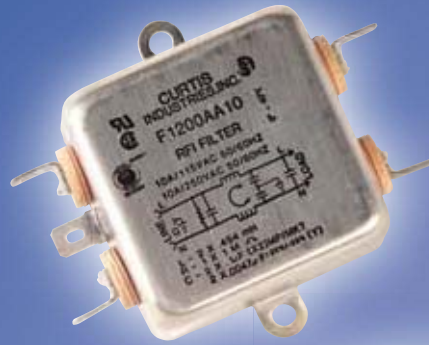


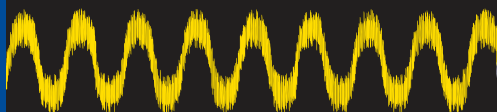


**Curtis**

*We Build Confidence!*



# RFI Power Line Filters



**Curtis Industries**

A Div. of Powers Holdings, Inc.



# ***Curtis Industries***

A Division of Powers Holdings, Inc.

Curtis Industries is recognized as a leader in RFI Power Line Filters. We focus on five key areas to insure high quality filters and total customer satisfaction using the latest technology. These key areas include Customer Satisfaction, Design Engineering, Manufacturing, Quality, and On-Time Delivery.



**Customer Satisfaction** is carried out throughout Curtis. Customer interface with our friendly and knowledgeable Customer Service Representative where all the information needed for order entry, processing, shipping, pricing, and order expediting are immediately available electronically.



**Design Engineering** is able to create new designs to solve our OEM customer's requirements. Using the Solid Works modeling technology enables our engineers to design the optimum filter or custom control package.



**Manufacturing** uses proprietary techniques with semi and full automation to build in quality and reduce thru-put. We deliver 99.9% reliable product to meet our customer's quality objectives.



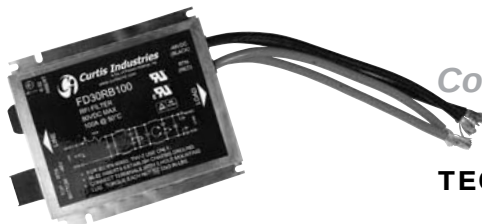
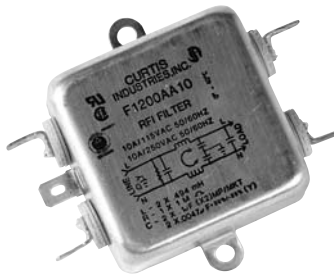
**Quality** is designed, built in and verified on every filter to the following.

- Hi Pot - DC Line to Line
- Hi Pot - AC Line to Ground
- Current Leakage
- Ground Continuity
- Capacitance Line to Line
- Capacitance Line to Ground
- Inductance Line
- Inductance Ground
- Cross Wiring



**On-Time Delivery** is a focus for everyone at Curtis which has resulted in an on-time delivery greater than 98% on time.

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# Curtis Industries Filter Selection Guide

| Filter Series |                           | PERFORMANCE<br>RELATIVE ATTENUATION              |                      | MAXIMUM<br>LEAKAGE CURRENT |               | PACKAGE/TERMINATION |      |        |              |             |        |           |       |              | Catalog<br>Page<br>Number |
|---------------|---------------------------|--------------------------------------------------|----------------------|----------------------------|---------------|---------------------|------|--------|--------------|-------------|--------|-----------|-------|--------------|---------------------------|
|               |                           | Common<br>Mode                                   | Differential<br>Mode | mA<br>@115VAC              | mA<br>@250VAC | Wire                | Q.C. | I.E.C. | Fused I.E.C. | Volt Select | Switch | P.C. Term | Screw | Solder Term. |                           |
|               |                           |                                                  |                      |                            |               |                     |      |        |              |             |        |           |       |              |                           |
| SINGLE PHASE  | F1100/1199                | ••                                               | ••                   | 0.5                        | 1.0           | •                   | •    |        |              |             |        | •         | •     | •            | 4                         |
|               | F1150                     | •                                                | •                    | 0.25                       | 0.40          | •                   | •    |        |              |             |        |           | •     | •            | 4                         |
|               | F1200/1299                | ••                                               | ••                   | 0.5                        | 1.0           | •                   | •    | •      |              |             |        |           | •     | •            | 7                         |
|               | F1250                     | •                                                | ••                   | 0.25                       | 0.40          | •                   | •    |        |              |             |        |           | •     | •            | 7                         |
|               | F1300/1399                | ••••                                             | ••                   | 0.5                        | 1.0           | •                   | •    | •      |              |             |        | •         |       | •            | 11                        |
|               | F1350                     | •••                                              | ••                   | 0.25                       | 0.40          | •                   | •    | •      |              |             |        | •         |       | •            | 11                        |
|               | F1900                     | •                                                | •                    | 0.25                       | 0.40          |                     | •    |        |              |             |        |           |       | •            | 15                        |
|               | F1400                     | •••••                                            | ••••                 | 0.25                       | 0.40          | •                   | •    | •      |              |             |        |           |       | •            | 16                        |
|               | F1500                     | ••••                                             | •••                  | 0.25                       | 0.40          |                     | •    | •      | •            |             |        |           |       | •            | 18                        |
|               | F1600                     | •••••                                            | •••                  | 0.25                       | 0.40          |                     | •    | •      | •            |             |        | •         |       | •            | 20                        |
|               | F1700/1799                | ••                                               | ••••                 | 0.5                        | 1.0           | •                   | •    | •      |              |             |        |           | •     | •            | 22                        |
|               | F1760/1700/1780           | ••••                                             | ••••                 | 0.5                        | 1.0           | •                   | •    | •      |              |             |        |           | •     | •            | 24                        |
|               | F2800                     | •••••                                            | •••••                | 0.25                       | 0.50          | •                   | •    |        |              |             |        |           |       | •            | 26                        |
|               | F5100                     | ••                                               | ••                   | 0.25                       | 0.50          |                     |      | •      |              |             |        |           |       | •            | 28                        |
|               | F5200                     | ••                                               | ••                   | 0.25                       | 0.50          |                     |      |        | •            |             |        |           |       | •            | 30                        |
|               | F5500                     | ••••                                             | ••••                 | 0.25                       | 0.50          |                     |      | •      |              |             |        |           |       | •            | 32                        |
|               | F5600                     | •••••                                            | ••••                 | 0.50                       | 1.20          |                     |      | •      |              |             |        |           |       | •            | 34                        |
|               | F5700                     | ••••                                             | •••••                | 0.50                       | 1.20          |                     |      | •      |              |             |        |           |       | •            | 36                        |
|               | F5900                     | •••••                                            | ••••                 | 0.50                       | 1.20          |                     |      | •      |              |             |        |           |       | •            | 38                        |
|               | POWER ENTRY               | F2199/2200                                       | •                    | •                          | 0.25          | 0.40                |      | •      | •            |             |        |           |       |              | •                         |
| F2300 F2300   |                           | •••                                              | ••                   | 0.25                       | 0.40          |                     | •    | •      |              |             |        |           |       | •            | 45                        |
| F2400/2500    |                           | •                                                | •                    | 0.25                       | 0.40          |                     | •    | •      |              |             |        |           |       | •            | 46                        |
| F2600         |                           | •                                                | •                    | 0.25                       | 0.40          |                     | •    | •      | •            |             | •      | •         |       | •            | 48                        |
| F2700         |                           | •••••                                            | •••••                | 0.25                       | 0.40          | •                   | •    | •      | •            |             | •      |           |       | •            | 50                        |
| PE7           |                           | •                                                | •                    | 0.25                       | 0.40          |                     | •    |        | •            | •           |        |           |       | •            | 52                        |
| PE8           |                           | •                                                | •                    | 0.25                       | 0.40          |                     | •    |        | •            |             | •      |           |       | •            | 52                        |
| PE1           |                           | ••                                               | ••                   | 0.25                       | 0.40          |                     | •    |        | •            | •           | •      |           |       | •            | 56                        |
| F3480/F3600   |                           | ••••                                             | ••••                 |                            |               |                     | •    |        |              |             |        |           | •     |              | 60                        |
| DC FILTERS    | FD00                      | (See Section on DC filters for more information) |                      |                            |               |                     |      |        |              |             |        |           |       |              | 67                        |
|               | FD02                      |                                                  |                      |                            |               |                     |      |        |              |             |        |           |       |              | 68                        |
|               | FD1                       |                                                  |                      |                            |               |                     |      |        |              |             |        |           |       |              | 69                        |
|               | FD2                       |                                                  |                      |                            |               |                     |      |        |              |             |        |           |       |              | 70                        |
|               | FD3                       |                                                  |                      |                            |               |                     |      |        |              |             |        |           |       |              | 70                        |
| MEDICAL       | F3099                     | •                                                | ••                   | 0.002                      | 0.005         | •                   | •    |        |              |             |        |           |       | •            | 72                        |
|               | F3000/3100/3200/3400/3500 | •                                                | ••                   | 0.002                      | 0.005         |                     | •    | •      |              |             |        |           |       | •            | 73                        |
|               | F3300                     | •                                                | •                    | 0.015                      | 0.025         |                     | •    | •      | •            |             | •      | •         |       | •            | 74                        |
|               | PM7                       | •                                                | •                    | 0.002                      | 0.005         |                     | •    |        | •            | •           |        |           |       | •            | 76                        |
|               | PM8                       | •                                                | •                    | 0.002                      | 0.005         |                     | •    |        | •            |             | •      |           |       | •            | 76                        |
|               | PM1                       | ••                                               | ••                   | 0.002                      | 0.005         |                     | •    |        | •            | •           | •      |           |       | •            | 80                        |

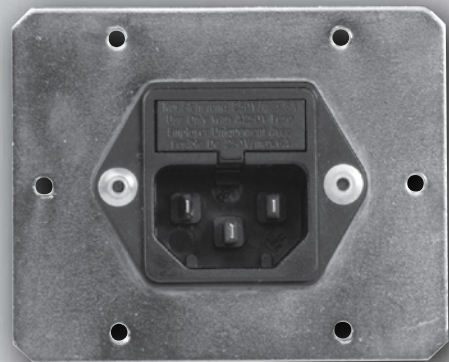
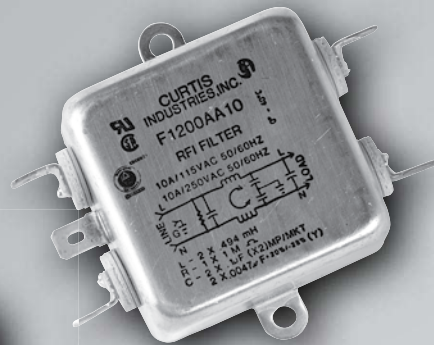


## SINGLE PHASE FILTERS ]

*General Performance*

*High Performance*

*Wide Band*

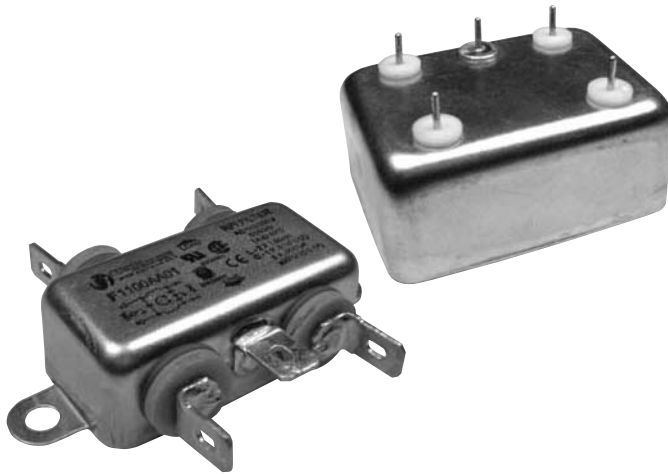


*Curtis Industries*  
A Division of Powers Holdings, Inc.

