

General Purpose AC/DC EMI Filter



- Rated currents from 1 to 60 A
- High differential-mode attenuation
- Optional medical version (B type)
- Optional safety version (A type)



Performance indicators

Attenuation performance



Rated current [A]



Technical specifications

Rated voltage*	250 VAC, 50/60 Hz; 250 VDC
Operating frequency	DC to 400 Hz
Rated currents	1 to 60 A @ 40°C max.
High potential test voltage	P → N 760 VAC for 2 sec (1 to 20 A types) P → PE 2500 VAC for 2 sec (B types) P → PE 2000 VAC for 2 sec P → N 1100 VDC for 2 sec (30 and 60 A types)
Temperature range (operation and storage)	-25°C to +100°C (25/100/21)
Certified to	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 (applies to AC and DC applications)
Flammability corresponding to	UL 94 V-2 or better
Design corresponding to	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
MTBF @ 40°C/230 V (Mil-HB-217F)	1,250,000 hours 1,750,000 hours (B types)

*maximum RMS operating voltage at rated frequency or the maximum DC operating voltage

Approvals



Features and benefits

- FN 2020 filters are designed for easy and fast chassis mounting
- FN 2020 filters are also available as B versions without Y-capacitors for medical applications as well as A version with low capacitance for safety critical applications with necessity for low leakage currents
- All filters provide a general purpose conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior
- FN 2020 filters can be used to cover a broad range of usage and they offer a good size/amperage ratio
- FN 2020 filters are also available as two-stage filters (FN 2060, FN 2070 series) for more noisy environment
- Various terminal options allow you to select the desired connection style

Typical applications

- Electrical and electronic equipment
- Consumer goods
- Household equipment
- Medical equipment
- Office automation equipment
- Datacom equipment

Typical electrical schematic



Filter selection table

Filter*	Rated current	Leakage current**	Inductance	Capacitance		Resistance	Input/Output connections			Weight
	@ 40°C (25°C)	@ 250 VAC/50 Hz (@ 120 VAC/60 Hz)	L	Cx	Cy	R				[g]
	[A]	[mA]	[mH]	[µF]	[nF]	[kΩ]				
FN 2020-1-..	1 (1.15)	0.66 (0.38)	12	0.15	4.7	1000	-06	-07		80
FN 2020-3-..	3 (3.45)	0.66 (0.38)	2.5	0.15	4.7	1000	-06	-07		80
FN 2020-6-..	6 (6.9)	0.66 (0.38)	1	0.15	4.7	1000	-06	-07		80
FN 2020-10-..	10 (11.5)	0.66 (0.38)	0.8	0.15	4.7	1000	-06	-07		85
FN 2020-12-..	12 (13.8)	0.66 (0.38)	0.7	0.15	4.7	1000	-06	-07		85
FN 2020-16-..	16 (18.4)	0.66 (0.38)	0.65	0.15	4.7	1000	-06	-07		140
FN 2020-20-..	20 (23)	0.66 (0.38)	0.6	0.15	4.7	1000	-06		-08	210
FN 2020-30-08	30 (34.5)	0.79 (0.45)	0.67	0.47	10	470			-08	470
FN 2020-60-24	60 (69)	0.79 (0.45)	1	1.5	10	220			-24	1100
FN 2020A-1-..	1 (1.15)	0.07 (0.04)	12	0.15	0.47	1000	-06	-07		80
FN 2020A-3-..	3 (3.45)	0.07 (0.04)	2.5	0.15	0.47	1000	-06	-07		80
FN 2020A-6-..	6 (6.9)	0.07 (0.04)	1	0.15	0.47	1000	-06	-07		80
FN 2020A-10-..	10 (11.5)	0.07 (0.04)	0.8	0.15	0.47	1000	-06	-07		85
FN 2020A-12-..	12 (13.8)	0.07 (0.04)	0.7	0.15	0.47	1000	-06	-07		85
FN 2020A-16-..	16 (18.4)	0.07 (0.04)	0.65	0.15	0.47	1000	-06	-07		140
FN 2020A-20-..	20 (23)	0.07 (0.04)	0.6	0.15	0.47	1000	-06		-08	210
FN 2020A-30-08	30 (34.5)	0.07 (0.04)	0.67	0.47	0.47	470			-08	470
FN 2020A-60-24	60 (69)	0.07 (0.04)	1	1.5	0.47	220			-24	1100
FN 2020B-1-..	1 (1.15)	0.00	12	0.15		1000	-06	-07		80
FN 2020B-3-..	3 (3.45)	0.00	2.5	0.15		1000	-06	-07		80
FN 2020B-6-..	6 (6.9)	0.00	1	0.15		1000	-06	-07		80
FN 2020B-10-..	10 (11.5)	0.00	0.8	0.15		1000	-06	-07		85
FN 2020B-12-..	12 (13.8)	0.00	0.7	0.15		1000	-06	-07		85
FN 2020B-16-..	16 (18.4)	0.00	0.65	0.15		1000	-06	-07		140
FN 2020B-20-..	20 (23)	0.00	0.6	0.15		1000	-06		-08	210
FN 2020B-30-08	30 (34.5)	0.00	0.67	0.47		470			-08	470
FN 2020B-60-24	60 (69)	0.00	1	1.5		220			-24	1100

