The industry’s most complete line of power entry modules are ideal for products that must conform to FCC Part 15 regulations. These metal cased miniature filters offer high performance.

**Power Entry Modules**

Bolt-in Rear Terminals ............................................PF16-PF17
For General Purpose Applications ............................PF22-PF23
For Medical Applications ........................................PF24-PF25

Bolt-in Right Angle Terminals .................................PF18-PF19
For PCB Applications ............................................PF46-PF47

High Frequency Attenuation ....................................PF20-PF21
Bolt-in for PCB Applications .................................PF48-PF49

Snap-in with Wire Leads ........................................PF26-PF27
Bolt-in with Wire Leads ........................................PF28-PF31
Snap-in Mount .......................................................PF32-PF33

Fused Filtered .......................................................PF34-PF37
For General Purpose Applications .........................PF34-PF35
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PCB Power Filters .............................................PF44-PF45

api technologies corp.
Spectrum Control
Power Entry Modules
Bolt-in Rear Terminals

60-BPR & BPS Series

Features
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Solder lug and Fast-on tab terminals available
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF17)
- UL approved low leakage version also available

Applications
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

<table>
<thead>
<tr>
<th>Model*</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Leakage Current (Max.)</th>
<th>Capacitance $C_Y$</th>
<th>Capacitance $C_X$</th>
<th>Inductance $(L_1)$</th>
<th>Temperature Rise (Max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-XXX-010-3-2</td>
<td>250VAC</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>2.4mH</td>
<td>30°C</td>
</tr>
<tr>
<td>60-XXX-010-3-4</td>
<td>250VAC</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>2.4mH</td>
<td>30°C</td>
</tr>
<tr>
<td>60-XXX-010-5-2</td>
<td>250VAC</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>6.0mH</td>
<td>30°C</td>
</tr>
<tr>
<td>60-XXX-010-5-4</td>
<td>250VAC</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>6.0mH</td>
<td>30°C</td>
</tr>
<tr>
<td>60-XXX-020-3-2</td>
<td>250VAC</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
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<td>250VAC</td>
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<td>3300pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>2.4mH</td>
<td>30°C</td>
</tr>
<tr>
<td>60-XXX-020-5-2</td>
<td>250VAC</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>1.2mH</td>
<td>30°C</td>
</tr>
<tr>
<td>60-XXX-020-5-4</td>
<td>250VAC</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>1.2mH</td>
<td>30°C</td>
</tr>
<tr>
<td>60-XXX-030-3-2</td>
<td>250VAC</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>0.53mH</td>
<td>45°C</td>
</tr>
<tr>
<td>60-XXX-030-3-4</td>
<td>250VAC</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>0.53mH</td>
<td>45°C</td>
</tr>
<tr>
<td>60-XXX-030-5-2</td>
<td>250VAC</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>0.26mH</td>
<td>45°C</td>
</tr>
<tr>
<td>60-XXX-030-5-4</td>
<td>250VAC</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>0.26mH</td>
<td>45°C</td>
</tr>
<tr>
<td>60-XXX-060-3-2</td>
<td>250VAC</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>0.1uF ± 20%</td>
<td>0.15mH</td>
</tr>
<tr>
<td>60-XXX-060-3-4</td>
<td>250VAC</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>0.022uF ± 20%</td>
<td>0.1uF ± 20%</td>
<td>0.15mH</td>
</tr>
</tbody>
</table>

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 45g
Input: Compatible with IEC-320

* Substitute BPR or BPS for XXX
BPS - Solder lug terminals
BPR - Fast-on tab terminals
60-BPR & BPS Series

Temperature Characteristics

![Temperature Characteristics Graph]

Common Mode

![Common Mode Diagram]

Normal Mode

![Normal Mode Diagram]

60-BPX-010-020-030

![60-BPX-010-020-030 Graph]

60-BPX-060-100

![60-BPX-060-100 Graph]
Power Entry Modules
Bolt-in Right Angle Terminals

60-BPF Series

Features
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- PCB mounting types available (see page PF46)
- Length under tab is shortened for small spaces
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF19)
- UL approved low leakage version also available

