

Current-compensated Chokes

SCHAFFNER
energy efficiency and reliability



- Rated currents from 0.3 to 10A
- DC to 1kHz frequency
- 100kHz to 3MHz common-mode resonance frequency
- Dual-choke configurations
- Multiple PCB-mounting options

Approvals



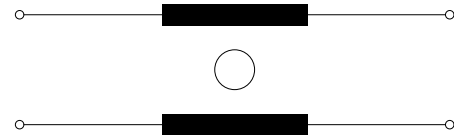
VDE: excluding RN 102, RN 202



Technical specifications

| | |
|--|----------------------------------|
| Maximum continuous operating voltage: | 250VAC @ 40°C |
| Operating frequency: | dc to 1kHz |
| Rated currents: | 0.3 to 10A @ 40°C max. |
| High potential test voltage winding-to-winding @ 25°C: | 1500VAC, 60 sec, guaranteed |
| | 1500V, 50Hz, 2 sec, factory test |
| winding-to-housing @ 25°C: | 4000VAC, 60 sec, guaranteed |
| Surge current @ 10msec: | 20 x I _{nominal} @ 25°C |
| Temperature range (operation and storage): | -40°C to +125°C (40/125/56) |
| Flammability corresponding to: | UL 94V-0 |
| MTBF @ 40°C/230V (Mil-HB-217F): | > 5,000,000 hours |

Typical electrical schematic



RN chokes are attenuating common-mode or asymmetric (P/N → E) interference signals, by being connected in series with the phase and neutral lines of an AC powerline input. Symmetrical components of the noise are also attenuated by the leakage inductance of the windings. These chokes are typically used in conjunction with suppression capacitors.

Features and benefits

- High saturation resistance and excellent thermal behavior.
- Through hole pin connections.
- Dual-choke configuration.
- Small compact design.
- Multiple housing options.
- Custom-specific versions are available on request.

Typical applications

- Phase-angle control circuits in combination with saturating chokes
- EMI input filters
- For suppressing equipment with no earth connection
- Suppressing high interference levels

Choke selection table

| Choke* | Nominal current @ 40°C | Inductance L [mH/path] | Resistance R [mΩ/path] | Choke configuration [Qty] | Input/Output connections | Type 1 [g] | Weight Type 2 [g] |
|---------------|---------------------------|------------------------------|------------------------------|---------------------------------|-----------------------------|---------------|-------------------------|
| | [A] | | | | | | |
| RN x02-0.3-02 | 0.3 | 12 | 1275 | 2 | -02 | 2 | 3 |
| RN x02-0.6-02 | 0.6 | 4.4 | 385 | 2 | -02 | 2 | 3 |
| RN x02-1-02 | 1 | 3 | 205 | 2 | -02 | 2 | 3 |
| RN x02-1.5-02 | 1.5 | 1.6 | 100 | 2 | -02 | 2 | 3 |
| RN x02-2-02 | 2 | 1.1 | 70 | 2 | -02 | 2 | 3 |
| RN x12-0.4-02 | 0.4 | 39 | 1460 | 2 | -02 | 5 | 6 |
| RN x12-0.5-02 | 0.5 | 27 | 1250 | 2 | -02 | 5 | 6 |
| RN x12-0.6-02 | 0.6 | 15 | 465 | 2 | -02 | 5 | 6 |
| RN x12-0.8-02 | 0.8 | 10 | 370 | 2 | -02 | 5 | 6 |
| RN x12-1.2-02 | 1.2 | 6.8 | 245 | 2 | -02 | 5 | 6 |
| RN x12-1.5-02 | 1.5 | 3.3 | 135 | 2 | -02 | 5 | 6 |
| RN x12-2-02 | 2 | 1.8 | 75 | 2 | -02 | 5 | 6 |
| RN x12-4-02 | 4 | 0.7 | 27 | 2 | -02 | 5 | 6 |
| RN x14-0.3-02 | 0.3 | 47 | 1750 | 2 | -02 | 9 | 12 |
| RN x14-0.5-02 | 0.5 | 39 | 810 | 2 | -02 | 9 | 12 |
| RN x14-0.8-02 | 0.8 | 27 | 500 | 2 | -02 | 9 | 12 |
| RN x14-1-02 | 1 | 15 | 375 | 2 | -02 | 9 | 12 |
| RN x14-1.2-02 | 1.2 | 10 | 200 | 2 | -02 | 9 | 12 |
| RN x14-1.5-02 | 1.5 | 6.8 | 130 | 2 | -02 | 9 | 12 |
| RN x14-2-02 | 2 | 4.2 | 102 | 2 | -02 | 9 | 12 |
| RN x14-2.5-02 | 2.5 | 3.3 | 72 | 2 | -02 | 9 | 12 |
| RN x14-3-02 | 3 | 2 | 55 | 2 | -02 | 9 | 12 |
| RN x14-4-02 | 4 | 1.5 | 35 | 2 | -02 | 9 | 12 |
| RN x22-0.6-02 | 0.6 | 47 | 1180 | 2 | -02 | 17 | 21 |
| RN x22-0.8-02 | 0.8 | 39 | 1000 | 2 | -02 | 17 | 21 |
| RN x22-1-02 | 1 | 18 | 610 | 2 | -02 | 17 | 21 |
| RN x22-1.5-02 | 1.5 | 10 | 220 | 2 | -02 | 17 | 21 |
| RN x22-2-02 | 2 | 6.8 | 147 | 2 | -02 | 17 | 21 |
| RN x22-2.5-02 | 2.5 | 5.6 | 105 | 2 | -02 | 17 | 21 |
| RN x22-3-02 | 3 | 4.5 | 80 | 2 | -02 | 17 | 21 |
| RN x22-4-02 | 4 | 3.3 | 45 | 2 | -02 | 17 | 21 |
| RN x42-0.5-02 | 0.5 | 82 | 2700 | 2 | -02 | 32 | 32 |
| RN x42-1-02 | 1 | 33 | 810 | 2 | -02 | 32 | 32 |
| RN x42-1.4-02 | 1.4 | 27 | 500 | 2 | -02 | 32 | 32 |
| RN x42-2-02 | 2 | 6.8 | 190 | 2 | -02 | 32 | 32 |
| RN x42-4-02 | 4 | 3.3 | 66 | 2 | -02 | 32 | 32 |
| RN x42-6-02 | 6 | 1.8 | 20 | 2 | -02 | 32 | 32 |
| RN 143-0.5-02 | 0.5 | 100 | 2900 | 2 | -02 | 33 | |
| RN 143-1-02 | 1 | 47 | 880 | 2 | -02 | 33 | |
| RN 143-2-02 | 2 | 10 | 230 | 2 | -02 | 33 | |
| RN 143-4-02 | 4 | 3.9 | 58 | 2 | -02 | 33 | |
| RN 143-6-02 | 6 | 1.8 | 20 | 2 | -02 | 33 | |
| RN 152-1-02 | 1 | 68 | 1300 | 2 | -02 | 54 | |
| RN 152-2-02 | 2 | 18 | 350 | 2 | -02 | 54 | |
| RN 152-4-02 | 4 | 6.8 | 87 | 2 | -02 | 54 | |
| RN 152-6-02 | 6 | 3.9 | 41 | 2 | -02 | 54 | |
| RN 152-8-02 | 8 | 2.7 | 22 | 2 | -02 | 54 | |
| RN 152-10-02 | 10 | 1.8 | 14 | 2 | -02 | 54 | |