* To compile a complete part number, please replace the .. with the required I/O connection style (e.g. FN 2020-30-08, FN 2020B-10-06).

** Maximum leakage under usual AC operating conditions (acc. IEC 60939-3). Note: if the neutral line is interrupted, worst case leakage could reach twice this level. Leakage current for DC application is 0 mA;

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

1 and 3 A types



6 to 12 A types



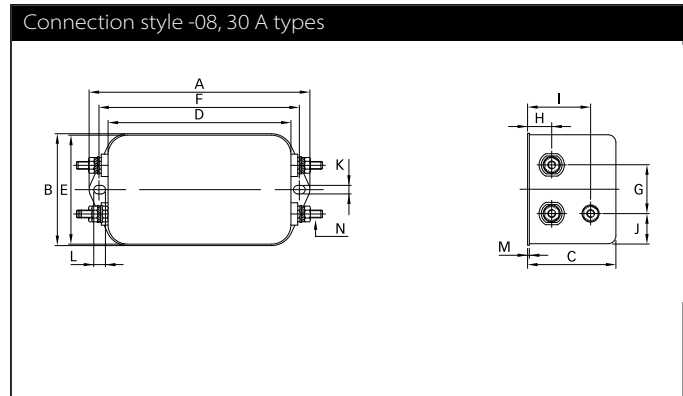
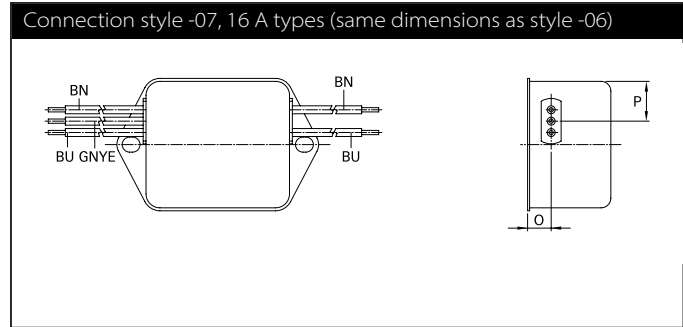
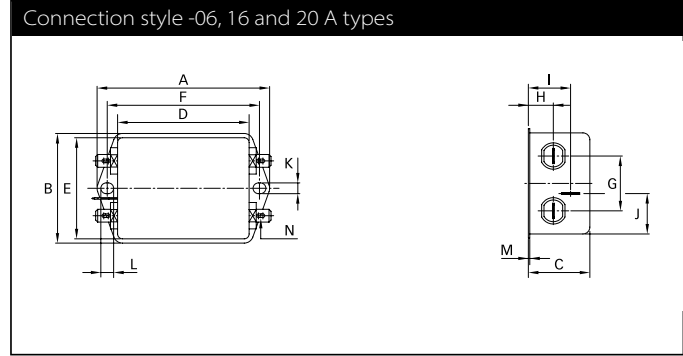
16 and 20 A types



