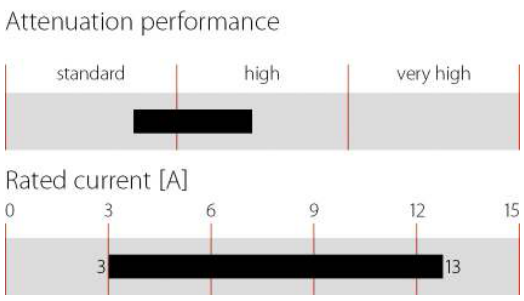
75 VDC Input PCB Filter

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

Performance indicators



Approvals & Compliances

RoHS

FN 409 PCB filters are designed to surpress 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

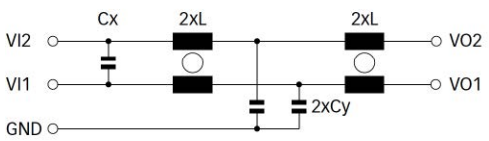
- Input or output filter for high frequency DC/DC converters
- DC output filter for switch-mode power supplies
- Computer and office automation equipment
- Telecom equipment
- Input/output filter within DC power distribution networks

Technical Specifications

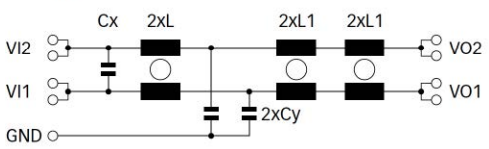
Maximum continuous operating voltage	75 VAC 75 VDC
Rated currents	3 to 13 A @ 50°C
High potential test voltage	VI1/VI2 –> GND 1500 VDC for 2 sec VI1 –> VI2 100 VDC for 2 sec
Temperature range (operation and storage)	-40 °C to +100 °C (40/100/21)
Flammability corresponding to	UL 94 V-0
Design corresponding to	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
MTBF (Mil-HB-217F)	>4,450,000 h @ 50°C/75 V

Typical electrical schematic

3 and 6.5A types



13A types



Filter Selection Table

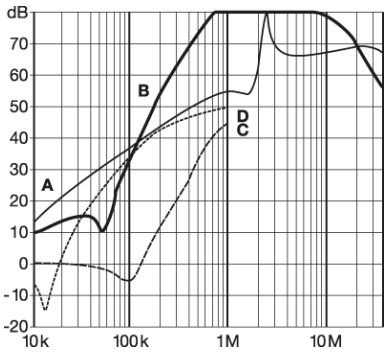
Filter	Rated current @ 50 °C (40 °C)	Inductance*		Capacitance*		DC Resistance* R @ 25 °C per path	Input/Output connections	Weight
		L	L1	Cx	Cy		⊥	
	[A]	[mH]	[mH]	[nF]	[nF]	[mΩ]		[g]
FN 409-3-02	3 (3.2)	2.9		4700	4.7	86	-02	30
FN 409-6.5-02	6.5 (7)	0.5		4700	4.7	18	-02	30
FN 409-13-02	13 (14)	0.08	0.18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

