

## Common-mode Suppression Chokes

**SCHAFFNER**  
energy efficiency and reliability



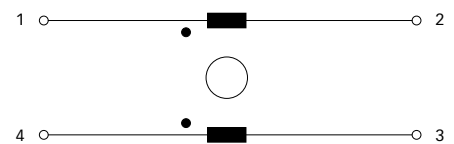
- Rated currents up to 5A
- Broadband attenuation characteristics
- Low magnetic leakage flux
- UL rated materials
- RoHS compliant



### 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                                              |
| Test conditions                                        |                                                       |
| 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

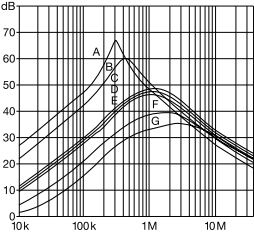
| EV choke         | EH choke         | L nominal<br>(±30%) | DC resistance<br>R | Rated current<br>I (50°C) | Weight |
|------------------|------------------|---------------------|--------------------|---------------------------|--------|
|                  |                  | [mH]                |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

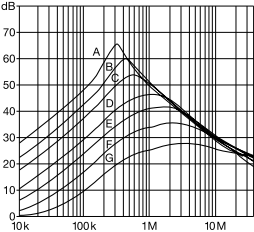
Per CISPR 17; 50Ω/50Ω asym

EV/EH 20 types



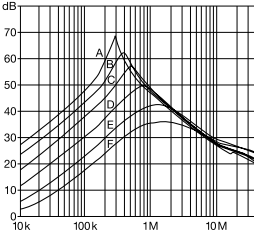
- A = 33mH
- B = 18mH
- C = 5.6mH
- D = 3.9mH
- E = 3.3mH
- F = 1.8mH
- G = 0.8mH

EV/EH 24 types



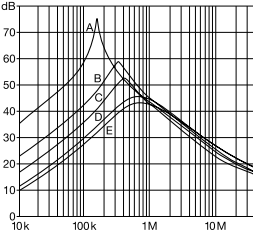
- A = 44mH
- B = 18mH
- C = 10mH
- D = 4.5mH
- E = 2.5mH
- F = 1.2mH
- G = 0.5mH

EV/EH 28 types



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

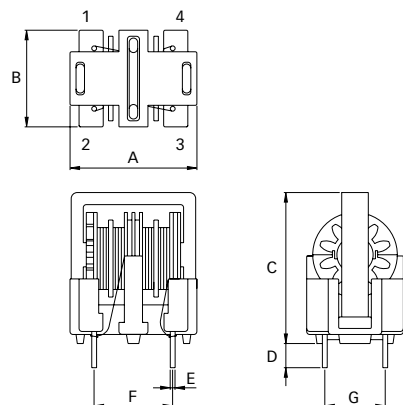
EV/EH 35 types



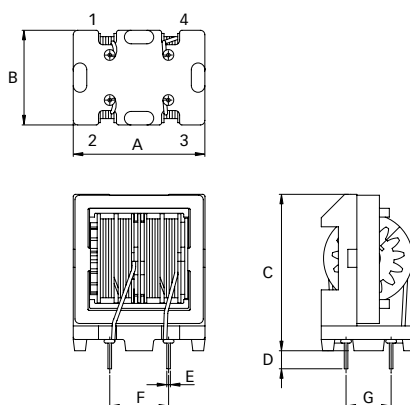
- A = 90mH
- B = 20mH
- C = 10mH
- D = 5mH
- E = 3.6mH

## Mechanical data

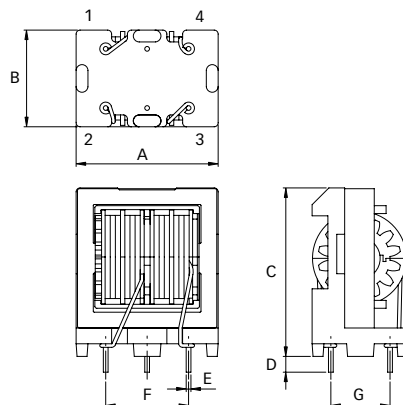
EV 20



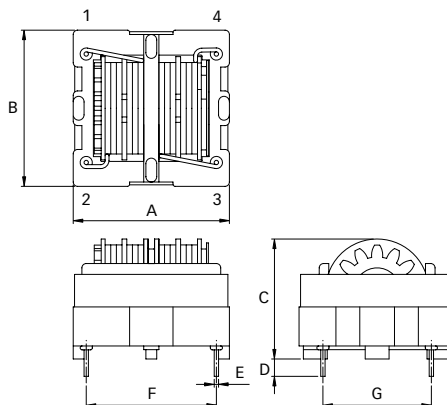
EV 24 and 28



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

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