.)	5 VDC	G3F-203SLN DC5	G3F-203SLN-VD DC5
				12 VDC	G3F-203SLN DC12	G3F-203SLN-VD DC12
				24 VDC	G3F-203SLN DC24	G3F-203SLN-VD DC24
Photocoupler	–		3 A at 4 to 48 VDC (See note 2.)	5 to 24 VDC	G3FD-X03SN DC5-24	G3FD-X03SN-VD DC5-24
			2 A at 5 to 110 VDC (See note 3.)	100/110 VAC	G3FD-102SN DC5-24	G3FD-102SN-VD DC5-24
				200/220 VAC	G3FD-102SN AC100/110	G3FD-102SN-VD AC100/110
				5 to 24 VDC	G3FD-102SN AC200/220	G3FD-102SN-VD AC200/220
Photocoupler	Yes	No	3 A at 100 to 240 VAC (See note 1.)	4 to 24 VDC	G3F-203S DC3-28	G3F-203S-VD DC4-24
Phototriac coupler	No			5 VDC	G3F-203SL DC5	G3F-203SL-VD DC5
				12 VDC	G3F-203SL DC12	G3F-203SL-VD DC12
				24 VDC	G3F-203SL DC24	G3F-203SL-VD DC24
Photocoupler	–		3 A at 4 to 48 VDC (See note 2.)	4 to 24 VDC	G3FD-X03S DC3-28	G3FD-X03S-VD DC4-24
			2 A at 5 to 110 VDC (See note 3.)		G3FD-102S DC3-28	G3FD-102S-VD DC4-24

Note: 1. Product is labelled “240 VAC”.
2. Product is labelled “48 VDC”.
3. Product is labelled “110 VDC”.
4. When ordering, specify the rated input voltage.

■ Accessories (Order Separately)

Connection Sockets

Classification	Terminal type	Appearance	Model
Front-mounting	Screw terminals (Terminal cover structure) *		PYFZ-08
	Screw terminals (finger protection structure)		PYFZ-08-E
	Screw terminals (finger protection structure)		PYF08A-N
	Push-In Plus terminal blocks (Socket combination)		PYF-08-PU
Back-mounting	Relays with PCB Terminals		PY08-02

* Terminal cover type is PYCZ-C08. (Order Separately) For details, refer to the *Terminal Covers* on page 3.

Refer to *Common Socket and DIN Track Products for details on Connection Sockets and DIN Track products (sold separately)* of your OMRON website.

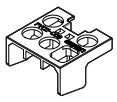
Refer to *PYF□□-PU/P2RF-□□-PU for details on A Push-In Plus Terminal Block Socket* of your OMRON website.

Hold-down Clips

Applicable Socket			Hold-down Clips
Classification	**Terminal type**	**Model**	**Model**
For front-mounting	Screw terminals	PYFZ-08	PYC-A1 *
	Screw terminals (finger protection structure)	PYFZ-08-E	
	Screw terminals (finger protection structure)	PYF08A-N	
For back-mounting	Relays with PCB Terminals	PY08-02	PYC-P

* PYC-A1 is provided with two clips.

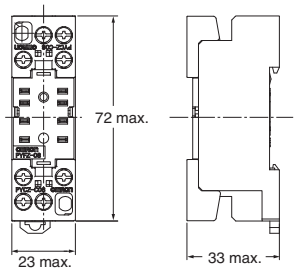
Terminal Covers

Applicable Socket	Terminal Covers	
Model	**Appearance**	**Model**
PYFZ-08		PYCZ-C08 (2 pcs/set)

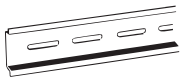
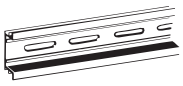
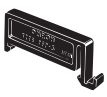
Note: Use these covers in a combination with PYFZ-08.

Dimensions with terminal cover **(Unit: mm)**

PYCZ-C08



DIN Track Mounting Parts

Classification/ division	Type		Appearance	Model
For front-mounting	DIN Tracks	Shallow type, total length: 1 m		PFP-100N
		Shallow type, total length: 0.5 m		PFP-50N
		Deep type, total length: 1 m		PFP-100N2
	End Plate			PFP-M
	Spacer			PFP-S

