DATA SHEET  Three-Stage Filters FN 352 Z

Multi-stage EMI Filter

- Rated currents from 6 to 30 A
- Surge pulse protection up to 2 kA
- Solder or screw connection

Performance indicators

<table>
<thead>
<tr>
<th>Attenuation performance</th>
<th>standard</th>
<th>high</th>
<th>very high</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated current [A]</td>
<td>0</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous operating voltage</td>
<td>250 VAC, 50/60 Hz</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>DC to 400 Hz</td>
</tr>
<tr>
<td>Rated currents</td>
<td>6 to 30 A @ 40°C max</td>
</tr>
<tr>
<td>High potential test voltage</td>
<td>P -&gt; PE 2000 VAC for 2 sec, P -&gt; N 350 VDC for 2 sec</td>
</tr>
<tr>
<td>Energy absorption</td>
<td>40J</td>
</tr>
<tr>
<td>Temperature range (operation and storage)</td>
<td>-25°C to +85°C (25/85/21)</td>
</tr>
<tr>
<td>Flammability corresponding to</td>
<td>UL 94 V-2 or better</td>
</tr>
<tr>
<td>Design corresponding to</td>
<td>UL 1283, CSA 22.2 No. B 1986, IEC/EN 60939</td>
</tr>
<tr>
<td>MTBF @ 40°C/230 V (MIL-HB-217F)</td>
<td>230,000 hours</td>
</tr>
<tr>
<td>Surge pulse protection</td>
<td>2 kV IEC 61000-4-5</td>
</tr>
</tbody>
</table>

Features and benefits

- FN 352 Z series is developed to meet high filter attenuation requirements by using multi-stage filter design
- Additional high surge pulse protection up to 2 kA is integrated to protect sensitive equipment
- Choosing FN 352 Z product line brings you the rapid availability of a standard filter associated with the necessary safety acceptances
- Standard filters are a practical solution helping you to pass EMI system approval in a short time
- Exceptional conducted attenuation performance, based on multi-stage design and chokes with high saturation resistance and excellent thermal behavior
- Various connection options
- Custom-specific versions on request

Approvals

- UL
- RoHS
- CE

Typical applications

- Facility management
- Industrial
- Telecommunication
- Data processing
- Electrical and electronic equipment

Typical electrical schematic

6A types

10 to 30A types
Filter selection table

<table>
<thead>
<tr>
<th>Filter</th>
<th>Rated current @ 40°C (25°C) [A]</th>
<th>Leakage current* [μA]</th>
<th>Inductance L [mH]</th>
<th>L1 [mH]</th>
<th>L2 [mH]</th>
<th>Capacitance Cx [nF]</th>
<th>Cx1 [nF]</th>
<th>Cy [nF]</th>
<th>Cy1 [nF]</th>
<th>Resistance R [MΩ]</th>
<th>Energy absorption [J]</th>
<th>Input/Output connections</th>
<th>Weight [g]</th>
</tr>
</thead>
<tbody>
<tr>
<td>FN 352 Z-6-06</td>
<td>6 (7.2)</td>
<td>420</td>
<td>3</td>
<td>3</td>
<td>470</td>
<td>220</td>
<td>3.3</td>
<td>1.5</td>
<td>0.47</td>
<td>40</td>
<td>-06</td>
<td>575</td>
<td></td>
</tr>
<tr>
<td>FN 352 Z-10-29</td>
<td>10 (12)</td>
<td>1300</td>
<td>5</td>
<td>0.06</td>
<td>0.003</td>
<td>220</td>
<td>220</td>
<td>15</td>
<td>15</td>
<td>0.47</td>
<td>40</td>
<td>-29</td>
<td>1320</td>
</tr>
<tr>
<td>FN 352 Z-20-29</td>
<td>20</td>
<td>1300</td>
<td>3.5</td>
<td>0.06</td>
<td>0.0035</td>
<td>220</td>
<td>220</td>
<td>15</td>
<td>15</td>
<td>0.47</td>
<td>40</td>
<td>-29</td>
<td>2950</td>
</tr>
</tbody>
</table>

* Maximum leakage under normal operating conditions.

Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

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

6 A types

10 A types

20 A types

30 A types

Mechanical data

6 A types

10 and 20 A types

30 A types
## Dimensions

<table>
<thead>
<tr>
<th></th>
<th>6 A</th>
<th>10 A</th>
<th>20 A</th>
<th>30 A</th>
<th>Tolerances</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>152</td>
<td>126</td>
<td>150</td>
<td>150</td>
<td>±0.5</td>
</tr>
<tr>
<td>B</td>
<td>51</td>
<td>172.3</td>
<td>221.8</td>
<td>250</td>
<td>±0.5</td>
</tr>
<tr>
<td>C</td>
<td>45</td>
<td>55.25</td>
<td>65</td>
<td>65</td>
<td>±0.5</td>
</tr>
<tr>
<td>D</td>
<td>133</td>
<td>100.5</td>
<td>119.5</td>
<td>119.5</td>
<td>±0.5</td>
</tr>
<tr>
<td>E</td>
<td>150.5</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>±0.5</td>
</tr>
<tr>
<td>F</td>
<td>143</td>
<td>112</td>
<td>135</td>
<td>135</td>
<td>±0.5</td>
</tr>
<tr>
<td>G</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td>±0.5</td>
</tr>
<tr>
<td>H</td>
<td>9.5</td>
<td></td>
<td></td>
<td></td>
<td>±0.5</td>
</tr>
<tr>
<td>I</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td>±0.5</td>
</tr>
<tr>
<td>J</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td>±0.5</td>
</tr>
<tr>
<td>K</td>
<td>5.3</td>
<td>6.4</td>
<td>6.4</td>
<td>6.4</td>
<td>±0.5</td>
</tr>
<tr>
<td>L</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>6.3 x 0.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td>85</td>
<td>115</td>
<td>115</td>
<td>115</td>
<td>±0.1</td>
</tr>
</tbody>
</table>

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

## Filter input/output connector cross sections

<table>
<thead>
<tr>
<th></th>
<th>-06</th>
<th></th>
<th>-29</th>
<th></th>
<th>-33</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid wire</td>
<td>n/a</td>
<td>6 mm²</td>
<td>n/a</td>
<td>16 mm²</td>
<td>n/a</td>
<td>10 mm²</td>
</tr>
<tr>
<td>Flex wire</td>
<td>n/a</td>
<td>4 mm²</td>
<td>n/a</td>
<td>10 mm²</td>
<td>n/a</td>
<td>10 mm²</td>
</tr>
<tr>
<td>AWG type wire</td>
<td>n/a</td>
<td>AWG 10</td>
<td>n/a</td>
<td>AWG 6</td>
<td>n/a</td>
<td>AWG 6</td>
</tr>
<tr>
<td>Recommended torque</td>
<td>n/a</td>
<td>0.6-0.8 Nm</td>
<td>n/a</td>
<td>1.5-1.8 Nm</td>
<td>n/a</td>
<td>1.5-1.8 Nm</td>
</tr>
</tbody>
</table>

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