

75 VDC Input PCB Filter



- Rated currents from 3 to 13 A, 75 VDC
- Very compact PCB-mounting design
- Exceptional attenuation performance
- High frequency noise compression



Performance indicators

Attenuation performance



Rated current [A]



Technical Specifications

Maximum continuous operating voltage	75 VOLT
High potential test voltage	V11/V12 → GND 1500 VDC for 2 sec V11 → V12 100 VDC for 2 sec
Temperature range (operation and storage)	-40 °C to +100 °C (40/100/21)
Design corresponding to	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
Flammability corresponding to	UL 94 V-0
MTBF @ 40°C/230 V (Mil-HB-217F)	4,450,000 hours
Rated currents	3 to 13 A @50°C

Approvals & Compliances



FN 409 PCB filters are designed to suppress common and differential-mode noise on DC voltage lines. The suppression performance is special designed to fulfill the requirements for high frequency switching DC/DC converter modules. FN 409 filters can also be used to filter the output current of switch-mode power supplies in applications with intelligent power distribution.

Features and Benefits

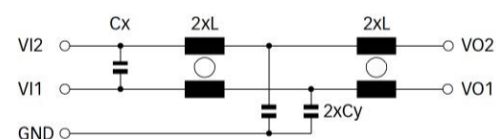
- High common and differential-mode noise suppression
- Rated currents up to 13 A at 75 VDC
- Small form factor
- Good thermal conductance

Typical Applications

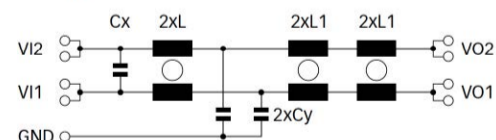
- Input or output filter for high frequency DC/DC converters
- DC output filter for switch-mode power supplies
- Computer and office automation equipment
- Telecom equipment
- Input/output filter within DC power distribution networks

Typical electrical schematic

3 and 6.5A types



13A types



Filter Selection Table

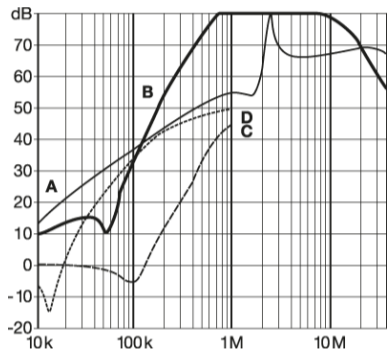
Filter	Rated current @ 50 °C (40 °C) [A]	Inductance*		Capacitance*		DC Resistance* R @ 25 °C per path [mΩ]	Input/Output connections	Weight [g]
		L [mH]	L1 [mH]	Cx [nF]	Cy [nF]			
FN 409-3-02	3 (3.2)	2.9		4700	4.7	86	-02	30
FN 409-6.5-02	6.5 (7)	0.5		4700	4.7	18	-02	30
FN 409-13-02	13 (14)	0.08	0.18	4700	4.7	7.8	-02	47

* Tolerances apply: Inductance: -30/+50%, Capacitance: ±20%, Resistance: ±10%

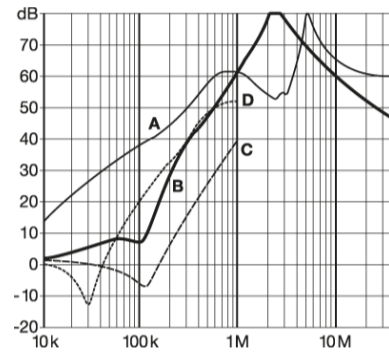
Typical Filter Attenuation

Per CISPR 17; A = 50 Ω/50 Ω sym; B = 50 Ω/50 Ω asym; C = 0.1 Ω/100 Ω sym; D = 100 Ω/0.1 Ω sym

