

## Common-mode Suppression Chokes

**SCHAFNER**  
energy efficiency and reliability



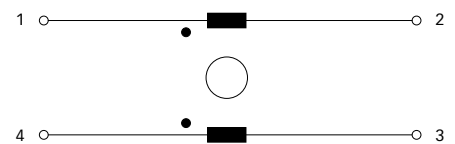
- Rated currents up to 5A
- Broadband attenuation characteristics
- Low magnetic leakage flux
- UL rated materials
- RoHS compliant



### Technical specifications

Maximum continuous operating voltage:	250VAC @ 50°C
Operating frequency:	dc to 400Hz @ 50°C
Rated currents:	0.3 to 5A
Overcurrent:	1.5x I <sub>nominal</sub> for 1 minute, once per hour
High potential test voltage winding-to-winding @ 25°C:	3000VAC, 60 sec, guaranteed
	2000V, 50Hz, 2 sec, factory test
Temperature range (operation and storage):	-25°C to +100°C (25/100/21)
Flammability corresponding to:	UL 94V-0
<b>Test conditions</b>	
Measuring frequency:	10kHz; 5mA < 16μH;
	500μA > 16μH < 160μH;
	50μA > 160μH > 16mH;
	50mV > 16mH < 160mH
	Inductance tolerance ±30%
Resistance:	Tolerance max. ±15% @ 25°C; ≤ 20mΩ, 1A;
	> 20mΩ ≤ 200mΩ, 100mA; > 200mΩ ≤ 2V, 10mA
Electrical characteristics:	@ 25°C ±2°C

### Typical electrical schematic



Common-mode suppression chokes are mainly used to filter noise on AC power lines. Noise on commercial power lines could enter the equipment and disturb the proper function. Noise generated by the equipment for example from switch mode power supplies need to be filtered and the spread of such generated noise need to be suppressed. Common-mode suppression chokes together with line bypass capacitors building an AC EMI suppression filter device.

### Features and benefits

- Rated currents up to 5A.
- Compact and light weight.
- Low magnetic leakage flux.
- Sectional winding.
- Standard foot print.
- Broad range of available inductances and current ratings.
- Custom-specific versions.
- Schaffner offers you also EMI measurement service to verify that your design will pass the required safety standards.

### Typical applications

- Input filters for switch mode power supplies
- Filters to reduce leaking noise
- TVs, VCRs, multimedia and audio equipment
- Office automation, communications and other electronic devices
- Electric ballast
- AC/AC converters

Choke selection table

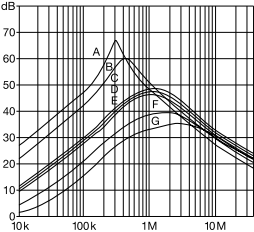
EV choke	EH choke	L nominal (±30%)	DC resistance R	Rated current I (50°C)	Weight
		[mH]	[mΩ]	[A]	[g]
EV 20-0.3-02-33M	EH 20-0.3-02-33M	33	1780	0.3	10
EV 20-0.5-02-18M	EH 20-0.5-02-18M	18	725	0.5	10
EV 20-0.8-02-5M6	EH 20-0.8-02-5M6	5.6	245	0.8	10
EV 20-1.0-02-3M9	EH 20-1.0-02-3M9	3.9	168	1.0	10
EV 20-1.2-02-3M3	EH 20-1.2-02-3M3	3.3	127	1.2	10
EV 20-1.5-02-1M8	EH 20-1.5-02-1M8	1.8	72	1.5	10
EV 20-2.0-02-0M8	EH 20-2.0-02-0M8	0.82	38	2.0	10
EV 24-0.5-02-44M	EH 24-0.5-02-44M	44	1250	0.5	18
EV 24-0.8-02-18M	EH 24-0.8-02-18M	18	438	0.8	18
EV 24-1.0-02-10M	EH 24-1.0-02-10M	10	244	1.0	18
EV 24-1.5-02-4M5	EH 24-1.5-02-4M5	4.5	116	1.5	18
EV 24-2.0-02-2M5	EH 24-2.0-02-2M5	2.5	62	2.0	18
EV 24-3.0-02-1M2	EH 24-3.0-02-1M2	1.2	29	3.0	18
EV 24-4.0-02-0M5	EH 24-4.0-02-0M5	0.5	16	4.0	18
EV 28-1.0-02-36M	EH 28-1.0-02-36M	36	591	1.0	31
EV 28-1.5-02-20M	EH 28-1.5-02-20M	20	282	1.5	31
EV 28-2.0-02-11M	EH 28-2.0-02-11M	11	162	2.0	31
EV 28-3.0-02-5M0	EH 28-3.0-02-5M0	5	79	3.0	31
EV 28-4.0-02-2M3	EH 28-4.0-02-2M3	2.3	40	4.0	31
EV 28-5.0-02-1M1	EH 28-5.0-02-1M1	1.1	27	5.0	31
EV 35-1.0-02-90M	EH 35-1.0-02-90M	90	628	1.0	70
EV 35-2.0-02-20M	EH 35-2.0-02-20M	20	150	2.0	70
EV 35-3.0-02-10M	EH 35-3.0-02-10M	10	72	3.0	70
EV 35-4.0-02-5M0	EH 35-4.0-02-5M0	5	53	4.0	70
EV 35-5.0-02-3M6	EH 35-5.0-02-3M6	3.6	33	5.0	70