Applications
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance</th>
<th>Inductance (L1)</th>
<th>Temperature Rise (Max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-BPF-010-3-2</td>
<td>250VAC</td>
<td>1A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>.022uF ± 20%</td>
<td>6.0mH</td>
</tr>
<tr>
<td>60-BPF-010-3-4</td>
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<td></td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>.022uF ± 20%</td>
<td></td>
</tr>
<tr>
<td>60-BPF-010-5-2</td>
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<td></td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>.022uF ± 20%</td>
<td>6.0mH</td>
</tr>
<tr>
<td>60-BPF-010-5-4</td>
<td></td>
<td></td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>.022uF ± 20%</td>
<td></td>
</tr>
<tr>
<td>60-BPF-020-3-2</td>
<td>250VAC</td>
<td>2A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>.022uF ± 20%</td>
<td>2.4mH</td>
</tr>
<tr>
<td>60-BPF-020-3-4</td>
<td></td>
<td></td>
<td>0.50mA</td>
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<td>.022uF ± 20%</td>
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<td></td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>.022uF ± 20%</td>
<td></td>
</tr>
<tr>
<td>60-BPF-030-3-2</td>
<td>250VAC</td>
<td>3A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>.022uF ± 20%</td>
<td>1.2mH</td>
</tr>
<tr>
<td>60-BPF-030-3-4</td>
<td></td>
<td></td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>.022uF ± 20%</td>
<td></td>
</tr>
<tr>
<td>60-BPF-030-5-2</td>
<td></td>
<td></td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>.022uF ± 20%</td>
<td>6.0mH</td>
</tr>
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<td>60-BPF-030-5-4</td>
<td></td>
<td></td>
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<td>250VAC</td>
<td>6A</td>
<td>0.35mA</td>
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<td>.022uF ± 20%</td>
<td>0.53mH</td>
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<tr>
<td>60-BPF-060-3-4</td>
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<td>0.50mA</td>
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<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>.022uF ± 20%</td>
<td></td>
</tr>
</tbody>
</table>

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320

Circuit Diagram

60-BPF Series

Tested and found to be IAW VDE 0565 Part 3.
Power Entry Modules
Bolt-in Right Angle Terminals

60-BPF Series

**Temperature Characteristics**

<table>
<thead>
<tr>
<th>Ambient Temperature (°C)</th>
<th>Current (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>30</td>
<td>90</td>
</tr>
<tr>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>50</td>
<td>70</td>
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<tr>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>80</td>
<td>40</td>
</tr>
<tr>
<td>90</td>
<td>30</td>
</tr>
</tbody>
</table>

Dimensions in inches (mm)

**Common Mode**

**Normal Mode**

**60-BPF Series**

Insertion Loss (dB)

Frequency (MHz)

Ambient Temperature (°C)

Current (%)

Temperature Characteristics

Dimensions

Panel cutout dimensions mounts from backside

*General tolerance ±0.012 (0.3)
Power Entry Modules
High Frequency Attenuation

60-BHS Series

Features
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal cased miniature filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- PCB mounting types available (see page PF48)
- PCB mounting minimizes space and provides economical installation
- Excellent filtering characteristics for high frequencies
- Earth coil standard
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF21)

Applications
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance</th>
<th>Inductance (L1)</th>
<th>Inductance (L2)</th>
<th>Temperature Rise (Max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-BHS-010-3-11</td>
<td>250VAC</td>
<td>1A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>0.1µF ± 20%</td>
<td>0.047µF ± 20%</td>
<td>6mH 18.3µH 30°C</td>
</tr>
<tr>
<td>60-BHS-010-3-4</td>
<td>250VAC</td>
<td>1A</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>0.1µF ± 20%</td>
<td>0.047µF ± 20%</td>
<td>2.4mH 18.3µH 30°C</td>
</tr>
<tr>
<td>60-BHS-010-5-11</td>
<td>250VAC</td>
<td>2A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>0.1µF ± 20%</td>
<td>0.047µF ± 20%</td>
<td>1.2mH 18.3µH 30°C</td>
</tr>
<tr>
<td>60-BHS-010-5-4</td>
<td>250VAC</td>
<td>2A</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>0.1µF ± 20%</td>
<td>0.047µF ± 20%</td>
<td>.53mH 18.3µH 45°C</td>
</tr>
<tr>
<td>60-BHS-020-3-11</td>
<td>250VAC</td>
<td>3A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
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<td>0.047µF ± 20%</td>
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</tr>
</tbody>
</table>

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320

Circuit Diagram
Power Entry Modules
High Frequency Attenuation

60-BHS Series

Temperature Characteristics

<table>
<thead>
<tr>
<th>Current (%)</th>
<th>Ambient Temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>40</td>
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<td>80</td>
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</tr>
<tr>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>120</td>
<td>120</td>
</tr>
</tbody>
</table>

