Multi-stage High Performance AC/DC EMI Filter

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

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)
- Flammability corresponding to: UL 94 V-2 or better
- Design corresponding to: UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
- Overvoltage category: I acc. IEC 60664-1
- Pollution degree: 2 acc. IEC 60664-1
- Altitude: 2000m (above derating applies)**
- MTBF @ 40°C/230 V (MIL-HB-217F): 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

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

* schematic diagram with components labeled P, L, R, Cy, and N*
## Filter selection table

<table>
<thead>
<tr>
<th>Filter*</th>
<th>Rated current @ 40°C (25°C)</th>
<th>Leakage current** @ 250 VAC/50 Hz (@ 120 VAC/60 Hz)</th>
<th>Inductance*** L</th>
<th>Capacitance*** Cx</th>
<th>Resistance*** R</th>
<th>Input/Output connections</th>
<th>Weight [g]</th>
</tr>
</thead>
<tbody>
<tr>
<td>FN 2080-1-..</td>
<td>1 (1.2)</td>
<td>0.66 (0.38)</td>
<td>22</td>
<td>0.33</td>
<td>4.7</td>
<td>-06</td>
<td>-07</td>
</tr>
<tr>
<td>FN 2080-3-..</td>
<td>3 (3.5)</td>
<td>0.66 (0.38)</td>
<td>9.8</td>
<td>0.47</td>
<td>4.7</td>
<td>-06</td>
<td>-07</td>
</tr>
<tr>
<td>FN 2080-6-..</td>
<td>6 (6.9)</td>
<td>0.66 (0.38)</td>
<td>7.8</td>
<td>1</td>
<td>4.7</td>
<td>-06</td>
<td>-07</td>
</tr>
<tr>
<td>FN 2080-10-..</td>
<td>10 (11.5)</td>
<td>0.66 (0.38)</td>
<td>4.5</td>
<td>1</td>
<td>4.7</td>
<td>-06 -07</td>
<td>-08</td>
</tr>
<tr>
<td>FN 2080-12-..</td>
<td>12 (13.8)</td>
<td>0.66 (0.38)</td>
<td>3.25</td>
<td>1</td>
<td>4.7</td>
<td>-06 -07</td>
<td>-08</td>
</tr>
<tr>
<td>FN 2080-16-..</td>
<td>16 (18.4)</td>
<td>0.66 (0.38)</td>
<td>2.8</td>
<td>1</td>
<td>4.7</td>
<td>-06 -07</td>
<td>-08</td>
</tr>
<tr>
<td>FN 2080A-1-..</td>
<td>1 (1.2)</td>
<td>0.07 (0.04)</td>
<td>22</td>
<td>0.33</td>
<td>0.47</td>
<td>-06</td>
<td>-07</td>
</tr>
<tr>
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<td>0.07 (0.04)</td>
<td>9.8</td>
<td>0.47</td>
<td>0.47</td>
<td>-06</td>
<td>-07</td>
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<tr>
<td>FN 2080A-6-..</td>
<td>6 (6.9)</td>
<td>0.07 (0.04)</td>
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<td>1</td>
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<td>-07</td>
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<tr>
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<td>0.47</td>
<td>-06 -07</td>
<td>-08</td>
</tr>
<tr>
<td>FN 2080A-12-..</td>
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<td>0.07 (0.04)</td>
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<td>1</td>
<td>0.47</td>
<td>-06 -07</td>
<td>-08</td>
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<td>FN 2080A-16-..</td>
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<td>0.07 (0.04)</td>
<td>2.8</td>
<td>1</td>
<td>0.47</td>
<td>-06 -07</td>
<td>-08</td>
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<tr>
<td>FN 2080B-1-..</td>
<td>1 (1.2)</td>
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<td>-08</td>
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<td>FN 2080B-12-..</td>
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<td>FN 2080B-16-..</td>
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<td>0.00</td>
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<td>1</td>
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<td>-08</td>
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</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%
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

1 A: Standard type
   A type   B type

3 A: Standard type
   A type   B type

6 A: Standard type
   A type   B type

10 A: Standard type
   A type   B type

12 A: Standard type
   A type   B type
16 A: Standard type

Mechanical data

Connection style -06, 1 and 3 A types

Connection style -06, 6 to 12 A types

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

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

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

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

<table>
<thead>
<tr>
<th></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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<tr>
<td>A</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>
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<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>
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<tr>
<td>D</td>
<td>648</td>
<td>648</td>
<td>94 ±1</td>
<td>1305 ±1</td>
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<tr>
<td>E</td>
<td>498</td>
<td>498</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>845</td>
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<td>75</td>
<td>103</td>
<td>143</td>
<td>143</td>
<td>109</td>
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<tr>
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<td>27</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>40</td>
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<tr>
<td>H</td>
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<td>12.4</td>
<td>12.4</td>
<td>12.4</td>
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<td>±0.5</td>
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<tr>
<td>I</td>
<td>20.8</td>
<td>20.8</td>
<td>32.4</td>
<td>32.5</td>
<td>32.5</td>
<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>
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<td>±0.5</td>
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<tr>
<td>K</td>
<td>53</td>
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<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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<td>63</td>
<td>6</td>
<td>6</td>
<td>6</td>
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<td>±0.5</td>
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<tr>
<td>M</td>
<td>0.7</td>
<td>0.7</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.2</td>
<td>±0.3</td>
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</table>

**Connection style -06**

| N     | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 |

**Connection style -07**

| O     | 8.3  | 8.3  | 8.4    | 8.4    | 8.4    | 8.6    | ±0.5       |
| P     | 14.9 | 14.9 | 18     | 18     | 18     | 42.25   | ±0.5       |

**AWG type wire**

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<th>AWG 20</th>
<th>AWG 20</th>
<th>AWG 18</th>
<th>AWG 18</th>
<th>AWG 16</th>
<th>AWG 16</th>
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<tbody>
<tr>
<td>Connection style -08</td>
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<table>
<thead>
<tr>
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<th>M4</th>
<th>M4</th>
<th>M4</th>
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<tbody>
<tr>
<td>Q</td>
<td>51</td>
<td>51</td>
<td>51</td>
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</tbody>
</table>

**Recommended torque (Nm)**

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<th>1.2 - 1.3</th>
<th>1.2 - 1.3</th>
</tr>
</thead>
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<td><strong>Earth terminal</strong></td>
<td>1.5 - 1.7</td>
<td>1.5 - 1.7</td>
<td>1.5 - 1.7</td>
</tr>
</tbody>
</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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Schaffner Group
Datasheets
12 Sep 2019

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