# F1100/F1150F/F1199 RFI Filters

General Purpose

SINGLE PHASE FILTERS

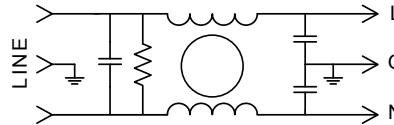


## Features:

- Most Economical Design
- Designed for General Purpose, Common Mode Applications
- Available in Standard (F1100) and Low-Leakage (F1150) (F1160) (F1170) (F1180) (F1190) (F1199) Models

## F1100/F1150/F1199

### Simplified Schematic



| Nominal Current Rating<br>115 VAC | Part Number                         | Termination Line/Load             | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |          |          |          |          |          |
|-----------------------------------|-------------------------------------|-----------------------------------|----------------------------------------------|-----------------|----------|----------|----------|----------|----------|
|                                   |                                     |                                   | MODE                                         | Frequency - MHz |          |          |          |          |          |
|                                   |                                     |                                   |                                              | .15             | .50      | 1.0      | 5.0      | 10       | 30       |
| 1A                                | F1100AA01<br>F1100BB01              | QC/QC<br>Wire/Wire                | Common<br>Differential                       | 20              | 35       | 43       | 52<br>55 | 55<br>65 | 50<br>50 |
|                                   | F1150AA01<br>F1150BB01              | QC/QC<br>Wire/Wire                | Common<br>Differential                       | 20              | 30       | 37       | 50<br>55 | 50<br>65 | 50<br>50 |
|                                   | F1199AA01                           | QC/QC                             | Common<br>Differential                       | 32<br>5         | 45<br>14 | 45<br>23 | 43<br>47 | 43<br>50 | 40<br>45 |
| 2A                                | F1199AA02<br>F1199BB02              | QC/QC<br>Wire/Wire                | Common<br>Differential                       | 24<br>5         | 35<br>13 | 43<br>16 | 45<br>45 | 45<br>50 | 40<br>45 |
| 3A                                | F1100AA03<br>F1100BB03<br>F1100PP03 | QC/QC<br>Wire/Wire<br>PC/PC       | Common<br>Differential                       | 20              | 35       | 43       | 52<br>55 | 55<br>64 | 50<br>46 |
|                                   | F1150AA03<br>F1150BB03              | QC/QC<br>Wire/Wire                | Common<br>Differential                       | 20              | 30       | 37       | 50<br>55 | 50<br>64 | 50<br>46 |
|                                   | F1199AA03<br>F1199BB03              | QC/QC<br>Wire/Wire                | Common<br>Differential                       | 20<br>5         | 30<br>12 | 38<br>14 | 48<br>38 | 48<br>44 | 44<br>42 |
| 6A                                | F1100AA06<br>F1100BB06              | QC/QC<br>Wire/Wire                | Common<br>Differential                       | 10              | 22<br>2  | 30<br>5  | 46<br>51 | 50<br>57 | 45<br>49 |
|                                   | F1150AA06<br>F1150BB06              | QC/QC<br>Wire/Wire                | Common<br>Differential                       | 10              | 20<br>2  | 27<br>5  | 45<br>51 | 45<br>57 | 45<br>49 |
|                                   | F1199AA06<br>F1199BB06              | QC/QC<br>Wire/Wire                | Common<br>Differential                       | 9<br>5          | 20<br>12 | 28<br>14 | 42<br>33 | 50<br>42 | 47<br>42 |
| 10A                               | F1100AA10<br>F1100BB10              | QC/QC<br>Wire/Wire                | Common<br>Differential                       | 10              | 22       | 30<br>2  | 46<br>27 | 50<br>47 | 45<br>50 |
|                                   | F1150AA10<br>F1150BB10              | QC/QC<br>Wire/Wire                | Common<br>Differential                       | 10              | 20       | 27<br>2  | 45<br>27 | 45<br>47 | 45<br>50 |
|                                   | F1199AA10<br>F1199BB10<br>F1199DD10 | QC/QC<br>Wire/Wire<br>Screw/Screw | Common<br>Differential                       | 9<br>5          | 20<br>12 | 25<br>14 | 38<br>33 | 42<br>42 | 40<br>42 |
| 20A                               | F1100AA20<br>F1100DD20              | QC/QC<br>Screw/Screw              | Common<br>Differential                       | 8               | 18       | 22<br>5  | 36<br>22 | 42<br>46 | 45<br>60 |
|                                   | F1150AA20<br>F1150DD20              | QC/QC<br>Screw/Screw              | Common<br>Differential                       | 8               | 15       | 20<br>5  | 32<br>22 | 38<br>46 | 45<br>60 |
|                                   | F1199AA20<br>F1199DD20              | QC/QC<br>Screw/Screw              | Common<br>Differential                       | 10<br>5         | 20<br>12 | 28<br>15 | 35<br>30 | 38<br>40 | 40<br>40 |
| 30A                               | F1199DD30                           | Screw/Screw                       | Common<br>Differential                       | 13<br>5         | 23<br>12 | 30<br>15 | 35<br>30 | 38<br>40 | 40<br>40 |

NOTE: Other combinations of terminals may be specified on special order.



**Specifications:****Rated Voltage:** 250VAC Maximum - 50/60 Hz

| Rated Current: | 115VAC | 250VAC |
|----------------|--------|--------|
|                | 1A     | 1A     |
|                | 2A     | 1.5A   |
|                | 3A     | 2.5A   |
|                | 6A     | 4A     |
|                | 10A    | 6A     |
|                | 20A    | 10A    |
|                | 30A    | 15A    |

**Current Overload:** 6X for 8 seconds

| Hi-Pot Test (1 min): | F1100/F1150 | F1199   |
|----------------------|-------------|---------|
| Line to Ground:      | 1500VAC     | 1500VAC |
| Line to Line:        | 1768VDC     | 1450VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC**Ambient Temperature:** 40°C Max. at rated current**Humidity Range:** 0% to 95% R.H.**Termination:**

|                       |              |
|-----------------------|--------------|
| A: QC – Quick Connect | D: Screw     |
| B: Wire               | P: PCB Mount |

**Maximum Leakage Current:**

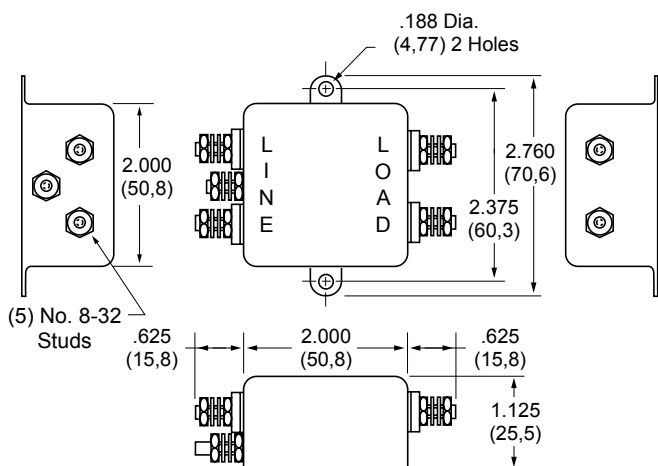
| Each Line to Ground | F1100  | F1150  | F1199  |
|---------------------|--------|--------|--------|
| 115VAC, 60Hz:       | 0.40mA | 0.25mA | 0.25mA |
| 250VAC, 50Hz:       | .75mA  | 0.40mA | 0.45mA |

**Agency Approvals:**

|       |       |              |       |
|-------|-------|--------------|-------|
|       | F1100 | F1100        | F1100 |
| F1150 | F1500 | Except 20Amp | F1150 |
| F1199 | F1199 | F1199        | F1199 |

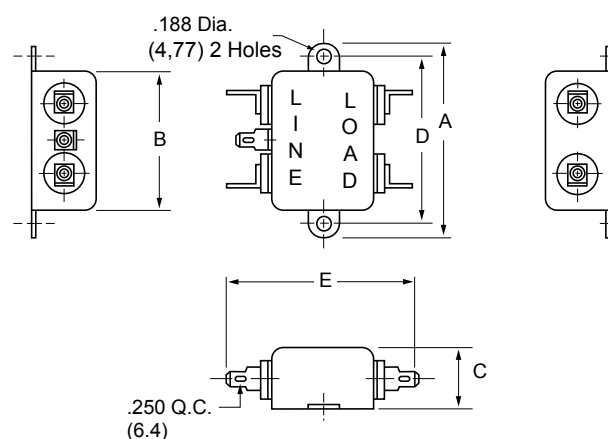
**F1100DD/F1150DD**

(20Amp Only) Dimensions

**F1100AA/F1150AA**

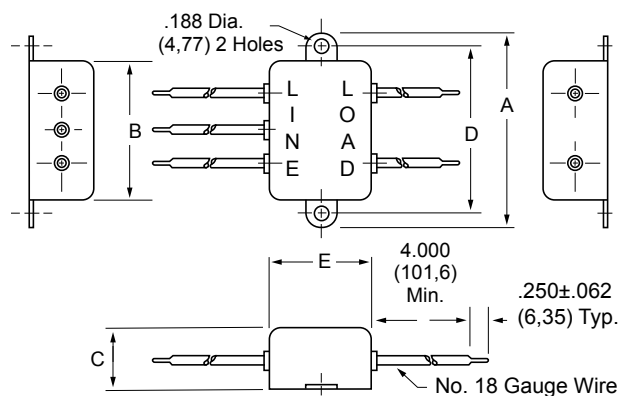
(1, 3, 6, 10 and 20Amp) Dimensions

| Amps | A            | B            | C            | D            | E            |
|------|--------------|--------------|--------------|--------------|--------------|
| 1A   | 2.500 (63,5) | 1.750 (44,5) | .625 (15,8)  | 2.125 (53,9) | 1.425 (362)  |
| 3A   | 2.500 (63,5) | 1.750 (44,5) | .750 (19,1)  | 2.125 (53,9) | 1.8 (45,8)   |
| 6A   | 2.500 (63,5) | 1.750 (44,5) | .750 (19,1)  | 2.125 (53,9) | 1.8 (45,8)   |
| 10A  | 2.500 (63,5) | 1.750 (44,5) | 1.125 (28,5) | 2.125 (53,9) | 1.8 (45,8)   |
| 20A  | 2.760 (70,6) | 2.000 (60,8) | 1.125 (28,5) | 2.375 (60,3) | 2.550 (64,8) |

**F1100BB/FB1150BB**

(1, 3, 6 and 10Amp) Dimensions

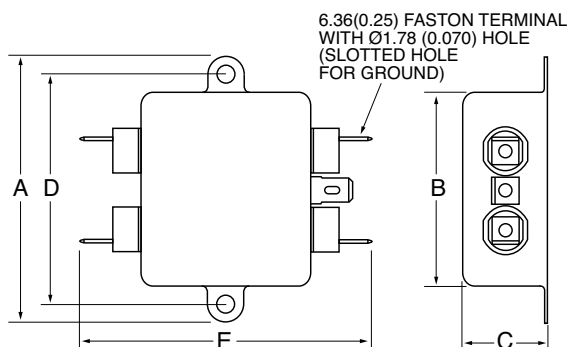
| Amps | A            | B            | C            | D            | E            |
|------|--------------|--------------|--------------|--------------|--------------|
| 1A   | 2.500 (63,5) | 1.750 (44,5) | .625 (15,8)  | 2.125 (53,9) | .875 (22,2)  |
| 3A   | 2.500 (63,5) | 1.750 (44,5) | .750 (19,1)  | 2.125 (53,9) | 1.250 (31,8) |
| 6A   | 2.500 (63,5) | 1.750 (44,5) | .750 (19,1)  | 2.125 (53,9) | 1.250 (31,8) |
| 10A  | 2.500 (63,5) | 1.750 (44,5) | 1.125 (28,5) | 2.125 (53,9) | 1.250 (31,8) |