Common Mode

Normal Mode
Power Entry Modules
Bolt-in Rear Terminals
For General Purpose Applications

10-BPF Series

Features
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Operating temperature: -25°C to +70°C
- Compact configuration

Applications
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>CY</th>
<th>CX</th>
<th>Leakage Current (Max.)</th>
<th>Inductance (L1)</th>
<th>Circuit Diagram</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-BPF-001-5-A</td>
<td>120/250VAC</td>
<td>1A</td>
<td>0.50mA</td>
<td>3300pF</td>
<td>2200pF</td>
<td>3.0mH</td>
<td>1</td>
<td>A</td>
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</tr>
<tr>
<td>10-BPF-001-5-C</td>
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<td>3A</td>
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<td>4700pF</td>
<td>0.01uF</td>
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<td>2</td>
<td>C</td>
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<td></td>
<td>3300pF</td>
<td>0.01uF</td>
<td>0.5mA</td>
<td>1</td>
<td>A</td>
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<td>10A</td>
<td></td>
<td>3300pF &amp; 0.01uF</td>
<td>3300pF &amp; 0.01uF</td>
<td>1.5mH</td>
<td>2</td>
<td>B</td>
<td></td>
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<tr>
<td>10-BPF-006-5-A</td>
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<td>6A</td>
<td></td>
<td>3300pF</td>
<td>0.01uF</td>
<td>0.5mA</td>
<td>1</td>
<td>A</td>
<td></td>
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<tr>
<td>10-BPF-006-5-C</td>
<td></td>
<td></td>
<td></td>
<td>3300pF &amp; 0.01uF</td>
<td>3300pF &amp; 0.01uF</td>
<td>1.5mH</td>
<td>3</td>
<td>B</td>
<td></td>
</tr>
</tbody>
</table>

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 45g
Input: Compatible with IEC-320
Power Entry Modules
Bolt-in Rear Terminals
For General Purpose Applications

10-BPF Series

Figure A

Common Mode

Normal Mode

Figure B

Figure C

Dimensions in inches (mm)
Power Entry Modules
Bolt-in Rear Terminals
For Medical Purpose Applications

10-BPF Series

Features
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Operating temperature: -25°C to +70°C
- Compact configuration
- Low leakage current

Applications
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance $C_X$</th>
<th>Inductance $L_I$</th>
<th>Circuit Diagram</th>
<th>Figure</th>
<th>Temperature Rise (Max.)</th>
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</thead>
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<tr>
<td>10-BPF-001-2-A</td>
<td>120/250VAC</td>
<td>1A</td>
<td>5uA</td>
<td>0.01uF</td>
<td>3.0mH</td>
<td>1</td>
<td>A</td>
<td>30°C</td>
</tr>
<tr>
<td>10-BPF-003-2-A</td>
<td>120/250VAC</td>
<td>3A</td>
<td></td>
<td></td>
<td>1.5mH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-BPF-006-2-A</td>
<td>120/250VAC</td>
<td>6A</td>
<td></td>
<td></td>
<td>0.5mH</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 45g
Input: Compatible with IEC-320

Circuit Diagram

![Circuit Diagram Image]
Power Entry Modules
Bolt-in Rear Terminals
For Medical Purpose Applications

10-BPF Series

Common Mode

Normal Mode

Components and Measurements:
- Insertion Loss (dB)
- Frequency (MHz)
- Dimensions in inches (mm)

Diagrams show the configurations for common and normal modes, including component labels and measurements.

Technical specifications and graphs illustrating performance metrics.
60-SPL Series

Features

- Ideally suited for products that must conform to FCC part 15 regulations
- Metal cased miniature filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Snap-in style saves labor and hardware inventory
- Wire output minimizes space and provides economical installation
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF27)

Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance</th>
<th>Inductance (L1)</th>
<th>Temperature Rise (Max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-SPL-010-3-2</td>
<td>250VAC</td>
<td>1A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>22nF ± 20%</td>
<td>6.0mH</td>
</tr>
<tr>
<td>60-SPL-010-3-3</td>
<td>250VAC</td>
<td>1A</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>33nF ± 20%</td>
<td>3.0mH</td>
</tr>
<tr>
<td>60-SPL-010-5-2</td>
<td>250VAC</td>
<td>2A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>22nF ± 20%</td>
<td>2.4mH</td>
</tr>
<tr>
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<td>250VAC</td>
<td>2A</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>33nF ± 20%</td>
<td>2.4mH</td>
</tr>
<tr>
<td>60-SPL-020-3-2</td>
<td>250VAC</td>
<td>3A</td>
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<td>2200pF ± 20%</td>
<td>22nF ± 20%</td>
<td>1.2mH</td>
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<td>3A</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>33nF ± 20%</td>
<td>1.2mH</td>
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<tr>
<td>60-SPL-020-5-2</td>
<td>250VAC</td>
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<td>0.35mA</td>
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<td>22nF ± 20%</td>
<td>0.53mH</td>
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<td>3300pF ± 20%</td>
<td>33nF ± 20%</td>
<td>0.53mH</td>
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</table>

