

# Common-mode Suppression Chokes



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



## Technical specifications

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

## Approvals

## RoHS

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.

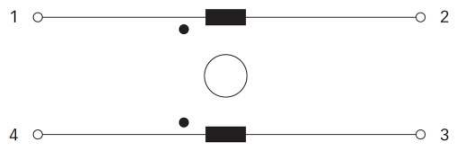
## Features and benefits

- | 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 measure- ment 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

## Typical electrical schematic



Choke selection table

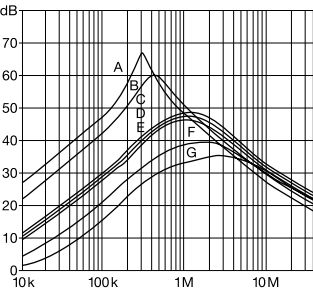
| EV choke         | EH choke         | L nominal<br>(±30%)<br>[mH] | DC resistance<br>R<br>[mΩ] | Rated current<br>I (50 °C)<br>[A] | Weight<br>[g] |
|------------------|------------------|-----------------------------|----------------------------|-----------------------------------|---------------|
| 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

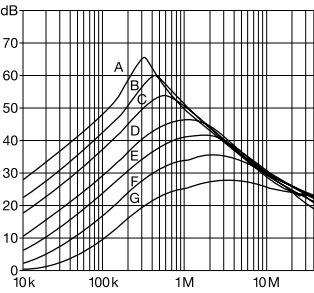
Per CISPR 17; 50 Ω/50 Ω asym

EV/EH 20 types



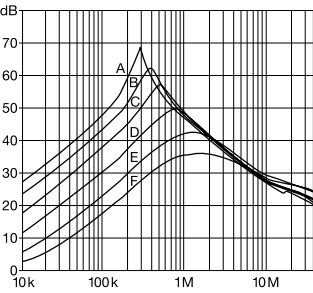
- A = 33mH
- B = 18mH
- C = 5.6mH
- D = 3.9mH
- E = 3.3mH
- F = 1.8mH
- G = 0.8mH

EV/EH 24 types



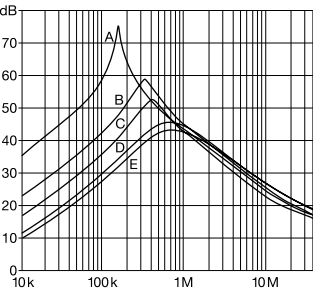
- A = 44mH
- B = 18mH
- C = 10mH
- D = 5.5mH
- E = 2.5mH
- F = 1.2mH
- G = 0.5mH