# F1100/F1150/F1199 RFI Filters (continued)

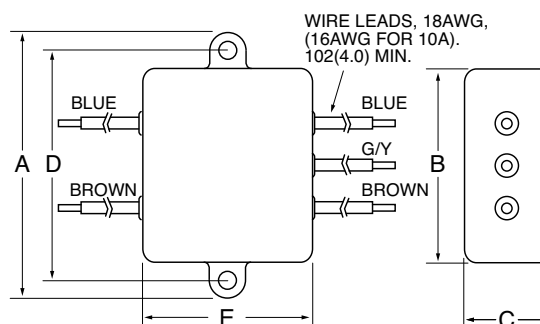
## F1199AA (1, 2, 3, 6, 10 and 20Amp) Dimensions

| Amps | A              | B              | C              | D                | E              |
|------|----------------|----------------|----------------|------------------|----------------|
| 1A   | 2.53<br>(64,3) | 1.82<br>(46,2) | 0.66<br>(16,8) | 2.126<br>(54,0)  | 2.25<br>(57,2) |
| 2A   | 2.53<br>(64,3) | 1.82<br>(46,2) | 0.66<br>(16,8) | 2.126<br>(54,0)  | 2.25<br>(57,2) |
| 3A   | 2.53<br>(64,3) | 1.82<br>(46,2) | 0.78<br>(19,8) | 2.126<br>(54,0)  | 2.61<br>(66,3) |
| 6A   | 2.53<br>(64,3) | 1.82<br>(46,2) | 0.78<br>(19,8) | 2.126<br>(54,0)  | 2.61<br>(66,3) |
| 10A  | 2.53<br>(64,3) | 1.82<br>(46,2) | 1.16<br>(29,5) | 2.126<br>(54,0)  | 2.61<br>(66,3) |
| 20A  | 2.81<br>(71,4) | 2.07<br>(52,6) | 1.16<br>(29,5) | 2.375<br>(60,33) | 3.36<br>(85,3) |



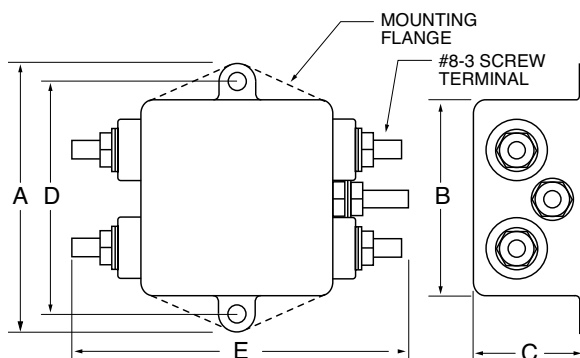
## F1199BB (2, 3, 6 and 10Amp) Dimensions

| Amps | A              | B              | C              | D               | E              |
|------|----------------|----------------|----------------|-----------------|----------------|
| 2A   | 2.53<br>(64,3) | 1.82<br>(46,2) | 0.66<br>(16,8) | 2.126<br>(54,0) | 0.96<br>(24,4) |
| 3A   | 2.53<br>(64,3) | 1.82<br>(46,2) | 0.78<br>(19,8) | 2.126<br>(54,0) | 1.32<br>(33,5) |
| 6A   | 2.53<br>(64,3) | 1.82<br>(46,2) | 0.78<br>(19,8) | 2.126<br>(54,0) | 1.32<br>(33,5) |
| 10A  | 2.53<br>(64,3) | 1.82<br>(46,2) | 1.16<br>(29,5) | 2.126<br>(54,0) | 1.32<br>(33,5) |

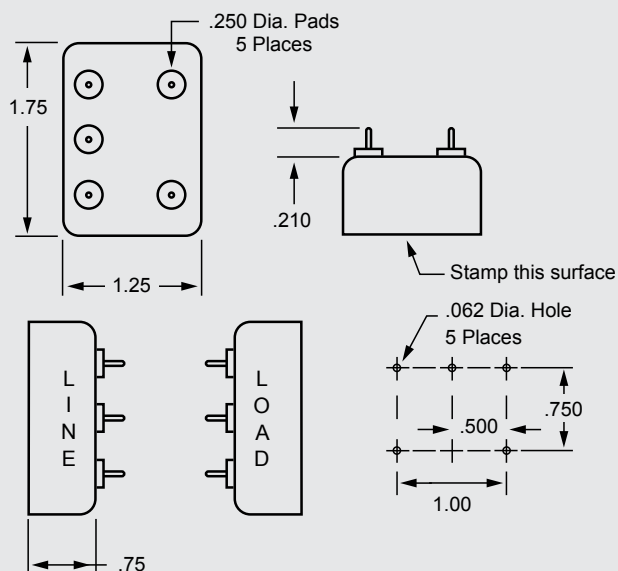


## F1199DD (10, 20 and 30Amp) Dimensions

| Amps | A               | B              | C              | D                | E               |
|------|-----------------|----------------|----------------|------------------|-----------------|
| 10A  | 2.53<br>(64,3)  | 1.82<br>(46,2) | 1.16<br>(29,5) | 2.126<br>(54,0)  | 2.72<br>(69,1)  |
| 20A  | 2.81<br>(71,4)  | 2.07<br>(52,6) | 1.16<br>(29,5) | 2.375<br>(60,33) | 3.46<br>(87,9)  |
| 30A  | 4.20<br>(106,7) | 3.38<br>(85,9) | 1.53<br>(38,9) | 3.75<br>(95,25)  | 5.34<br>(135,6) |



## F1100PP Recommended PC Mounting



General Purpose

SINGLE PHASE FILTERS



# F1200/F1250/F1299 RFI Filters

## Features:

- Designed for General Purpose Common Mode and Differential Mode Applications
- Higher Line-to-Line Capacitance for Protection from Pulsed, Intermittent, or Continuous RFI
- Available in Standard (F1200) and Low-Leakage (F1250) (F1260) (F1270) (F1280) (F1299) Models
- Available with Integral IEC Connector up to 10Amps



| Nominal Current Rating | Part Number | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|-------------|-----------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |             |                       | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |             |                       |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 1A                     | F1200AA01   | QC/QC                 | Common                                       | 20              | 35  | 43  | 52  | 55 | 50 |
|                        | F1200BB01   | Wire/Wire             | Differential                                 | 4               | 38  | 59  | 66  | 62 | 54 |
|                        | F1250AA01   | QC/QC                 | Common                                       | 20              | 30  | 37  | 50  | 50 | 50 |
|                        | F1250BB01   | Wire/Wire             | Differential                                 | 4               | 38  | 59  | 66  | 62 | 54 |
| 2A                     | F1299AA02   | QC/QC                 | Common                                       | 24              | 35  | 43  | 45  | 45 | 40 |
|                        | F1299BB02   | Wire/Wire             | Differential                                 | 6               | 35  | 50  | 55  | 50 | 45 |
| 3A                     | F1200AA03   | QC/QC                 | Common                                       | 20              | 35  | 43  | 52  | 55 | 50 |
|                        | F1200BB03   | Wire/Wire             | Differential                                 | 4               | 38  | 59  | 70  | 64 | 59 |
|                        | F1200CA03   | IEC/QC                |                                              |                 |     |     |     |    |    |
|                        | F1250AA03   | QC/QC                 | Common                                       | 20              | 30  | 37  | 50  | 50 | 50 |
|                        | F1250BB03   | Wire/Wire             | Differential                                 | 4               | 38  | 59  | 70  | 64 | 59 |
|                        | F1250CA03   | IEC/QC                |                                              |                 |     |     |     |    |    |
| 6A                     | F1299AA03   | QC/QC                 | Common                                       | 26              | 37  | 45  | 45  | 45 | 40 |
|                        | F1299BB03   | Wire/Wire             | Differential                                 | 6               | 40  | 55  | 55  | 50 | 45 |
|                        | F1299CA03   | IEC/QC                |                                              |                 |     |     |     |    |    |
|                        | F1200AA06   | QC/QC                 | Common                                       | 10              | 22  | 30  | 46  | 50 | 45 |
|                        | F1200BB06   | Wire/Wire             | Differential                                 | 9               | 25  | 48  | 70  | 70 | 62 |
|                        | F1200CA06   | IEC/QC                |                                              |                 |     |     |     |    |    |
| 10A                    | F1250AA06   | QC/QC                 | Common                                       | 10              | 20  | 27  | 45  | 45 | 45 |
|                        | F1250BB06   | Wire/Wire             | Differential                                 | 9               | 25  | 48  | 70  | 70 | 62 |
|                        | F1250CA06   | IEC/QC                |                                              |                 |     |     |     |    |    |
|                        | F1299AA06   | QC/QC                 | Common                                       | 20              | 31  | 40  | 45  | 45 | 40 |
|                        | F1299BB06   | Wire/Wire             | Differential                                 | 6               | 35  | 50  | 55  | 50 | 45 |
|                        | F1299CA06   | IEC/QC                |                                              |                 |     |     |     |    |    |
| 20A                    | F1200AA10   | QC/QC                 | Common                                       | 10              | 22  | 30  | 46  | 50 | 45 |
|                        | F1200BB10   | Wire/Wire             | Differential                                 | 10              | 16  | 43  | 70  | 70 | 66 |
|                        | F1200CA10   | IEC/QC                |                                              |                 |     |     |     |    |    |
|                        | F1250AA10   | QC/QC                 | Common                                       | 10              | 20  | 27  | 45  | 45 | 45 |
|                        | F1250BB10   | Wire/Wire             | Differential                                 | 10              | 16  | 43  | 70  | 70 | 66 |
|                        | F1250CA10   | IEC/QC                |                                              |                 |     |     |     |    |    |
| 30A                    | F1299AA10   | QC/QC                 | Common                                       | 9               | 20  | 25  | 38  | 42 | 40 |
|                        | F1299BB10   | Wire/Wire             | Differential                                 | 14              | 14  | 38  | 50  | 48 | 45 |
|                        | F1299CA10   | IEC/QC                |                                              |                 |     |     |     |    |    |
|                        | F1299DD10   | Screw/Screw           |                                              |                 |     |     |     |    |    |
|                        | F1200AA20   | QC/QC                 | Common                                       | 10              | 22  | 30  | 42  | 47 | 40 |
|                        | F1200DD20   | Screw/Screw           | Differential                                 | 9               | 19  | 44  | 70  | 70 | 70 |
| 20A                    | F1250AA20   | QC/QC                 | Common                                       | 10              | 20  | 25  | 38  | 40 | 40 |
|                        | F1250DD20   | Screw/Screw           | Differential                                 | 9               | 19  | 44  | 70  | 70 | 70 |
|                        | F1299AA20   | QC/QC                 | Common                                       | 10              | 20  | 28  | 35  | 38 | 40 |
| 30A                    | F1299DD20   | Screw/Screw           | Differential                                 | 14              | 14  | 38  | 50  | 48 | 45 |
|                        | F1200DD30   | Screw/Screw           | Common                                       | 7               | 15  | 20  | 34  | 42 | 40 |
|                        | F1299DD30   | Screw/Screw           | Differential                                 | 11              | 13  | 44  | 70  | 60 | 57 |
| 30A                    | F1200DD30   | Screw/Screw           | Common                                       | 12              | 23  | 30  | 35  | 38 | 40 |
|                        | F1299DD30   | Screw/Screw           | Differential                                 | 15              | 40  | 55  | 55  | 55 | 50 |

NOTE: Other combinations of terminals may be specified on special order.

Dimensions are in inches and millimeters unless otherwise specified.  
Values in parentheses are metric equivalents.



