

# PCB filters FN 409

## 75VDC input PCB filter

**SCHAFFNER**

energy efficiency and reliability



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

### Approvals

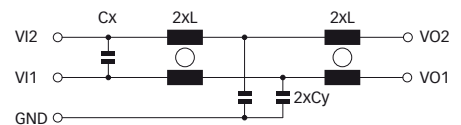


### Technical specifications

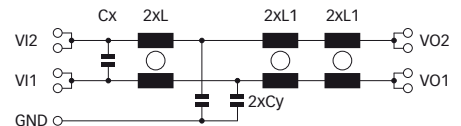
Maximum continuous operating voltage:	75VDC
Rated currents:	3 to 13A
High potential test voltage:	VI1/VI2 → GND 2000VDC for 2 sec VI1 → VI2 100VDC for 2 sec
Temperature range (operation and storage):	-40°C to +100°C (25/100/21)
Design corresponding to:	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
Flammability corresponding to:	UL 94V-2 or better
MTBF @ 40°C/75V (Mil-HB-217F):	4,450,000 hours

### Typical electrical schematic

3 and 6.5A types



13A types



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 15A at 75VDC.
- 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

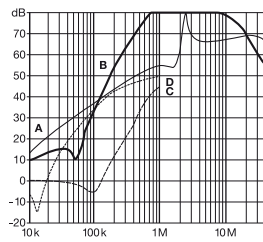
Filter selection table

Filter	Rated current @ 50°C (40°C)	Inductance L		Capacitance Cx Cy		DC Resistance R @ 25°C per path	Input/Output connections	Weight
		[A]	[mH]	[mH]	[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

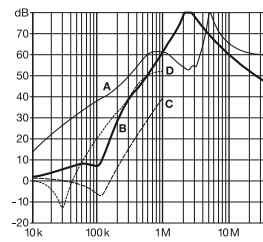
Typical filter attenuation

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

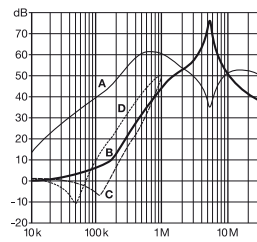
3A types



6.5A types

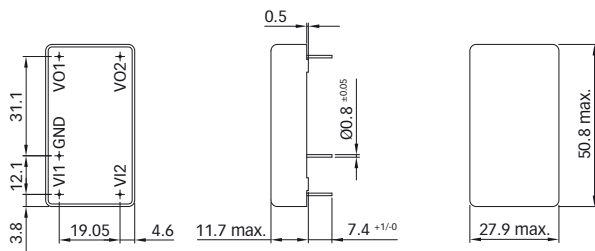


13A types

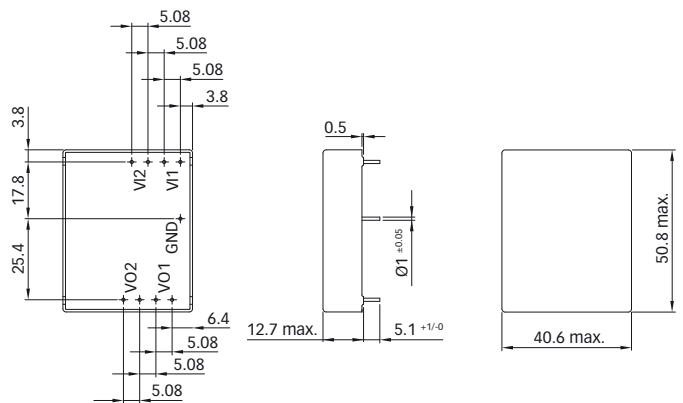


Mechanical data

3 and 6.5A types



13A types



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

### 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.

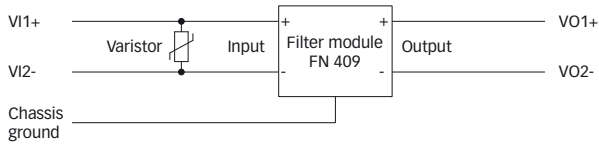


Figure 1: transient protection with a varistor

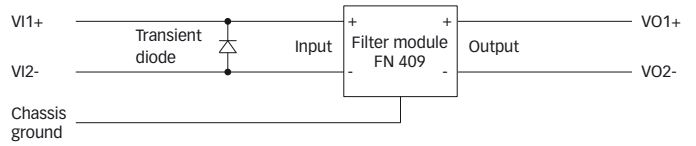
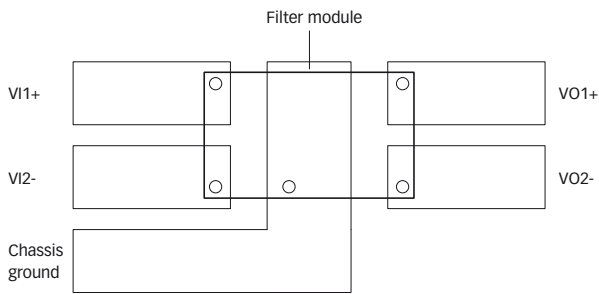


Figure 2: transient protection with a transient diode

### Recommended layout



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