Note: Test voltage: 1500VAC one minute, line to ground

Insulation resistance: 300 Mohm min. at 500VDC

Voltage drop: 1V max. at rated current

Weight: 50g

Input: Compatible with IEC-320
Power Entry Modules
Snap-in with Wire Leads

60-SPL Series

**Temperature Characteristics**

- Current (%)
- Ambient Temperature (°C)

**Common Mode**

- Oscillator
- Filter
- Level Meter

**Normal Mode**

- Oscillator
- Filter
- Level Meter

**Dimensions in inches (mm)**

* Metal case
* Tin Plated
* General tolerance ± 0.012 (.3)

Panel output dimensions:

<table>
<thead>
<tr>
<th>T</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>.039 (.99)</td>
<td>1.270 (32.3)</td>
</tr>
<tr>
<td>.047 (.12)</td>
<td>1.274 (32.4)</td>
</tr>
<tr>
<td>.059 (.15)</td>
<td>1.285 (32.5)</td>
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Panel Thickness:

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<tr>
<td>1.612 (41)</td>
</tr>
<tr>
<td>1.172 (29.8)</td>
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<tr>
<td>.236 (6)</td>
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</table>

- Blue
- Green/Yellow
- Brown

PVC Insulated wire
UL 1015 AWG #18
UL1617 AWG #22

* Custom lengths available upon request.

Insertion Loss (dB)

Frequency (MHz)

0.1 0.2 0.5 1 2 5 10 20 50

0 10 20 30 40 50 60 70 80

Ambient Temperature (°C)

0 20 40 60 80 100 120

Current (%)

0 20 40 60 80 100
Power Entry Modules
Bolt-in with Wire Leads

60-BPL Series

Features

- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Wire output for minimizing space use and economical installation
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF28)

Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance</th>
<th>Inductance (L1)</th>
<th>Temperature Rise (Max.)</th>
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<td>22nF ± 20%</td>
<td>6.0mH</td>
</tr>
<tr>
<td>60-BPL-010-3-3</td>
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<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>33nF ± 20%</td>
<td>2.4mH</td>
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<td>60-BPL-020-5-2</td>
<td>250VAC</td>
<td>2A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>22nF ± 20%</td>
<td>1.2mH</td>
</tr>
<tr>
<td>60-BPL-060-3-2</td>
<td>250VAC</td>
<td>6A</td>
<td>0.35mA</td>
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<td>22nF ± 20%</td>
<td>0.53mH</td>
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<td>6A</td>
<td>0.50mA</td>
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<td>33nF ± 20%</td>
<td>0.53mH</td>
</tr>
</tbody>
</table>

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 M ohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320
Power Entry Modules
Bolt-in with Wire Leads

60-BPL Series

Temperature Characteristics

Common Mode

Normal Mode

Dimensions in inches (mm)

Panel cutout dimensions mounts from back side

Panel cutout dimensions mounts from front side

* Custom lengths available upon request.

* General tolerance ±0.012 (0.3)
Power Entry Modules
Bolt-in with Wire Leads

10-BPL Series

Features

- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Wire output for minimizing space use and economical installation
- Operating temperature: -25°C to +70°C
- Compact configuration

Applications

- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Circuit Diagram

![Circuit Diagram](image)

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>C_Y</th>
<th>C_X</th>
<th>Inductance (L_1)</th>
<th>Circuit Diagram</th>
<th>Figure</th>
<th>Temperature Rise (Max.)</th>
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<tr>
<td>10-BPL-001-5-B</td>
<td>250VAC</td>
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<td>0.50mA</td>
<td>3300pF</td>
<td>0.01uF</td>
<td>3.0mH</td>
<td>1</td>
<td>A</td>
<td>30°C</td>
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<tr>
<td>10-BPL-003-5-B</td>
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<td>3A</td>
<td></td>
<td></td>
<td></td>
<td>1.5mH</td>
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<td></td>
<td></td>
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<tr>
<td>10-BPL-006-5-B</td>
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<td>6A</td>
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<td></td>
<td>0.5mH</td>
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</tr>
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</table>