**Curtis Industries**  
A Division of Powers Holdings, Inc.

1-800-657-0853

General Purpose

SINGLE PHASE FILTERS

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# F1200/F1250/F1299 RFI Filters (continued)

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

|        |    |      |      |    |     |     |     |
|--------|----|------|------|----|-----|-----|-----|
| 115VAC | 1A | 2A   | 3A   | 6A | 10A | 20A | 30A |
| 250VAC | 1A | 1.5A | 2.5A | 4A | 6A  | 10A | 15A |

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**      **F1200 Series**      **F1299 Series**

Line to Ground:      1500VAC      1500VAC

Line to Line:      1768VDC      1450VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

A: QC – Quick Connect

C: IEC Receptacle

B: Wire

D: Screw

**Maximum Leakage Current:**

|                     |              |              |              |              |              |              |              |
|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Each Line to Ground | <b>F1200</b> | <b>F1250</b> | <b>F1299</b> | <b>F1260</b> | <b>F1270</b> | <b>F1280</b> | <b>F1299</b> |
| 115VAC, 60Hz:       | 0.40mA       | 0.25mA       | .15mA        | .25mA        | .002mA       | .015mA       | .030mA       |
| 250VAC, 50Hz:       | .75mA        | .40mA        | .25mA        | .45mA        | .005mA       | .025mA       | .050mA       |

**Agency Approvals**

**F1200:**



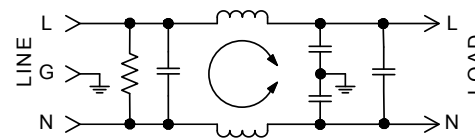
Except 30Amp

**Agency Approvals**

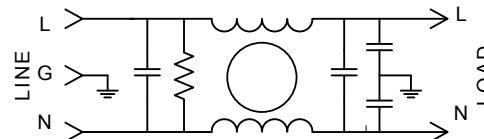
**F1299:**



## F1200/F1250 Simplified Schematic

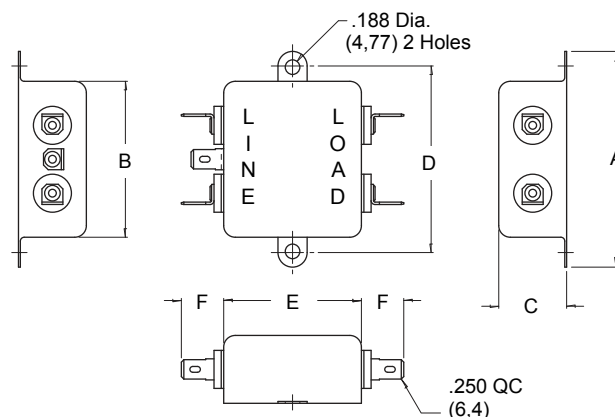


## F1299 Simplified Schematic



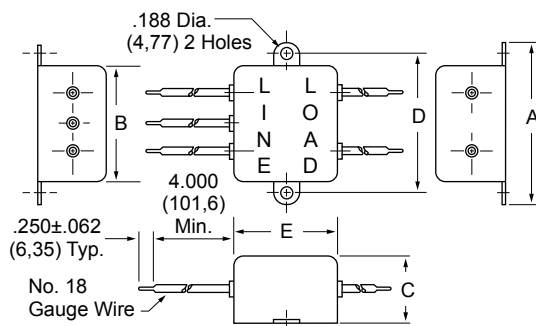
## F1200AA/F1250AA (1, 3, 6, 10 and 20Amp) Dimensions

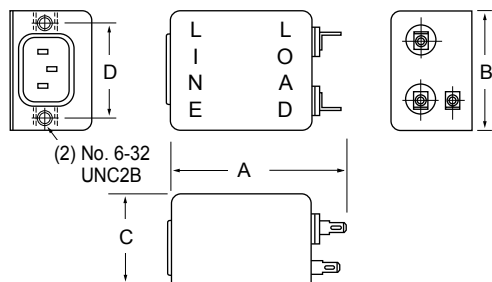
| Amps | A               | B              | C               | D               | E               | F              |
|------|-----------------|----------------|-----------------|-----------------|-----------------|----------------|
| 1A   | 2.750<br>(69,9) | 2.00<br>(50,8) | .875<br>(22,2)  | 2.375<br>(60,3) | 1.750<br>(44,5) | .550<br>(14,0) |
| 3A   | 2.750<br>(69,9) | 2.00<br>(50,8) | 1.125<br>(28,5) | 2.375<br>(60,3) | 1.750<br>(44,5) | .550<br>(14,0) |
| 6A   | 2.750<br>(69,9) | 2.00<br>(50,8) | 1.125<br>(28,5) | 2.375<br>(60,3) | 1.750<br>(44,5) | .550<br>(14,0) |
| 10A  | 2.750<br>(69,9) | 2.00<br>(50,8) | 1.125<br>(28,5) | 2.375<br>(60,3) | 2.000<br>(50,8) | .550<br>(14,0) |
| 20A  | 3.310<br>(84,1) | 2.50<br>(63,5) | 1.500<br>(38,1) | 2.940<br>(74,7) | 2.000<br>(50,8) | .550<br>(14,0) |



## F1200BB/FB1250BB (1, 3, 6 and 10Amp) Dimensions

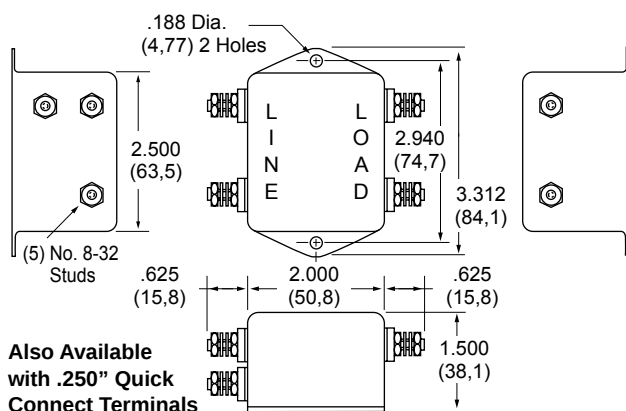
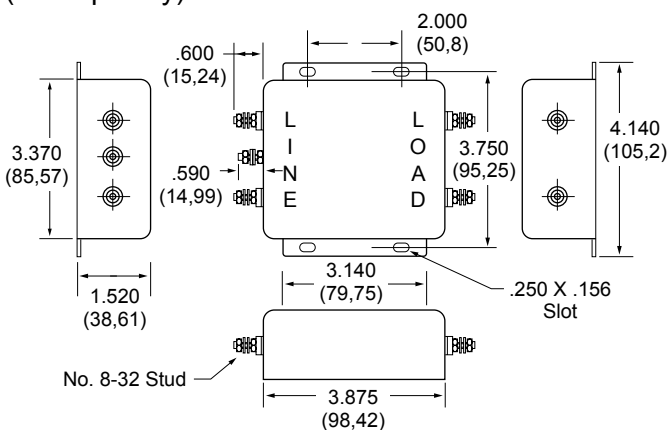
| Amps | A               | B              | C               | D               | E               |
|------|-----------------|----------------|-----------------|-----------------|-----------------|
| 1A   | 2.750<br>(69,9) | 2.00<br>(50,8) | .875<br>(22,2)  | 2.375<br>(60,3) | 1.750<br>(44,5) |
| 3A   | 2.750<br>(69,9) | 2.00<br>(50,8) | 1.125<br>(28,5) | 2.375<br>(60,3) | 1.750<br>(44,5) |
| 6A   | 2.750<br>(69,9) | 2.00<br>(50,8) | 1.125<br>(28,5) | 2.375<br>(60,3) | 1.750<br>(44,5) |
| 10A  | 2.750<br>(69,9) | 2.00<br>(50,8) | 1.125<br>(28,5) | 2.375<br>(60,3) | 2.000<br>(50,8) |



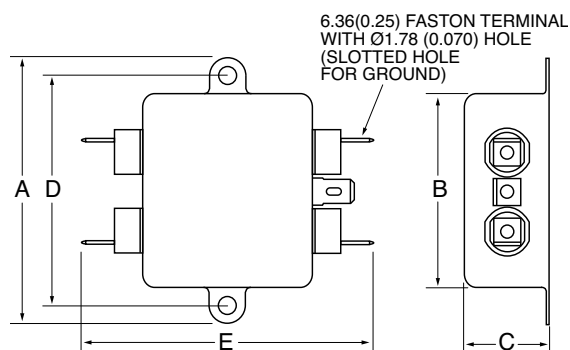
**F1200CA/F1250CA (3, 6, and 10Amp) Dimensions**

Refer to Page  
36 for Standard  
Mounting Cutouts

| Amps | A              | B               | C               | D               |
|------|----------------|-----------------|-----------------|-----------------|
| 3A   | 2.55<br>(64,8) | 2.000<br>(50,8) | 1.50<br>(38,1)  | 1.575<br>(40,0) |
| 6A   | 3.05<br>(77,5) | 2.000<br>(50,8) | 1.500<br>(38,1) | 1.575<br>(40,0) |
| 10A  | 3.05<br>(77,5) | 2.000<br>(50,8) | 1.500<br>(38,1) | 1.575<br>(40,0) |

**F1200DD/F1250DD (20Amp Only) Dimensions****F1200DD30 (30Amp Only) Dimensions****F1299AA (2, 3, 6, 10 and 20Amp) Dimensions**

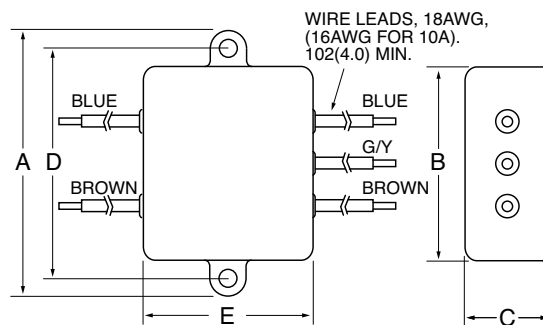
| Amps | A              | B              | C              | D                | E              |
|------|----------------|----------------|----------------|------------------|----------------|
| 2A   | 2.81<br>(71,4) | 2.07<br>(52,6) | 0.91<br>(23,1) | 2.375<br>(60,33) | 3.10<br>(78,7) |
| 3A   | 2.81<br>(71,4) | 2.07<br>(52,6) | 1.16<br>(29,5) | 2.375<br>(60,33) | 3.10<br>(78,7) |
| 6A   | 2.81<br>(71,4) | 2.07<br>(52,6) | 1.16<br>(29,5) | 2.375<br>(60,33) | 3.10<br>(78,7) |
| 10A  | 2.81<br>(71,4) | 2.07<br>(52,6) | 1.16<br>(29,5) | 2.375<br>(60,33) | 3.35<br>(85,1) |
| 20A  | 3.35<br>(85,1) | 2.56<br>(65,0) | 1.53<br>(38,9) | 2.938<br>(74,63) | 3.35<br>(85,1) |



# F1200/F1250/F1299 RFI Filters (continued)

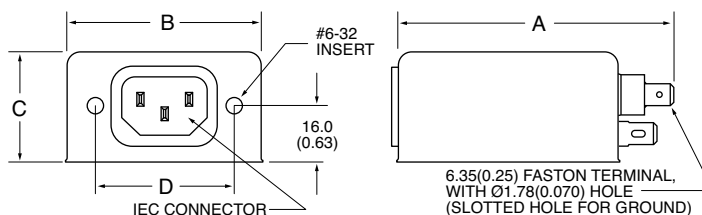
## F1299BB (2, 3, 6 and 10Amp) Dimensions

| Amps | A              | B              | C              | D                | E              |
|------|----------------|----------------|----------------|------------------|----------------|
| 2A   | 2.81<br>(71,4) | 2.07<br>(52,6) | 0.91<br>(23,1) | 2.375<br>(60,33) | 1.81<br>(46,0) |
| 3A   | 2.81<br>(71,4) | 2.07<br>(52,6) | 1.16<br>(29,5) | 2.375<br>(60,33) | 3.10<br>(78,7) |
| 6A   | 2.81<br>(71,4) | 2.07<br>(52,6) | 1.16<br>(29,5) | 2.375<br>(60,33) | 3.10<br>(78,7) |
| 10A  | 2.81<br>(71,4) | 2.07<br>(52,6) | 1.16<br>(29,5) | 2.375<br>(60,33) | 2.07<br>(52,6) |



