Multi-stage High Performance AC/DC EMI Filter

- Rated currents from 1 to 16 A
- High differential and common-mode attenuation
- Good low frequency attenuation
- Optional medical versions (B type)
- Optional safety versions (A type)

Performance indicators

<table>
<thead>
<tr>
<th>Attenuation performance</th>
<th>standard</th>
<th>high</th>
<th>very high</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Rated current [A]</th>
<th>0</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
<td></td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

Technical specifications

- **Rated voltage**: 250 VAC, 50/60 Hz; 250 VDC
- **Operating frequency**: DC to 400 Hz
- **Rated currents**: 1 to 16 A @ 40°C max.
- **High potential test voltage**:
  - P → PE 2000 VAC for 2 sec
  - P → PE 2500 VAC for 2 sec (B types)
  - P → N 1100 VDC for 2 sec
- **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)
  - Terminal plastic for 06-/08/ version: UL 94 V-0
  - Laces for 07/ version: UL 94 VW-1
  - Grommet for 07/ version: UL 94 V-0
- **Design corresponding to**
  - UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
- **Overvoltage category**
  - 1 acc. IEC 60664-1
  - 2 acc. IEC 60664-1
- **Pollution degree**
  - 1
- **Altitude**
  - 2000m (above derating applies)**
  - 1,650,000 hours
  - 1,700,000 hours (B types)

* maximum RMS operating voltage at rated frequency or the maximum DC operating voltage
** for dedicated requests exceeding this specification (e.g. -40°C or higher altitude) please contact your local Schaffner Sales office

Approvals

- UL
- CSA
- ROHS
- CE

Features and benefits

- FN 2080 two-stage filters are designed for easy and fast chassis mounting
- FN 2080 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 high conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior
- FN 2080 two-stage filters are designed with good low frequency attenuation
- FN 2080 filters are also available as single-stage filters
- FN 2080 filters are also available with two common mode choke configuration (FN 2070 series)
- Various terminal options allow you to select the desired connection style

Typical applications

- Electrical and electronic equipment
- Consumer goods
- Household equipment
- Building automation
- Industrial applications
- Machinery
- Medical equipment
- Electronic data processing equipment
- Office automation and datacom equipment
- Various noisy applications requiring good filter performance

Typical electrical schematic

```
P Cl R Cl L P' 
N 
PE Cy Cy 
Line Load 
```
## Filter selection table

<table>
<thead>
<tr>
<th>Filter*</th>
<th>Rated current @ 40°C (25°C)</th>
<th>Leakage current**</th>
<th>Inductance***</th>
<th>Capacitance***</th>
<th>Resistance***</th>
<th>Input/Output connections</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[A]</td>
<td>[mA]</td>
<td>[mH]</td>
<td>[μH]</td>
<td>[μF]</td>
<td>[nF]</td>
<td>[kΩ]</td>
</tr>
<tr>
<td>FN 2080-1-..</td>
<td>1 (1.2)</td>
<td>0.66 (0.38)</td>
<td>22</td>
<td>490</td>
<td>0.33</td>
<td>4.7</td>
<td>1000</td>
</tr>
<tr>
<td>FN 2080-3-..</td>
<td>3 (3.5)</td>
<td>0.66 (0.38)</td>
<td>9.8</td>
<td>160</td>
<td>0.47</td>
<td>4.7</td>
<td>470</td>
</tr>
<tr>
<td>FN 2080-6-..</td>
<td>6 (6.9)</td>
<td>0.66 (0.38)</td>
<td>7.8</td>
<td>110</td>
<td>1</td>
<td>47</td>
<td>220</td>
</tr>
<tr>
<td>FN 2080-10-..</td>
<td>10 (11.5)</td>
<td>0.66 (0.38)</td>
<td>4.5</td>
<td>60</td>
<td>1</td>
<td>47</td>
<td>220</td>
</tr>
<tr>
<td>FN 2080-12-..</td>
<td>12 (13.8)</td>
<td>0.66 (0.38)</td>
<td>3.25</td>
<td>50</td>
<td>1</td>
<td>47</td>
<td>220</td>
</tr>
<tr>
<td>FN 2080-16-..</td>
<td>16 (18.4)</td>
<td>0.66 (0.38)</td>
<td>2.8</td>
<td>43</td>
<td>1</td>
<td>47</td>
<td>220</td>
</tr>
<tr>
<td>FN 2080A-1-..</td>
<td>1 (1.2)</td>
<td>0.07 (0.04)</td>
<td>22</td>
<td>490</td>
<td>0.33</td>
<td>0.47</td>
<td>1000</td>
</tr>
<tr>
<td>FN 2080A-3-..</td>
<td>3 (3.5)</td>
<td>0.07 (0.04)</td>
<td>9.8</td>
<td>160</td>
<td>0.47</td>
<td>0.47</td>
<td>470</td>
</tr>
<tr>
<td>FN 2080A-6-..</td>
<td>6 (6.9)</td>
<td>0.07 (0.04)</td>
<td>7.8</td>
<td>110</td>
<td>1</td>
<td>0.47</td>
<td>220</td>
</tr>
<tr>
<td>FN 2080A-10-..</td>
<td>10 (11.5)</td>
<td>0.07 (0.04)</td>
<td>4.5</td>
<td>60</td>
<td>1</td>
<td>0.47</td>
<td>220</td>
</tr>
<tr>
<td>FN 2080A-12-..</td>
<td>12 (13.8)</td>
<td>0.07 (0.04)</td>
<td>3.25</td>
<td>50</td>
<td>1</td>
<td>0.47</td>
<td>220</td>
</tr>
<tr>
<td>FN 2080A-16-..</td>
<td>16 (18.4)</td>
<td>0.07 (0.04)</td>
<td>2.8</td>
<td>43</td>
<td>1</td>
<td>0.47</td>
<td>220</td>
</tr>
<tr>
<td>FN 2080B-1-..</td>
<td>1 (1.2)</td>
<td>0.00</td>
<td>22</td>
<td>490</td>
<td>0.33</td>
<td>1000</td>
<td>-06 -07</td>
</tr>
<tr>
<td>FN 2080B-3-..</td>
<td>3 (3.5)</td>
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<td>9.8</td>
<td>160</td>
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<tr>
<td>FN 2080B-6-..</td>
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<td>0.00</td>
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<td>110</td>
<td>1</td>
<td>220</td>
<td>-06 -07</td>
</tr>
<tr>
<td>FN 2080B-10-..</td>
<td>10 (11.5)</td>
<td>0.00</td>
<td>4.5</td>
<td>60</td>
<td>1</td>
<td>220</td>
<td>-06 -07 -08</td>
</tr>
<tr>
<td>FN 2080B-12-..</td>
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<td>0.00</td>
<td>3.25</td>
<td>50</td>
<td>1</td>
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<td>-06 -07 -08</td>
</tr>
<tr>
<td>FN 2080B-16-..</td>
<td>16 (18.4)</td>
<td>0.00</td>
<td>2.8</td>
<td>43</td>
<td>1</td>
<td>220</td>
<td>-06 -07 -08</td>
</tr>
</tbody>
</table>