Specifications

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

Input

Model	Rated voltage	Operating voltage	Impedance	Voltage level	
				Must operate voltage	Must release voltage
G3F-203SN-VD	5 to 24 VDC	4 to 28 VDC	15 mA max. (See note.)	4 VDC max.	1 VDC min.
G3F-202SN-VD	100/110 VAC	75 to 125 VAC	41 kΩ±20%	75 VAC max.	20 VAC min.
	200/220 VAC	150 to 250 VAC	72 kΩ±20%	150 VAC max.	40 VAC min.
G3F-203SLN-VD	5 VDC	4 to 6 VDC	390 Ω±20%	4 VDC max.	1 VDC min.
	12 VDC	9.6 to 14.4 VDC	900 Ω±20%	9.6 VDC max.	
	24 VDC	19.2 to 28.8 VDC	2 kΩ±20%	19.2 VDC max.	
G3FD-X03SN-VD	5 to 24 VDC	4 to 28 VDC	1.5 $k\Omega^{+20\%}_{-10\%}$	4 VDC max.	
G3FD-102SN-VD	5 to 24 VDC	4 to 28 VDC	1.5 $k\Omega^{+20\%}_{-10\%}$	4 VDC max.	
	100/110 VAC	75 to 125 VAC	41 kΩ±20%	75 VAC max.	20 VAC min.
	200/220 VAC	150 to 250 VAC	72 kΩ±20%	150 VAC max.	40 VAC min.
G3F-203S-VD	4 to 24 VDC	3 to 28 VDC	15 mA max. (See note.)	3 VDC max.	1 VDC min.
G3F-203SL-VD	5 VDC	4 to 6 VDC	390 Ω±20%	4 VDC max.	
	12 VDC	9.6 to 14.4 VDC	900 Ω±20%	9.6 VDC max.	
	24 VDC	19.2 to 28.8 VDC	2 kΩ±20%	19.2 VDC max.	
G3FD-X03S-VD	4 to 24 VDC	3 to 28 VDC	1.5 $k\Omega^{+20\%}_{-10\%}$	3 VDC max.	
G3FD-102S-VD					

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

Output

Model	Rated load voltage	Applicable load		
		Load voltage range	Load current	Inrush current
G3F-203SN-VD **G3F-203SLN-VD** **G3F-203S-VD** **G3F-203SL-VD**	100 to 240 VAC	75 to 264 VAC	0.1 to 3 A at 40°C	45 A (60 Hz, 1 cycle)
G3F-203SN-VD	100 to 240 VAC	75 to 264 VAC	0.1 to 2 A at 40°C	45 A (60 Hz, 1 cycle)
G3FD-X03SN-VD **G3FD-X03S-VD**	4 to 48 VDC	3 to 52.8 VDC	0.1 to 3 A at 40°C	18 A (10 ms)
G3FD-102SN-VD **G3FD-102S-VD**	5 to 110 VDC	3 to 125 VDC	0.1 to 2 A at 40°C	10 A (10 ms)

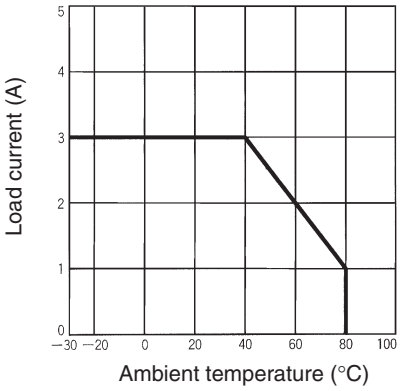
■ Characteristics

Item	G3F-203SN-VD G3F-202SN-VD G3F-203S-VD	G3F-203SLN-VD G3F-203SL-VD	G3FD-X03SN-VD G3FD-X03S-VD	G3FD-102SN-VD	G3FD-102S-VD
Operate time	1/2 of load power source cycle + 1 ms max. (DC input) 3/2 of load power source cycle + 1 ms max. (AC input)	1 ms max.	0.5 ms max.	0.5 ms max. (DC input) 20 ms max. (AC input)	0.5 ms max.
Release time	1/2 of load power source cycle + 1 ms max. (DC input) 3/2 of load power source cycle + 1 ms max. (AC input)	1/2 of load power source cycle + 1 ms max.	2 ms max.	2.5 ms max. (DC input) 20 ms max. (AC input)	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)	2.5 mA max. (at 100 VAC) 5 mA max. (at 200 VAC)	5 mA max. (at 50 VDC)	0.1 mA max. (at 100 VDC)	0.1 mA max. (at 100 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	Destruction: 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	Operating: 45% to 85%				
Certified standards	UL (File No.E64562), CSA (File No.LR35535) VDE (Certificate No.40000159, EN60947-4-3 (G3F-VD) No.40046471, EN62314 (G3FD-VD)				
EMC	Emission: EN55011 Group 1 Class B Immunity: EN61000-6-2				
Weight	Approx. 50 g				

