# Power Entry Modules

*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.*

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
For Medical or General Purpose Applications ..... PF36-PF37

Switched and Fused Filtered ..... PF38-PF43

PCB Power Filters ..... PF44-PF45


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# Power Entry Modules
# Bolt-in Rear Terminals

## 60-BPR & BPS Series

Tested and found to be IAW VDE 0565 Part 3.

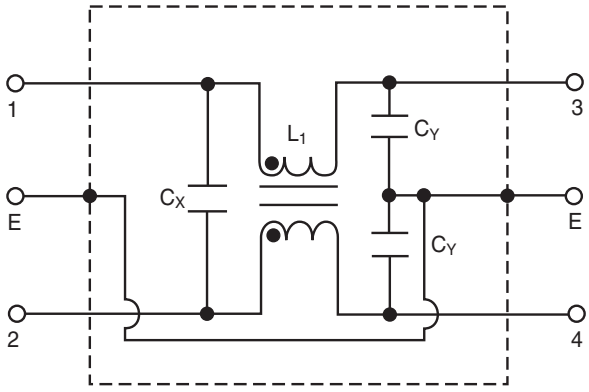
### Features

- 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

### Circuit Diagram




### Specifications

| Model* | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|
| 60-XXX-010-3-2 | 250VAC | 1A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 6.0mH | 30°C |
| 60-XXX-010-3-4 | | | | | .047uF ± 20% | | |
| 60-XXX-010-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-XXX-010-5-4 | | | | | .047uF ± 20% | | |
| 60-XXX-020-3-2 | 250VAC | 2A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 2.4mH | 30°C |
| 60-XXX-020-3-4 | | | | | .047uF ± 20% | | |
| 60-XXX-020-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-XXX-020-5-4 | | | | | .047uF ± 20% | | |
| 60-XXX-030-3-2 | 250VAC | 3A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 1.2mH | 30°C |
| 60-XXX-030-3-4 | | | | | .047uF ± 20% | | |
| 60-XXX-030-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-XXX-030-5-4 | | | | | .047uF ± 20% | | |
| 60-XXX-060-3-2 | 250VAC | 6A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 0.53mH | 45°C |
| 60-XXX-060-3-4 | | | | | .047uF ± 20% | | |
| 60-XXX-060-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-XXX-060-5-4 | | | | | .047uF ± 20% | | |
| 60-XXX-100-3-2 | 250VAC | 10A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 0.26mH | 45°C |
| 60-XXX-100-5-2 | | | 0.50mA | 3300pF ± 20% | | | |
| 60-BPR-150-3-11 | 250VAC | 15A | 0.35mA | 2200pF ± 20% | .1uF ± 20% | 0.15mH | 45°C |

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

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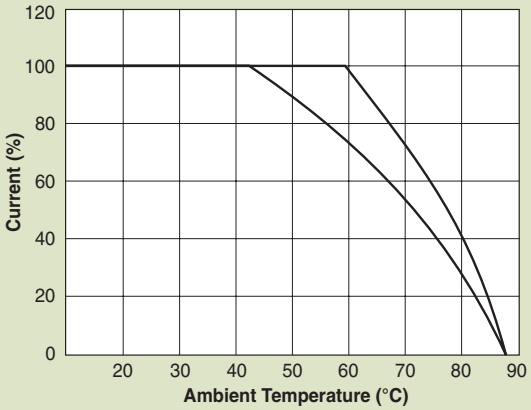
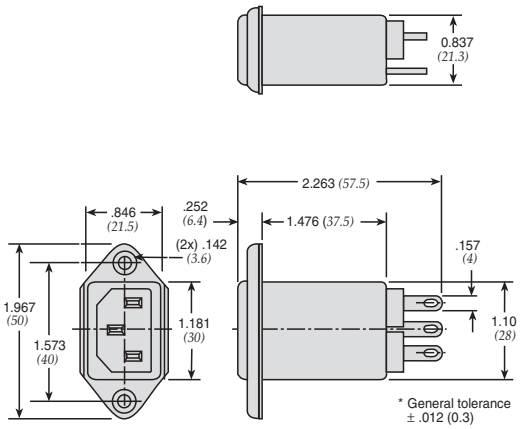
# Power Entry Modules
# Bolt-in Rear Terminals

## 60-BPR & BPS Series

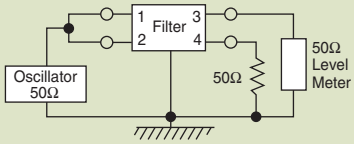
### Temperature Characteristics



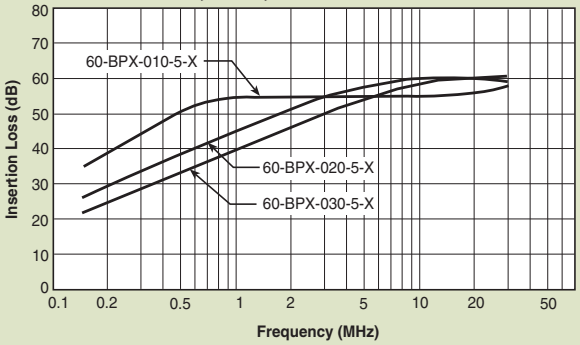




Dimensions in inches (*mm*)

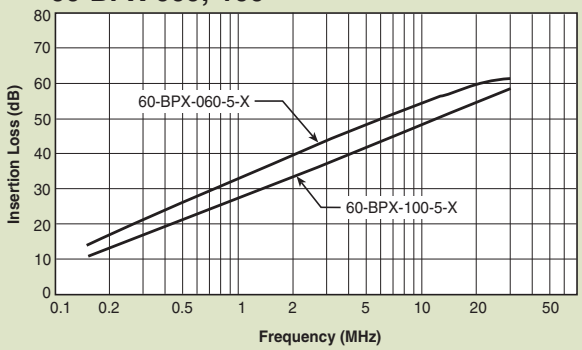
### Common Mode



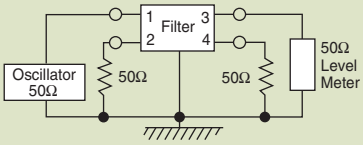

#### 60-BPX-010;-020;-030



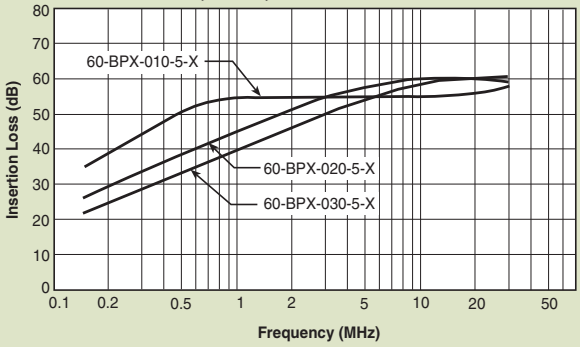

#### 60-BPX-060;-100



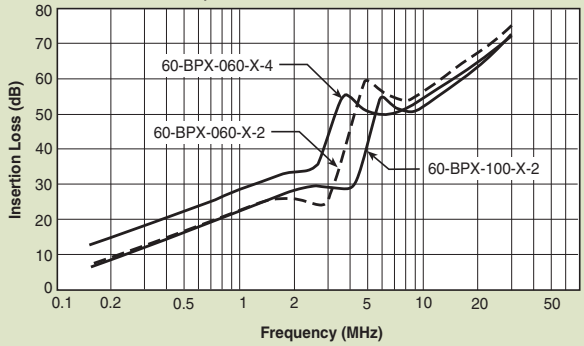

### Normal Mode




#### 60-BPX-010;-020;-030




#### 60-BPX-060;-100



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# Power Entry Modules
# Bolt-in Right Angle Terminals

## 60-BPF Series

Tested and found to be IAW VDE 0565 Part 3.

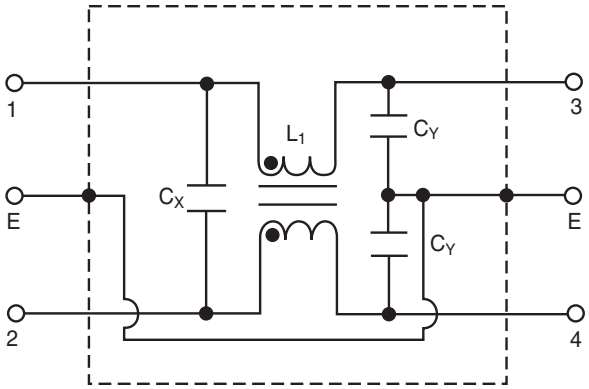
### Features

- 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

### Circuit Diagram




## Specifications

| Model | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|
| 60-BPF-010-3-2 | 250VAC | 1A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 6.0mH | 30°C |
| 60-BPF-010-3-4 | | | | | .047uF ± 20% | | |
| 60-BPF-010-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-BPF-010-5-4 | | | | | .047uF ± 20% | | |
| 60-BPF-020-3-2 | 250VAC | 2A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 2.4mH | 30°C |
| 60-BPF-020-3-4 | | | | | .047uF ± 20% | | |
| 60-BPF-020-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-BPF-020-5-4 | | | | | .047uF ± 20% | | |
| 60-BPF-030-3-2 | 250VAC | 3A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 1.2mH | 30°C |
| 60-BPF-030-3-4 | | | | | .047uF ± 20% | | |
| 60-BPF-030-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-BPF-030-5-4 | | | | | .047uF ± 20% | | |
| 60-BPF-060-3-2 | 250VAC | 6A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 0.53mH | 45°C |
| 60-BPF-060-3-4 | | | | | .047uF ± 20% | | |
| 60-BPF-060-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-BPF-060-5-4 | | | | | .047uF ± 20% | | |

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

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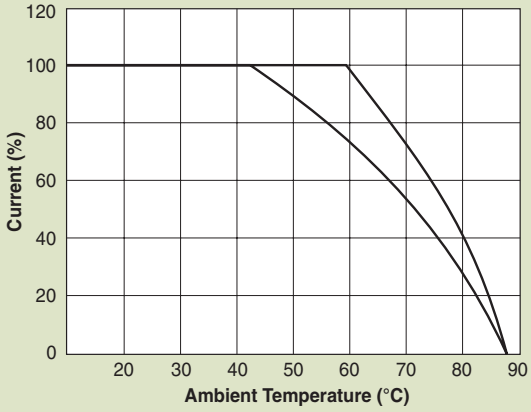
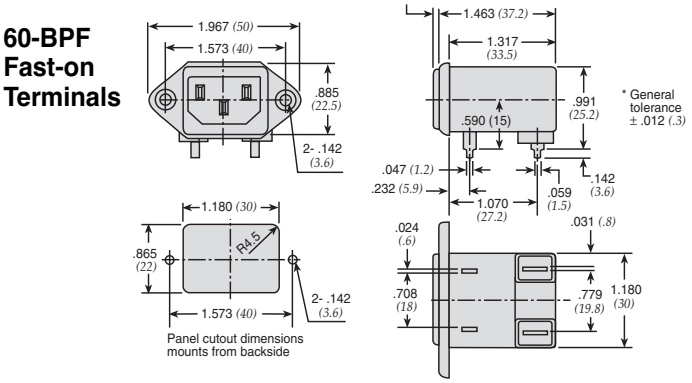
# Power Entry Modules
# Bolt-in Right Angle Terminals

## 60-BPF Series

### Temperature Characteristics

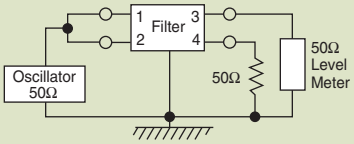



**60-BPF Fast-on Terminals**

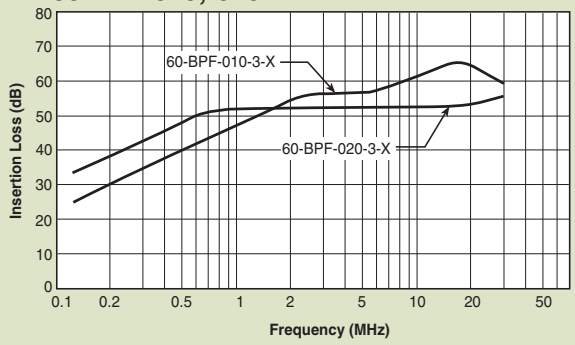



Dimensions in inches *(mm)*

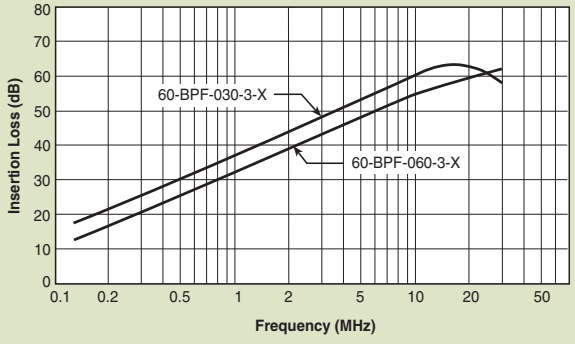
### Common Mode



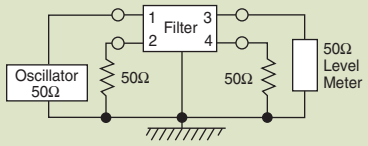

**60-BPF-010;-020**



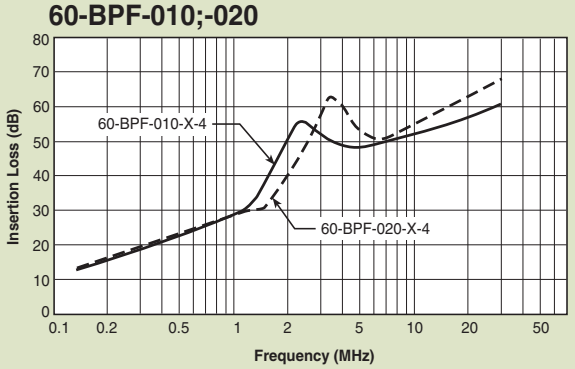

**60-BPF-030;-060**



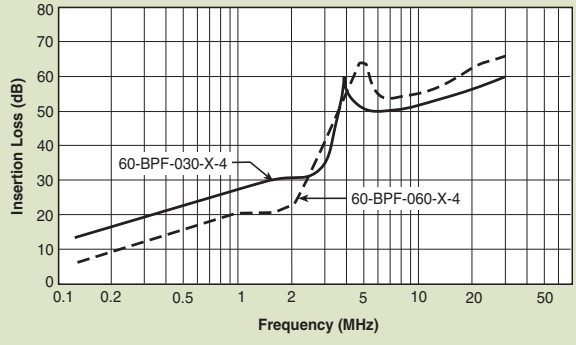

### Normal Mode




**60-BPF-010;-020**




**60-BPF-030;-060**



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# Power Entry Modules
# High Frequency Attenuation

## 60-BHS Series

Tested and found to be IAW VDE 0565 Part 3.