* To compile a complete part number, please replace the -.. with the required I/O connection style (e.g. FN 2080-16-08, FN 2080B-10-06).

** Maximum leakage under usual AC operating conditions (acc. IEC60939-3). Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

*** Tolerances apply: Inductance: -30/+50%, Capacitance: ±20%, Resistance: ±10%

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### Product selector

- **FN 2080 x-xyyy**
  - **06**: Faston 6.3 x 0.8 mm (spade/soldering)
  - **07**: Wire leads
  - **08**: Studi (M4 screws)
  - **1 to 16**: Rated current
  - **8**: Standard version
  - **A**: Safety version
  - **B**: Medical version
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
**Mechanical data**

**Connection style -06, 1 and 3 A types**

![Connection style -06, 1 and 3 A types diagram]

**Connection style -06, 6 to 12 A types**

![Connection style -06, 6 to 12 A types diagram]

**Connection style -07, 1 and 3 A types (same dimensions as style -06)**

![Connection style -07, 1 and 3 A types diagram]

**Connection style -07, 6 to 12 A types (same dimensions as style -06)**

![Connection style -07, 6 to 12 A types diagram]

**Connection style -07, 16 A types (same dimensions as style -06)**

![Connection style -07, 16 A types diagram]

**Connection style -08, 10 to 16 A types (same dimensions as style -06)**

![Connection style -08, 10 to 16 A types diagram]
### Dimensions

<table>
<thead>
<tr>
<th>A</th>
<th>1 A</th>
<th>3 A</th>
<th>6 A</th>
<th>10 A</th>
<th>12 A</th>
<th>16 A</th>
<th>Tolerances</th>
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<tbody>
<tr>
<td></td>
<td>85</td>
<td>85</td>
<td>113.5 ±1</td>
<td>156 ±1</td>
<td>156 ±1</td>
<td>119 ±1</td>
<td>±0.5</td>
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<tr>
<td>B</td>
<td>54</td>
<td>54</td>
<td>57.5 ±1</td>
<td>57.5 ±1</td>
<td>57.5 ±1</td>
<td>85.5 ±1</td>
<td>±0.5</td>
</tr>
<tr>
<td>C</td>
<td>30.3</td>
<td>40.3</td>
<td>45.4 ±1</td>
<td>45.4 ±1</td>
<td>45.4 ±1</td>
<td>57.6 ±1</td>
<td>±0.5</td>
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<tr>
<td>D</td>
<td>64.8</td>
<td>64.8</td>
<td>94 ±1</td>
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<td>E</td>
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<td>56</td>
<td>56</td>
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<td>G</td>
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<td>27</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>40</td>
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<td>12.4</td>
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<td>I</td>
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<td>42.25</td>
<td>±0.5</td>
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<tr>
<td>J</td>
<td>19.9</td>
<td>11.4</td>
<td>15.5</td>
<td>15.5</td>
<td>15.5</td>
<td>44</td>
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<td>K</td>
<td>5.3</td>
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<td>4.4</td>
<td>5.3</td>
<td>5.3</td>
<td>4.4</td>
<td>±0.5</td>
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<tr>
<td>L</td>
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#### Connection style -06

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<th>6.3 x 0.8</th>
<th>6.3 x 0.8</th>
<th>6.3 x 0.8</th>
<th>6.3 x 0.8</th>
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</table>

#### Connection style -07

<table>
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<tr>
<th>O</th>
<th>8.3</th>
<th>8.3</th>
<th>8.4</th>
<th>8.4</th>
<th>8.4</th>
<th>8.6</th>
<th>±0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>14.9</td>
<td>14.9</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>42.25</td>
<td>±0.5</td>
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</table>

#### AWG type wire

<table>
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<tr>
<th>Wire length</th>
<th>AWG 20</th>
<th>AWG 20</th>
<th>AWG 18</th>
<th>AWG 18</th>
<th>AWG 16</th>
<th>AWG 16</th>
</tr>
</thead>
<tbody>
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</table>

#### Connection style -08

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<th>M4</th>
<th>M4</th>
</tr>
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<tbody>
<tr>
<td>Q</td>
<td>51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Recommended torque (Nm)

<table>
<thead>
<tr>
<th>Earth terminal</th>
<th>1.2 - 1.3</th>
<th>1.2 - 1.3</th>
<th>1.2 - 1.3</th>
</tr>
</thead>
</table>

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

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