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320
Power Entry Modules
Bolt-in with Wire Leads

10-BPL Series

Figure A

Dimensions in inches (mm)

Common Mode

Normal Mode

10-BPL Series

Figure A

Dimensions in inches (mm)
60-SPR & SPS Series

Features
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal cased miniature filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Snap-in style saves labor and hardware inventory
- Solder lug and fast-on tab terminations available
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF33)
- UL approved low leakage version also available

Applications
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

<table>
<thead>
<tr>
<th>Model*</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance</th>
<th>Inductance (L1)</th>
<th>Temperature Rise (Max.)</th>
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</thead>
<tbody>
<tr>
<td>60-XXX-010-3-2</td>
<td>250VAC</td>
<td>1A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>.022μF ± 20%</td>
<td>6.0mH</td>
</tr>
<tr>
<td>60-XXX-010-3-4</td>
<td>250VAC</td>
<td>2A</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>.022μF ± 20%</td>
<td>2.4mH</td>
</tr>
<tr>
<td>60-XXX-010-5-2</td>
<td>250VAC</td>
<td>3A</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>.022μF ± 20%</td>
<td>1.2mH</td>
</tr>
<tr>
<td>60-XXX-010-5-4</td>
<td>250VAC</td>
<td>6A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>.022μF ± 20%</td>
<td>0.53mH</td>
</tr>
<tr>
<td>60-XXX-020-3-2</td>
<td>250VAC</td>
<td>10A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>.022μF ± 20%</td>
<td>.1μF ± 20%</td>
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</table>

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 45g
Input: Compatible with IEC-320

* Substitute SPR or SPS for XXX
60-SPR - Fast-on terminals
60-SPS - Solder lug terminals

Circuit Diagram
Power Entry Modules
Snap-in Mount

60-SPR & SPS Series

Temperature Characteristics

![Temperature Characteristics Graph]

Common Mode

![Common Mode Diagram]

Normal Mode

![Normal Mode Diagram]
Fused Filtered Power Entry Modules
For General Purpose Applications

Features
- North American and Metric fuse holders available
- Fuse holder provides effective EMI suppression of common and differential mode
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Fast-on terminals or solder lug terminals
- Metal case provides effective EMI shielding
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF35)

Applications
- Computers and peripheral equipment
- Electronic equipment
- Digital equipment
- Measuring and testing instruments
- Telecommunications equipment

Specifications

<table>
<thead>
<tr>
<th>Model*</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance</th>
<th>Inductance (L1)</th>
<th>Temperature Rise (Max.)</th>
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</thead>
<tbody>
<tr>
<td>64-XXX-020-3-11</td>
<td>250VAC</td>
<td>2A</td>
<td>0.35mA</td>
<td>2200pF ± 20%</td>
<td>0.1uF</td>
<td>6.5mH</td>
</tr>
<tr>
<td>64-XXX-020-5-11</td>
<td>250VAC</td>
<td>4A</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>0.22uF</td>
<td>4.2mH</td>
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<tr>
<td>64-XXX-040-3-11</td>
<td>250VAC</td>
<td>6A</td>
<td>0.50mA</td>
<td>3300pF ± 20%</td>
<td>0.22uF</td>
<td>1.6mH</td>
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<tr>
<td>65-XXX-020-3-11</td>
<td>125VAC</td>
<td>2A</td>
<td>0.20mA</td>
<td>2200pF ± 20%</td>
<td>0.1uF</td>
<td>6.5mH</td>
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<tr>
<td>65-XXX-020-5-11</td>
<td>125VAC</td>
<td>4A</td>
<td>0.25mA</td>
<td>3300pF ± 20%</td>
<td>0.22uF</td>
<td>4.2mH</td>
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<tr>
<td>65-XXX-060-3-11</td>
<td>125VAC</td>
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<td>0.25mA</td>
<td>3300pF ± 20%</td>
<td>0.22uF</td>
<td>1.6mH</td>
</tr>
</tbody>
</table>

Note: Test Voltage 1500VAC one minute, line to ground
Insulation Resistance: 300 MΩ min. at 500VDC
F(S) = Fast-on or (Solder lug terminals)

* Substitute BFF or BFS for XXX
BFF - Fast-on terminals
BFS - Solder lug terminals

Circuit Diagram

Diagram showing the connection of components L, R, C, X, and N.
Fused Filtered Power Entry Modules
For General Purpose Applications