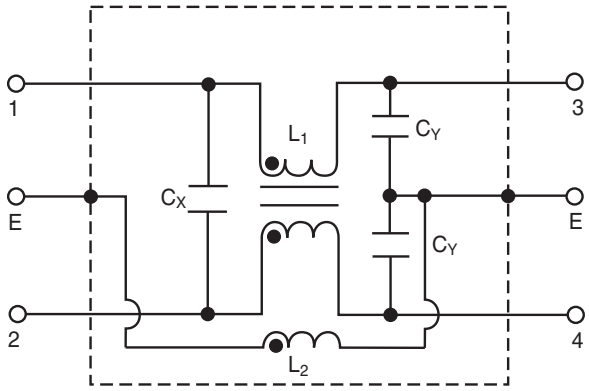
### Features

- 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

### Circuit Diagram




### Specifications

| Model | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Inductance ($L_2$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|---|
| 60-BHS-010-3-11 | 250VAC | 1A | 0.35mA | 2200pF ± 20% | 0.1uF ± 20% | 6mH | 18.3uH | 30°C |
| 60-BHS-010-3-4 | | | | | .047uF ± 20% | | | |
| 60-BHS-010-5-11 | | | 0.50mA | 3300pF ± 20% | 0.1uF ± 20% | | | |
| 60-BHS-010-5-4 | | | | | .047uF ± 20% | | | |
| 60-BHS-020-3-11 | 250VAC | 2A | 0.35mA | 2200pF ± 20% | 0.1uF ± 20% | 2.4mH | 18.3uH | 30°C |
| 60-BHS-020-3-4 | | | | | .047uF ± 20% | | | |
| 60-BHS-020-5-11 | | | 0.50mA | 3300pF ± 20% | 0.1uF ± 20% | | | |
| 60-BHS-020-5-4 | | | | | .047uF ± 20% | | | |
| 60-BHS-030-3-11 | 250VAC | 3A | 0.35mA | 2200pF ± 20% | 0.1uF ± 20% | 1.2mH | 18.3uH | 30°C |
| 60-BHS-030-3-4 | | | | | .047uF ± 20% | | | |
| 60-BHS-030-5-11 | | | 0.50mA | 3300pF ± 20% | 0.1uF ± 20% | | | |
| 60-BHS-030-5-4 | | | | | .047uF ± 20% | | | |
| 60-BHS-060-3-11 | 250VAC | 6A | 0.35mA | 2200pF ± 20% | 0.1uF ± 20% | .53mH | 18.3uH | 45°C |
| 60-BHS-060-3-4 | | | | | .047uF ± 20% | | | |
| 60-BHS-060-5-11 | | | 0.50mA | 3300pF ± 20% | 0.1uF ± 20% | | | |
| 60-BHS-060-5-4 | | | | | .047uF ± 20% | | | |

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

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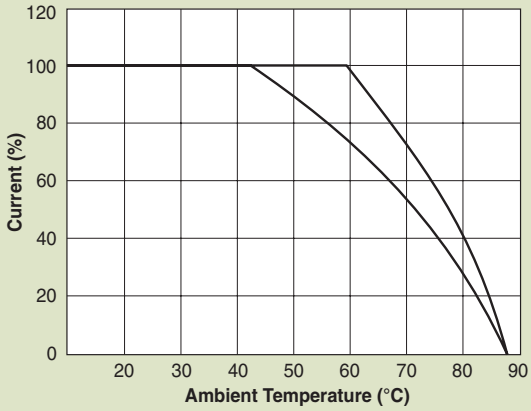
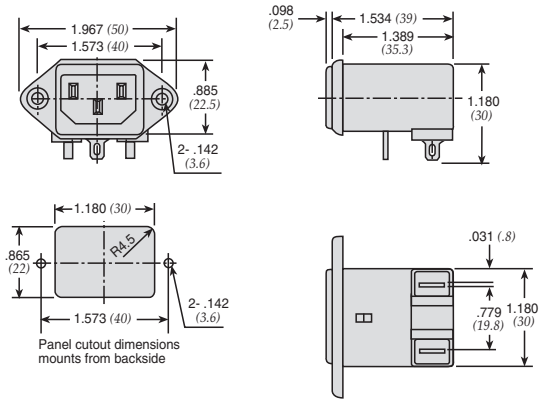
# Power Entry Modules
# High Frequency Attenuation

## 60-BHS Series

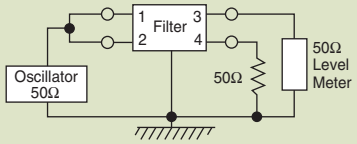
### Temperature Characteristics



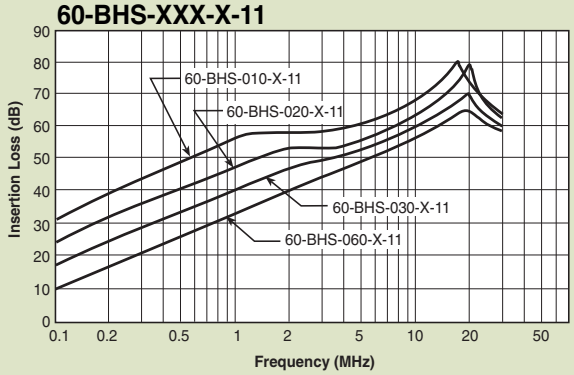




Dimensions in inches *(mm)*

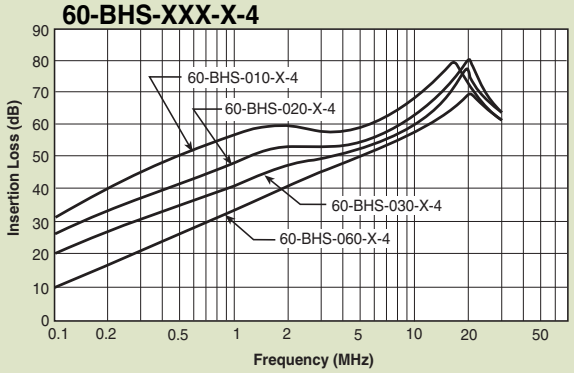
### Common Mode



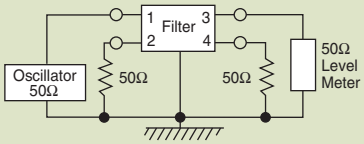

**60-BHS-XXX-X-11**



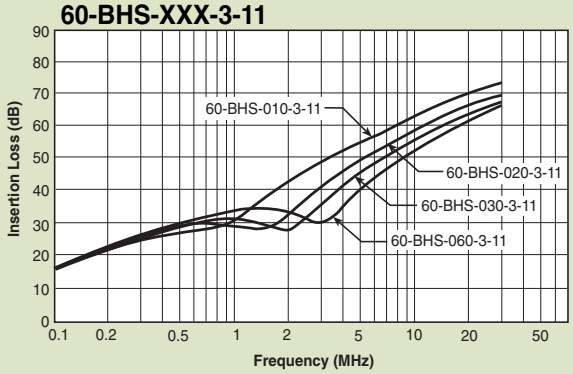

**60-BHS-XXX-X-4**



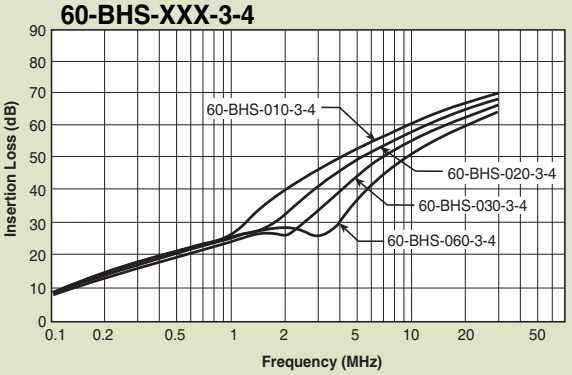

### Normal Mode




**60-BHS-XXX-3-11**




**60-BHS-XXX-3-4**



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

## 10-BPF Series

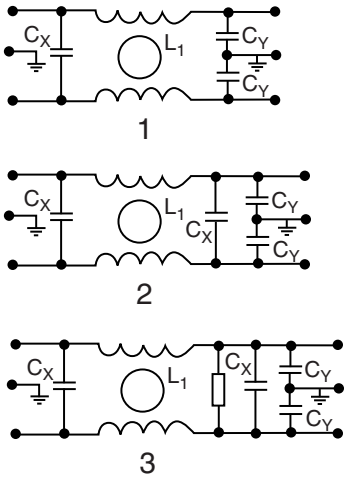
### Features

- 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

### Circuit Diagram




### Specifications

| Model | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Circuit Diagram | Figure | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|---|---|
| 10-BPF-001-5-A | 120/250VAC | 1A | 0.50mA | 3300pF | 2200pF | 3.0mH | 1 | A | 30°C |
| 10-BPF-001-5-C | | | | | | | | C | |
| 10-BPF-003-5-A | | 3A | | | 0.01uF | 1.5mH | | A | |
| 10-BPF-003-5-C | | | | | | | | C | |
| 10-BPF-003-5-D | | | | 4700pF | | | 2 | B | |
| 10-BPF-006-5-A | | 6A | | 3300pF | | 0.5mH | 1 | A | |
| 10-BPF-006-5-C | | | | | | | | C | |
| 10-BPF-006-5-D | | | | 3300pF & 0.01uF | 3300pF & 0.01uF | 1.5mH | 2 | B | |
| 10-BPF-010-5-A | | 10A | | 3300pF | 0.01uF | 0.5mH | 1 | A | |
| 10-BPF-010-5-D | | | | 3300pF & 0.01uF | 3300pF & 0.01uF | 1.5mH | 3 | B | |

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

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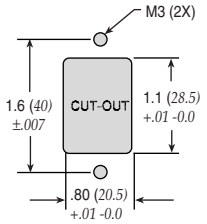
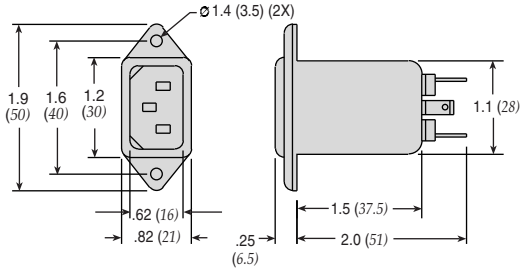
Spectrum Control

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

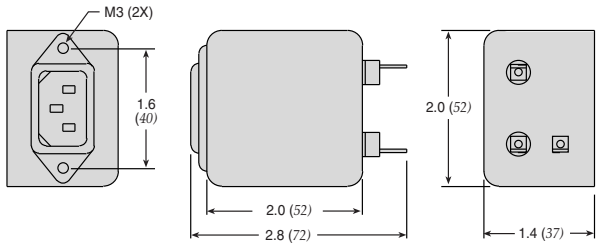
## 10-BPF Series



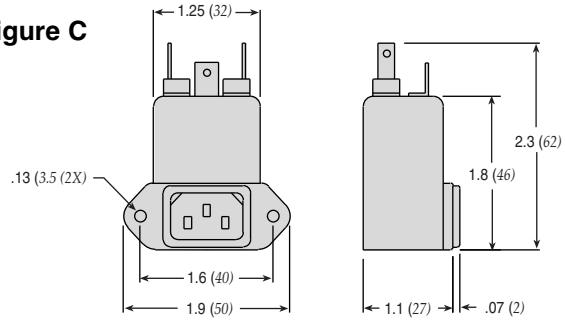

### Figure A




### Figure B

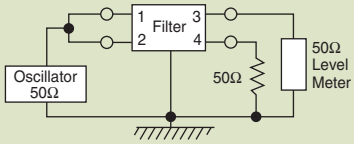



### Figure C

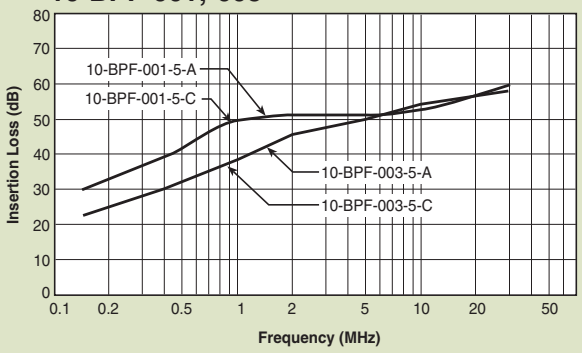



Dimensions in inches (*mm*)

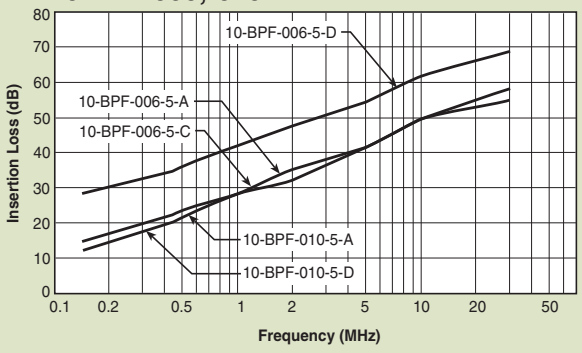
## Common Mode



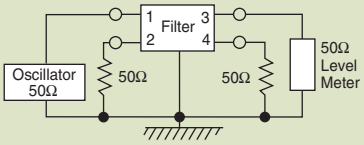

### 10-BPF-001;-003



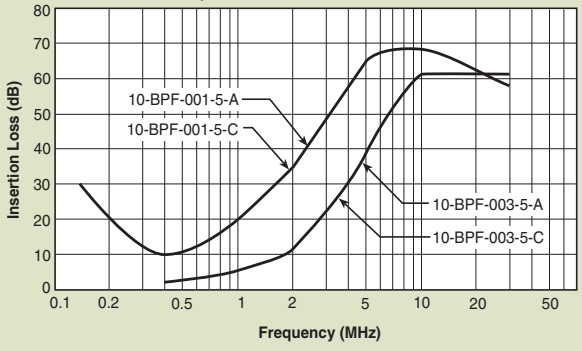

### 10-BPF-006;-010



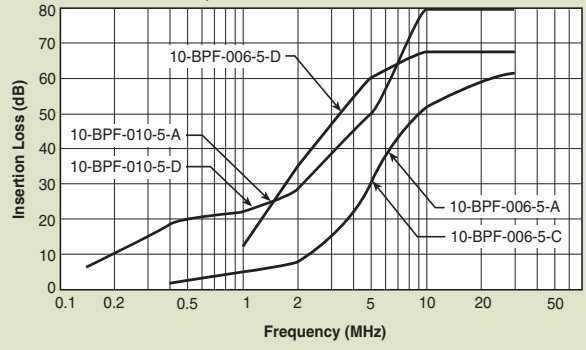

## Normal Mode




### 10-BPF-001;-003




### 10-BPF-006;-010



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Spectrum Control

# Power Entry Modules
# Bolt-in Rear Terminals
## For Medical Purpose Applications

## 10-BPF Series

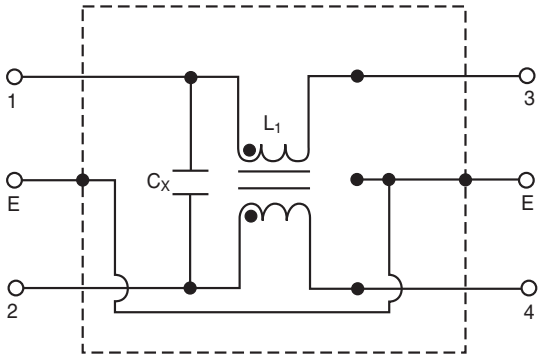
### Features

- 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

### Circuit Diagram




### Specifications

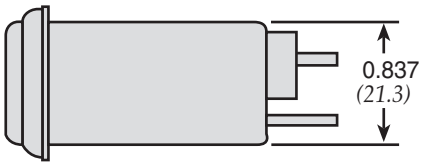
| Model | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_X$ | Inductance ($L_1$) | Circuit Diagram | Figure | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|---|
| 10-BPF-001-2-A | 120/250VAC | 1A | 5uA | 0.01uF | 3.0mH | 1 | A | 30°C |
| 10-BPF-003-2-A | | 3A | | | 1.5mH | | | |
| 10-BPF-006-2-A | | 6A | | | 0.5mH | | | |

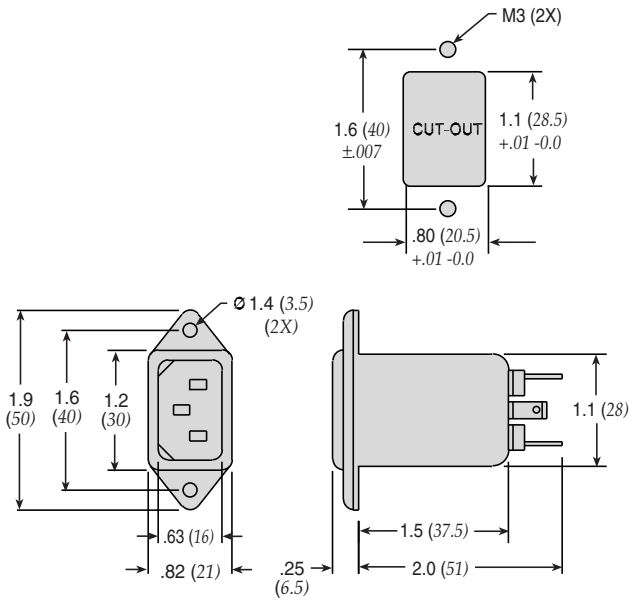
Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 45g
Input: Compatible with IEC-320

api technologies corp.
Spectrum Control

# Power Entry Modules
# Bolt-in Rear Terminals
## For Medical Purpose Applications

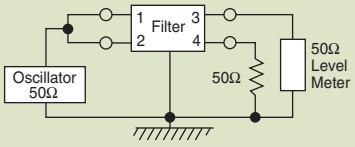
## 10-BPF Series



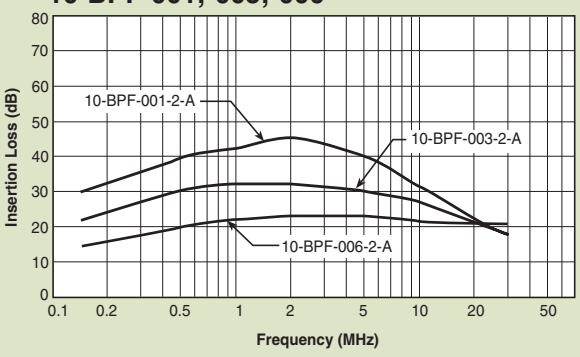




Dimensions in inches (*mm*)

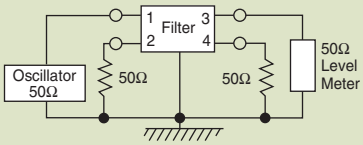
### Common Mode



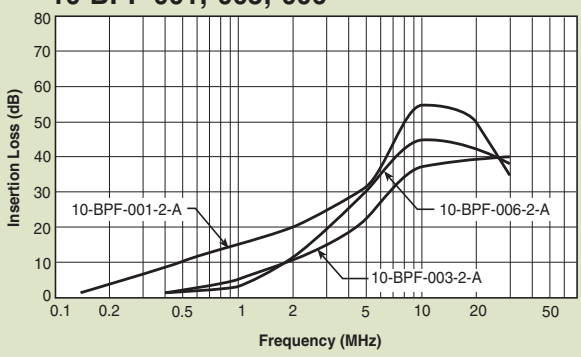

**10-BPF-001;-003;-006**




### Normal Mode




**10-BPF-001;-003;-006**



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# Power Entry Modules
# Snap-in with Wire Leads

## 60-SPL Series

Tested and found to be IAW VDE 0565 Part 3.