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

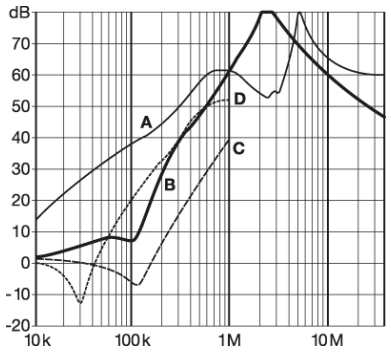
Typical Filter Attenuation

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

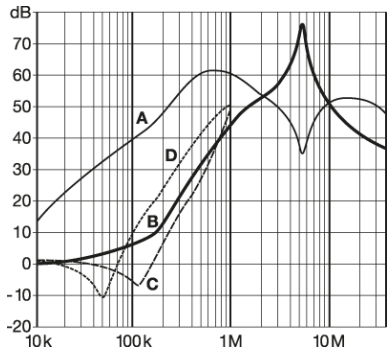
3 A types



6.5 A types

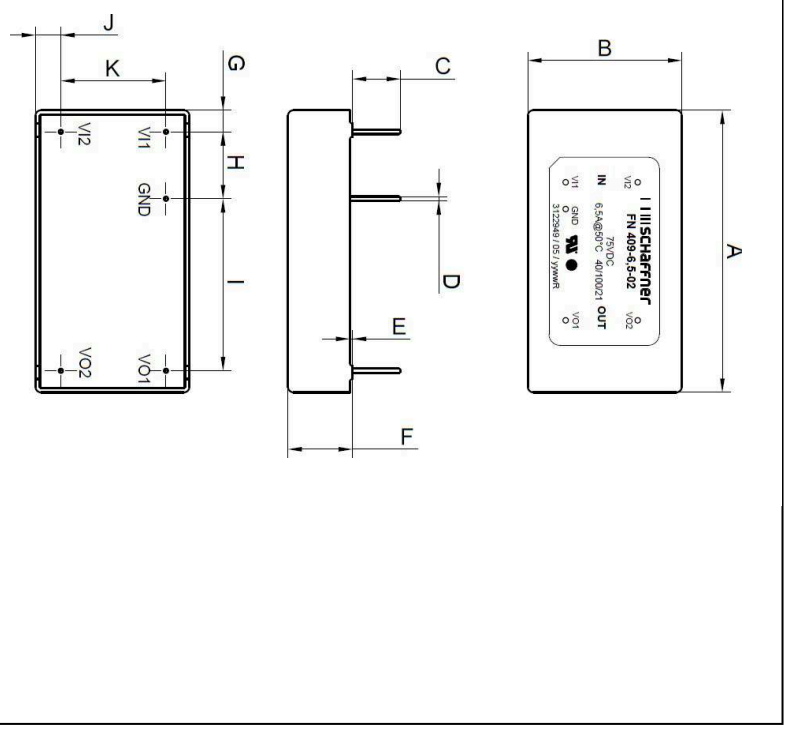


13 A types

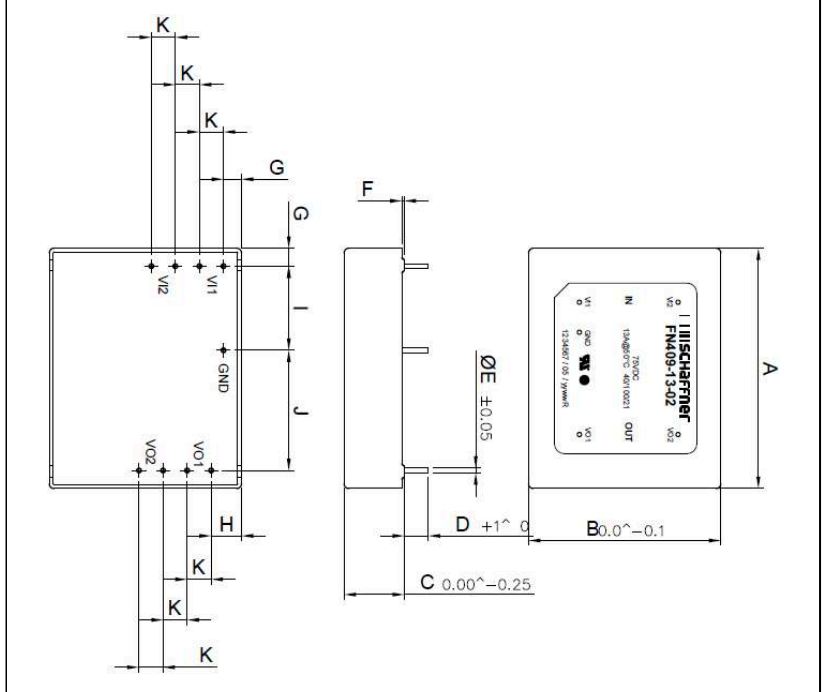


Mechanical Data

3 and 6.5 A types



13 A types



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.

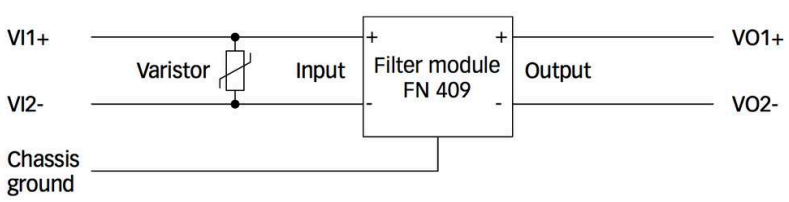


Figure 1: transient protection with a varistor

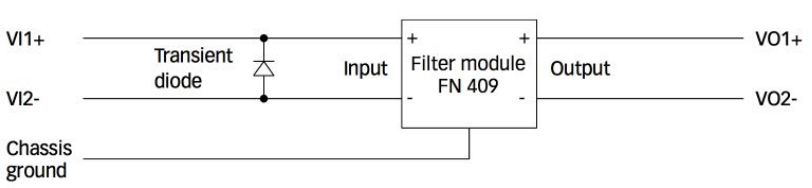
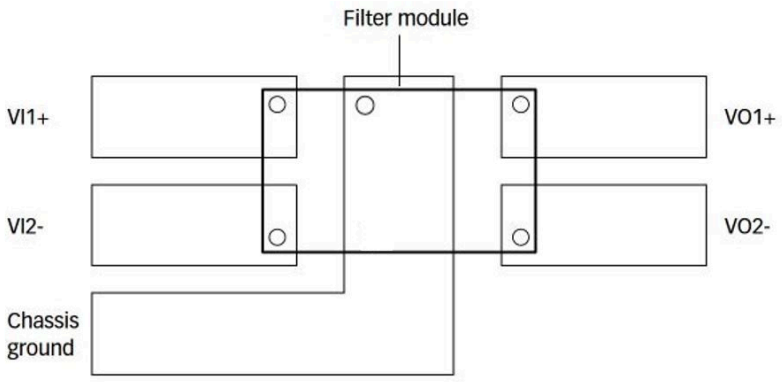


Figure 2: transient protection with a transient diode

Recommended Layout



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

Please visit to find more details on filter connectors.

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