Two-Stage Filters FN 2080

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)

**Technical specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage*</td>
<td>250 VAC, 50/60 Hz; 250 VDC</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>DC to 400 Hz</td>
</tr>
<tr>
<td>Rated currents</td>
<td>1 to 16 A @ 40°C max</td>
</tr>
<tr>
<td>High potential test voltage</td>
<td>P  --&gt;  PE 2000 VAC for 2 sec</td>
</tr>
<tr>
<td></td>
<td>P  --&gt;  PE 2500 VAC for 2 sec (B types)</td>
</tr>
<tr>
<td></td>
<td>P  --&gt;  N 1100 VDC for 2 sec</td>
</tr>
<tr>
<td>Temperature range (operation and storage)</td>
<td>-25°C to +100°C (25/100/23)**</td>
</tr>
<tr>
<td>Certified to</td>
<td>UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 (applies to AC and DC applications)</td>
</tr>
<tr>
<td>Flammability corresponding to</td>
<td>Terminal plastic for -06/-08 version: UL 94 V-0</td>
</tr>
<tr>
<td></td>
<td>Laces for -07 version: UL 94 VW-1</td>
</tr>
<tr>
<td>Design corresponding to</td>
<td>UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939</td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>II acc. IEC 60664-1</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>2 acc. IEC 60664-1</td>
</tr>
<tr>
<td>Altitude</td>
<td>2000m (above derating applies)**</td>
</tr>
<tr>
<td>MTBF @ 40°C/230 V (Mil-HB-217F)</td>
<td>1,650,000 hours</td>
</tr>
<tr>
<td></td>
<td>1,700,000 hours (B types)</td>
</tr>
</tbody>
</table>

* 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
- CE
- RoHS

**Features and benefits**

- FN 2080 two-stage filters are designed for easy and fast chassis mounting
- FN 2080 B versions without capacitors to earth comply to 1MOP for ME (medical equipment) acc. IEC 60601-1
- FN 2808 A version with low capacitance to earth 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
- Lighting applications (due to high differential mode inductance)
- 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**
## 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</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>
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<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>
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<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>
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<td>0.33</td>
<td>1000</td>
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<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>
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<td>0.00</td>
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<td>10 (11.5)</td>
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<td>-06</td>
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<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>
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<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. 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%

---

### Product selector

<table>
<thead>
<tr>
<th>FN 2080 x-xyy</th>
<th>06</th>
<th>Fasten 4.3 x 0.8 mm (pad/pin/welding)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>07</td>
<td>Wire leads</td>
</tr>
<tr>
<td></td>
<td>08</td>
<td>Studs (M4 screw)</td>
</tr>
<tr>
<td>1 to 16</td>
<td></td>
<td>Rated current</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Black</td>
</tr>
<tr>
<td>A</td>
<td></td>
<td>Standard version</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>Safety version</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medical version</td>
</tr>
</tbody>
</table>
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, 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, 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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</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>
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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>
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<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>
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<td>103</td>
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<td>143</td>
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<td>25</td>
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<tr>
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<td>42.25</td>
<td>±0.5</td>
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<tr>
<td>J</td>
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<td>15.5</td>
<td>15.5</td>
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<td>42.25</td>
<td>±0.5</td>
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<tr>
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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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<td>1</td>
<td>1</td>
<td>1.2</td>
<td>±0.3</td>
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**Connection style -06**

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<tr>
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<th>6.3 x 0.8</th>
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<th>6.3 x 0.8</th>
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**Connection style -07**

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**AWG type wire**

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<th>AWG 20</th>
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<th>AWG 18</th>
<th>AWG 16</th>
<th>AWG 16</th>
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</table>

**Wire length**

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</thead>
</table>

**Connection style -08**

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<th>M4</th>
<th>M4</th>
<th>M4</th>
<th>M4</th>
<th>M4</th>
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</thead>
</table>

**Recommended torque (Nm)**

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

**Earth terminal**

<table>
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<th>1.5 - 1.7</th>
<th>1.5 - 1.7</th>
<th>1.5 - 1.7</th>
<th>1.5 - 1.7</th>
<th>1.5 - 1.7</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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