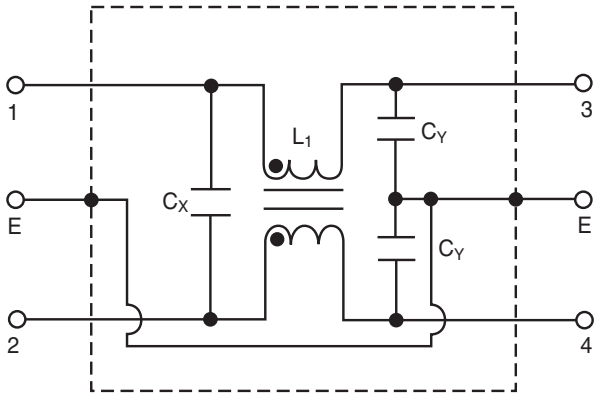
### Features

- 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

### Circuit Diagram




## Specifications

| Model | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|
| 60-SPL-010-3-2 | 250VAC | 1A | 0.35mA | 2200pF ± 20% | 22nF ± 20% | 6.0mH | 30°C |
| 60-SPL-010-3-3 | | | | | 33nF ± 20% | | |
| 60-SPL-010-5-2 | | | 0.50mA | 3300pF ± 20% | 22nF ± 20% | | |
| 60-SPL-010-5-3 | | | | | 33nF ± 20% | | |
| 60-SPL-020-3-2 | 250VAC | 2A | 0.35mA | 2200pF ± 20% | 22nF ± 20% | 2.4mH | 30°C |
| 60-SPL-020-3-3 | | | | | 33nF ± 20% | | |
| 60-SPL-020-5-2 | | | 0.50mA | 3300pF ± 20% | 22nF ± 20% | | |
| 60-SPL-020-5-3 | | | | | 33nF ± 20% | | |
| 60-SPL-030-3-2 | 250VAC | 3A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 1.2mH | 30°C |
| 60-SPL-030-3-3 | | | | 3300pF ± 20% | | | |
| 60-SPL-030-5-2 | | | 0.50mA | 2200pF ± 20% | .033uF ± 20% | | |
| 60-SPL-030-5-3 | | | | 3300pF ± 20% | | | |
| 60-SPL-060-3-2 | 250VAC | 6A | 0.35mA | 2200pF ± 20% | 22nF ± 20% | 0.53mH | 45°C |
| 60-SPL-060-3-3 | | | | | 33nF ± 20% | | |
| 60-SPL-060-5-2 | | | 0.50mA | 3300pF ± 20% | 22nF ± 20% | | |
| 60-SPL-060-5-3 | | | | | 33nF ± 20% | | |

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

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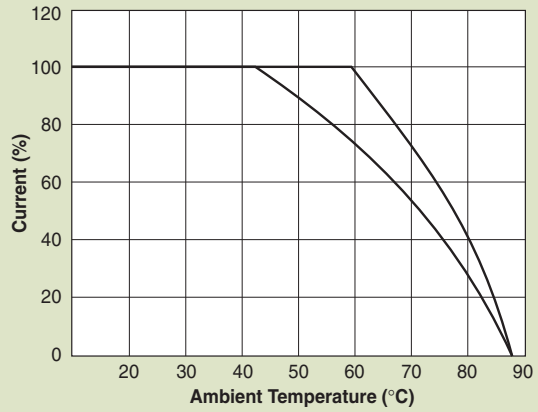
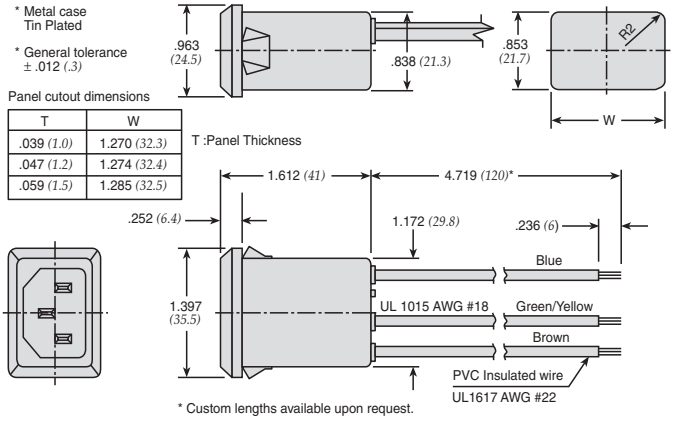
# Power Entry Modules
# Snap-in with Wire Leads

## 60-SPL Series

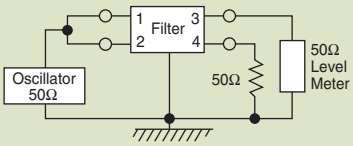
### Temperature Characteristics



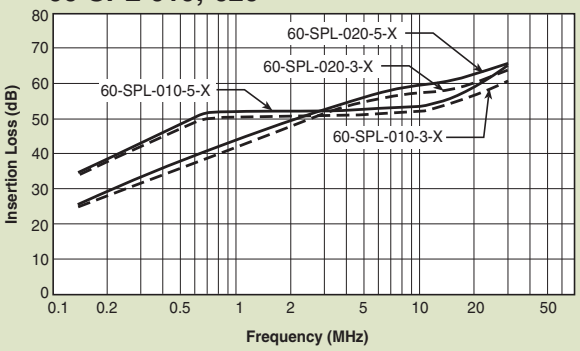




Dimensions in inches *(mm)*

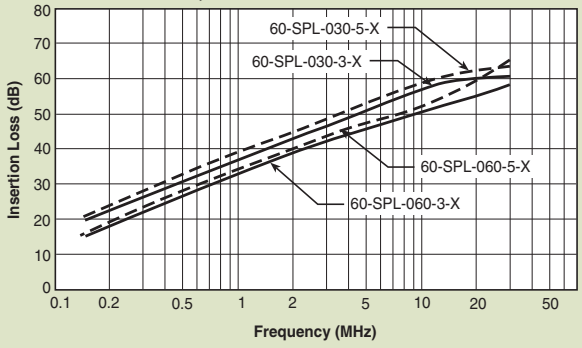
### Common Mode



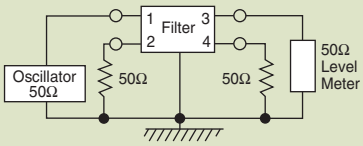

#### 60-SPL-010;-020



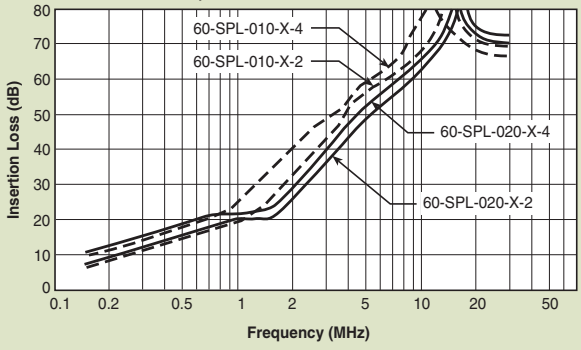

#### 60-SPL-030;-060



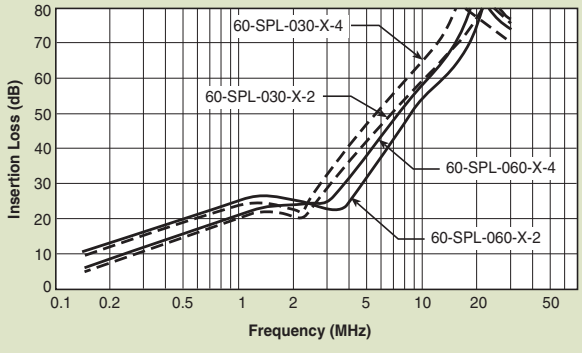

### Normal Mode




#### 60-SPL-010;-020




#### 60-SPL-030;-060



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# Power Entry Modules
# Bolt-in with Wire Leads

## 60-BPL Series

Tested and found to be IAW VDE 0565 Part 3.

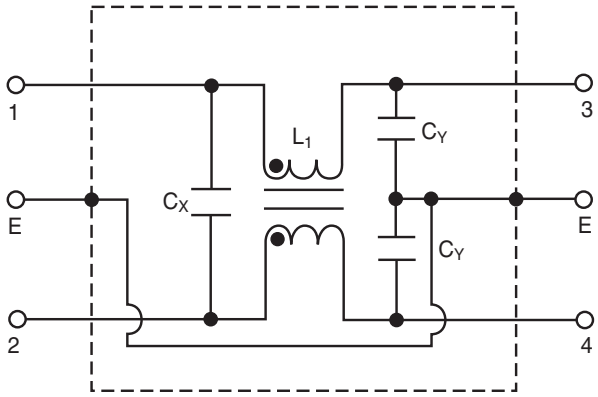
### Features

- 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

### Circuit Diagram




### Specifications

| Model | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|
| 60-BPL-010-3-2 | 250VAC | 1A | 0.35mA | 2200pF ± 20% | 22nF ± 20% | 6.0mH | 30°C |
| 60-BPL-010-3-3 | | | | | 33nF ± 20% | | |
| 60-BPL-010-5-2 | | | 0.50mA | 3300pF ± 20% | 22nF ± 20% | | |
| 60-BPL-010-5-3 | | | | | 33nF ± 20% | | |
| 60-BPL-020-3-2 | 250VAC | 2A | 0.35mA | 2200pF ± 20% | 22nF ± 20% | 2.4mH | 30°C |
| 60-BPL-020-3-3 | | | | | 33nF ± 20% | | |
| 60-BPL-020-5-2 | | | 0.50mA | 3300pF ± 20% | 22nF ± 20% | | |
| 60-BPL-020-5-3 | | | | | 33nF ± 20% | | |
| 60-BPL-030-3-2 | 250VAC | 3A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 1.2mH | 30°C |
| 60-BPL-030-3-3 | | | | 3300pF ± 20% | | | |
| 60-BPL-030-5-2 | | | 0.50mA | 2200pF ± 20% | .033uF ± 20% | | |
| 60-BPL-030-5-3 | | | | 3300pF ± 20% | | | |
| 60-BPL-060-3-2 | 250VAC | 6A | 0.35mA | 2200pF ± 20% | 22nF ± 20% | 0.53mH | 45°C |
| 60-BPL-060-3-3 | | | | | 33nF ± 20% | | |
| 60-BPL-060-5-2 | | | 0.50mA | 3300pF ± 20% | 22nF ± 20% | | |
| 60-BPL-060-5-3 | | | | | 33nF ± 20% | | |

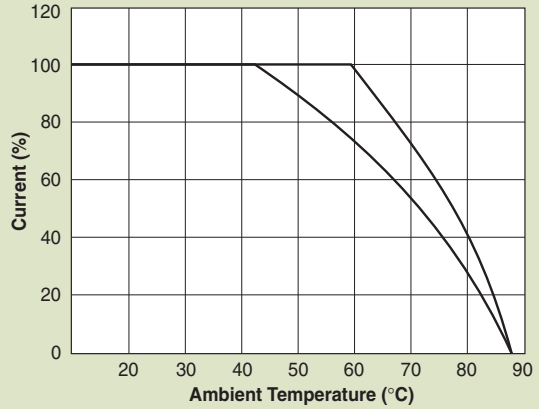
Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320

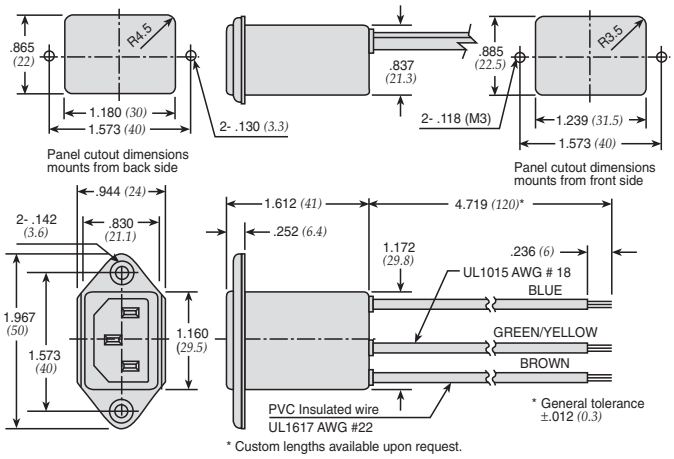
api technologies corp.
Spectrum Control

# Power Entry Modules
# Bolt-in with Wire Leads

## 60-BPL Series

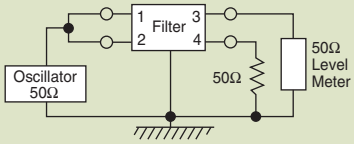
### Temperature Characteristics



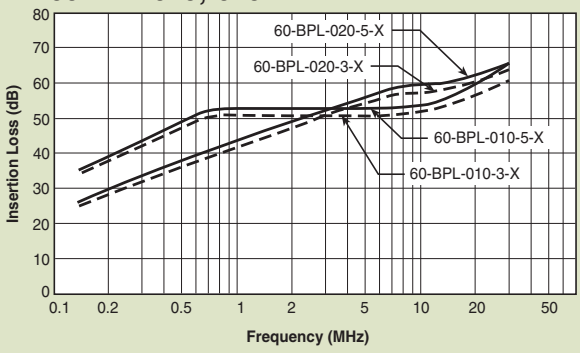




Dimensions in inches *(mm)*

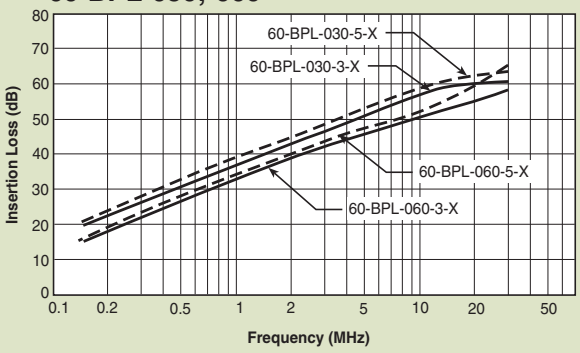
### Common Mode



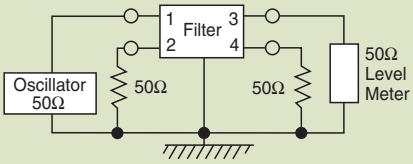

#### 60-BPL-010;-020



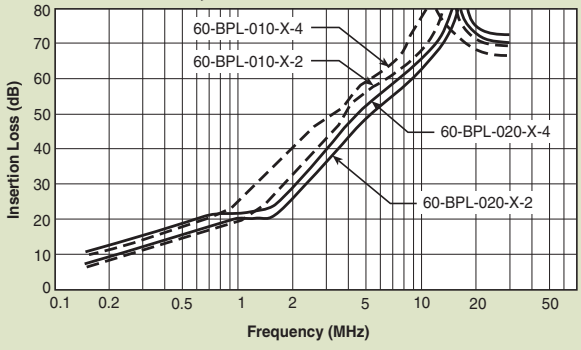

#### 60-BPL-030;-060



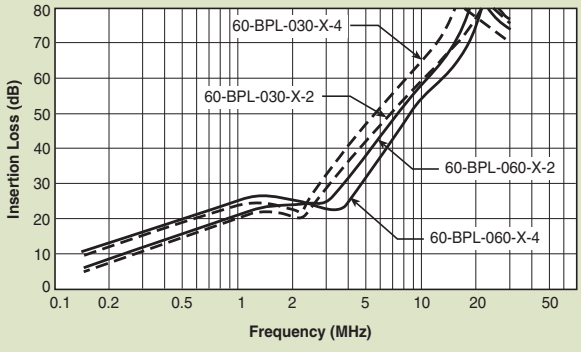

### Normal Mode




#### 60-BPL-010;-020




#### 60-BPL-030;-060



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Spectrum Control

# Power Entry Modules
# Bolt-in with Wire Leads

## 10-BPL Series

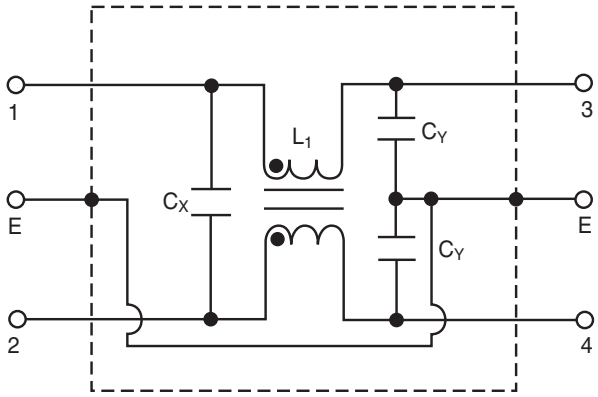
### Features

- 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




## Specifications

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

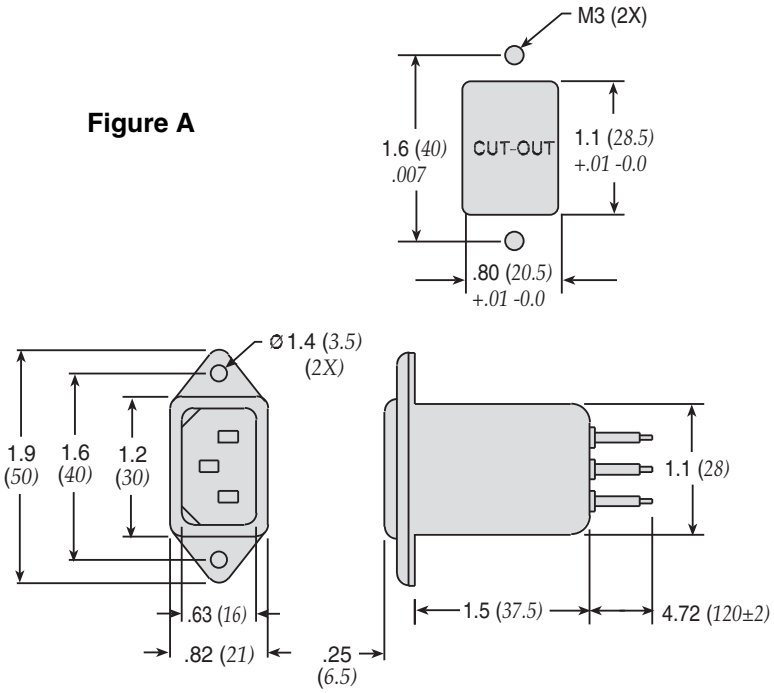
Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320

