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**

### Attenuation performance

<table>
<thead>
<tr>
<th>Standard</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated current (A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</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)
- **Flammability corresponding to**
  - UL 94 V-2 or better
- **Design corresponding to**
  - UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
- **MTBF @ 40°C/230 V (Mil-HB-217F)**
  - 1,650,000 hours (A types)
  - 1,700,000 hours (B types)

*maximum RMS operating voltage at rated frequency or the maximum DC operating voltage

**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

**Approvals**

- UL
- CSA
- IEC/EN 60939
- ROHS
- CE

**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**

[Diagram of electrical schematic]
## 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>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>4.7</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>4.7</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>4.7</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>4.7</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</td>
</tr>
<tr>
<td>FN 2080B-3-..</td>
<td>[3 (3.5)]</td>
<td>[0.00]</td>
<td>9.8</td>
<td>160</td>
<td>0.47</td>
<td>470</td>
<td>-06</td>
</tr>
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<td>FN 2080B-6-..</td>
<td>[6 (6.9)]</td>
<td>[0.00]</td>
<td>7.8</td>
<td>110</td>
<td>1</td>
<td>470</td>
<td>-06</td>
</tr>
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<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</td>
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<tr>
<td>FN 2080B-12-..</td>
<td>[12 (13.8)]</td>
<td>[0.00]</td>
<td>3.25</td>
<td>50</td>
<td>1</td>
<td>220</td>
<td>-06</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</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. IEC 60939-3). Note: If the neutral line is interrupted, worst case leakage could reach twice this level. Leakage current for DC application is 0 mA;

## 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 to 6 A types

![Typical filter attenuation 1 to 6 A types](image)

### 10 and 12 A types

![Typical filter attenuation 10 and 12 A types](image)

### 16 A types

![Typical filter attenuation 16 A types](image)
Mechanical data

Connection style -06, 1 and 3 A types

Connection style -06, 6 to 12 A types

Connection style -06, 16 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, 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>
</tr>
</thead>
<tbody>
<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>
</tr>
<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>
</tr>
<tr>
<td>D</td>
<td>64.8</td>
<td>64.8</td>
<td>94 ±1</td>
<td>130.5 ±1</td>
<td>130.5 ±1</td>
<td>98.5 ±1</td>
<td>±0.5</td>
</tr>
<tr>
<td>E</td>
<td>49.8</td>
<td>49.8</td>
<td>56  ±1</td>
<td>56  ±1</td>
<td>56  ±1</td>
<td>84.5 ±1</td>
<td>±0.5</td>
</tr>
<tr>
<td>F</td>
<td>75</td>
<td>75</td>
<td>103 ±1</td>
<td>143 ±1</td>
<td>143 ±1</td>
<td>109 ±1</td>
<td>±0.3</td>
</tr>
<tr>
<td>G</td>
<td>27</td>
<td>27</td>
<td>25 ±1</td>
<td>25 ±1</td>
<td>25 ±1</td>
<td>40 ±1</td>
<td>±0.2</td>
</tr>
<tr>
<td>H</td>
<td>12.3</td>
<td>12.3</td>
<td>12.4 ±1</td>
<td>12.4 ±1</td>
<td>12.4 ±1</td>
<td>15.6 ±1</td>
<td>±0.5</td>
</tr>
<tr>
<td>I</td>
<td>20.8</td>
<td>20.8</td>
<td>32.4 ±1</td>
<td>32.5 ±1</td>
<td>32.5 ±1</td>
<td></td>
<td>±0.5</td>
</tr>
<tr>
<td>J</td>
<td>19.9</td>
<td>11.4</td>
<td>15.5 ±1</td>
<td>15.5 ±1</td>
<td>15.5 ±1</td>
<td>42.25 ±1</td>
<td>±0.5</td>
</tr>
<tr>
<td>K</td>
<td>5.3</td>
<td>5.3</td>
<td>4.4 ±1</td>
<td>5.3 ±1</td>
<td>5.3 ±1</td>
<td>4.4</td>
<td>±0.5</td>
</tr>
<tr>
<td>L</td>
<td>6.3</td>
<td>6.3</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>7.4</td>
<td>±0.3</td>
</tr>
<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>
</tr>
</tbody>
</table>

**Connection style -06**

|      | 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**

|      | 8.3  | 8.3  | 8.4  | 8.4  | 8.4  | 8.6 |

**AWG type wire**

|      | AWG 20 | AWG 20 | AWG 18 | AWG 18 | AWG 16 | AWG 16 |

**Wire length**

|      | 140 | 140 | 140 | 140 | 140 | 140 |

**Recommended torque (Nm)**

|      | M4  | 51  | 1.2 - 1.3 |

|      | 0.2 | 1.5 - 1.7 |

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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