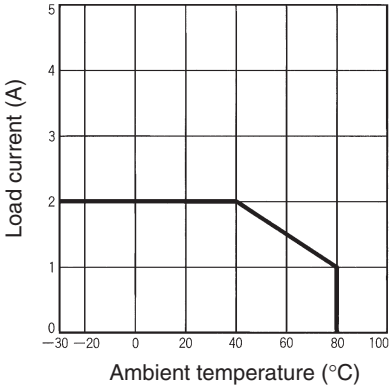
Engineering Data

Load Current vs. Ambient Temperature Characteristics

G3F-203SN-VD/203S-VD/203SLN-VD/ 203SL-VD
G3FD-X03SN-VD/X03S-VD



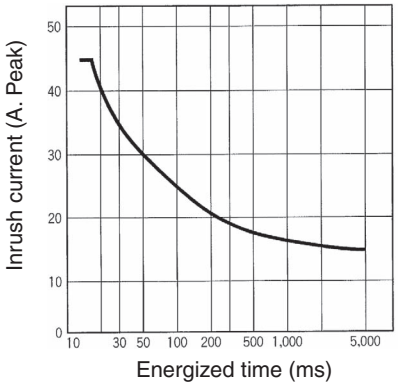
G3F-202SN-VD
G3FD-102SN-VD/102S-VD



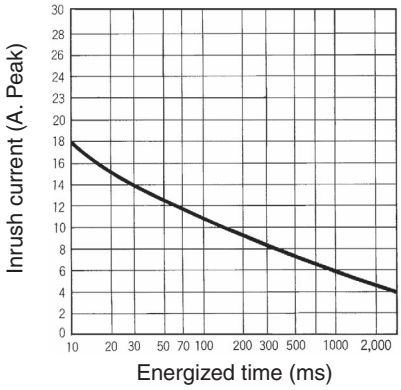
One Cycle Surge Current: Non-repetitive

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

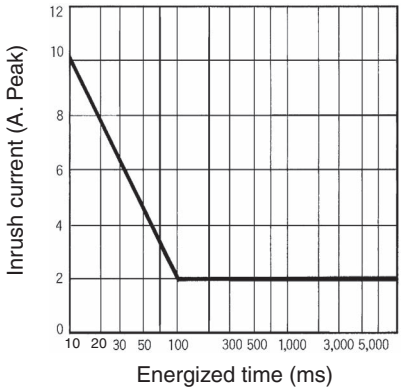
G3F-203SN-VD/203S-VD/202SN-VD/ 203SLN-VD/203SL-VD



G3FD-X03SN-VD/X03S-VD



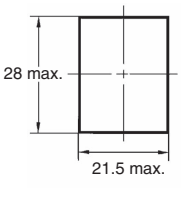
G3FD-102SN-VD/102S-VD

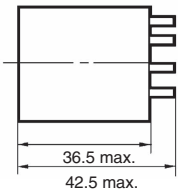


Dimensions

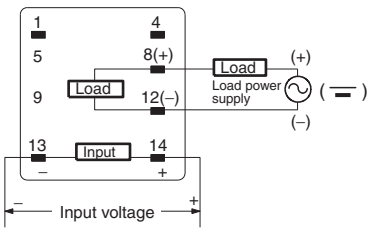
Note: All units are in millimeters unless otherwise indicated.

■ Relay





Terminal Arrangement/ Internal Connections



Note: 1. The plus and minus symbols shown in parentheses are for DC loads.

2. With AC input, the input side has no polarity.

3. The load is possible to connect either + side or - side.

■ Accessories (Order Separately)

Connection Socket

Hold-down Clips

Terminal Covers

DIN Track Mounting Parts

Refer to *Products Related to Common Sockets and DIN Tracks for precautions on the applicable Sockets* of your OMRON website.

Refer to *PYF-□□-PU/P2RF-□□-PU for precautions on Push-In Plus Terminal Block Sockets* of your OMRON website.

Safety Precautions

Be sure to read 'the Common Precautions' in the website at the following URL:
http://www.ia.omron.com/.

Refer to *Safety Precautions for All Solid State Relays* of your OMRON website.

Refer to *Products Related to Common Sockets, Terminal Covers and DIN Tracks for precautions on the applicable Sockets* of your OMRON website.

Refer to *PYF-□□-PU/P2RF-□□-PU for precautions on Push-In Plus Terminal Block Sockets* of your OMRON website.

■ Precautions for Correct Use

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

Connection

The SSR for DC switching use can connect to a load regardless of the polarity of the positive and negative output terminals.

Close Mounting of Multiple Relays

If multiple Relays are mounted side by side, be aware that the outer wall of each SSR works as a heat sink.

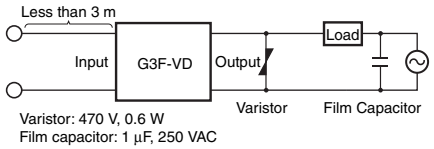
The SSR casing serves to dissipate heat. Install the Relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.

Protective Terminal

When using for AC inductive loads, connect the load terminals of the SSR to an inrush absorber (varistor).

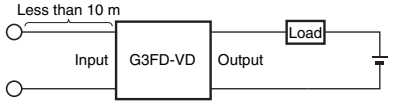
EMC Directive Compliance

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.

2021.12

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

OMRON Corporation
Industrial Automation Company

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