api technologies corp.
Spectrum Control

# Power Entry Modules
# Bolt-in with Wire Leads

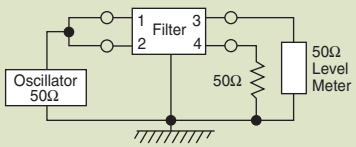
## 10-BPL Series

**Figure A**

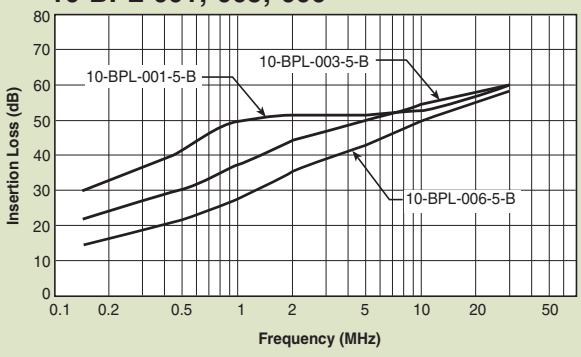



Dimensions in inches *(mm)*

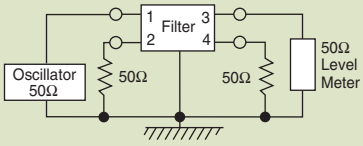
### Common Mode



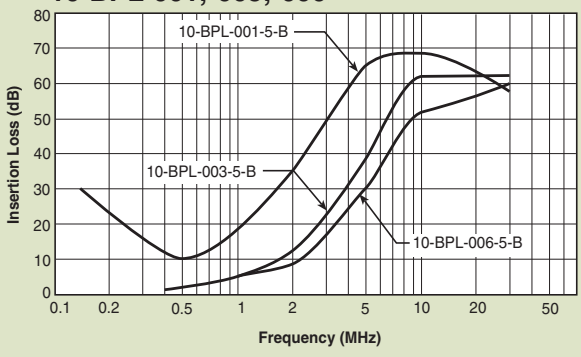

**10-BPL-001;-003;-006**




### Normal Mode




**10-BPL-001;-003;-006**



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# Power Entry Modules
# Snap-in Mount

## 60-SPR & SPS Series

Tested and found to be IAW VDE 0565 Part 3.

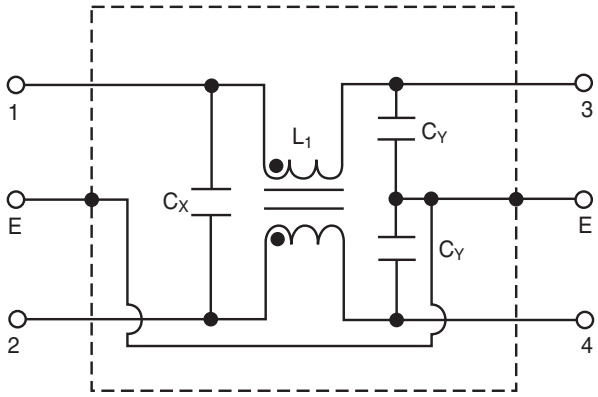
### Features

- 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

### Circuit Diagram




### Specifications

| Model* | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|
| 60-XXX-010-3-2 | 250VAC | 1A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 6.0mH | 30°C |
| 60-XXX-010-3-4 | | | | | .047uF ± 20% | | |
| 60-XXX-010-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-XXX-010-5-4 | | | | | .047uF ± 20% | | |
| 60-XXX-020-3-2 | 250VAC | 2A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 2.4mH | 30°C |
| 60-XXX-020-3-4 | | | | | .047uF ± 20% | | |
| 60-XXX-020-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-XXX-020-5-4 | | | | | .047uF ± 20% | | |
| 60-XXX-030-3-2 | 250VAC | 3A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 1.2mH | 30°C |
| 60-XXX-030-3-4 | | | | | .047uF ± 20% | | |
| 60-XXX-030-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-XXX-030-5-4 | | | | | .047uF ± 20% | | |
| 60-XXX-060-3-2 | 250VAC | 6A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 0.53mH | 45°C |
| 60-XXX-060-3-4 | | | | | .047uF ± 20% | | |
| 60-XXX-060-5-2 | | | 0.50mA | 3300pF ± 20% | .022uF ± 20% | | |
| 60-XXX-060-5-4 | | | | | .047uF ± 20% | | |
| 60-XXX-100-3-2 | 250VAC | 10A | 0.35mA | 2200pF ± 20% | .022uF ± 20% | 0.26mH | 45°C |
| 60-XXX-100-5-2 | | | 0.50mA | 3300pF ± 20% | | | |
| 60-SPR-150-3-11 | 250VAC | 15A | 0.35mA | 2200pF ± 20% | .1uF ± 20% | 0.15mH | 45°C |

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

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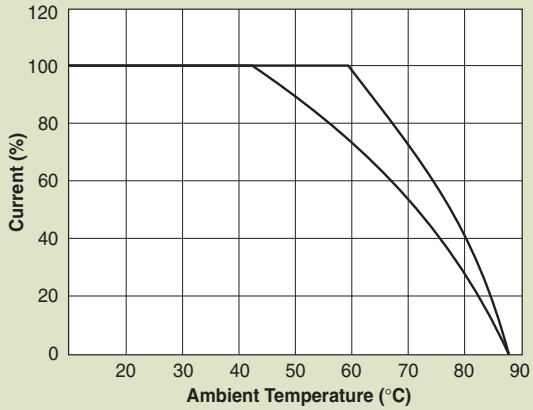
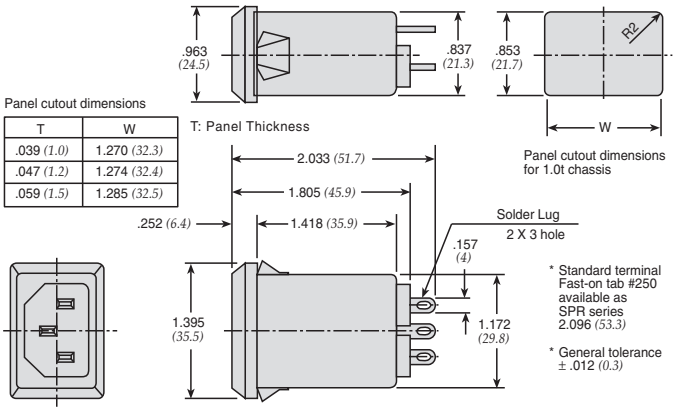
# Power Entry Modules
# Snap-in Mount

## 60-SPR & SPS Series

### Temperature Characteristics

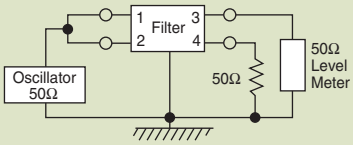


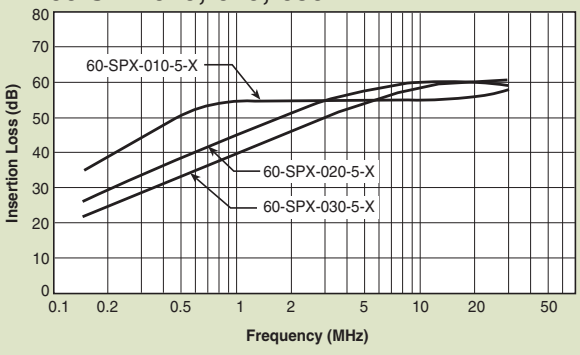

| T | W |
|---|---|
| .039 (1.0) | 1.270 (32.3) |
| .047 (1.2) | 1.274 (32.4) |
| .059 (1.5) | 1.285 (32.5) |

Dimensions in inches *(mm)*

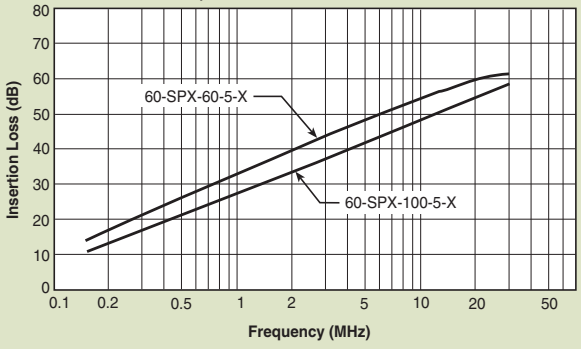
### Common Mode



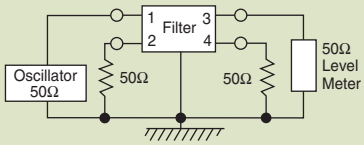

#### 60-SPX-010;-020;-030



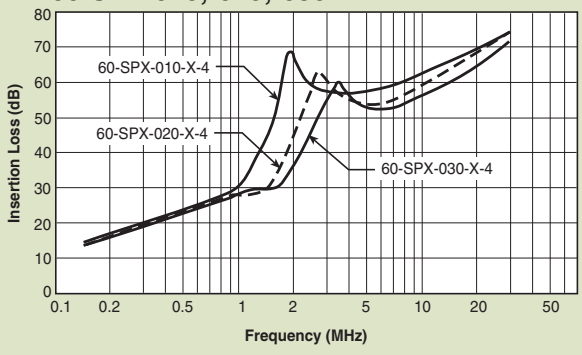

#### 60-SPX-060;-100



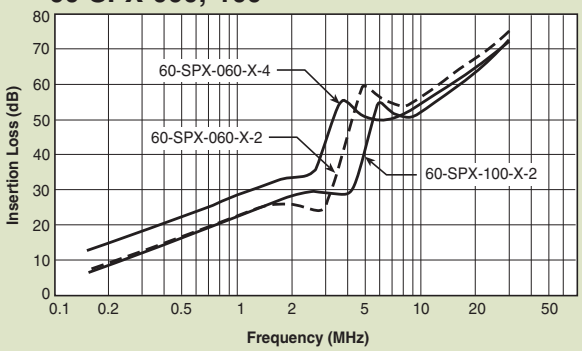

### Normal Mode




#### 60-SPX-010;-020;-030




#### 60-SPX-060;-100



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# Fused Filtered Power Entry Modules
## For General Purpose Applications

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

Tested and found to be IAW VDE 0565 Part 3.

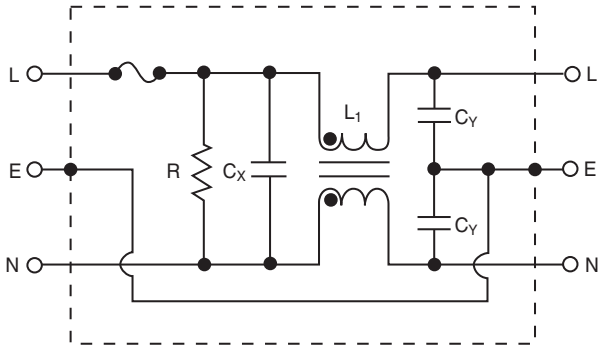
### Features

- 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

### Circuit Diagram




### Specifications

| Model* | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|
| 64-XXX-020-3-11 | 250VAC | 2A | 0.35mA | 2200pF ± 20% | 0.1uF | 6.5mH | 40°C |
| 64-XXX-020-5-11 | | | 0.50mA | 3300pF ± 20% | | | |
| 64-XXX-020-3-12 | | | 0.35mA | 2200pF ± 20% | 0.22uF | | |
| 64-XXX-020-5-12 | | | 0.50mA | 3300pF ± 20% | | | |
| 64-XXX-040-3-11 | 250VAC | 4A | 0.35mA | 2200pF ± 20% | 0.1uF | 4.2mH | 45°C |
| 64-XXX-040-5-11 | | | 0.50mA | 3300pF ± 20% | | | |
| 64-XXX-040-3-12 | | | 0.35mA | 2200pF ± 20% | 0.22uF | | |
| 64-XXX-040-5-12 | | | 0.50mA | 3300pF ± 20% | | | |
| 64-XXX-060-3-11 | 250VAC | 6A | 0.35mA | 2200pF ± 20% | 0.1uF | 1.6mH | 45°C |
| 64-XXX-060-5-11 | | | 0.50mA | 3300pF ± 20% | | | |
| 64-XXX-060-3-12 | | | 0.35mA | 2200pF ± 20% | 0.22uF | | |
| 64-XXX-060-5-12 | | | 0.50mA | 3300pF ± 20% | | | |
| 65-XXX-020-3-11 | 125VAC | 2A | 0.20mA | 2200pF ± 20% | 0.1uF | 6.5mH | 40°C |
| 65-XXX-020-5-11 | | | 0.25mA | 3300pF ± 20% | | | |
| 65-XXX-020-3-12 | | | 0.20mA | 2200pF ± 20% | 0.22uF | | |
| 65-XXX-020-5-12 | | | 0.25mA | 3300pF ± 20% | | | |
| 65-XXX-040-3-11 | 125VAC | 4A | 0.20mA | 2200pF ± 20% | 0.1uF | 4.2mH | 45°C |
| 65-XXX-040-5-11 | | | 0.25mA | 3300pF ± 20% | | | |
| 65-XXX-040-3-12 | | | 0.20mA | 2200pF ± 20% | 0.22uF | | |
| 65-XXX-040-5-12 | | | 0.25mA | 3300pF ± 20% | | | |
| 65-XXX-060-3-11 | 125VAC | 6A | 0.20mA | 2200pF ± 20% | 0.1uF | 1.6mH | 45°C |
| 65-XXX-060-5-11 | | | 0.25mA | 3300pF ± 20% | | | |
| 65-XXX-060-3-12 | | | 0.20mA | 2200pF ± 20% | 0.22uF | | |
| 65-XXX-060-5-12 | | | 0.25mA | 3300pF ± 20% | | | |

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
Inlet: Compatible with IEC-320