All wires rated 130°C or higher.

Typical choke attenuation

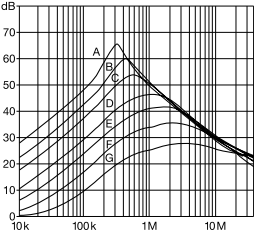
Per CISPR 17; 50Ω/50Ω asym

EV/EH 20 types



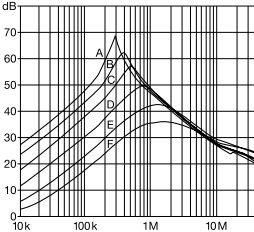
- A = 33mH
- B = 18mH
- C = 5.6mH
- D = 3.9mH
- E = 3.3mH
- F = 1.8mH
- G = 0.8mH

EV/EH 24 types



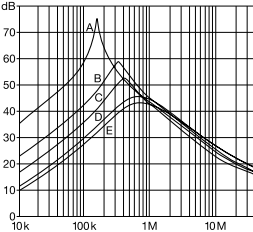
- A = 44mH
- B = 18mH
- C = 10mH
- D = 4.5mH
- E = 2.5mH
- F = 1.2mH
- G = 0.5mH

EV/EH 28 types



- A = 36mH
- B = 20mH
- C = 11mH
- D = 5mH
- E = 2.3mH
- F = 1.1mH

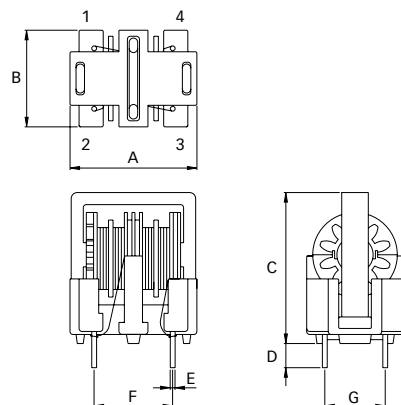
EV/EH 35 types



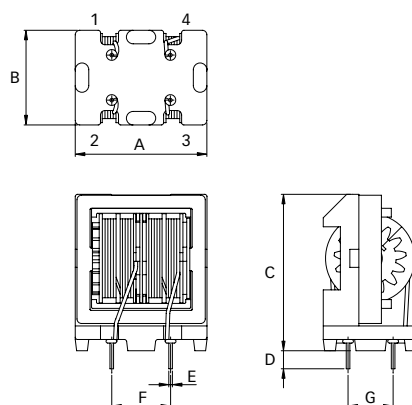
- A = 90mH
- B = 20mH
- C = 10mH
- D = 5mH

## Mechanical data

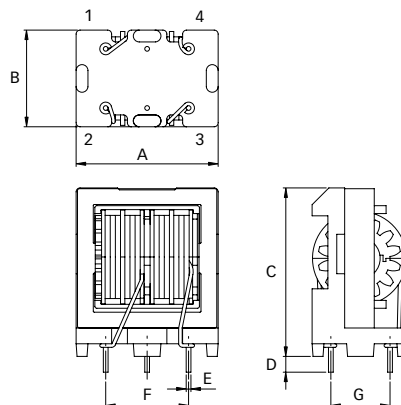
EV 20



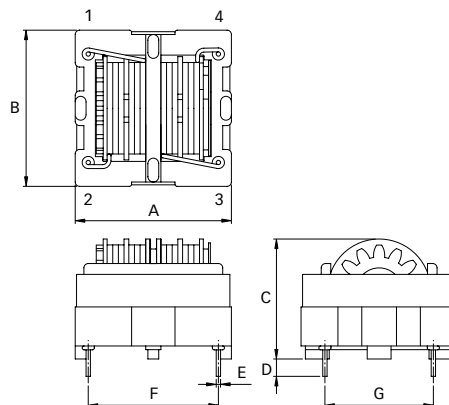
EV 24 and 28



EV 35



EH 20 to 35



## Dimensions

	EV 20	EV 24	EV 28	EV 35	EH 20	EH 24	EH 28	EH35	Tolerances
<b>A</b>	21	24.6	29.2	36	21	24	28	36	±1
<b>B</b>	16	17.4	21	24.5	21	24	28	36	±1
<b>C</b>	25*	29.1	34.7	42.7	17.8	20	22.9	27.7	±1
<b>D</b>	4	4	4	4	4	4	4	4	±1
<b>E</b>	Ø0.8	Ø0.8	Ø0.8	Ø1.2	Ø0.8	Ø0.8	Ø0.8	Ø1.0	±0.1
<b>F</b>	13	13	13	21	13	21	24	30	±0.5
<b>G</b>	10	10	10	15	10	15	20	25	±0.5