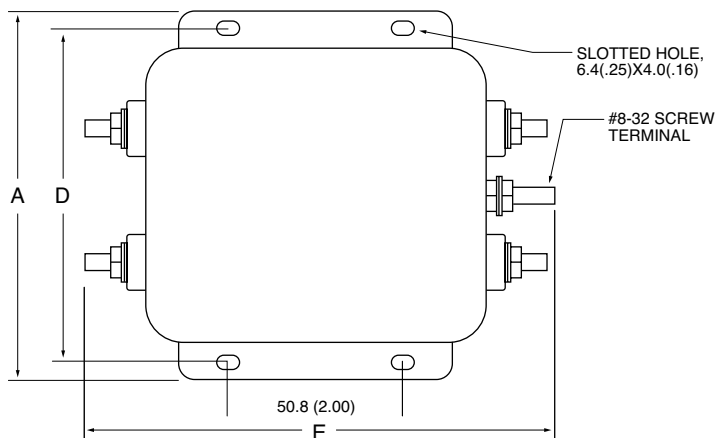
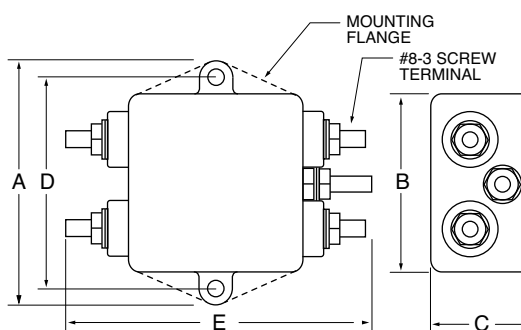
## F1299CA (3, 6 and 10Amp) Dimensions

| Amps | A              | B              | C              | D               |
|------|----------------|----------------|----------------|-----------------|
| 3A   | 3.21<br>(81,5) | 2.25<br>(57,2) | 1.28<br>(32,5) | 1.575<br>(40,0) |
| 6A   | 3.21<br>(81,5) | 2.25<br>(57,2) | 1.28<br>(32,5) | 1.575<br>(40,0) |
| 10A  | 3.71<br>(94,2) | 2.25<br>(57,2) | 1.28<br>(32,5) | 1.575<br>(40,0) |



## F1299DD (10, 20 and 30Amp) Dimensions

| Amps | A               | B              | C              | D                | E               |
|------|-----------------|----------------|----------------|------------------|-----------------|
| 10A  | 2.81<br>(71,40) | 2.07<br>(52,6) | 1.16<br>(29,5) | 2.375<br>(60,33) | 3.46<br>(87,9)  |
| 20A  | 3.35<br>(85,1)  | 2.56<br>(65,0) | 1.53<br>(38,9) | 2.938<br>(74,63) | 3.46<br>(87,9)  |
| 30A  | 4.20<br>(106,7) | 3.38<br>(85,9) | 1.53<br>(38,9) | 3.750<br>(95,25) | 5.34<br>(135,6) |



General Purpose

SINGLE PHASE FILTERS



# F1300/F1350/F1399 RFI Filters

## Features:

- T Circuit Configuration—Designed for Motor, Capacitive and Other Low Impedance Loads
- Dual Coils — Higher Performance in Unknown RFI and Noise Susceptibility Applications
- Integral IEC Connector and PC Mounted Versions Now Available



| Nominal Current Rating | Part Number | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|-------------|-----------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |             |                       | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |             |                       |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 1A                     | F1300AA01   | QC/QC                 | Common                                       | 40              | 65  | 65  | 65  | 65 | 65 |
|                        | F1300BB01   | Wire/Wire             | Differential                                 | 2               | 57  | 69  | 70  | 70 | 60 |
|                        | F1350AA01   | QC/QC                 | Common                                       | 30              | 60  | 65  | 65  | 65 | 65 |
|                        | F1350BB01   | Wire/Wire             | Differential                                 | 2               | 57  | 69  | 70  | 70 | 60 |
| 2A                     | F1399AA02   | QC/QC                 | Common                                       | 40              | 65  | 65  | 65  | 65 | 40 |
|                        | F1399BB02   | Wire/Wire             | Differential                                 | 5               | 45  | 70  | 65  | 60 | 50 |
| 3A                     | F1300AA03   | QC/QC                 | Common                                       | 40              | 65  | 65  | 65  | 65 | 65 |
|                        | F1300BB03   | Wire/Wire             |                                              | 7               | 64  | 70  | 70  | 70 | 58 |
|                        | F1300CA03   | IEC/QC                | Differential                                 |                 |     |     |     |    |    |
|                        | F1300CP03   | IEC/PC                |                                              |                 |     |     |     |    |    |
|                        | F1350AA03   | QC/QC                 | Common                                       | 30              | 60  | 65  | 65  | 65 | 65 |
|                        | F1350BB03   | Wire/Wire             |                                              | 7               | 64  | 70  | 70  | 70 | 58 |
| 6A                     | F1350CA03   | IEC/QC                | Differential                                 |                 |     |     |     |    |    |
|                        | F1350CP03   | IEC/PC                |                                              |                 |     |     |     |    |    |
|                        | F1399AA03   | QC/QC                 | Common                                       | 40              | 65  | 65  | 65  | 65 | 40 |
|                        | F1399BB03   | Wire/Wire             |                                              | 12              | 55  | 70  | 65  | 60 | 50 |
|                        | F1399CA03   | IEC/QC                | Differential                                 |                 |     |     |     |    |    |
|                        |             |                       |                                              |                 |     |     |     |    |    |
| 10A                    | F1300AA06   | QC/QC                 | Common                                       | 12              | 48  | 60  | 65  | 65 | 65 |
|                        | F1300BB06   | Wire/Wire             |                                              | 10              | 40  | 70  | 70  | 70 | 60 |
|                        | F1300CA06   | IEC/QC                | Differential                                 |                 |     |     |     |    |    |
|                        |             |                       |                                              |                 |     |     |     |    |    |
|                        | F1350AA06   | QC/QC                 | Common                                       | 2               | 40  | 60  | 65  | 65 | 65 |
|                        | F1350BB06   | Wire/Wire             |                                              | 10              | 40  | 70  | 70  | 70 | 60 |
| 15A                    | F1350CA06   | IEC/QC                | Differential                                 |                 |     |     |     |    |    |
|                        |             |                       |                                              |                 |     |     |     |    |    |
|                        | F1399AA06   | QC/QC                 | Common                                       | 30              | 55  | 65  | 65  | 65 | 40 |
|                        | F1399BB06   | Wire/Wire             |                                              | 5               | 40  | 70  | 65  | 60 | 50 |
|                        | F1399CA06   | IEC/QC                | Differential                                 |                 |     |     |     |    |    |
|                        |             |                       |                                              |                 |     |     |     |    |    |
| 20A                    | F1300AA10   | QC/QC                 | Common                                       | 12              | 48  | 60  | 65  | 65 | 65 |
|                        | F1300BB10   | Wire/Wire             |                                              | 13              | 13  | 64  | 70  | 67 | 56 |
|                        | F1300CA10   | IEC/QC                | Differential                                 |                 |     |     |     |    |    |
|                        |             |                       |                                              |                 |     |     |     |    |    |
|                        | F1350AA10   | QC/QC                 | Common                                       | 2               | 40  | 60  | 65  | 65 | 65 |
|                        | F1350BB10   | Wire/Wire             |                                              | 13              | 13  | 64  | 70  | 67 | 56 |
| 25A                    | F1350CA10   | IEC/QC                | Differential                                 |                 |     |     |     |    |    |
|                        |             |                       |                                              |                 |     |     |     |    |    |
|                        | F1399AA10   | QC/QC                 | Common                                       | 5               | 40  | 52  | 60  | 60 | 50 |
|                        | F1399BB10   | Wire/Wire             |                                              | 5               | 12  | 50  | 65  | 60 | 55 |
|                        | F1399CA10   | IEC/QC                | Differential                                 |                 |     |     |     |    |    |
|                        | F1399DD10   | Screw/Screw           |                                              |                 |     |     |     |    |    |
| 30A                    | F1300AA15   | QC/QC                 | Common                                       | 14              | 35  | 44  | 56  | 58 | 55 |
|                        |             |                       |                                              | 15              | 10  | 45  | 70  | 67 | 56 |
|                        | F1300AA20   | QC/QC                 | Common                                       | 5               | 44  | 60  | 65  | 65 | 60 |
|                        |             |                       |                                              | —               | —   | 35  | 60  | 57 | 45 |
|                        | F1350AA20   | QC/QC                 | Common                                       | 2               | 35  | 61  | 63  | 60 | 50 |
|                        |             |                       |                                              | —               | —   | 35  | 60  | 57 | 45 |
| 35A                    | F1399AA20   | QC/QC                 | Common                                       | 5               | 40  | 52  | 60  | 60 | 52 |
|                        | F1399DD20   | Screw/Screw           |                                              | 5               | 12  | 50  | 65  | 60 | 55 |

NOTE: Other combinations of terminals may be specified on special order.



# F1300/F1350/F1399 RFI Filters (continued)

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

|        |    |      |      |    |     |     |     |
|--------|----|------|------|----|-----|-----|-----|
| 115VAC | 1A | 2A   | 3A   | 6A | 10A | 15A | 20A |
| 250VAC | 1A | 1.5A | 2.5A | 4A | 6A  | 15A | 16A |

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):** **F1300/F1350**

Line to Ground: 1500VAC

Line to Line: 1768VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:** A: QC – Quick Connect C: IEC Receptacle  
B: Wire P: PC – P.C. Board

**Maximum Leakage Current:** Each Line to Ground

|               |              |              |              |              |              |              |              |
|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|               | <b>F1300</b> | <b>F1350</b> | <b>D1399</b> | <b>F1360</b> | <b>F1370</b> | <b>F1380</b> | <b>F1390</b> |
| 115VAC, 60Hz: | 0.4mA        | 0.25mA       | 0.25mA       | .15mA        | .002mA       | .015mA       | .030mA       |
| 250VAC, 50Hz: | .75mA        | .40mA        | 0.45mA       | .25mA        | .005mA       | .025mA       | .050mA       |

**Agency Approvals:**

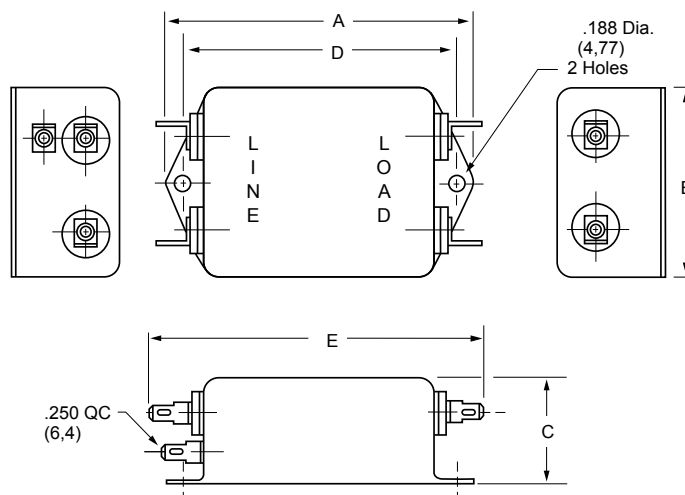


Except 15Amp

### F1300AA (1, 3, 6, 10 and 15Amp)

### F1350AA (1, 3, 6 and 10Amp) Dimensions

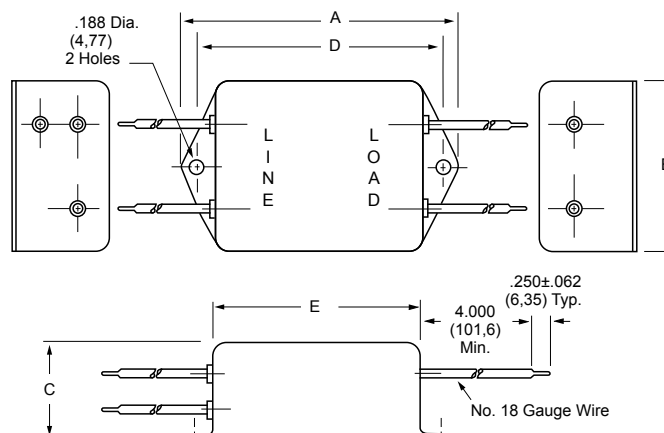
| Amps | A               | B               | C               | D               | E               |
|------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1A   | 2.750<br>(69,9) | 1.750<br>(44,5) | 1.125<br>(28,5) | 2.375<br>(60,3) | 2.925<br>(74,3) |
| 3A   | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.125<br>(28,5) | 2.940<br>(74,7) | 3.49<br>(88,7)  |
| 6A   | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.125<br>(28,5) | 2.940<br>(74,7) | 3.49<br>(88,7)  |
| 10A  | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,1) | 2.940<br>(74,7) | 3.49<br>(88,7)  |
| 15A  | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,1) | 2.940<br>(74,7) | 3.49<br>(88,7)  |