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

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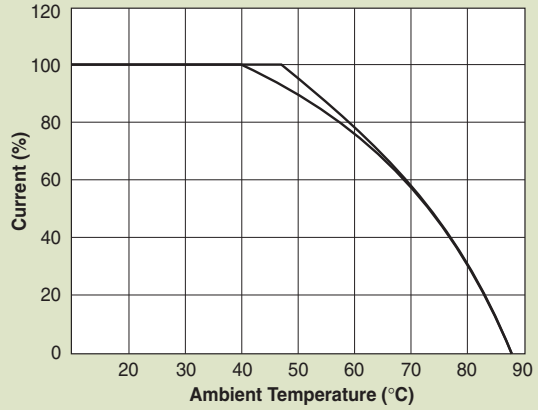
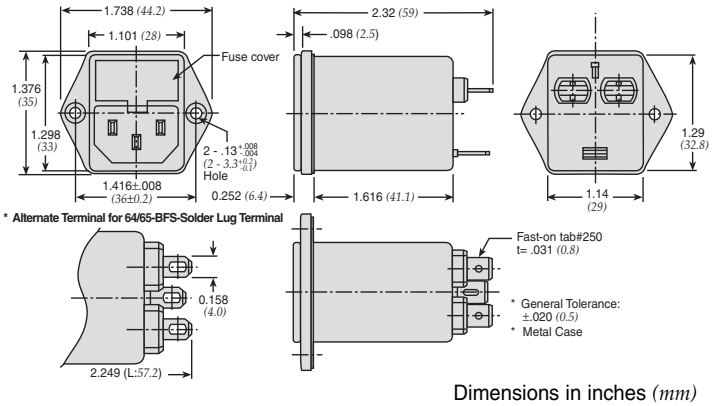
# Fused Filtered Power Entry Modules
## For General Purpose Applications

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

### Temperature Characteristics

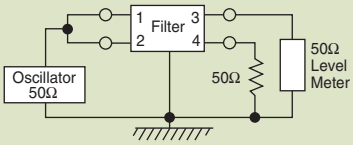



### Dimensions
#### 64/65-BFF Series

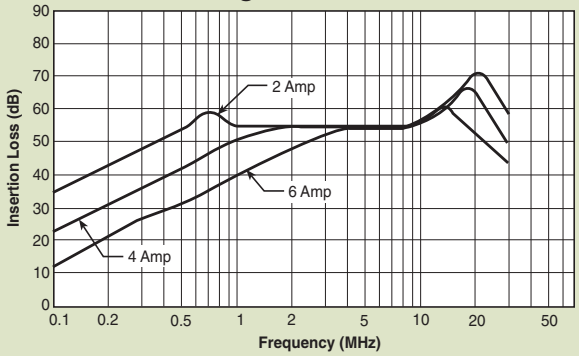



Dimensions in inches *(mm)*

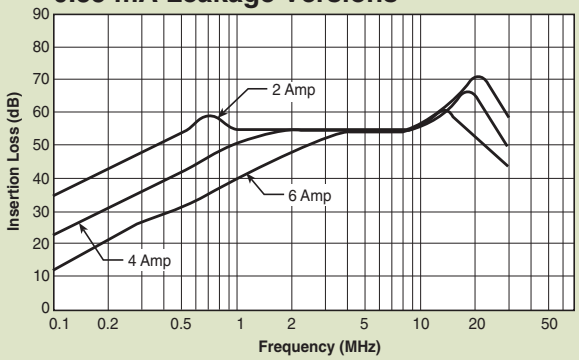
### Common Mode



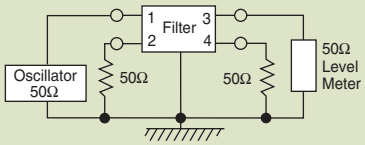

#### 0.50 mA Leakage Versions



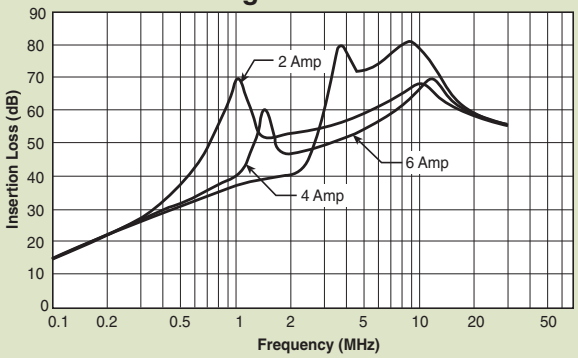

#### 0.35 mA Leakage Versions



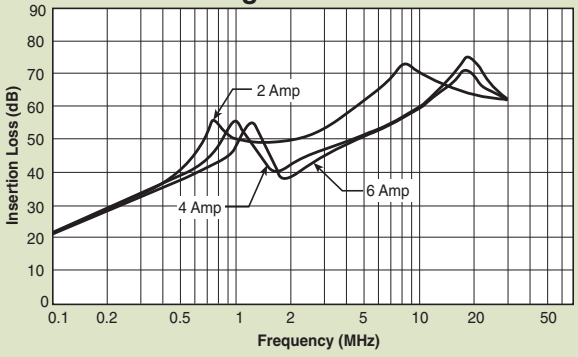

### Normal Mode




#### 0.50 mA Leakage Versions




#### 0.35 mA Leakage Versions



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# Fused Filtered Power Entry Modules
## For Medical or General Purpose Applications

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

Tested and found to be IAW VDE 0565 Part 3.

## Features

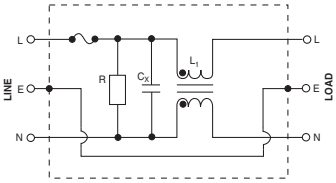
- Metric and North American fuse holders available
- Fuse holder provides effective EMI suppression of common and differential mode
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Fast-on terminations or solder 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

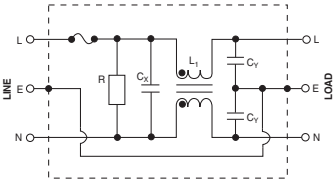
- Medical equipment
- Electronic equipment
- Digital equipment
- Industrial equipment
- Telecommunications equipment
- Measuring and testing instruments
- Personal computers and peripherals

## Circuit Diagrams

**66/67-BFF(S)-XXX-1-X Filter**




**66/67-BFF(S)-XXX-0-X and 66/67-BFF(S)-XXX-4-X Filters**




## Specifications

| Model* | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|
| 66-XXX-020-1-11 | 250VAC | 2A | 0.01mA | none | 0.1uF | 6.5mH | 40°C |
| 66-XXX-020-1-12 | | | | | 0.22uF | | |
| 66-XXX-020-0-11 | | | 0.075mA | 330pF ± 20% | 0.1uF | | |
| 66-XXX-020-4-11 | | | 0.1mA | 470pF ± 20% | | | |
| 66-XXX-020-0-12 | | | 0.075mA | 330pF ± 20% | 0.22uF | | |
| 66-XXX-020-4-12 | | | 0.1mA | 470pF ± 20% | | | |
| 66-XXX-040-1-11 | 250VAC | 4A | 0.01mA | none | 0.1uF | 2.4mH | 45°C |
| 66-XXX-040-1-12 | | | | | 0.22uF | | |
| 66-XXX-040-0-11 | | | 0.075mA | 330pF ± 20% | 0.1uF | | |
| 66-XXX-040-4-11 | | | 0.1mA | 470pF ± 20% | | | |
| 66-XXX-040-0-12 | | | 0.075mA | 330pF ± 20% | 0.22uF | | |
| 66-XXX-040-4-12 | | | 0.1mA | 470pF ± 20% | | | |
| 66-XXX-060-1-11 | 250VAC | 6A | 0.01mA | none | 0.1uF | 1.6mH | 45°C |
| 66-XXX-060-1-12 | | | | | 0.22uF | | |
| 66-XXX-060-0-11 | | | 0.075mA | 330pF ± 20% | 0.1uF | | |
| 66-XXX-060-4-11 | | | 0.1mA | 470pF ± 20% | | | |
| 66-XXX-060-0-12 | | | 0.075mA | 330pF ± 20% | 0.22uF | | |
| 66-XXX-060-4-12 | | | 0.1mA | 470pF ± 20% | | | |
| 67-XXX-020-1-11 | 125VAC | 2A | 0.005mA | none | 0.1uF | 6.5mH | 40°C |
| 67-XXX-020-1-12 | | | | | 0.22uF | | |
| 67-XXX-020-0-11 | | | 0.035mA | 330pF ± 20% | 0.1uF | | |
| 67-XXX-020-4-11 | | | 0.05mA | 470pF ± 20% | | | |
| 67-XXX-020-0-12 | | | 0.035mA | 330pF ± 20% | 0.22uF | | |
| 67-XXX-020-4-12 | | | 0.05mA | 470pF ± 20% | | | |
| 67-XXX-040-1-11 | 125VAC | 4A | 0.005mA | none | 0.1uF | 2.4mH | 45°C |
| 67-XXX-040-1-12 | | | | | 0.22uF | | |
| 67-XXX-040-0-11 | | | 0.035mA | 330pF ± 20% | 0.1uF | | |
| 67-XXX-040-4-11 | | | 0.05mA | 470pF ± 20% | | | |
| 67-XXX-040-0-12 | | | 0.035mA | 330pF ± 20% | 0.22uF | | |
| 67-XXX-040-4-12 | | | 0.05mA | 470pF ± 20% | | | |
| 67-XXX-060-1-11 | 125VAC | 6A | 0.005mA | none | 0.1uF | 1.6mH | 45°C |
| 67-XXX-060-1-12 | | | | | 0.22uF | | |
| 67-XXX-060-0-11 | | | 0.035mA | 330pF ± 20% | 0.1uF | | |
| 67-XXX-060-4-11 | | | 0.05mA | 470pF ± 20% | | | |
| 67-XXX-060-0-12 | | | 0.035mA | 330pF ± 20% | 0.22uF | | |
| 67-XXX-060-4-12 | | | 0.05mA | 470pF ± 20% | | | |

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
Inlet: Compatible with IEC-320

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

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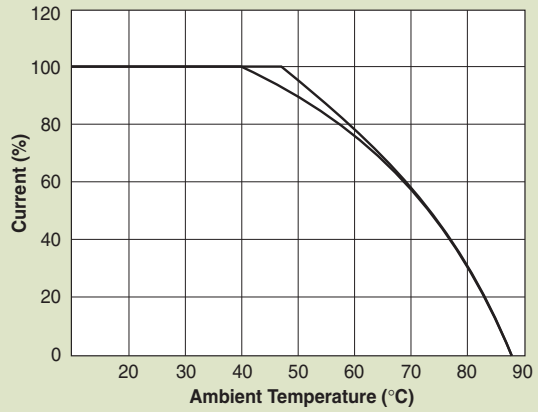
Spectrum Control

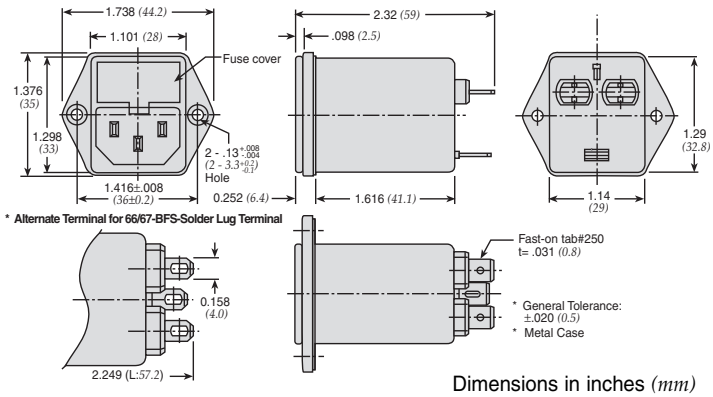
# Fused Filtered Power Entry Modules
## For Medical or General Purpose Applications

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

### Temperature Characteristics

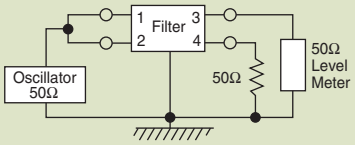



### Dimensions
#### 66-67-BFF/66-67-BFS Series

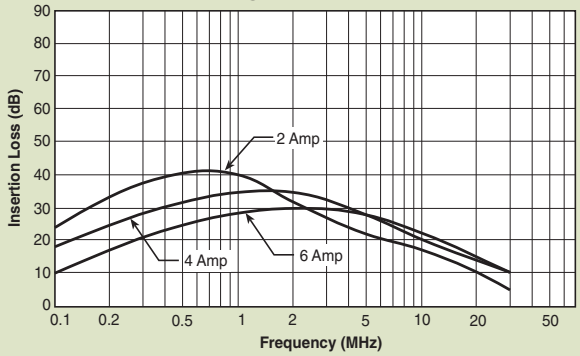



Dimensions in inches *(mm)*

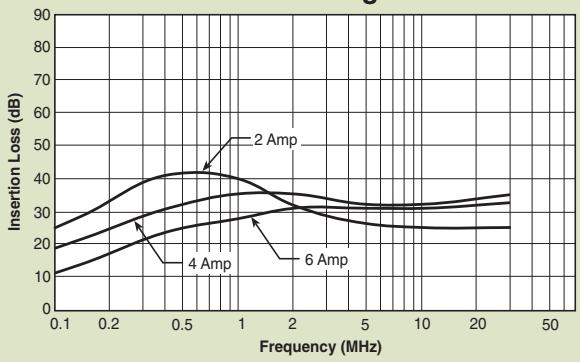
### Common Mode



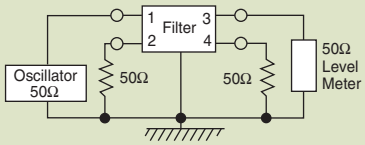

#### 0.01 mA Leakage Current



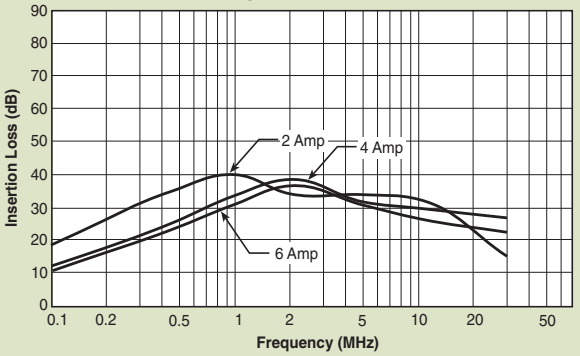

#### 0.075 and 0.1 mA Leakage Current



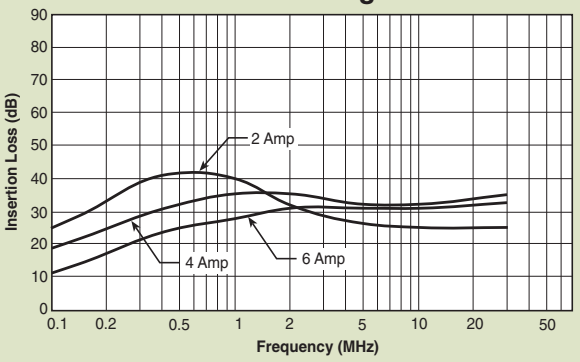

### Normal Mode




#### 0.01 mA Leakage Current




#### 0.075 and 0.1 mA Leakage Current



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

## 64-65-BSF/64-65-SSF Series

Tested and found to be IAW VDE 0565 Part 3.