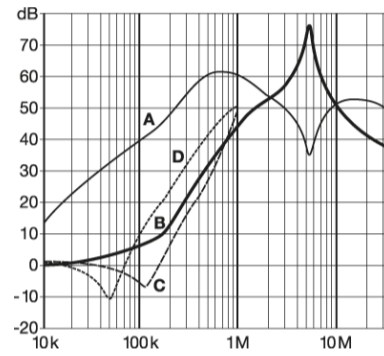
3 A types



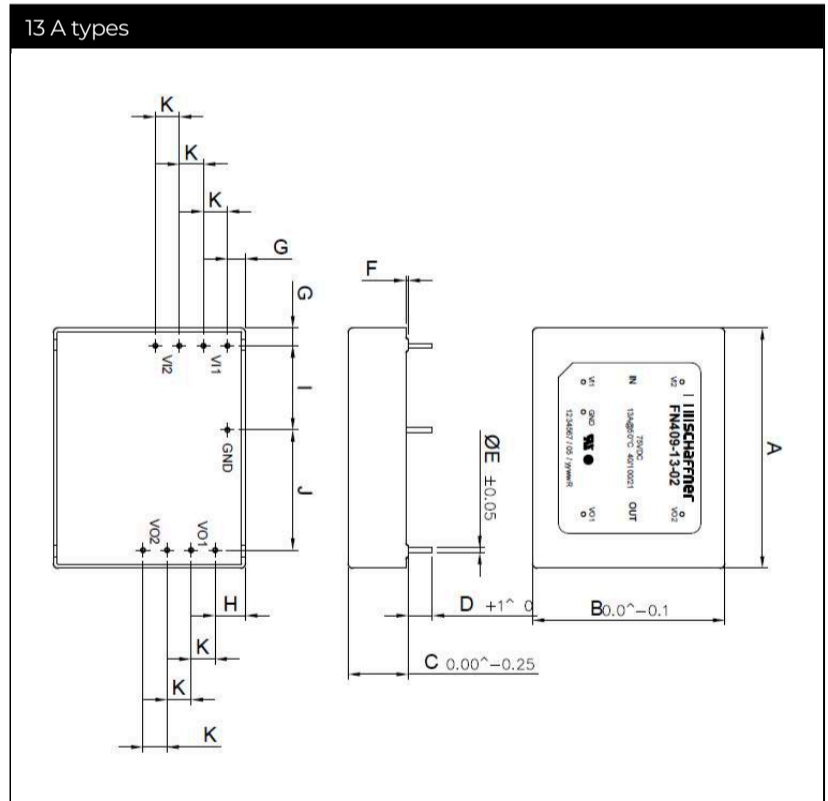
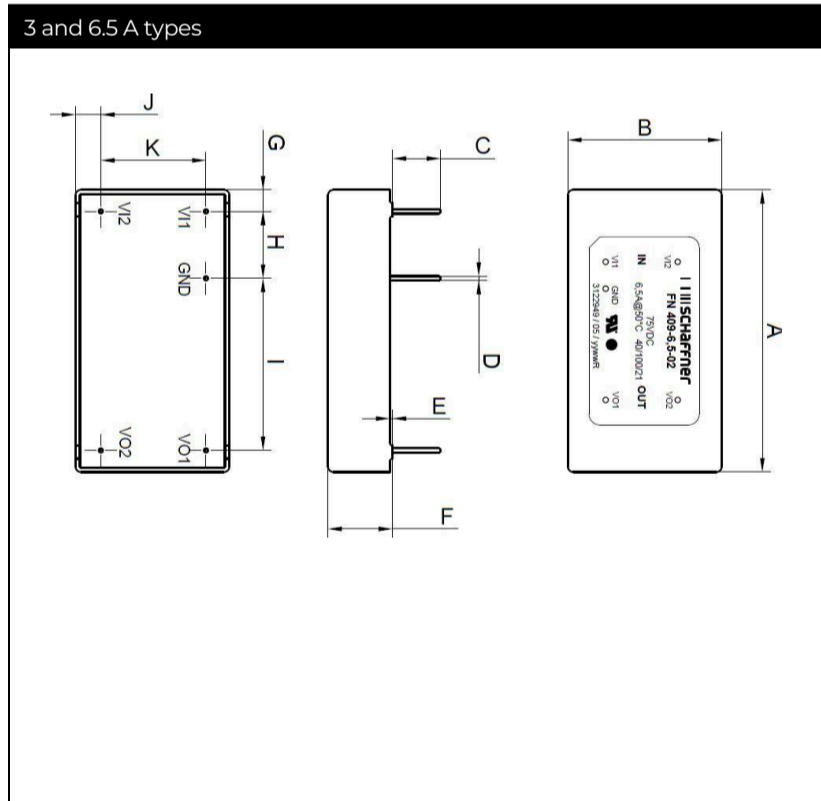
6.5 A types