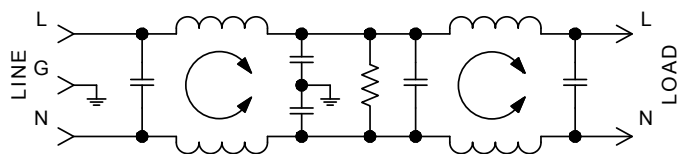
### F1300BB/F1350BB

### (1, 3, 6 and 10Amp) Dimensions

| Amps | A               | B               | C               | D               | E               |
|------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1A   | 2.750<br>(69,9) | 1.750<br>(44,5) | 1.125<br>(28,5) | 2.375<br>(60,3) | 2.000<br>(50,8) |
| 3A   | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.125<br>(28,5) | 2.940<br>(74,7) | 2.500<br>(63,5) |
| 6A   | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.125<br>(28,5) | 2.940<br>(74,7) | 2.500<br>(63,5) |
| 10A  | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,1) | 2.940<br>(74,7) | 2.500<br>(63,5) |



## F1300/F1350 Simplified Schematic

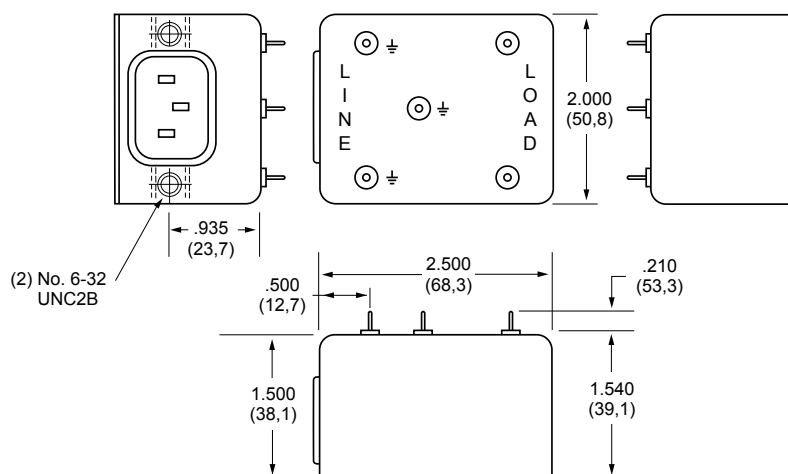
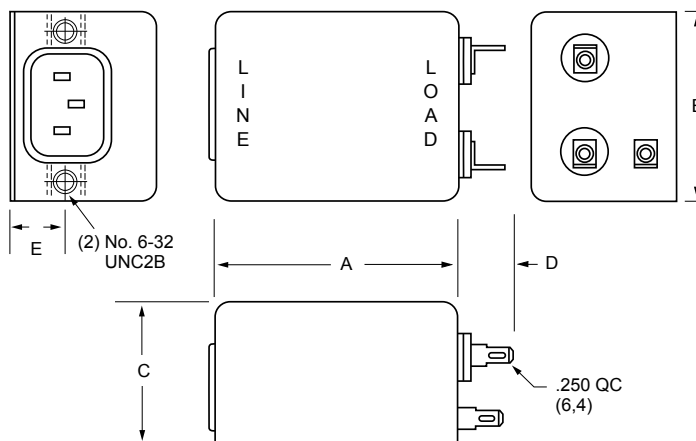


## F1300CA (3, 6 and 10Amp)

## F1350CA (3 and 6Amp) Dimensions

Refer to Page 40  
for Standard  
Mounting Cutouts

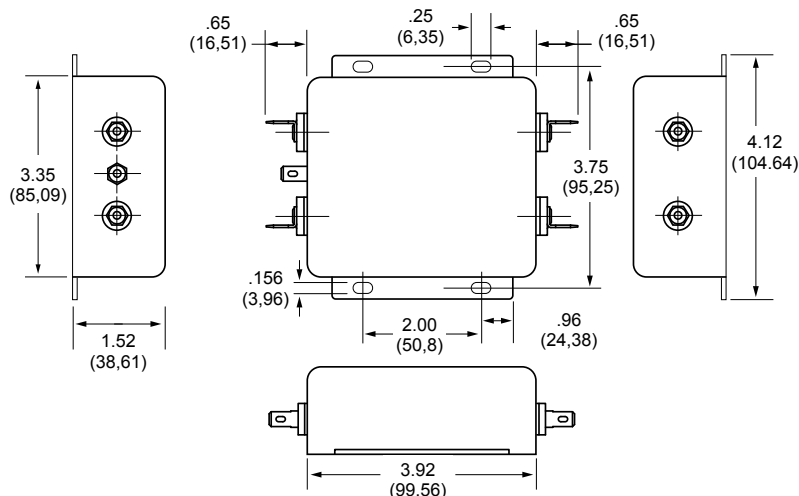
| Amps | A               | B               | C               | D              | E              |
|------|-----------------|-----------------|-----------------|----------------|----------------|
| 3A   | 2.500<br>(63,6) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .565<br>(14,3) |
| 6A   | 2.500<br>(63,5) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .565<br>(14,3) |
| 10A  | 2.880<br>(73,1) | 2.120<br>(53,8) | 1.500<br>(38,1) | .65<br>(16,0)  | .565<br>(14,3) |



## F1300CP/F1350CP (3Amp Only) Dimensions

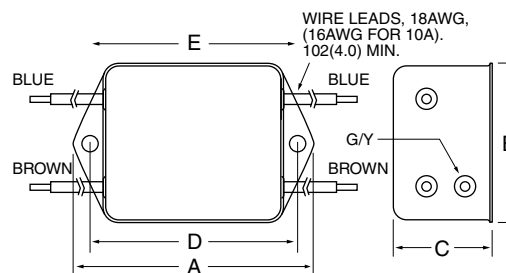
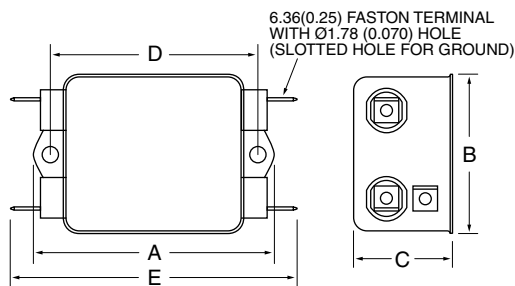
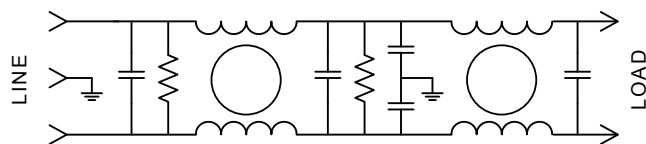
Refer to Page 40  
for Standard  
Mounting Cutouts

## F1300AA/F1350AA (20Amp Only) Dimensions



# F1300/F1399 RFI Filters (continued)

## F1399 Simplified Schematic

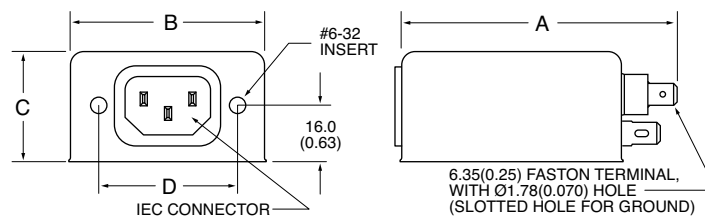


## F1399BB (2, 3, 6 and 10Amp) Dimensions

| Amps | A              | B              | C              | D                | E              |
|------|----------------|----------------|----------------|------------------|----------------|
| 2A   | 2.07<br>(52.6) | 1.81<br>(46.0) | 1.16<br>(29.5) | 2.375<br>(60.33) | 2.78<br>(70.6) |
| 3A   | 2.56<br>(65.0) | 2.07<br>(52.6) | 1.16<br>(29.5) | 2.938<br>(74.63) | 3.35<br>(85.1) |
| 6A   | 2.56<br>(65.0) | 2.07<br>(52.6) | 1.16<br>(29.5) | 2.938<br>(74.63) | 3.35<br>(85.1) |
| 10A  | 2.56<br>(65.0) | 2.07<br>(52.6) | 1.53<br>(38.9) | 2.938<br>(74.63) | 3.35<br>(85.1) |

## F1399AA (2, 3, 6, 10 and 20Amp) Dimensions

| Amps | A               | B              | C              | D                | E               |
|------|-----------------|----------------|----------------|------------------|-----------------|
| 2A   | 3.35<br>(85.1)  | 1.81<br>(46.0) | 1.16<br>(29.5) | 2.375<br>(60.33) | 2.78<br>(70.6)  |
| 3A   | 3.85<br>(97.8)  | 2.07<br>(52.6) | 1.16<br>(29.5) | 2.938<br>(74.63) | 3.35<br>(85.1)  |
| 6A   | 3.85<br>(97.8)  | 2.07<br>(52.6) | 1.16<br>(29.5) | 2.938<br>(74.63) | 3.35<br>(85.1)  |
| 10A  | 3.85<br>(97.8)  | 2.07<br>(52.6) | 1.53<br>(38.9) | 2.938<br>(74.63) | 3.35<br>(85.1)  |
| 20A  | 5.23<br>(132.8) | 3.37<br>(85.6) | 1.53<br>(38.9) | 3.75<br>(95.25)  | 4.20<br>(106.7) |

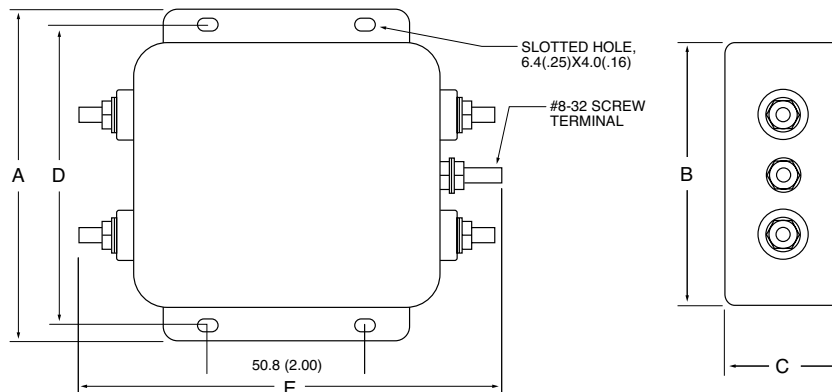
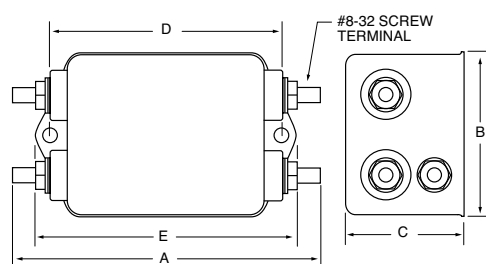