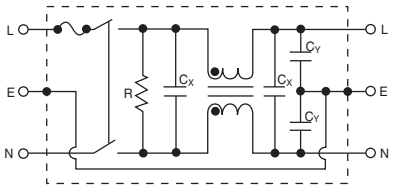
## Features

- 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
- Electronic equipment
- Digital equipment
- Measuring and testing instruments
- Telecommunications equipment

## Circuit Diagram




## Specifications

| Model* | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_{X1}$ | Capacitance $C_{X2}$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|---|
| 64-XXX-020-3-12 | 250VAC | 2A | 0.35mA | 2200pF | 0.22uF | NONE | 10.5mH | 45°C |
| 64-XXX-020-3-04 | | | | | | 0.22uF | | |
| 64-XXX-020-3-14 | | | | | 0.47uF | NONE | | |
| 64-XXX-020-3-06 | | | | | | 0.22uF | | |
| 64-XXX-020-5-12 | | | 0.50mA | 3300pF | 0.22uF | NONE | | |
| 64-XXX-020-5-04 | | | | | | 0.22uF | | |
| 64-XXX-020-5-14 | | | | | 0.47uF | NONE | | |
| 64-XXX-020-5-06 | | | | | | 0.22uF | | |
| 64-XXX-040-3-12 | 250VAC | 4A | 0.35mA | 2200pF | 0.22uF | NONE | 4.2mH | 45°C |
| 64-XXX-040-3-04 | | | | | | 0.22uF | | |
| 64-XXX-040-3-14 | | | | | 0.47uF | NONE | | |
| 64-XXX-040-3-06 | | | | | | 0.22uF | | |
| 64-XXX-040-5-12 | | | 0.50mA | 3300pF | 0.22uF | NONE | | |
| 64-XXX-040-5-04 | | | | | | 0.22uF | | |
| 64-XXX-040-5-14 | | | | | 0.47uF | NONE | | |
| 64-XXX-040-5-06 | | | | | | 0.22uF | | |
| 64-XXX-060-3-12 | 250VAC | 6A | 0.35mA | 2200pF | 0.22uF | NONE | 1.6mH | 45°C |
| 64-XXX-060-3-04 | | | | | | 0.22uF | | |
| 64-XXX-060-3-14 | | | | | 0.47uF | NONE | | |
| 64-XXX-060-3-06 | | | | | | 0.22uF | | |
| 64-XXX-060-5-12 | | | 0.50mA | 3300pF | 0.22uF | NONE | | |
| 64-XXX-060-5-04 | | | | | | 0.22uF | | |
| 64-XXX-060-5-14 | | | | | 0.47uF | NONE | | |
| 64-XXX-060-5-06 | | | | | | 0.22uF | | |
| 65-XXX-020-3-12 | 125VAC | 2A | 0.20mA | 2200pF | 0.22uF | NONE | 10.5mH | 45°C |
| 65-XXX-020-3-04 | | | | | | 0.22uF | | |
| 65-XXX-020-3-14 | | | | | 0.47uF | NONE | | |
| 65-XXX-020-3-06 | | | | | | 0.22uF | | |
| 65-XXX-020-5-12 | | | 0.25mA | 3300pF | 0.22uF | NONE | | |
| 65-XXX-020-5-04 | | | | | | 0.22uF | | |
| 65-XXX-020-5-14 | | | | | 0.47uF | NONE | | |
| 65-XXX-020-5-06 | | | | | | 0.22uF | | |
| 65-XXX-040-3-12 | 125VAC | 4A | 0.20mA | 2200pF | 0.22uF | NONE | 4.2mH | 45°C |
| 65-XXX-040-3-04 | | | | | | 0.22uF | | |
| 65-XXX-040-3-14 | | | | | 0.47uF | NONE | | |
| 65-XXX-040-3-06 | | | | | | 0.22uF | | |
| 65-XXX-040-5-12 | | | 0.25mA | 3300pF | 0.22uF | NONE | | |
| 65-XXX-040-5-04 | | | | | | 0.22uF | | |
| 65-XXX-040-5-14 | | | | | 0.47uF | NONE | | |
| 65-XXX-040-5-06 | | | | | | 0.22uF | | |
| 65-XXX-060-3-12 | 125VAC | 6A | 0.20mA | 2200pF | 0.22uF | NONE | 1.6mH | 45°C |
| 65-XXX-060-3-04 | | | | | | 0.22uF | | |
| 65-XXX-060-3-14 | | | | | 0.47uF | NONE | | |
| 65-XXX-060-3-06 | | | | | | 0.22uF | | |
| 65-XXX-060-5-12 | | | 0.25mA | 3300pF | 0.22uF | NONE | | |
| 65-XXX-060-5-04 | | | | | | 0.22uF | | |
| 65-XXX-060-5-14 | | | | | 0.47uF | NONE | | |
| 65-XXX-060-5-06 | | | | | | 0.22uF | | |

Note: Test Voltage 1500VAC one minute, line to ground
Insulation Resistance: 300 MΩ min. at 500VDC
B(S) = Bolt-in terminals or (Snap-in terminals)

Voltage Drop: 1V max. at rated current
Weight: 130g
Inlet: Compatible with IEC-320

* **Substitute BSF or SSF for XXX**
BSF - Bolt-in switched and fused
SSF - Snap-in switched and fused

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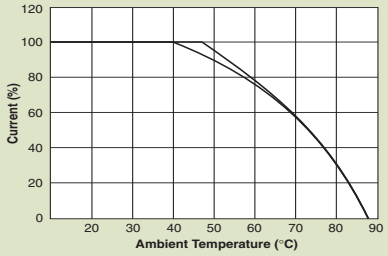
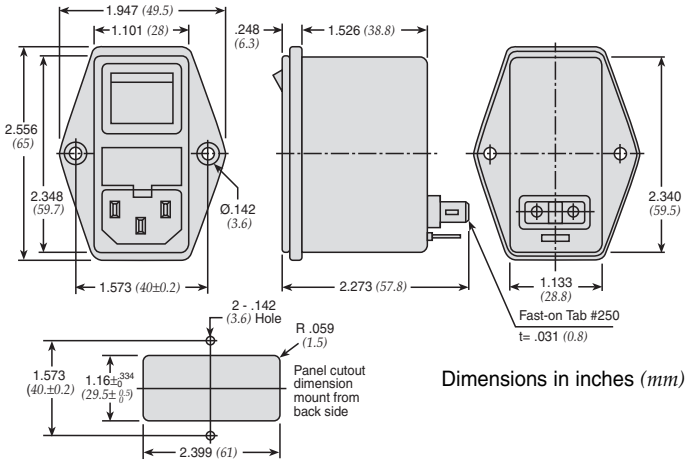
# Switched and Fused Filtered Power Entry Modules
## For General Purpose Applications

## Temperature Characteristics



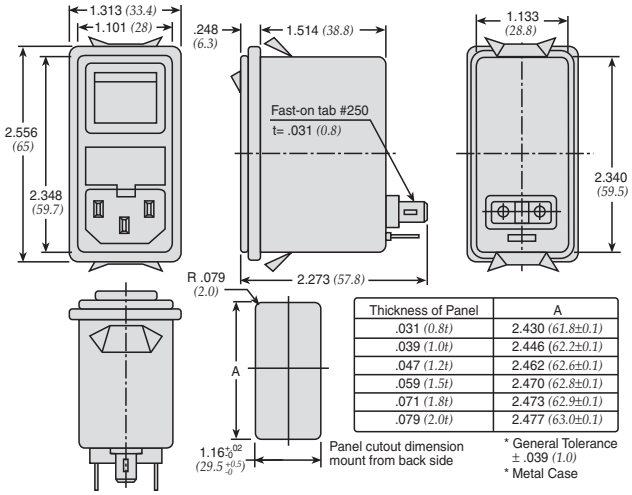

## Dimensions

### 64/65-BSF Series




Dimensions in inches *(mm)*

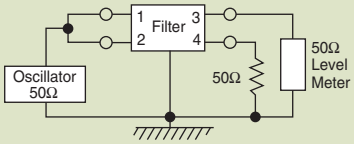
### 64/65-SSF Series



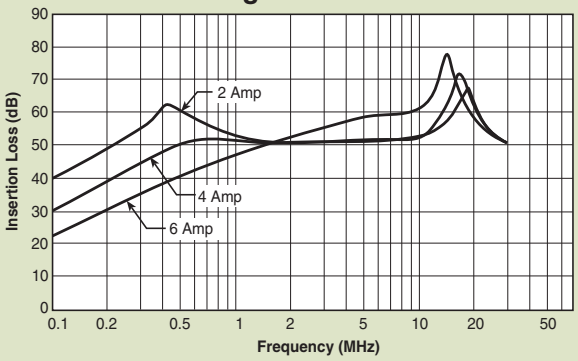

| Thickness of Panel | A |
|---|---|
| .031 (0.8t) | 2.430 (61.8±0.1) |
| .039 (1.0t) | 2.446 (62.2±0.1) |
| .047 (1.2t) | 2.462 (62.6±0.1) |
| .059 (1.5t) | 2.470 (62.8±0.1) |
| .071 (1.8t) | 2.473 (62.9±0.1) |
| .079 (2.0t) | 2.477 (63.0±0.1) |

* General Tolerance ± .039 (1.0)
* Metal Case

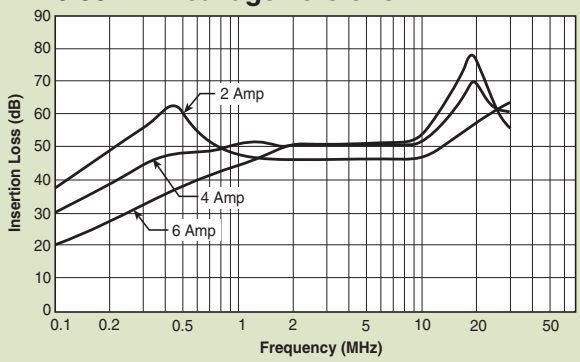
## Common Mode



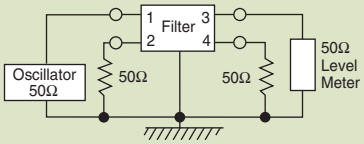

### 0.35 mA Leakage Versions



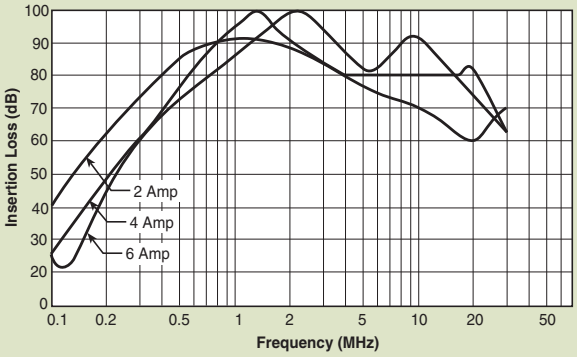

### 0.50 mA Leakage Versions



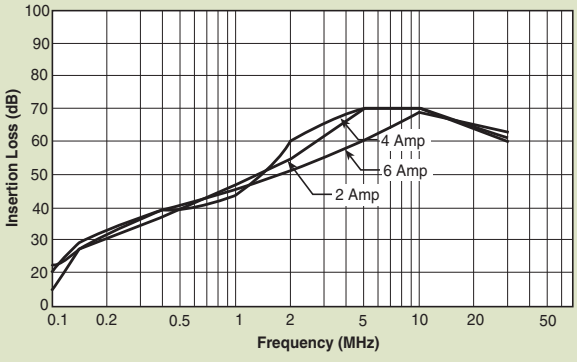

## Normal Mode




### 64/65-B(S)SF-*-*-02(04,06)




### 64/65-B(S)SF-*-*-11(12,14)





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# Switched and Fused Filtered Power Entry Modules

## For Medical or General Purpose Applications

## 66-67-BSF/66-67-SSF Series

Tested and found to be IAW VDE 0565 Part 3

## Features

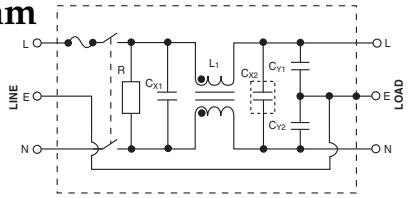
- Metric and North American fuse holders available
- Fuse holder and a double pole power ON/OFF switch provides a convenient/compact package
- Suitable for products that must conform to FCC and FTZ requirements
- Meets over voltage category II of IEC 664 and complies with IEC 950
- Provides susceptibility 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)

## 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

**Note:** $C_{Y1}$ and $C_{Y2}$ capacitors omitted on 66/67 B(S)F-XXX-1-X Filters




## Specifications

| Model* | Rated Voltage 50/60Hz | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_{X1}$ | Capacitance $C_{X2}$ | Temp. Induct. ($L_1$) | Rise (Max.) |
|---|---|---|---|---|---|---|---|---|
| 66-XXX-020-0-12 | 250 VAC | 2A | .075mA | 330pF | 0.22uF | NONE | 10.5mH | 40°C |
| 66-XXX-020-0-04 | | | | | | 0.22uF | | |
| 66-XXX-020-0-14 | | | | | 0.47uF | NONE | | |
| 66-XXX-020-0-06 | | | | | | 0.22uF | | |
| 66-XXX-020-1-12 | | | .01mA | NONE | 0.22uF | NONE | | |
| 66-XXX-020-1-04 | | | | | | 0.22uF | | |
| 66-XXX-020-1-14 | | | | | 0.47uF | NONE | | |
| 66-XXX-020-1-06 | | | | | | 0.22uF | | |
| 66-XXX-020-4-12 | | | 0.1mA | 470pF | 0.22uF | NONE | | |
| 66-XXX-020-4-04 | | | | | | 0.22uF | | |
| 66-XXX-020-4-14 | | | | | 0.47uF | NONE | | |
| 66-XXX-020-4-06 | | | | | | 0.22uF | | |
| 66-XXX-040-0-12 | | 4A | .075mA | 330pF | 0.22uF | NONE | 4.2mH | 45°C |
| 66-XXX-040-0-04 | | | | | | 0.22uF | | |
| 66-XXX-040-0-14 | | | | | 0.47uF | NONE | | |
| 66-XXX-040-0-06 | | | | | | 0.22uF | | |
| 66-XXX-040-1-12 | | | .01mA | NONE | 0.22uF | NONE | | |
| 66-XXX-040-1-04 | | | | | | 0.22uF | | |
| 66-XXX-040-1-14 | | | | | 0.47uF | NONE | | |
| 66-XXX-040-1-06 | | | | | | 0.22uF | | |
| 66-XXX-040-4-12 | | | .01mA | 470pF | 0.22uF | NONE | | |
| 66-XXX-040-4-04 | | | | | | 0.22uF | | |
| 66-XXX-040-4-14 | | | | | 0.47uF | NONE | | |
| 66-XXX-040-4-06 | | | | | | 0.22uF | | |
| 66-XXX-060-0-12 | | 6A | .075mA | 330pF | 0.22uF | NONE | 1.6mH | |
| 66-XXX-060-0-04 | | | | | | 0.22uF | | |
| 66-XXX-060-0-14 | | | | | 0.47uF | NONE | | |
| 66-XXX-060-0-06 | | | | | | 0.22uF | | |
| 66-XXX-060-1-12 | | | .01mA | NONE | 0.22uF | NONE | | |
| 66-XXX-060-1-04 | | | | | | 0.22uF | | |
| 66-XXX-060-1-14 | | | | | 0.47uF | NONE | | |
| 66-XXX-060-1-06 | | | | | | 0.22uF | | |
| 66-XXX-060-4-12 | | | 0.1mA | 470pF | 0.22uF | NONE | | |
| 66-XXX-060-4-04 | | | | | | 0.22uF | | |
| 66-XXX-060-4-14 | | | | | 0.47uF | NONE | | |
| 66-XXX-060-4-06 | | | | | | 0.22uF | | |

| Model* | Rated Voltage 50/60Hz | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_{X1}$ | Capacitance $C_{X2}$ | Temp. Induct. ($L_1$) | Rise (Max.) |
|---|---|---|---|---|---|---|---|---|
| 67-XXX-020-0-12 | 125 VAC | 2A | 0.04mA | 330pF | 0.22uF | NONE | 10.5mH | 40°C |
| 67-XXX-020-0-04 | | | | | | 0.22uF | | |
| 67-XXX-020-0-14 | | | | | 0.47uF | NONE | | |
| 67-XXX-020-0-06 | | | | | | 0.22uF | | |
| 67-XXX-020-1-12 | | | .005mA | NONE | 0.22uF | NONE | | |
| 67-XXX-020-1-04 | | | | | | 0.22uF | | |
| 67-XXX-020-1-14 | | | | | 0.47uF | NONE | | |
| 67-XXX-020-1-06 | | | | | | 0.22uF | | |
| 67-XXX-020-4-12 | | | 0.05mA | 470pF | 0.22uF | NONE | | |
| 67-XXX-020-4-04 | | | | | | 0.22uF | | |
| 67-XXX-020-4-14 | | | | | 0.47uF | NONE | | |
| 67-XXX-020-4-06 | | | | | | 0.22uF | | |
| 67-XXX-040-0-12 | | 4A | 0.04mA | 330pF | 0.22uF | NONE | 4.2mH | 45°C |
| 67-XXX-040-0-04 | | | | | | 0.22uF | | |
| 67-XXX-040-0-14 | | | | | 0.47uF | NONE | | |
| 67-XXX-040-0-06 | | | | | | 0.22uF | | |
| 67-XXX-040-1-12 | | | .005mA | NONE | 0.22uF | NONE | | |
| 67-XXX-040-1-04 | | | | | | 0.22uF | | |
| 67-XXX-040-1-14 | | | | | 0.47uF | NONE | | |
| 67-XXX-040-1-06 | | | | | | 0.22uF | | |
| 67-XXX-040-4-12 | | | 0.05mA | 470pF | 0.22uF | NONE | | |
| 67-XXX-040-4-04 | | | | | | 0.22uF | | |
| 67-XXX-040-4-14 | | | | | 0.47uF | NONE | | |
| 67-XXX-040-4-06 | | | | | | 0.22uF | | |
| 67-XXX-060-0-12 | | 6A | 0.04mA | 330pF | 0.22uF | NONE | 1.6mH | |
| 67-XXX-060-0-04 | | | | | | 0.22uF | | |
| 67-XXX-060-0-14 | | | | | 0.47uF | NONE | | |
| 67-XXX-060-0-06 | | | | | | 0.22uF | | |
| 67-XXX-060-1-12 | | | .005mA | NONE | 0.22uF | NONE | | |
| 67-XXX-060-1-04 | | | | | | 0.22uF | | |
| 67-XXX-060-1-14 | | | | | 0.47uF | NONE | | |
| 67-XXX-060-1-06 | | | | | | 0.22uF | | |
| 67-XXX-060-4-12 | | | 0.05mA | 470pF | 0.22uF | NONE | | |
| 67-XXX-060-4-04 | | | | | | 0.22uF | | |
| 67-XXX-060-4-14 | | | | | 0.47uF | NONE | | |
| 67-XXX-060-4-06 | | | | | | 0.22uF | | |