64-65-BFF/64-65-BFS Series

Temperature Characteristics

Common Mode

0.50 mA Leakage Versions

0.35 mA Leakage Versions

Normal Mode

0.50 mA Leakage Versions

0.35 mA Leakage Versions
Fused Filtered Power Entry Modules
For Medical or General Purpose Applications

66-67-BFF/66-67-BFS Series

**Features**
- Metric and North American fuse holders available
- Fuse holder provides effective EMI suppression of common and differential mode
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Fast-on terminations or solder lug terminations
- Metal case provides effective EMI shielding
- Provides susceptibility protection without the leakage current associated with line-to-ground capacitance
- Reduces the line to ground capacitance in order to meet patient care requirements
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF37)

**Applications**
- Medical equipment
- Electronic equipment
- Digital equipment
- Industrial equipment
- Telecommunications equipment
- Measuring and testing instruments
- Personal computers and peripherals

**Circuit Diagrams**

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage ( @ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Cx</th>
<th>Cy</th>
<th>Inductance (L1)</th>
<th>Temperature Rise (Max.)</th>
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<td></td>
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<tr>
<td>66-XXX-020-0-11</td>
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<td>0.1mA</td>
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<td>0.22uF</td>
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<td>66-XXX-020-4-11</td>
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<tr>
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<tr>
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<tr>
<td>66-XXX-040-1-12</td>
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<td>66-XXX-040-0-11</td>
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<td>67-XXX-020-4-11</td>
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<td>67-XXX-020-4-12</td>
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<td>67-XXX-040-1-12</td>
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<td>0.035mA</td>
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<td>470pF ± 20%</td>
<td>0.22uF</td>
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Note: Test Voltage 1500VAC one minute, line to ground Insulation Resistance: 300 MΩ min. at 500VDC F(S) = Fast-on or (Solder lug terminals) Voltage Drop: 1V max. at rated current Weight: 78g * Substitute BFF or BFS for XXX Inlet: Compatible with IEC-320 **API TECHNOLOGIES • 5061 Avonia Rd. • Fairview, PA 16415 • Ph: 814-474-1571 • Fax: 814-474-3110 • eis.apitech.com**
**Fused Filtered Power Entry Modules**

For Medical or General Purpose Applications

### 66-67-BFF/66-67-BFS Series

#### Temperature Characteristics

![Graph showing temperature characteristics](image)

#### Dimensions

**66-67-BFF/66-67-BFS Series**

![Dimensions diagram](image)

#### Common Mode

![Diagram of common mode](image)

#### Normal Mode

![Diagram of normal mode](image)
Switched and Fused Filtered Power Entry Modules
For General Purpose Applications

Features
- North American and Metric fuse holders available
- Fuse holder and double pole power ON/OFF switch provided in a convenient/compact package
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Metal case provides effective EMI shielding
- Easy access fuse drawer with space for spare fuse
- Flange-mounted or snap-in styles available for quick mounting
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF39)

Applications
- Computers and peripheral equipment
- Digital equipment
- Telecommunications equipment

Circuit Diagram

Specifications

<table>
<thead>
<tr>
<th>Model*</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance</th>
<th>Inductance (L1)</th>
<th>Temperature Rise (Max.)</th>
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</table>

Note: Test Voltage 1500VAC one minute, line to ground
Voltage Drop: 1V max. at rated current
Insulation Resistance: 300 MΩ min. at 500VDC
BS(S) = Bolt-in terminals or (Snap-in terminals)
Inlet: Compatible with IEC-320

* Substitute BSF or SSF for XXX

BSF - Bolt-in switched and fused
SSF - Snap-in switched and fused

API TECHNOLOGIES • 6061 Avonia Rd. • Fairview, PA 16415 • Ph: 814-474-1571 • Fax: 814-474-3110 • eis.api@tech.com
API TECHNOLOGIES’ SPECTRUM CONTROL GmbH • Hansastrasse 6 • 91128 Schwabach, Germany • Phone: (49)-9122-795-0 • Fax: (49)-9122-795-58

PF38
Switched and Fused Filtered Power Entry Modules
For General Purpose Applications

Dimensions
64/65-BSF Series

Common Mode

Normal Mode
### Features
- Metric and North American fuse holders available
- Fuse holder and a double pole power ON/OFF switch provides a convenient/compact package
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Provides susceptibility protection without the leakage current associated with line-to-ground capacitors
- Designed to meet requirements for non-patient and patient care equipment
- Metal case provides effective EMI shielding
- Easy access fuse drawer - space for spare fuse
- Flange-mounted or snap-in styles available for quick mounting
- Operating temperature: -25°C to +85°C
- (including temperature rise, see graph on page PF41)