## F1399CA (3, 6 and 10Amp) Dimensions

| Amps | A               | B              | C              | D               |
|------|-----------------|----------------|----------------|-----------------|
| 3A   | 4.33<br>(110.0) | 2.25<br>(57.2) | 1.28<br>(32.5) | 1.575<br>(40.0) |
| 6A   | 4.33<br>(110.0) | 2.25<br>(57.2) | 1.28<br>(32.5) | 1.575<br>(40.0) |
| 10A  | 4.33<br>(110.0) | 2.25<br>(57.2) | 1.53<br>(38.9) | 1.575<br>(40.0) |

## F1399DD (10 and 20Amp) Dimensions

| Amps | A               | B              | C              | D                | E               |
|------|-----------------|----------------|----------------|------------------|-----------------|
| 10A  | 3.96<br>(100.6) | 2.07<br>(52.6) | 1.53<br>(38.9) | 2.938<br>(74.63) | 3.35<br>(85.1)  |
| 20A  | 5.34<br>(135.6) | 3.37<br>(85.6) | 1.53<br>(38.9) | 3.75<br>(95.25)  | 4.20<br>(106.7) |

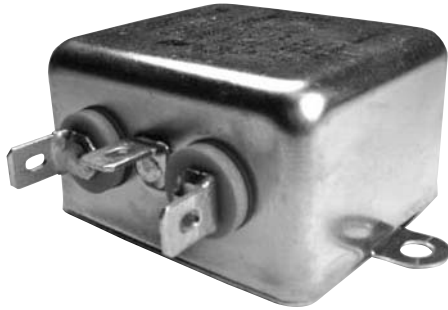


General Purpose

SINGLE PHASE FILTERS



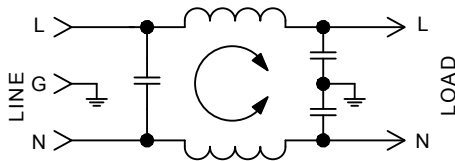
# F1900 RFI Filters



## Features:

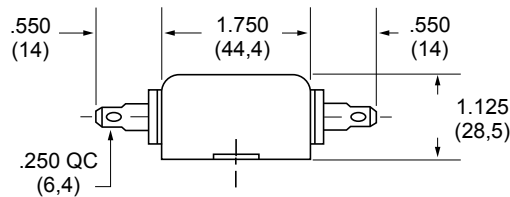
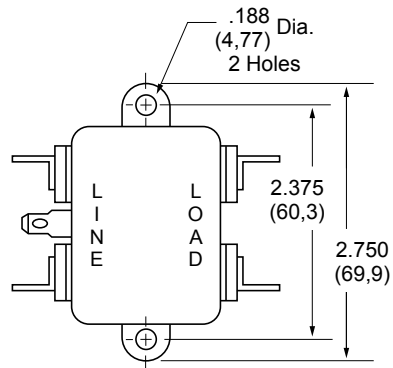
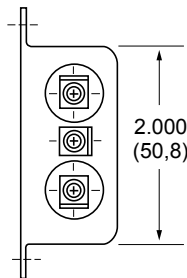
- Designed for Equipment Requiring UL1410 Approval (Consumer Electronics)
- Utilizes UL1414 Approved Components
- Greater Differential Mode Protection

## F1900 Simplified Schematic



## F1900AA

(3 and 6Amp) Dimensions



## Specifications:

**Rated Voltage:** 125VAC Maximum - 50/60 Hz

**Rated Current:** 120VAC  
3A  
6A

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

Line to Ground 1500VAC

Line to Line 1768VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

A: QC – Quick Connect

**Maximum Leakage Current:**

Each Line to Ground **F1900**  
115VAC, 60Hz: 0.25mA

**Agency Approvals:**



General Purpose

SINGLE PHASE FILTERS

| Nominal Current Rating | Part Number | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|-------------|-----------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |             |                       | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |             |                       |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | F1900AA03   | QC/QC                 | Common                                       | 20              | 30  | 37  | 50  | 50 | 50 |
|                        |             |                       | Differential                                 | 7               | 19  | 28  | 50  | 57 | 70 |
| 6A                     | F1900AA06   | QC/QC                 | Common                                       | 10              | 20  | 27  | 45  | 45 | 45 |
|                        |             |                       | Differential                                 | 8               | 18  | 24  | 45  | 52 | 64 |

NOTE: Other combinations of terminals may be specified on special order.

Dimensions are in inches and millimeters unless otherwise specified.  
Values in parentheses are metric equivalents.



**Curtis Industries**  
A Division of Powers Holdings, Inc.

1-800-657-0853

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# F1400 RFI Filters

High Performance

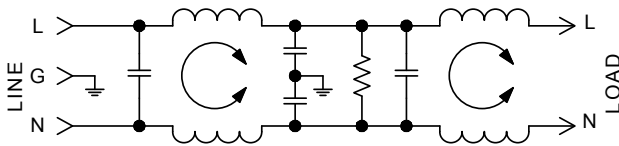
SINGLE PHASE FILTERS



## Features:

- High Peak Current Design — High Insertion Loss for Switching Power Supply Emissions
- Low-Leakage Current
- Compact Case Sizes in 6 and 10Amp Models
- Available with Integral IEC Connector in 3 and 6Amp Models

## F1400 Simplified Schematic



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

| 115VAC | 250VAC |
|--------|--------|
| 3A     | 1.5A   |
| 6A     | 4A     |
| 10A    | 6A     |

**Current Overload:** 6X for 8 seconds

### Hi-Pot Test (1 min):

|                |         |
|----------------|---------|
| Line to Ground | 1500VAC |
| Line to Line   | 1768VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

### Termination:

A: QC – Quick Connect  
B: Wire  
C: IEC Receptacle

### Maximum Leakage Current:

| Each Line to Ground | F1400  |
|---------------------|--------|
| 115VAC, 60Hz:       | 0.25mA |
| 250VAC, 50Hz:       | 0.40mA |

### Agency Approvals:

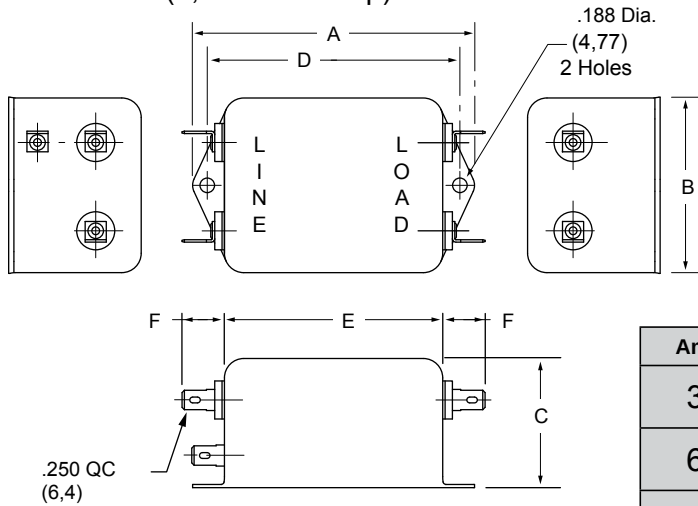


| Nominal Current Rating | Part Number | Termination Line/Load        | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|-------------|------------------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |             |                              | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |             |                              |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | F1400AA03   | QC/QC<br>Wire/Wire<br>IEC/QC | Common<br>Differential                       | 58              | 65  | 65  | 65  | 60 | 44 |
|                        | F1400BB03   |                              |                                              | 40              | 60  | 65  | 65  | 65 | 60 |
|                        | F1400CA03   |                              |                                              |                 |     |     |     |    |    |
| 6A                     | F1400AA06   | QC/QC<br>Wire/Wire<br>IEC/QC | Common<br>Differential                       | 58              | 65  | 65  | 65  | 60 | 54 |
|                        | F1400BB06   |                              |                                              | 36              | 55  | 60  | 60  | 55 | 50 |
|                        | F1400CA06   |                              |                                              |                 |     |     |     |    |    |
| 10A                    | F1400AA10   | QC/QC<br>Wire/Wire           | Common<br>Differential                       | 56              | 65  | 65  | 65  | 60 | 54 |
|                        | F1400BB10   |                              |                                              | 40              | 50  | 60  | 65  | 65 | 60 |
|                        |             |                              |                                              |                 |     |     |     |    |    |

NOTE: Other combinations of terminals may be specified on special order.



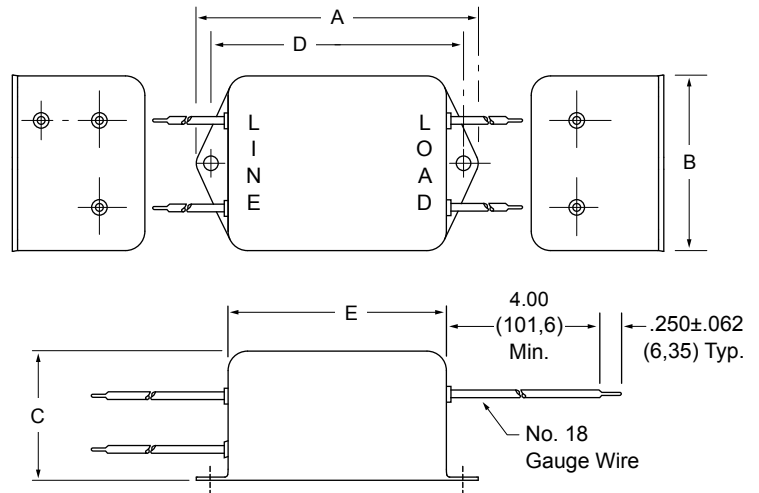
### F1400AA (3, 6 and 10Amp) Dimensions



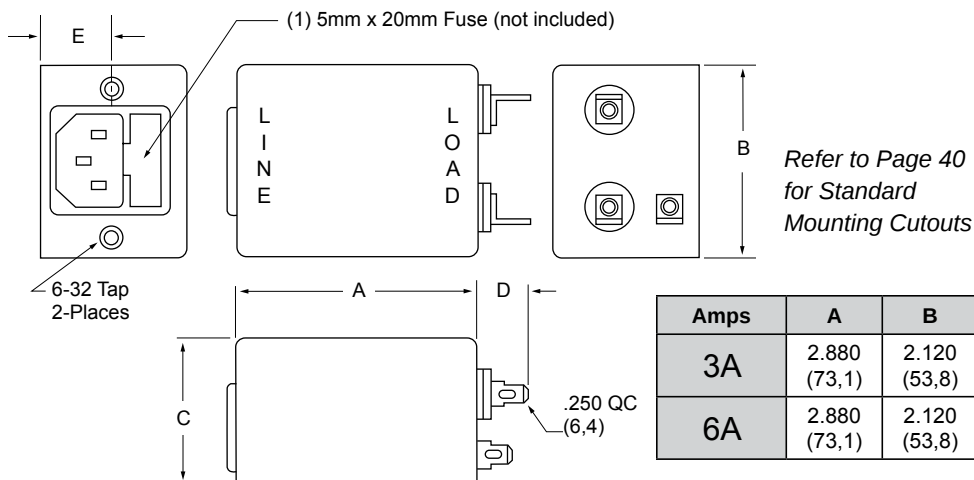
| Amps | A               | B               | C               | D                | E               | F              |
|------|-----------------|-----------------|-----------------|------------------|-----------------|----------------|
| 3A   | 3.310<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,2) | 2.940<br>(74,7)  | 2.500<br>(63,5) | .550<br>(14,0) |
| 6A   | 3.310<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,2) | 2.940<br>(74,7)  | 2.500<br>(63,5) | .550<br>(14,0) |
| 10A  | 4.70<br>(119,4) | 2.250<br>(57,1) | 1.750<br>(44,4) | 4.250<br>(107,9) | 3.750<br>(95,3) | .550<br>(14,0) |