30 and 60 A types



Mechanical data



Dimensions

	1 A	3 A	6 A	10 A	12 A	16 A	20 A	30 A	60 A	Tolerances
A	64	64	64	64	64	71	85	113.5 ±1	105 ±1	±0.5
B	35	35	35	35	35	46.6	54	57.5 ±1	145.9 ±1	±0.5
C	29.3	29.3	29.3	29.3	29.3	29.3	30.3	45.4 ±1	57.6 ±1	±0.5
D	43.5	43.5	43.5	43.5	43.5	50.5	64.8	94 ±1	84.5 ±1	±0.5
E	32.5	32.5	32.5	32.5	32.5	44.5	49.8	56	99.5	±0.5
F	54	54	54	54	54	61	75	103	95	±0.3
G	21	21	21	21	21	21	27	25	40	±0.2
H	9.3	9.3	9.3	9.3	9.3	10.8	12.3	12.4	19.6	±0.5
I	15.3	15.3	15.3	15.3	15.3	19.3	20.8	32.4	10.1	±0.5
J	21.8	21.8	21.8	21.8	21.8	20.1	19.9	15.5	42.25	±0.5
K	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.4	4.4	
L	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6	6	
M	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.9	1.2	
Connection style -06										
N	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8			
Connection style -07										
O	8.3	8.3	8.3	8.3	8.3	8.3				±0.5
P	21.8	21.8	21.8	21.8	21.8	14				±0.5
AWG type wire	AWG 20	AWG 20	AWG 18	AWG 18	AWG 16	AWG 16				
Wire length	140	140	140	140	140	140				+5
Connection style -08										
N							M4	M4		
Recommended torque (Nm)							1.2 - 1.3	1.2 - 1.3		
Connection style -24										
N									M6	
Q									51	±0.2
Recommended torque (Nm)									3.5 - 4	

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

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



Headquarters, global innovation and development

Switzerland

Schaffner Group

Nordstrasse 11
4542 Luterbach
T +41 32 681 66 26
info@schaffner.com
www.schaffner.com



Sales and application centers

China

Schaffner EMC Ltd. Shanghai

T20-3 C, No 565 Chuangye Road,
Pudong district
201201 Shanghai
T +86 21 3813 9500
cschina@schaffner.com
www.schaffner.com.cn

Finland

Schaffner Oy

Sauvonrinne 19 H
08500 Lohja
T +358 50 468 7284
finlandsales@schaffner.com

France

Schaffner EMC S.A.S.

16-20 Rue Louis Rameau
95875 Bezons
T +33 1 34 34 30 60
F +33 1 39 47 02 28
francesales@schaffner.com

Germany

Schaffner Deutschland GmbH

Schoemperlenstrasse 12B
76185 Karlsruhe
T +49 721 56910
F +49 721 569110
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
Malleswaram (W)
560055 Bangalore
T +91 80 67935355
indiasales@schaffner.com

Italy

Schaffner EMC S.r.l.

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

Japan

Schaffner EMC K.K.

1-32-12, Kamiyama, Setagaya-ku
7F Mitsui-seimei Sangenjaya Bldg.
154-0011 Tokyo
T +81 3 5712 3650
F +81 3 5712 3651
japansales@schaffner.com
www.schaffner.jp

Singapore

Schaffner EMC Pte Ltd.

#05-09, Kg Ubi Ind. Estate
408705 Singapore
T +65 6377 3283
F +65 6377 3281
singaporesales@schaffner.com

Spain

Schaffner EMC España

Calle Caléndula 93, Miniparc III, Edificio E
El Soto de Moraleja, Alcobendas
28109 Madrid
T +34 917 912 900
F +34 917 912 901
spainsales@schaffner.com

Sweden

Schaffner EMC AB

Tegeluddsvägen 76, 2tr
115 28 Stockholm
T +46 8 5050 2425
swedensales@schaffner.com
www.schaffner.com

Switzerland

Schaffner EMV AG

Nordstrasse 11
4542 Luterbach
T +41 32 681 66 26
switzerlandsales@schaffner.com

Taiwan R.O.C.

Schaffner EMV Ltd.

20 Floor-2, No 97, Section 1, XinTai 5th Road
22175 XiZhi District New Taipei City 22175
T +886 2 2697 5500
F +886 2 2697 5533
taiwansales@schaffner.com
www.schaffner.com.tw

Thailand

Schaffner EMC Co. Ltd.

Northern Region Industrial Estate
67 Moo 4 Tambon Ban Klang
Amphur Muangng P.O. Box 14
51000 Lamphun
T +66 53 58 11 04
F +66 53 58 10 19
thailandsales@schaffner.com

United Kingdom

Schaffner Ltd.

5 Ashville Way, Molly Millars Lane
Wokingham
RG41 2PL Berkshire
T +44 118 9770070
F +44 118 9792969
uksales@schaffner.com

USA

Schaffner EMC Inc.

52 Mayfield Avenue
08837 Edison, New Jersey
T +1 800 367 5566
T +1 732 225 9533
F +1 732 225 4789
usasales@schaffner.com
www.schaffnerusa.com

Schaffner North America

6722 Thirlane Road
24019 Roanoke, Virginia
T +1 276 228 7943
F +1 276 228 7953

Schaffner North America

823 Fairview Road
24382 Wytheville, Virginia
T +1 276 228 7943
F +1 276 228 7258

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

© 2018 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.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А