* Replace the x by the desired housing style type 1 or 2.



1: Choke horizontal



2: Choke vertical

Test conditions:

Measuring frequency: 10kHz; 5mA < 16μH; 500μA > 16μH < 160μH; 50μA > 160μH < 16mH; 50mV > 16mH < 160mH

Inductance tolerance: +50%, -30%

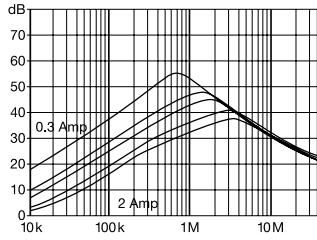
Resistance tolerance: max. ±15% @ 25°C; ≤ 20mΩ, 1A; > 20mΩ ≤ 200mΩ, 100mA; > 200mΩ ≤ 2Ω, 10mA

Electrical characteristics @ 25°C: ±2°C

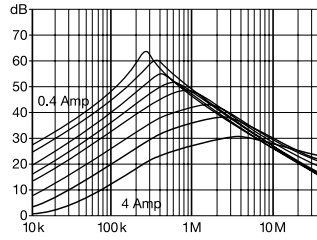
Typical choke attenuation/resonance frequency characteristics

Per CISPR 17; 50Ω/50Ω asym

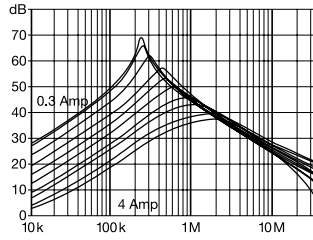
RN x02



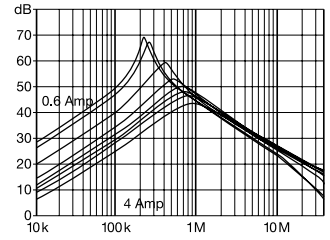
RN x12



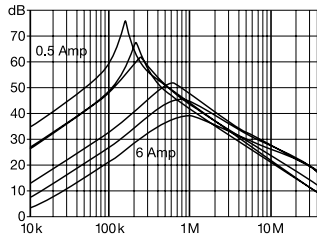
RN x14



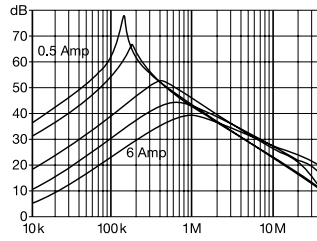
RN x22



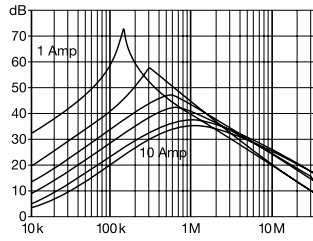
RN x42



RN 143



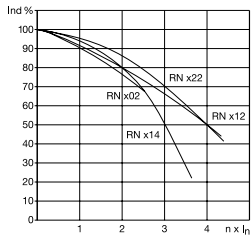
RN 152



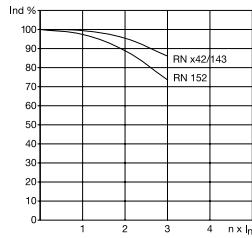
Typical saturation characteristics

Inductance (typical value in %) vs. nominal current (A DC)

