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

Features

- Up to 60 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 PICMG® 3.0 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.

Applications

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

QPI Evaluation Boards Available

For more information, go to picorpower.com

Part Numbering

<table>
<thead>
<tr>
<th>Part Number (Z = RoHS)</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-3L(Z)</td>
<td>24/28 Vdc</td>
<td>10 – 40 Vdc</td>
<td>7 A</td>
<td>60 dB</td>
<td>80 dB</td>
<td>707 Vdc</td>
<td>—</td>
<td>full</td>
</tr>
<tr>
<td>QPI-4L(Z)</td>
<td>48/60 Vdc</td>
<td>30 – 80 Vdc</td>
<td>7 A</td>
<td>40 dB</td>
<td>70 dB</td>
<td>1,500 Vdc</td>
<td>—</td>
<td>full</td>
</tr>
<tr>
<td>QPI-5L(Z)</td>
<td>24/28 Vdc</td>
<td>10 – 40 Vdc</td>
<td>14 A</td>
<td>60 dB</td>
<td>80 dB</td>
<td>707 Vdc</td>
<td>—</td>
<td>full</td>
</tr>
<tr>
<td>QPI-6L(Z)</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-7L(Z)</td>
<td>24/28 Vdc</td>
<td>18 – 38 Vdc</td>
<td>6 A</td>
<td>50 dB</td>
<td>80 dB</td>
<td>707 Vdc</td>
<td>Yes</td>
<td>full</td>
</tr>
<tr>
<td>QPI-8L(Z)</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>
</tbody>
</table>

Block diagram, QPI with integrated Hot-Swap

Conducted EMI scans showing QPI performance. Blue trace = no QPI; Red trace = with QPI.
Defining the Quality of Power Through Innovation
picorpower.com
800-735-6200

V·I Chip Input EMI Filters (QPI Series) Optimized for V·I Chip applications

Features
- 24/28 V and 48/60 V models
- Up to 65 dB CM attenuation at 1 MHz
- Up to 80 dB DM attenuation at 1 MHz
- 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, optimized for V·I Chips, are specifically designed to attenuate conducted common-mode (CM) and differential-mode (DM) noise of Vicor's V·I Chip products to comply with the CISPR22 standard requirements for conducted noise measurements.

Designed for the telecom, industrial and military bus ranges, the V·I Chip EMI filter supports filtering system boards to the EN55022 Class B limits.

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

Part Numbering

<table>
<thead>
<tr>
<th>Part Number (Z = RoHS)</th>
<th>Input Voltage</th>
<th>Nominal Range</th>
<th>Current Rating</th>
<th>CM Attenuation @1 MHz</th>
<th>DM Attenuation @1 MHz</th>
<th>Hipot</th>
<th>Integrated Hot-Swap</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPI-9L(Z)</td>
<td>24/28 Vdc</td>
<td>18 – 38 Vdc</td>
<td>6 A</td>
<td>65 dB</td>
<td>80 dB</td>
<td>707 Vdc</td>
<td>Yes</td>
<td>full</td>
</tr>
<tr>
<td>QPI-10L(Z)</td>
<td>48/60 Vdc</td>
<td>32 – 76 Vdc</td>
<td>6 A</td>
<td>45 dB</td>
<td>70 dB</td>
<td>1,500 Vdc</td>
<td>Yes</td>
<td>full</td>
</tr>
<tr>
<td>QPI-11L(Z)</td>
<td>24/28 Vdc</td>
<td>5 – 50 Vdc</td>
<td>7 A</td>
<td>65 dB</td>
<td>80 dB</td>
<td>707 Vdc</td>
<td>—</td>
<td>half</td>
</tr>
<tr>
<td>QPI-12L(Z)</td>
<td>48/60 Vdc</td>
<td>10 – 80 Vdc</td>
<td>7 A</td>
<td>45 dB</td>
<td>70 dB</td>
<td>1,500 Vdc</td>
<td>—</td>
<td>half</td>
</tr>
</tbody>
</table>

For more information, go to picorpower.com

Typical Attenuation

QPI-12 attenuation curves

Total conducted noise of P048K048T24IF & V048K120T025 with QPI-12.