### Specifications

<table>
<thead>
<tr>
<th>Model*</th>
<th>Rated Voltage 50/60Hz</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance</th>
<th>Temp. Induct. (L1)</th>
<th>Rise (Max.)</th>
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<td>0.01mA</td>
<td>NONE</td>
<td>4.2mH</td>
<td>45°C</td>
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<tr>
<td>66-XXX-040-0-12</td>
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<td>6A</td>
<td>0.01mA</td>
<td>NONE</td>
<td>1.6mH</td>
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Note: Test Voltage: 1500VAC one minute, line to ground. Insulation Resistance: 300 MΩ min. at 500VDC. Weight: 130g. Inlet: Compatible with IEC-320 B(S) = Bolt-In terminals or (Snap-in terminals) 

### Applications
- Medical equipment
- Industrial equipment
- Telecommunications equipment
- Measuring and testing instruments
- Digital equipment (including switching power supplies)
- General purpose filter for susceptibility or high frequency “clean up” applications

### Circuit Diagram

![Circuit Diagram Image](image-url)

Note: C1 and C2 capacitors omitted on 66/67 B(S)F-XXX-1-X Filters
Switched and Fused Filtered Power Entry Modules
For Medical or General Purpose Applications

Dimensions
66/67-BSF Series

66/67-SSF Series

Common Mode

Normal Mode

Temperature Characteristics

Insertion Loss (dB)

Ambient Temperature (°C)

Current (%)

PF41
Switched and Fused Filtered Power Entry Modules
Dual Fuse for European Applications

68-BSF Series

Features
- Dual fuse for European applications
- Fuse holder and double pole power ON/OFF switch provides a convenient/compact package
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Metal case provides effective EMI shielding
- IEC connector meets the safety standards of most certifying agencies
- Easy access fuse drawer
- Flange-mounted
- UL, CSA, and SEMKO approved
- Designed to be in accordance with VDE 0565, part 3
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF43)

Applications
- Computers and peripheral equipment
- Electronic equipment
- Digital equipment
- Measuring and testing instruments
- Telecommunications equipment

Specifications

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<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>C_{y1}</th>
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<th>C_{x1}</th>
<th>C_{x2}</th>
<th>Inductance (L)</th>
<th>Temperature Rise (Max.)</th>
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Note: Test Voltage 1500VAC one minute, line to ground
Insulation Resistance: 300 MΩ min. at 500VDC
Voltage Drop: 1V max. at rated current
Weight: 130g
Inlet: Compatible with IEC-320
B(S) = Bolt-in terminals
68-BSF Series

Temperature Characteristics

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<th>Current (%)</th>
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<td>80</td>
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Dimensions in inches (mm)

Panel cutout dimension mount from back side

Fast-on Tab K50

t = .031 (0.8)

Common Mode

Normal Mode

Insertion Loss (dB) vs. Frequency (MHz)

Insertion Loss (dB) vs. Frequency (MHz)
PCB Power Filters
Miniature Printed Circuit Board

61-MPC Series

Features
- Miniature general purpose PCB mounted filter
- Requires minimal PCB real estate space
- Low cost
- Designed for two wire cord systems
- For three wire cord systems, Y capacitors can be attached externally
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF45)

Applications
- Personal computers and peripherals
- Digital equipment
- Measuring instruments and medical equipment
- TV & VCR monitors and display units
- Home appliances

Circuit Diagram

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance $\mathbf{C_{x1}}$</th>
<th>Capacitance $\mathbf{C_{x2}}$</th>
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Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 17.5g
61-MPC Series

Common Mode

Temperature Characteristics

Normal Mode

Dimensions in inches (mm)
Power Entry Modules
Bolt-in Right Angle Terminals
for PCB Applications

60-BPP Series

Features
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal case offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Uses IEC connector that meets most safety standards
- Solder lug, Fast-on tab styles available (see page PF18)
- PCB mounting style minimizes space and provides economical installation
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF47)
- UL approved low leakage version also available