All dimensions in mm; 1 inch = 25.4mm

\* Tolerance is +1/-2mm

**Headquarters and  
global innovation and  
development center**

**Schaffner Group**  
Nordstrasse 11  
4542 Luterbach  
Switzerland  
T +41 32 681 66 26  
F +41 32 681 66 30  
info@schaffner.ch  
[www.schaffner.com](http://www.schaffner.com)

**Sales and application centers**

**China**

**Schaffner EMC Ltd. Shanghai**  
Building 11, Lane 1365  
East Kangqiao Road  
Shanghai 201319  
T +86 21 6813 9855  
F +86 21 6813 9811  
cschina@schaffner.com  
[www.schaffner.com](http://www.schaffner.com)

**Germany**

**Schaffner Deutschland GmbH**  
Schoemperlenstrasse 12B  
76185 Karlsruhe  
T +49 721 56910  
F +49 721 569110  
germanysales@schaffner.com

**Finland**

**Schaffner Oy**  
Tynninkuja 7  
08700 Lohja  
T +358 19 35 72 71  
F +358 19 32 66 10  
finlandsales@schaffner.com

**France**

**Schaffner EMC S.A.S.**  
112, Quai de Bezons  
95103 Argenteuil  
T +33 1 34 34 30 60  
F +33 1 39 47 02 28  
francesales@schaffner.com

**Italy**

**Schaffner EMC S.r.l.**  
Via Galileo Galilei, 47  
20092 Cinisello Balsamo (MI)  
T +39 02 66 04 30 45/47  
F +39 02 61 23 943  
italysales@schaffner.com

**Japan**

**Schaffner EMC K.K.**  
Mitsui-Seimei Sangenjaya Bldg. 7F  
1-32-12, Kamiyama, Setagaya-ku  
Tokyo 154-0011  
T +81 3 5712 3650  
F +81 3 5712 3651  
japansales@schaffner.com  
[www.schaffner.jp](http://www.schaffner.jp)

**Sweden**

**Schaffner EMC AB**  
Turebergstorg 1, 6  
19147 Sollentuna  
T +46 8 5792 1121 / 22  
F +46 8 92 96 90  
swedensales@schaffner.com

**Switzerland**

**Schaffner EMV AG**  
Nordstrasse 11  
4542 Luterbach  
T +41 32 681 66 26  
F +41 32 681 66 41  
sales@schaffner.ch

**Singapore**

**Schaffner EMC Pte Ltd.**  
Blk 3015A Ubi Road 1  
05-09 Kampong Ubi Industrial  
Estate  
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 la Moraleja,  
Alcobendas  
28109 Madrid  
T +34 618 176 133  
spainsales@schaffner.com

**Taiwan**

**Schaffner EMV Ltd.**  
6th Floor, No 413  
Rui Guang Road  
Neihu District  
Taipei City 114  
T +886 2 87525050  
F +886 2 87518086  
taiwansales@schaffner.com

**Thailand**

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

**UK**

**Schaffner Ltd.**  
5 Ashville Way  
Molly Millars Lane  
Wokingham  
Berkshire RG41 2PL  
T +44 118 9770070  
F +44 118 9792969  
uksales@schaffner.com  
[www.schaffner.uk.com](http://www.schaffner.uk.com)

**USA**

**Schaffner EMC Inc.**  
52 Mayfield Avenue  
Edison, New Jersey 08837  
T +1 732 225 9533  
F +1 732 225 4789  
usasales@schaffner.com  
[www.schaffner.com/us](http://www.schaffner.com/us)

To find your local partner within  
Schaffner's global network, please go to

[www.schaffner.com](http://www.schaffner.com)

June 2011

© 2011 Schaffner EMC.  
Specifications subject to change without  
notice. All trademarks recognized.

Schaffner is an ISO-registered company.  
Its products are designed and manufac-  
tured under the strict quality and environ-  
mental requirements of the ISO 9001 and  
ISO 14001 standards.

This document has been carefully  
checked. However, Schaffner does not  
assume any liability for errors or inac-  
curacies.