RN x02 / RN x12 / RN x14 / RN x22

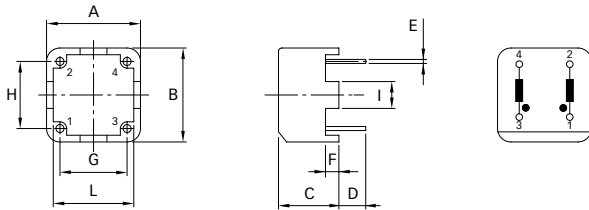


RN x42 / RN 143 / RN 152

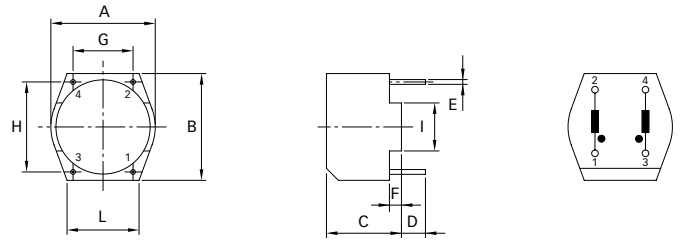


Mechanical data

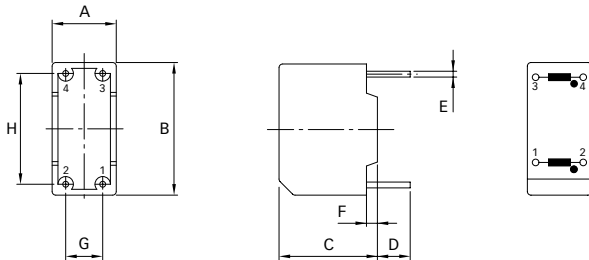
RN 102



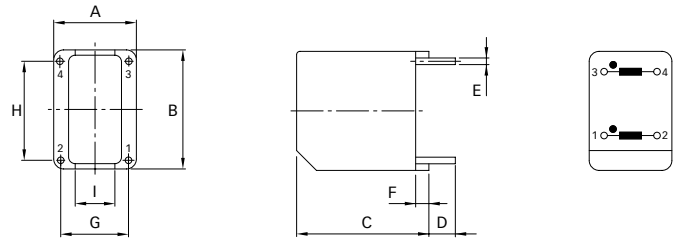
RN 112, RN 114, RN 122, RN 142, RN 143



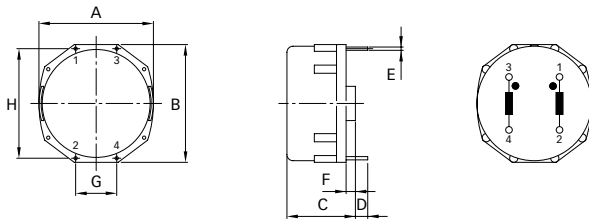
RN 202



RN 212, RN 214, RN 222, RN 242



RN 152



Dimensions

| | RN 102 | RN 112 | RN 114 | RN 122 | RN 202 | RN 212 | RN 214 | RN 222 | RN 142 | RN 143 | RN 242 | RN 152 | Tol. |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|
| A | 14 | 17.1 | 21.5 | 27 | 8.8 | 12.5 | 15.5 | 18 | 32.5 | 32.5 | 18 | 41.8 | ±0.3 |
| B | 14 | 17.7 | 22.5 | 28 | 18.2 | 18 | 23 | 31 | 33.1 | 33.1 | 31 | 43 | ±0.3 |
| C | 9 | 12.6 | 13.2 | 16.5 | 13.5 | 20 | 25 | 29.3 | 19.7 | 19.7 | 34.3 | 25 | ±0.3 |
| D | 4 | 4 | 4 | 4 | 4.5 | 4 | 4 | 4 | 4.3 | 4.3 | 4.2 | 4.5 | ±0.5 |
| E | 0.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 1.2 | ±0.1 |
| F | 2 | 2 | | | 1.5 | 2 | | | | | | 3.4 | |
| G | 10 | 10 | 12.5 | 15 | 5.08 | 10 | 12.5 | 15 | 20 | 20 | 15 | 15 | ±0.2 |
| H | 10 | 15 | 20.1 | 25 | 15.21 | 15 | 10 | 12.5 | 30 | 30 | 12.5 | 40 | ±0.2 |
| I | 4 | 8 | | | | 6 | | | | | | | |
| L | 12 | 12 | | | | | | | | | | | |

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

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May 2011

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