Applications
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance</th>
<th>Inductance (Li)</th>
<th>Temperature Rise (Max.)</th>
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</thead>
<tbody>
<tr>
<td>60-BPP-010-3-2</td>
<td>250VAC</td>
<td>1A</td>
<td>0.35mA</td>
<td>CV 2200pF</td>
<td>0.022uF</td>
<td>6.0mH</td>
</tr>
<tr>
<td>60-BPP-010-3-4</td>
<td>250VAC</td>
<td>2A</td>
<td>0.35mA</td>
<td>CV 2200pF</td>
<td>0.022uF</td>
<td>2.4mH 30°C</td>
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<tr>
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<td>250VAC</td>
<td>3A</td>
<td>0.35mA</td>
<td>CV 2200pF</td>
<td>0.022uF</td>
<td>1.2mH 45°C</td>
</tr>
<tr>
<td>60-BPP-010-5-4</td>
<td>250VAC</td>
<td>6A</td>
<td>0.35mA</td>
<td>CV 2200pF</td>
<td>0.022uF</td>
<td>0.53mH 45°C</td>
</tr>
</tbody>
</table>

Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320
Power Entry Modules
Bolt-in Right Angle Terminals
for PCB Applications

60-BPP Series

Temperature Characteristics

Common Mode

Normal Mode
Power Entry Modules
High Frequency Attenuation
Bolt-in for PCB Applications

60-BHP Series

Features
- Ideally suited for products that must conform to FCC part 15 regulations
- Metal cased filter offers high performance
- Meets over voltage of IEC 664 category II and complies with IEC 950
- Solder lug, Fast-on tab styles available (see page PF20)
- PCB mounting minimizes space and provides economical installation
- Excellent filtering characteristics for high frequencies
- Earth coil standard
- Operating temperature: -25°C to +85°C (including temperature rise, see graph on page PF49)

Applications
- Digital equipment
- Personal computers and peripherals
- Measuring instruments
- Monitor and display units

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (@ 50/60Hz)</th>
<th>Rated Current</th>
<th>Leakage Current (Max.)</th>
<th>Capacitance</th>
<th>Inductance (L1)</th>
<th>Inductance (L2)</th>
<th>Temperature Rise (Max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-BHP-010-3-11</td>
<td>250VAC</td>
<td>1A</td>
<td>0.35mA</td>
<td>2200pF±20%</td>
<td>0.1uF±20%</td>
<td>6mH</td>
<td>30°C</td>
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<td>1A</td>
<td>0.50mA</td>
<td>3300pF±20%</td>
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<tr>
<td>60-BHP-010-5-11</td>
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<td>2A</td>
<td>0.35mA</td>
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<td>0.1uF±20%</td>
<td>2.4mH</td>
<td>18.3 uH</td>
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<tr>
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<td>45°C</td>
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<tr>
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<td>0.50mA</td>
<td>3300pF±20%</td>
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<tr>
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<td>2200pF±20%</td>
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<td>0.53mH</td>
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<tr>
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<td>0.50mA</td>
<td>3300pF±20%</td>
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</tr>
<tr>
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<td>6A</td>
<td>6A</td>
<td>2200pF±20%</td>
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<td>0.53mH</td>
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<tr>
<td>60-BHP-060-3-4</td>
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<td>6A</td>
<td>6A</td>
<td>2200pF±20%</td>
<td>0.1uF±20%</td>
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<tr>
<td>60-BHP-060-5-11</td>
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<td>6A</td>
<td>6A</td>
<td>2200pF±20%</td>
<td>0.1uF±20%</td>
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<td></td>
</tr>
<tr>
<td>60-BHP-060-5-4</td>
<td></td>
<td>6A</td>
<td>6A</td>
<td>2200pF±20%</td>
<td>0.1uF±20%</td>
<td></td>
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Weight: 50g
Input: Compatible with IEC-320
Power Entry Modules
High Frequency Attenuation
Bolt-in for PCB Applications

60-BHP Series

**Temperature Characteristics**

![Graph showing temperature characteristics.]

- **Common Mode**
  - Diagram showing connections for 60-BHP-XXX-X-11 with insertion loss vs. frequency.

- **Normal Mode**
  - Diagram showing connections for 60-BHP-XXX-3-11 with insertion loss vs. frequency.
  - 60-BHP-010-3-11, 60-BHP-020-3-11, 60-BHP-030-3-11, 60-BHP-060-3-11.

**Dimensions in inches (mm)**

- Panel cutout dimensions mount from backside.

**60-BHP PCB Mounting Type**

- Diagram showing PCB mounting type with dimensions.

**Insertion Loss (dB)**

- Frequency (MHz): 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50, 90
- Levels: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90

**Power Entry Modules**

- High Frequency Attenuation
- Bolt-in for PCB Applications