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 or (Snap-in terminals)

*** Substitute BSF or SSF for XXX**
BSF - Bolt-In Switched and Fused
SSF - Snap-In Switched and Fused

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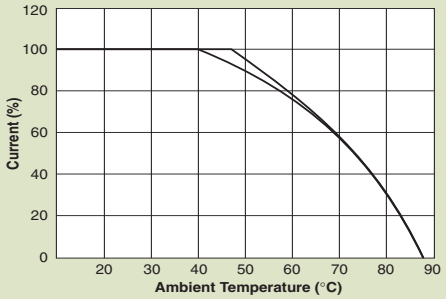
api technologies corp.
Spectrum Control

# Switched and Fused Filtered Power Entry Modules

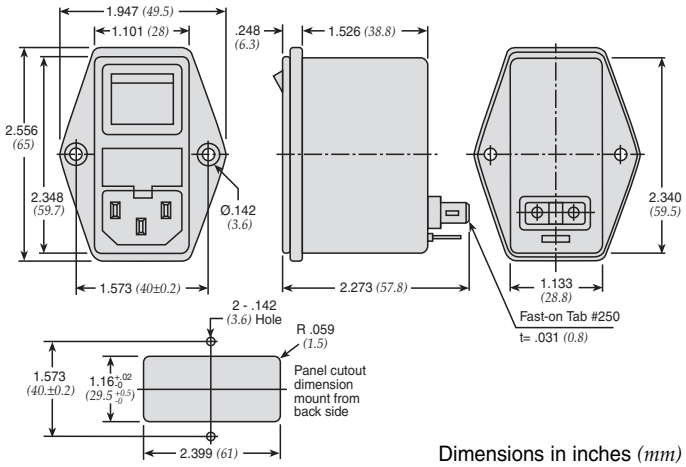
## For Medical or General Purpose Applications

## Temperature Characteristics



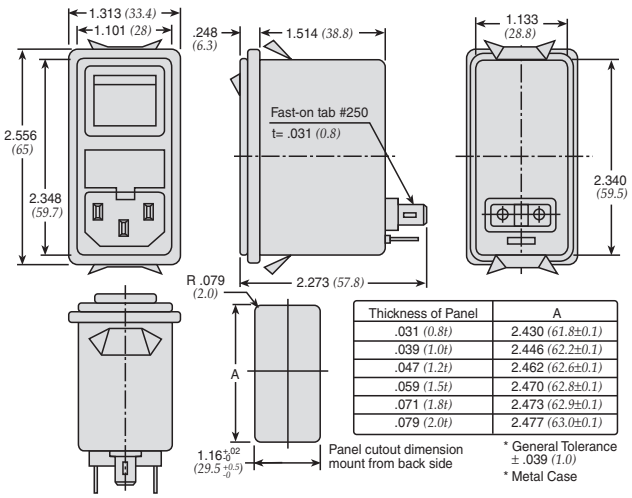

## Dimensions

### 66/67-BSF Series




Dimensions in inches *(mm)*

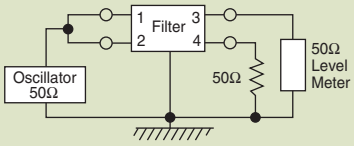
### 66/67-SSF Series



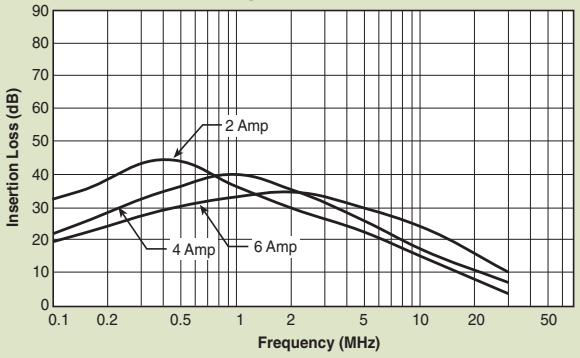

| Thickness of Panel | A |
|---|---|
| .031 (0.8t) | 2.430 (61.8±0.1) |
| .039 (1.0t) | 2.446 (62.2±0.1) |
| .047 (1.2t) | 2.462 (62.6±0.1) |
| .059 (1.5t) | 2.470 (62.8±0.1) |
| .071 (1.8t) | 2.473 (62.9±0.1) |
| .079 (2.0t) | 2.477 (63.0±0.1) |

* General Tolerance ± .039 (1.0)
* Metal Case

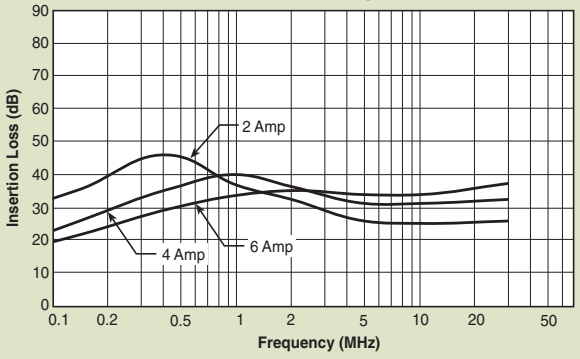
## Common Mode



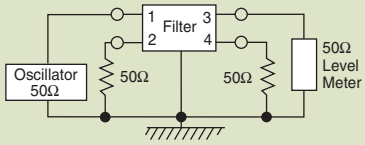

### 0.01 mA Leakage Current



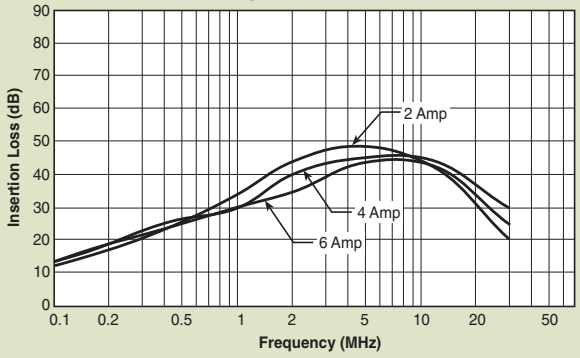

### 0.075 and 0.1 mA Leakage Current



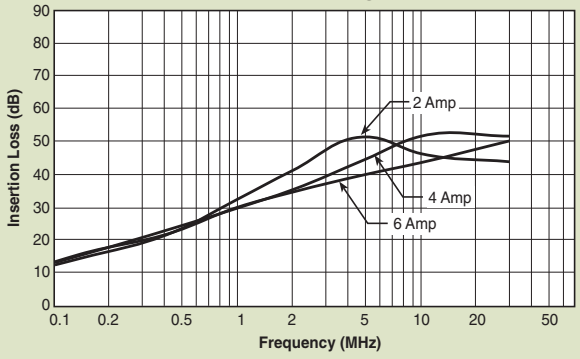

## Normal Mode




### 0.01 mA Leakage Current




### 0.075 and 0.1 mA Leakage Current





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API TECHNOLOGIES' SPECTRUM CONTROL GmbH • Hansastrasse 6 • 91126 Schwabach, Germany • Phone: (49)-9122-795-0 • Fax: (49)-9122-795-58

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# Switched and Fused Filtered Power Entry Modules

## Dual Fuse for European Applications

## 68-BSF Series

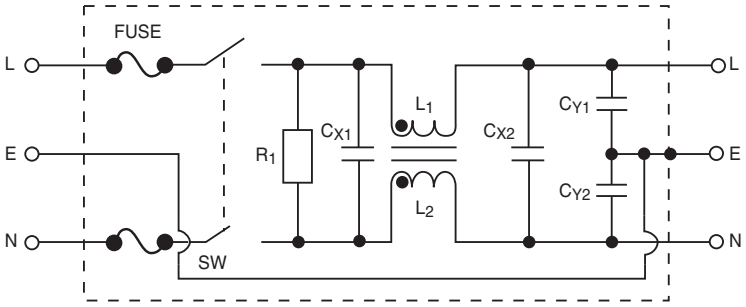
## Features

- 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

## Circuit Diagram




## Specifications

| Model | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_{Y1}$ | Capacitance $C_{Y2}$ | Capacitance $C_{X1}$ | Capacitance $C_{X2}$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|---|---|
| 68-BSF-020-3-01 | 250VAC | 2A | 0.35mA | 2200pF | 2200pF | 0.1uF | 0.1uF | 10.5mH | 45°C |
| 68-BSF-020-3-04 | | | | | | 0.22uF | 0.22uF | | |
| 68-BSF-040-3-01 | | 4A | | | | 0.1uF | 0.1uF | 4.2mH | |
| 68-BSF-040-3-04 | | | | | | 0.22uF | 0.22uF | | |
| 68-BSF-060-3-01 | | 6A | | | | 0.1uF | 0.1uF | 1.6mH | |
| 68-BSF-060-3-04 | | | | | | 0.22uF | 0.22uF | | |

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

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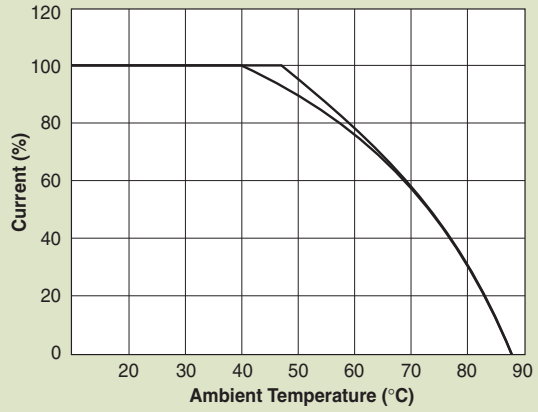
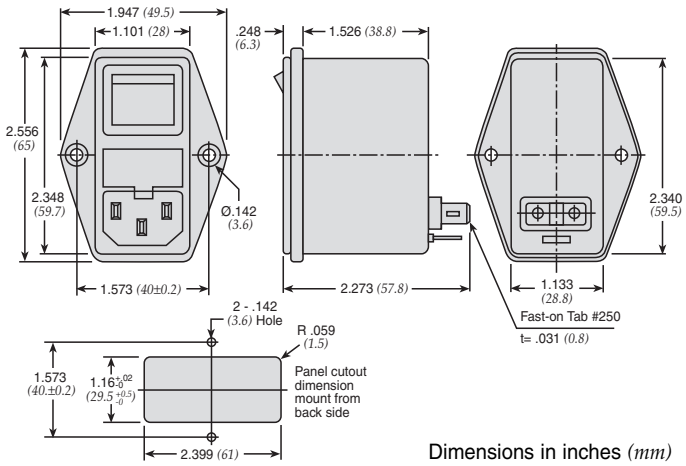
# Switched and Fused Filtered Power Entry Modules

## Dual Fuse for European Applications

## 68-BSF Series

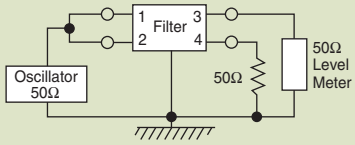
### Temperature Characteristics

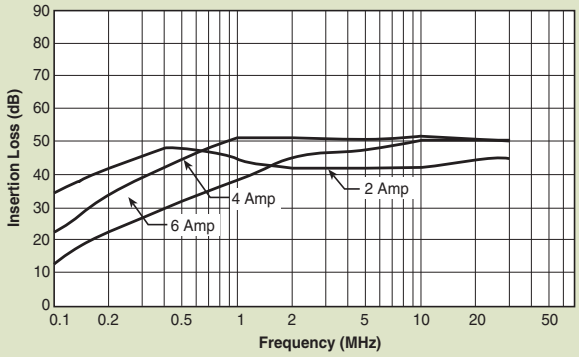


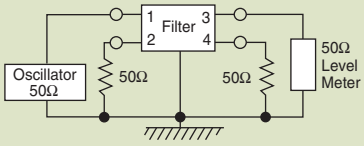

Dimensions in inches *(mm)*

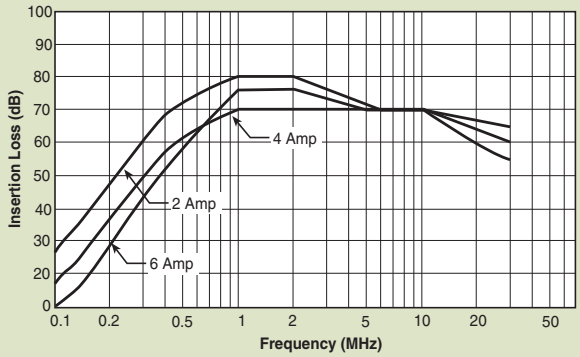
### Common Mode




### Normal Mode



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# PCB Power Filters
# Miniature Printed Circuit Board

## 61-MPC Series

Tested and found to be
IAW VDE 0565 Part 3

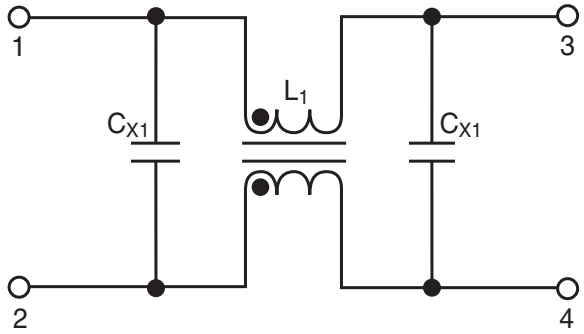
### Features

- 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

| Model | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_{X1}$ | Capacitance $C_{X2}$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|
| 61-MPC-010-1-11 | 250VAC | 1A | 0.1mA | 0.1uF | 0.1uF | 11mH | 40°C |
| 61-MPC-016-1-11 | | 1.6A | | | | 6.0mH | |
| 61-MPC-025-1-11 | | 2.5A | | | | 2.4mH | |
| 61-MPC-036-1-11 | | 3.6A | | | | 1.2mH | |

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

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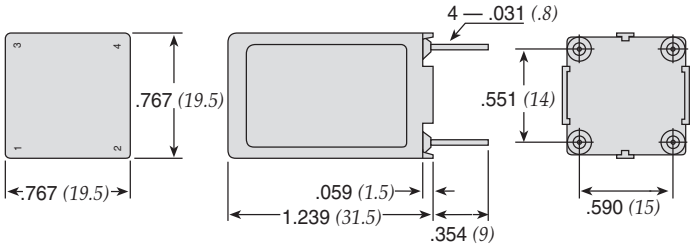
# PCB Power Filters
# Miniature Printed Circuit Board

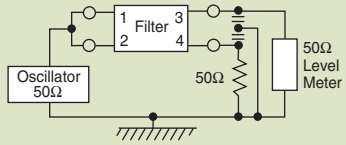
## 61-MPC Series



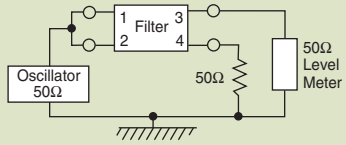

Dimensions in inches *(mm)*

## Common Mode

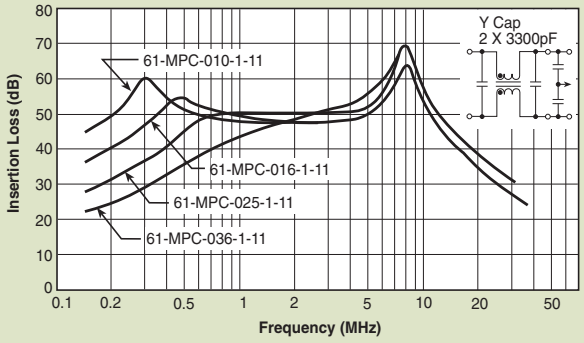
**Common mode with Y cap.** (Test circuit 1)



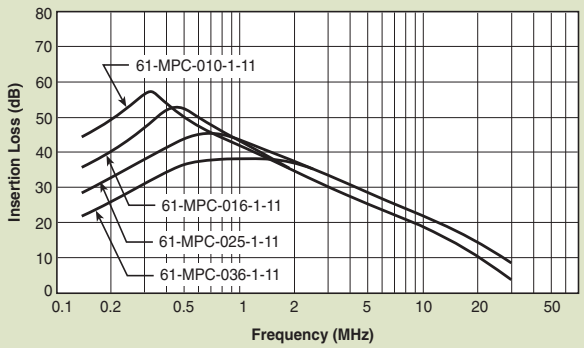

(Test circuit 2)