EV/EH 28 types



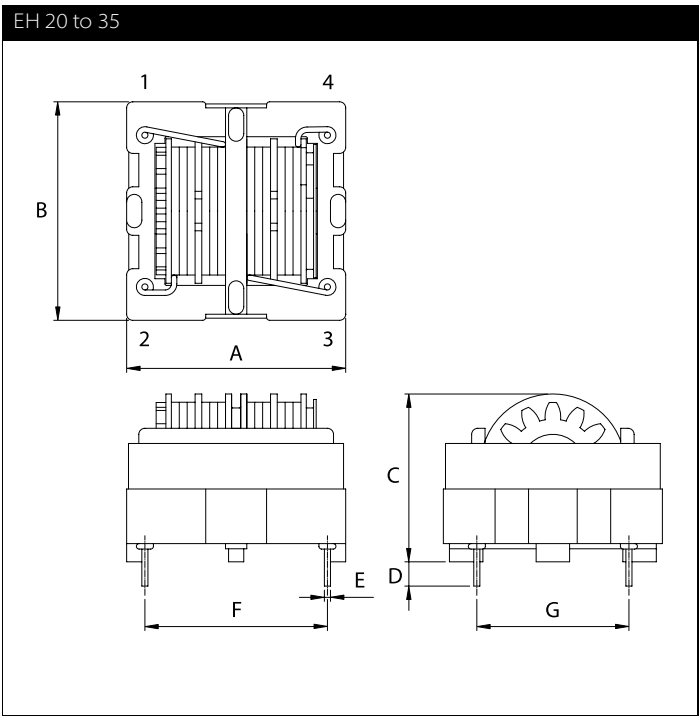
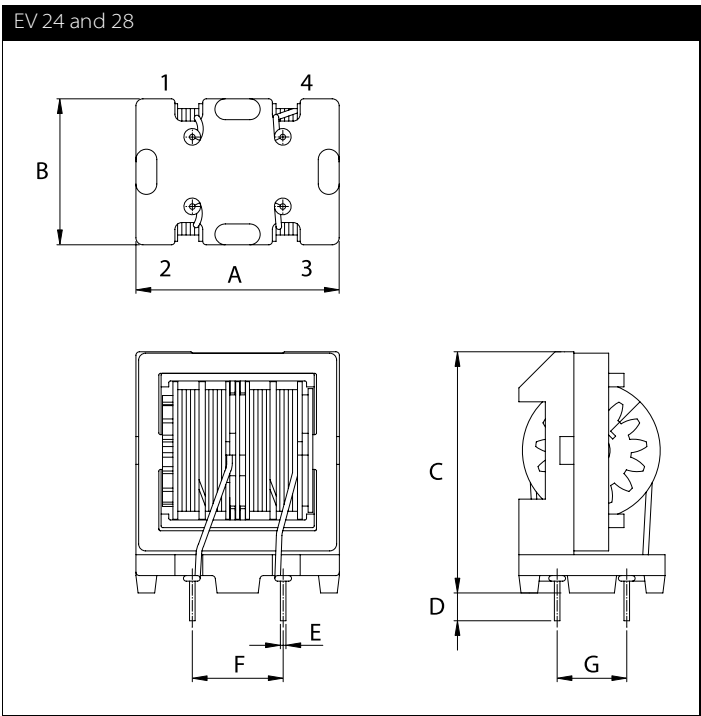
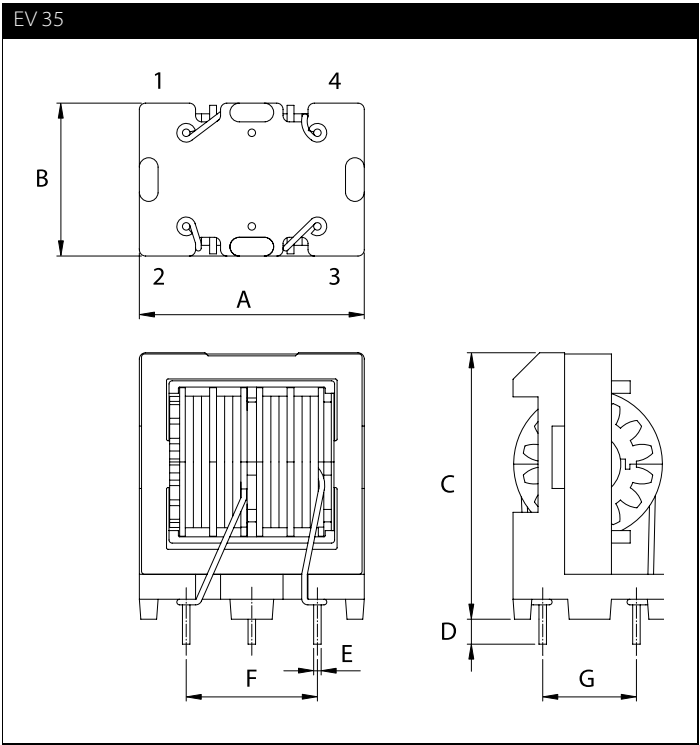
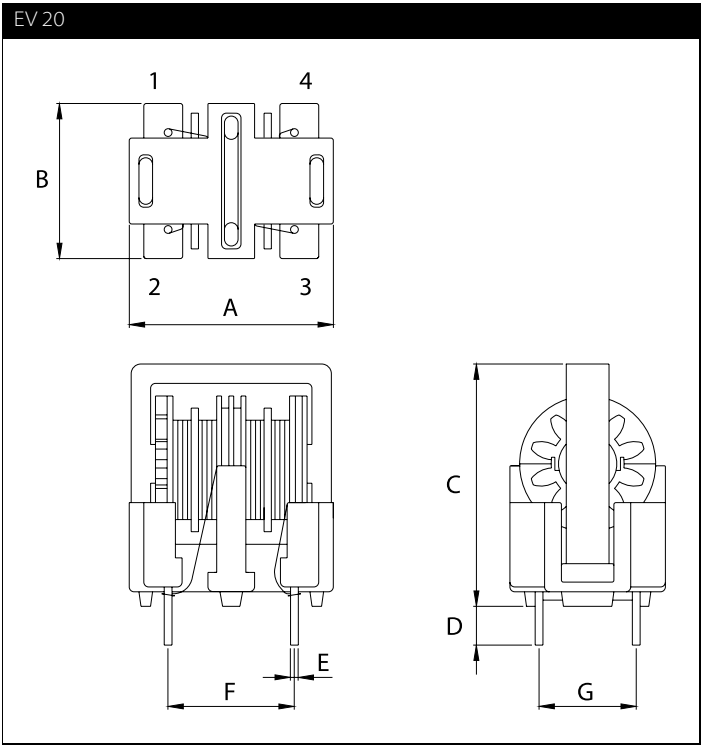
- A = 36mH
- B = 20mH
- C = 11mH
- D = 5mH
- E = 2.3mH
- F = 1.1mH

EV/EH 35 types



- A = 90mH
- B = 20mH
- C = 10mH
- D = 5mH
- E = 3.6mH

Mechanical data



## 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 = 25.4 mm

\* Tolerance is +1/-2 mm

Please visit [www.schaffner.com](http://www.schaffner.com) to find more details on filter connectors.



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