13 A types



Mechanical Data



All dimensions in mm; 1 inch = 25.4 mm
Tolerances according: ISO 2768-m / EN 22768-m

Dimensions

	3 A	6.5 A	13 A
A	51	51	50.8
B	27.9	27.9	40.6
C	8.2	8.2	12.7
D	Ø0.8	Ø0.8	5.1
E	0.5	0.5	Ø1
F	11.7	11.7	0.5
G	3.9	3.9	3.8
H	12.1	12.1	6.4
I	31.1	31.1	17.8
J	4.6	4.6	25.4
K	19.05	19.05	5.08

Application

The filters are intended to be used in DC applications per EN/IEC 60950, where no transient on the DC bus occurs. To protect the filter against transient voltages a varistor (VDR, fig. 1) or a transient diode (fig. 2) must be placed at the input side of the filter module.

For protection against overcurrent place a fuse on each input lead (VI+, VI-). When AC voltage is superimposed on DC voltage, VP-P or VO-P, whichever is larger, should be maintained within the rated voltage range.

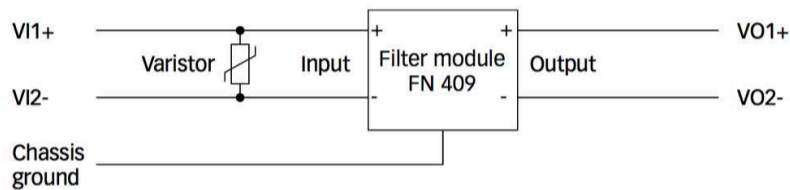


Figure 1: transient protection with a varistor

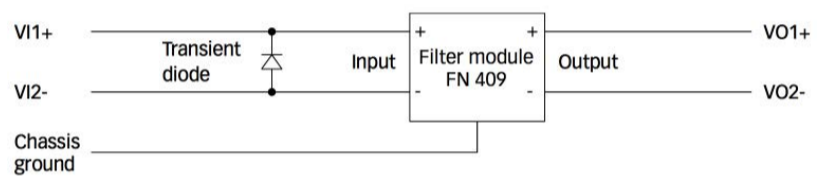
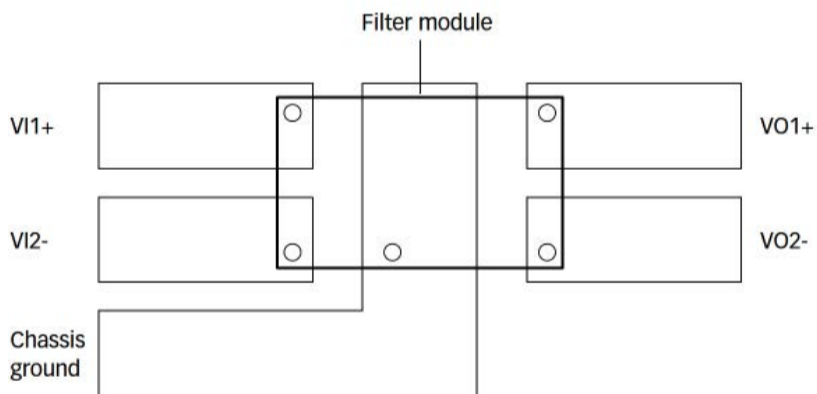


Figure 2: transient protection with a transient diode

Recommended Layout



Note: avoid routing signal tracks or planes under the filter module

Please visit www.schaffner.com to find more details on filter connectors.