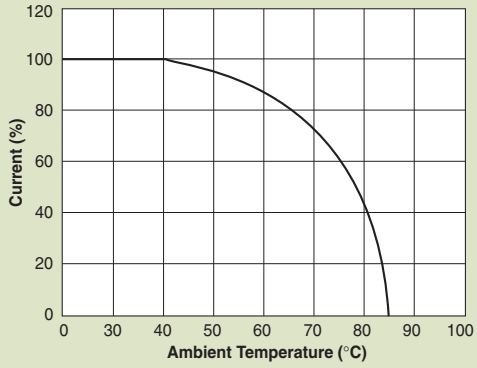

### 61-MPC




### 61-MPC

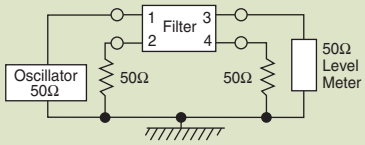



## Temperature Characteristics

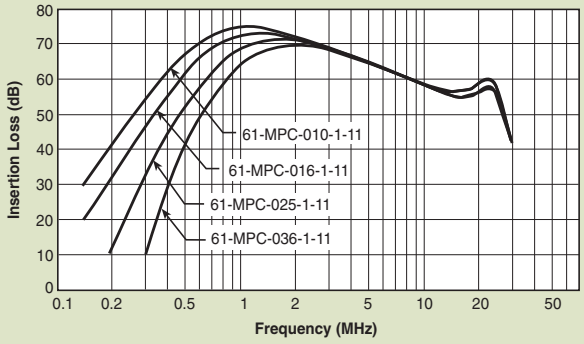



## Normal Mode

(Test circuit 3)




### 61-MPC



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# Power Entry Modules
# Bolt-in Right Angle Terminals
for PCB Applications

## 60-BPP Series

Tested and found to be IAW VDE 0565 Part 3

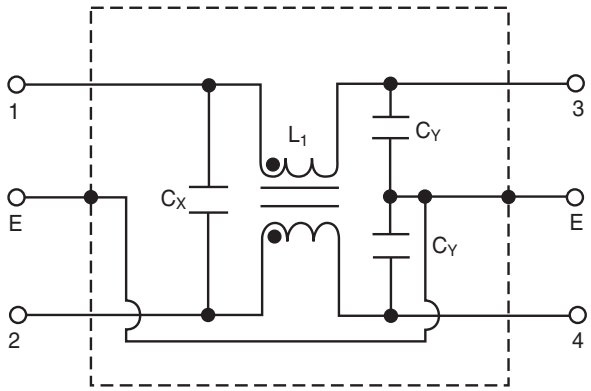
### Features

- 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

### Circuit Diagram




## Specifications

| Model | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|
| 60-BPP-010-3-2 | 250VAC | 1A | 0.35mA | 2200pF | 0.022uF | 6.0mH | 30°C |
| 60-BPP-010-3-4 | | | | | 0.047uF | | |
| 60-BPP-010-5-2 | | | 0.50mA | 3300pF | 0.022uF | | |
| 60-BPP-010-5-4 | | | | | 0.047uF | | |
| 60-BPP-020-3-2 | | 2A | 0.35mA | 2200pF | 0.022uF | 2.4mH | |
| 60-BPP-020-3-4 | | | | | 0.047uF | | |
| 60-BPP-020-5-2 | | | 0.50mA | 3300pF | 0.022uF | | |
| 60-BPP-020-5-4 | | | | | 0.047uF | | |
| 60-BPP-030-3-2 | | 3A | 0.35mA | 2200pF | 0.022uF | 1.2mH | |
| 60-BPP-030-3-4 | | | | | 0.047uF | | |
| 60-BPP-030-5-2 | | | 0.50mA | 3300pF | 0.022uF | | |
| 60-BPP-030-5-4 | | | | | 0.047uF | | |
| 60-BPP-060-3-2 | | 6A | 0.35mA | 2200pF | 0.022uF | 0.53mH | 45°C |
| 60-BPP-060-3-4 | | | | | 0.047uF | | |
| 60-BPP-060-5-2 | | | 0.50mA | 3300pF | 0.022uF | | |
| 60-BPP-060-5-4 | | | | | 0.047uF | | |

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

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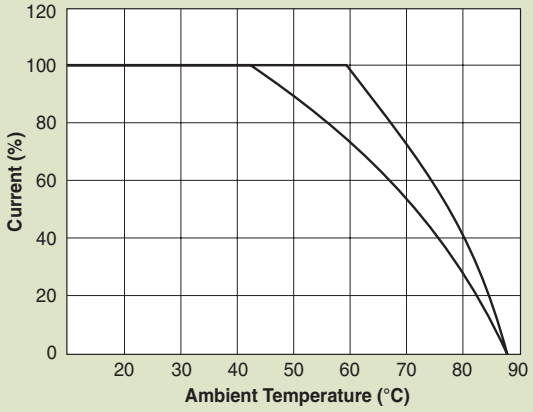
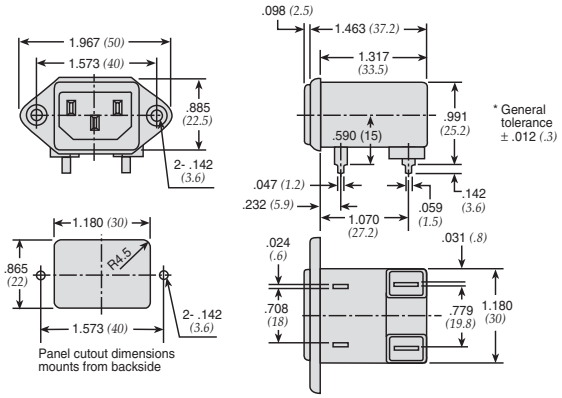
# Power Entry Modules
# Bolt-in Right Angle Terminals
for PCB Applications

## 60-BPP Series

### Temperature Characteristics

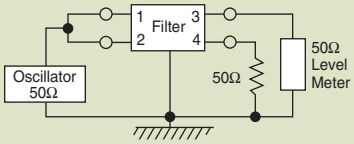



**60-BPP PCB Mounting Type**

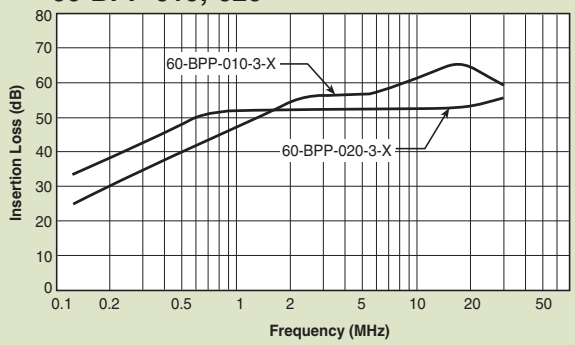



Dimensions in inches *(mm)*

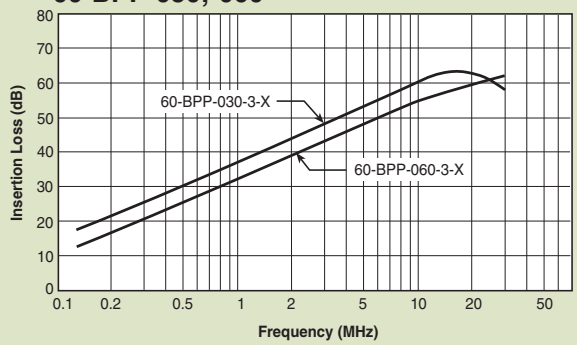
### Common Mode



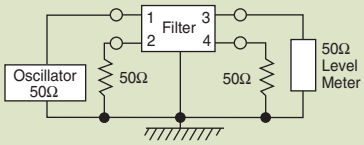

**60-BPP-010;-020**



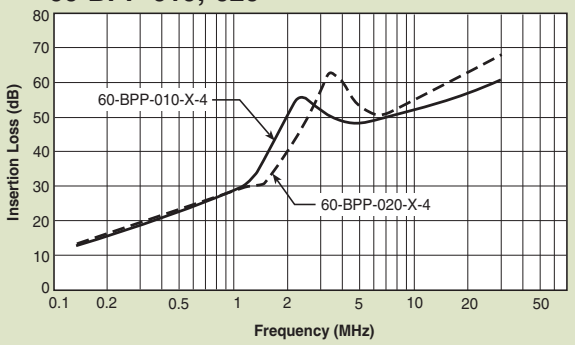

**60-BPP-030;-060**



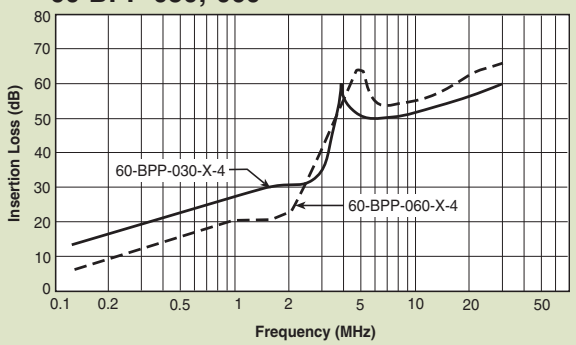

### Normal Mode




**60-BPP-010;-020**




**60-BPP-030;-060**



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# Power Entry Modules
# High Frequency Attenuation

**Bolt-in for PCB Applications**

## 60-BHP Series

Tested and found to be IAW VDE 0565 Part 3

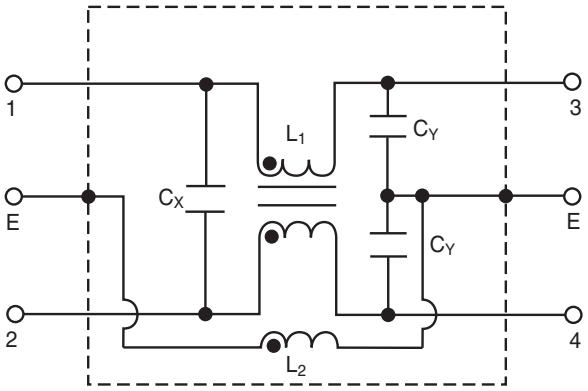
### Features

- 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

### Circuit Diagram




### Specifications

| Model | Rated Voltage (@ 50/60Hz) | Rated Current | Leakage Current (Max.) | Capacitance $C_Y$ | Capacitance $C_X$ | Inductance ($L_1$) | Inductance ($L_2$) | Temperature Rise (Max.) |
|---|---|---|---|---|---|---|---|---|
| 60-BHP-010-3-11 | 250VAC | 1A | 0.35mA | 2200pF±20% | 0.1uF±20% | 6mH | 18.3 uH | 30°C |
| 60-BHP-010-3-4 | | | | | .047uF±20% | | | |
| 60-BHP-010-5-11 | | | 0.50mA | 3300pF±20% | 0.1uF±20% | | | |
| 60-BHP-010-5-4 | | | | | .047uF±20% | | | |
| 60-BHP-020-3-11 | | 2A | 0.35mA | 2200pF±20% | 0.1uF±20% | 2.4mH | | |
| 60-BHP-020-3-4 | | | | | .047uF±20% | | | |
| 60-BHP-020-5-11 | | | 0.50mA | 3300pF±20% | 0.1uF±20% | | | |
| 60-BHP-020-5-4 | | | | | .047uF±20% | | | |
| 60-BHP-030-3-11 | | 3A | 0.35mA | 2200pF±20% | 0.1uF±20% | 1.2mH | | |
| 60-BHP-030-3-4 | | | | | .047uF±20% | | | |
| 60-BHP-030-5-11 | | | 0.50mA | 3300pF±20% | 0.1uF±20% | | | |
| 60-BHP-030-5-4 | | | | | .047uF±20% | | | |
| 60-BHP-060-3-11 | | 6A | 0.35mA | 2200pF±20% | 0.1uF±20% | 0.53mH | | 45°C |
| 60-BHP-060-3-4 | | | | | .047uF±20% | | | |
| 60-BHP-060-5-11 | | | 0.50mA | 3300pF±20% | 0.1uF±20% | | | |
| 60-BHP-060-5-4 | | | | | .047uF±20% | | | |

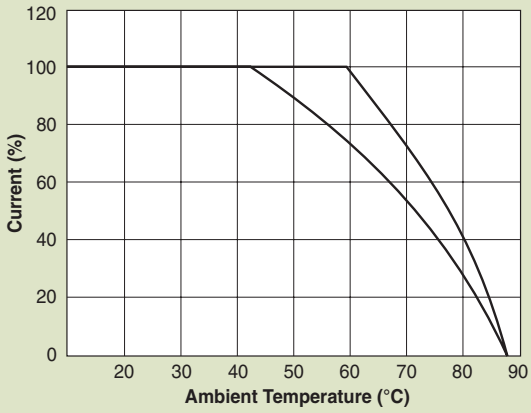
Note: Test voltage: 1500VAC one minute, line to ground
Insulation resistance: 300 Mohm min. at 500VDC
Voltage drop: 1V max. at rated current
Weight: 50g
Input: Compatible with IEC-320

api technologies corp.
Spectrum Control

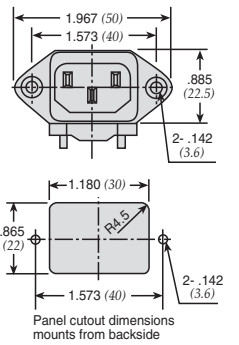
# Power Entry Modules
# High Frequency Attenuation
**Bolt-in for PCB Applications**

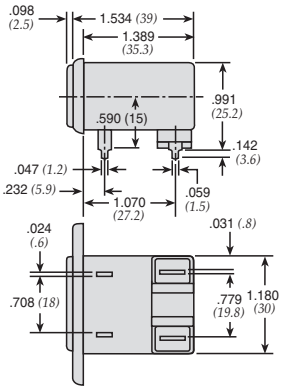
## 60-BHP Series

### Temperature Characteristics



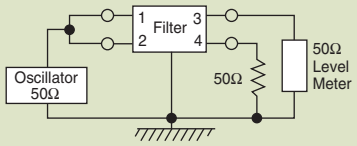

**60-BHP PCB Mounting Type**



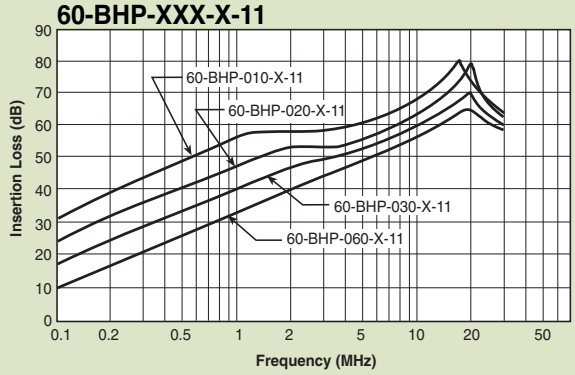




Dimensions in inches *(mm)*

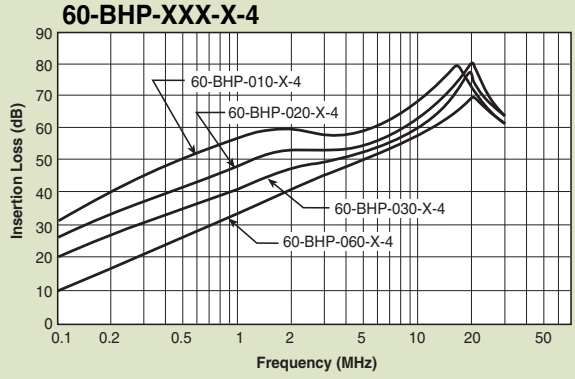
### Common Mode



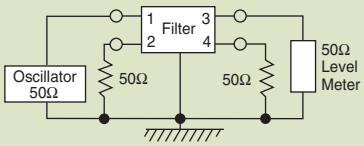

**60-BHP-XXX-X-11**



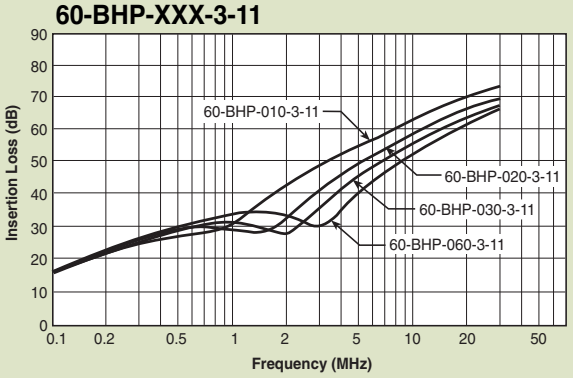

**60-BHP-XXX-X-4**



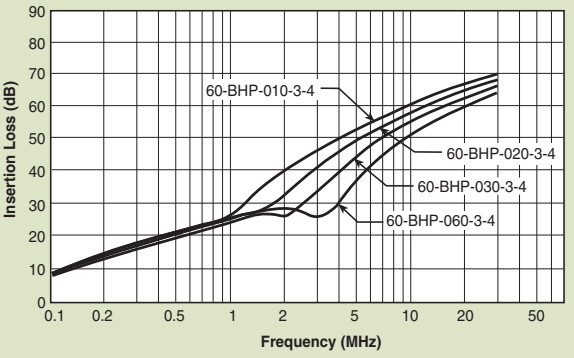

### Normal Mode




**60-BHP-XXX-3-11**




**60-BHP-XXX-3-4**



# OCEAN CHIPS
## Океан Электроники
## Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

**«JONHON»** (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

**«FORSTAR»** (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

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