Active EMI Input Filters (QPI Series)
For 24/28 V and 48/60 V BUS Applications

Features
- Up to 65 dB CM attenuation at 250 kHz
- Up to 80 dB DM attenuation at 250 kHz
- Efficiency: >99% at full load
- High density, low profile LGA package
- Integrated Hot-Swap in select models
- -40 to +100°C PCB temperature
- TÜV approved
- Saves up to 50% board space vs. standard filters
- Compatible with most DC-DC converters

Product Description
The QPI family of active EMI filters provides conducted common-mode (CM) and differential-mode (DM) attenuation from 150 kHz to 30 MHz (CISPR22 range). The proprietary active filtering circuit provides superior attenuation at low frequencies intended to support EN Class B limits, including PICMG3.0 for ATCA boards.

In comparison to passive solutions, the use of active filtering reduces the volume of the common-mode choke, providing a low profile, surface mount device. Smaller size saves valuable board real estate and the reduced height enhances airflow in blade applications.

Part Numbering

<table>
<thead>
<tr>
<th>Part Number (-01 = Open Frame)</th>
<th>Input Voltage</th>
<th>Nominal Range</th>
<th>Current Rating</th>
<th>CM Attenuation @250 kHz</th>
<th>DM Attenuation @250 kHz</th>
<th>Hipot</th>
<th>Integrated Hot-Swap</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPI-3LZ (-01)</td>
<td>24/28 Vdc</td>
<td>10 – 40 Vdc</td>
<td>7 A</td>
<td>65 dB</td>
<td>80 dB</td>
<td>707 Vdc</td>
<td>—</td>
<td>full</td>
</tr>
<tr>
<td>QPI-5LZ (-01)</td>
<td>24/28 Vdc</td>
<td>10 – 40 Vdc</td>
<td>14 A</td>
<td>60 dB</td>
<td>75 dB</td>
<td>707 Vdc</td>
<td>—</td>
<td>full</td>
</tr>
<tr>
<td>QPI-6LZ (-01)</td>
<td>48/60 Vdc</td>
<td>30 – 80 Vdc</td>
<td>14 A</td>
<td>40 dB</td>
<td>80 dB</td>
<td>1,500 Vdc</td>
<td>—</td>
<td>full</td>
</tr>
<tr>
<td>QPI-8LZ (-01)</td>
<td>48/60 Vdc</td>
<td>32 – 76 Vdc</td>
<td>6 A</td>
<td>40 dB</td>
<td>70 dB</td>
<td>1,500 Vdc</td>
<td>Yes</td>
<td>full</td>
</tr>
<tr>
<td>QPI-21LZ (-01)</td>
<td>48/60 Vdc</td>
<td>30 – 80 Vdc</td>
<td>14 A</td>
<td>45 dB</td>
<td>80 dB</td>
<td>1,500 Vdc</td>
<td>—</td>
<td>full</td>
</tr>
</tbody>
</table>

Applications
- PICMG® 3.0 ATCA applications
- Networking & communications
- Fan-tray assemblies
- Telecom
- Industrial
- Military

Block Diagram

Figure 1: Block diagram, QPI with integrated Hot-Swap

Performance

Figure 2: Conducted EMI scans showing QPI performance.
Blue trace = no QPI; Red trace = with QPI.
EMI Input Filters (QPI Series)
For 24/28 V and 48/60 V BUS Applications

Features
- 24/28 and 48/60 models
- Up to 60 dB CM attenuation at 250 kHz
- Up to 80 dB DM attenuation at 250 kHz
- Efficiency: >99%
- Low profile LGA package
- Integrated Hot-Swap in select models
- Supports PICMG® 3.0 ATCA applications
- -40 to +100°C PCB temperature
- TÜV approved

Product Description
These QPI filters are specifically designed to attenuate conducted common-mode (CM) and differential-mode (DM) noise for converters switching in the 1 MHz range, to comply with CISPR22 standard requirements for conducted noise measurements.

Designed for the telecom, industrial and military bus ranges, the QPI filter supports filtering system boards to the EN55022 Class B limits.

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- PICMG® 3.0 ATCA applications
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<th>CM Attenuation @1 MHz</th>
<th>DM Attenuation @1 MHz</th>
<th>Hipot Rating</th>
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<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPI-10LZ (-01)</td>
<td>48/60 Vdc</td>
<td>32 – 76 Vdc</td>
<td>6 A</td>
<td>40 dB</td>
<td>60 dB</td>
<td>1,500 Vdc</td>
<td>Yes</td>
<td>full</td>
</tr>
<tr>
<td>QPI-11LZ (-01)</td>
<td>24/28 Vdc</td>
<td>5 – 50 Vdc</td>
<td>7 A</td>
<td>60 dB</td>
<td>70 dB</td>
<td>707 Vdc</td>
<td>—</td>
<td>half</td>
</tr>
<tr>
<td>QPI-12LZ (-01)</td>
<td>48/60 Vdc</td>
<td>10 – 80 Vdc</td>
<td>7 A</td>
<td>40 dB</td>
<td>70 dB</td>
<td>1,500 Vdc</td>
<td>—</td>
<td>half</td>
</tr>
</tbody>
</table>

Figure 1: QPI-12 attenuation curves

Figure 2: Total conducted noise of P048K048T24IF & V048K120T025 VI Chip PRM and VTM with QPI-12