Headquarters, Global Innovation and Development

Switzerland

Schaffner Holding AG

Industrie Nord
 Nordstrasse 11e
 4542
 Luterbach
 +41 32 681 66 26
info@schaffner.com

Sales and Application Centers

China

Schaffner EMC Ltd. Shanghai

T20-3 C, No 565 Chuangye Road, Pudong district
 201201
 Shanghai
 +86 2138139500
cschina@schaffner.com

Finland

Schaffner Oy

Sauvonrinne 19 H
 8500
 Lohja
 +358 50 468 7284
finlandsales@schaffner.com

France

Schaffner EMC S.A.S.

16-20 Rue Louis Rameau
 95875
 Bezons
 +33 1 34 34 30 60
francesales@schaffner.com

Germany

Schaffner Deutschland GmbH

Schoemperlenstrasse 12B
 76185
 Karlsruhe
 +49 721 56910
germanysales@schaffner.com

India

Schaffner India Pvt. Ltd

Regus World Trade Centre
 WTC, 22nd Floor Unit No 2238, Brigade Gateway Campus, 26/1, Dr. Rajkumar Road Malleshwaram (W)
 560055
 Bangalore
 +91 8067935355
indiasales@schaffner.com

Italy

Schaffner EMC S.r.l.

Via Ticino, 30
 20900
 Monza (MB)
 +39 039 21 41 070
italysales@schaffner.com

Japan

Schaffner EMC K.K.

ISM Sangenjaya 7F
 1-32-12 Kamiuma, Setagaya-ku
 154-0011
 Tokyo
 +81 3 5712 3650
japansales@schaffner.com

Singapore

Schaffner EMC Pte Ltd.

Blk 3015A Ubi Road 1, #05-09, Kampong Ubi Industrial Estate
 408705
 Singapore
 +65 63773283
singaporesales@schaffner.com

Spain

Schaffner EMC España

Calle Caléndula 93, Miniparc III, Edificio E El Soto de Moraleja, Alcobendas
 28109
 Madrid
 +34 917 912 900
spainsales@schaffner.com

Sweden

Schaffner EMC AB

Östermalmstrorg 1
 114 42
 Stockholm
 +46 8 5050 2425
swedensales@schaffner.com

Switzerland

Schaffner EMV AG

Industrie Nord
 Nordstrasse 11e
 4542
 Luterbach
 +41 32 681 66 26
switzerlandsales@schaffner.com

Taiwan

Schaffner EMV Ltd.

U-Town
 20 Floor-2, No 97, Section 1, XinTai 5th Road, XiZhi District
 22175
 New Taipei City
 +886 226975500
taiwansales@schaffner.com

Thailand

Schaffner EMC Co. Ltd.

Sathorn Square Tower
 Room 3780, 37FL, 98 North-Sathorn Rd, Silom, Bangrak
 10500
 Bangkok
 +66 621056397
thailandsales@schaffner.com

United Kingdom

Schaffner Ltd.

1, Oakmede Place
 Terrace Road
 RG42 4JF
 Binfield
 +44 118 9770070
uksales@schaffner.com

United States

Schaffner EMC Inc.

52 Mayfield Avenue
 Edison, New Jersey
 +1 732 225 9533
usasales@schaffner.com

To find your local partner within Schaffner's global network schaffner.com

© 2022 Schaffner Group

The content of this document has been carefully checked and understood. However, neither Schaffner nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifications are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Schaffner does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Swiss law and resulting disputes shall be settled by the courts at the place of business of Schaffner Holding AG. Latest publications and a complete disclaimer can be downloaded from the Schaffner website. All trademarks recognized.