### F1400BB (3, 6 and 10Amp) Dimensions

| Amps | A               | B               | C               | D                | E               |
|------|-----------------|-----------------|-----------------|------------------|-----------------|
| 3A   | 3.310<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,1) | 2.940<br>(74,7)  | 2.500<br>(63,5) |
| 6A   | 3.310<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,1) | 2.940<br>(74,7)  | 2.500<br>(63,5) |
| 10A  | 4.70<br>(119,4) | 2.250<br>(57,1) | 1.750<br>(44,4) | 4.250<br>(107,9) | 3.750<br>(95,3) |



### F1400CA (3 and 6Amp) Dimensions



| Amps | A               | B               | C               | D              | E              |
|------|-----------------|-----------------|-----------------|----------------|----------------|
| 3A   | 2.880<br>(73,1) | 2.120<br>(53,8) | 1.500<br>(38,1) | .550<br>(14,0) | .565<br>(14,3) |
| 6A   | 2.880<br>(73,1) | 2.120<br>(53,8) | 1.500<br>(38,1) | .550<br>(14,0) | .565<br>(14,3) |



# F1500 RFI Filters

High Performance

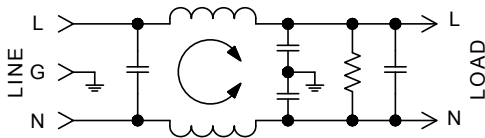
SINGLE PHASE FILTERS



## Features:

- IEC Connector Plus Common and Differential Mode Performance in Compact Case
- "L" Circuit Configuration — Cost-Effective in Many Linear and Switching Power Supply Applications
- High-Inductance Design for Greater Attenuation
- Available with 0.250" Quick Connect Terminals or Wire Leads on the Load Side

## F1500AX/F1500CX Simplified Schematic



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

| 115VAC | 250VAC |
|--------|--------|
| 3A     | 1.5A   |
| 6A     | 3A     |
| 10A    | 6A     |
| 15A    | 8A     |

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

|                |         |
|----------------|---------|
| Line to Ground | 1500VAC |
| Line to Line   | 1768VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

- A: QC – Quick Connect
- B: Wire
- C: IEC Receptacle
- F: IEC Receptacle with Fuse Holder

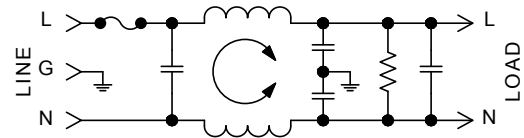
**Maximum Leakage Current:**

| Each Line to Ground | F1500  |
|---------------------|--------|
| 115VAC, 60Hz:       | 0.25mA |
| 250VAC, 50Hz:       | 0.40mA |

**Agency Approvals:**



## F1500FX Simplified Schematic



| Nominal Current Rating | Part Number | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |          |          |          |          |          |
|------------------------|-------------|-----------------------|----------------------------------------------|-----------------|----------|----------|----------|----------|----------|
|                        |             |                       | MODE                                         | Frequency - MHz |          |          |          |          |          |
|                        |             |                       |                                              | .15             | .50      | 1.0      | 5.0      | 10       | 30       |
| 3A                     | F1500AA03   | QC/QC                 | Common<br>Differential                       | 32<br>35        | 43<br>60 | 50<br>65 | 50<br>60 | 50<br>55 | 50<br>40 |
|                        | F1500CA03   | IEC/QC                |                                              |                 |          |          |          |          |          |
|                        | F1500FA03   | Fused IEC/QC          |                                              |                 |          |          |          |          |          |
|                        | F1500CB03   | QC/Wire               |                                              |                 |          |          |          |          |          |
| 6A                     | F1500AA06   | IEC/QC                | Common<br>Differential                       | 32<br>30        | 42<br>60 | 45<br>65 | 45<br>65 | 45<br>60 | 45<br>50 |
|                        | F1500CA06   | Fused IEC/QC          |                                              |                 |          |          |          |          |          |
|                        | F1500FA06   | QC/Wire               |                                              |                 |          |          |          |          |          |
|                        | F1500CB06   |                       |                                              |                 |          |          |          |          |          |
| 10A                    | F1500AA10   | QC/QC                 | Common<br>Differential                       | 29<br>15        | 36<br>50 | 39<br>65 | 45<br>65 | 45<br>60 | 45<br>50 |
|                        | F1500CA10   | IEC/QC                |                                              |                 |          |          |          |          |          |
|                        | F1500FA10   | Fused IEC/QC          |                                              |                 |          |          |          |          |          |
|                        | F1500CB10   |                       |                                              |                 |          |          |          |          |          |
| 15A                    | F1500CA15   | IEC/QC                | Common<br>Differential                       | 26<br>35        | 32<br>60 | 36<br>65 | 44<br>65 | 46<br>65 | 52<br>65 |
|                        | F1500CB15   | IEC/Wire              |                                              |                 |          |          |          |          |          |

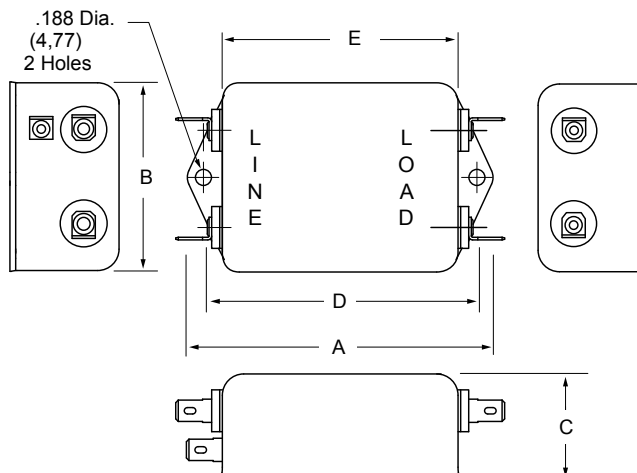
NOTE: Other combinations of terminals may be specified on special order.



## F1500AA (3 and 10Amp) Dimensions

Refer to Page 40  
for Standard  
Mounting Cutouts

| Amps | A              | B               | C              | D               | E              |
|------|----------------|-----------------|----------------|-----------------|----------------|
| 3A   | 3.31<br>(84,1) | 2.000<br>(50,8) | 1.13<br>(28,7) | 2.938<br>(74,6) | 2.50<br>(63,5) |
| 10A  | 3.31<br>(84,1) | 2.000<br>(50,8) | 1.50<br>(38,1) | 2.938<br>(74,6) | 2.50<br>(63,5) |

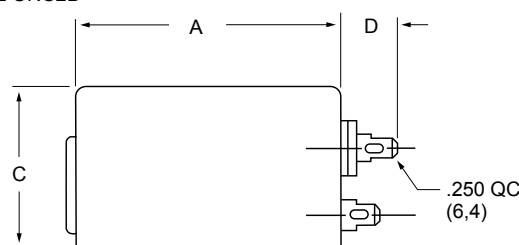
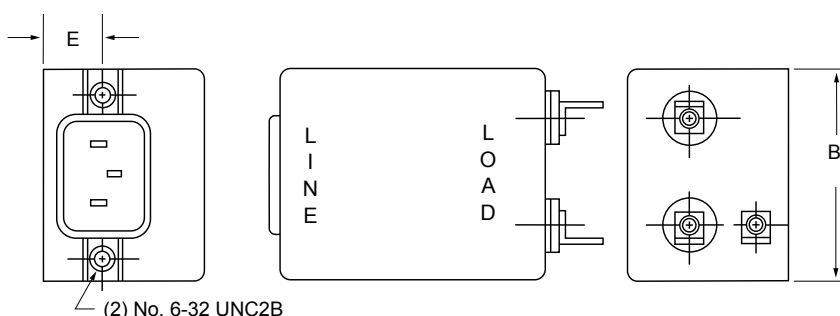


## F1500CA (3, 6, 10 and 15Amp) Dimensions

## F1500CB (3, 6, 10 and 15Amp) Dimensions

Refer to Page 40  
for Standard  
Mounting Cutouts

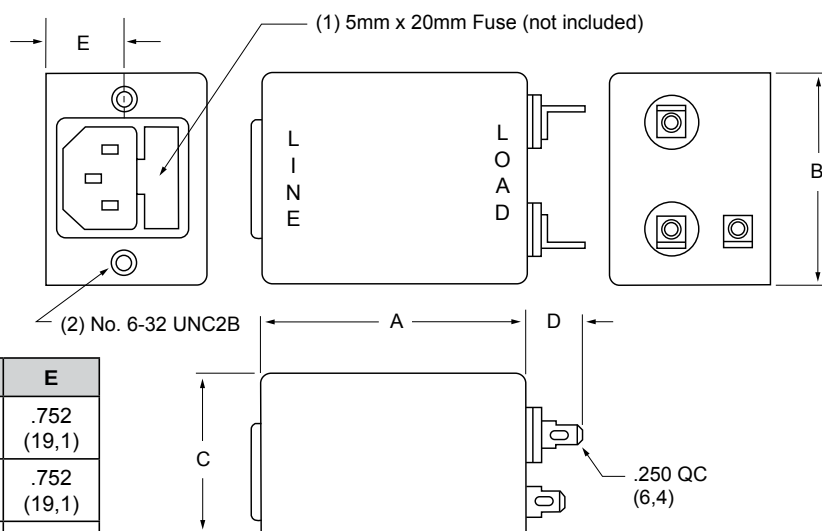
| Amps | A               | B               | C               | D              | E              |
|------|-----------------|-----------------|-----------------|----------------|----------------|
| 3A   | 2.000<br>(50,8) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .565<br>(14,3) |
| 6A   | 2.500<br>(63,5) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .565<br>(14,3) |
| 10A  | 2.500<br>(63,5) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .565<br>(14,3) |
| 15A  | 3.25<br>(82,6)  | 2.25<br>(57,2)  | 1.75<br>(44,5)  | .550<br>(14,0) | .705<br>(17,9) |



## F1500FA (3, 6 and 10Amp) Dimensions

Refer to Page 40  
for Standard  
Mounting Cutouts

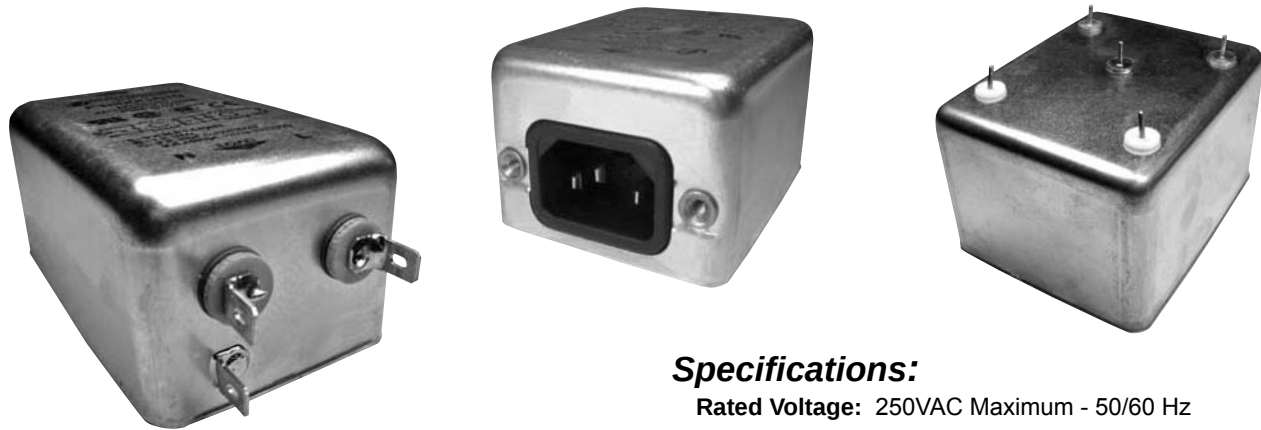
| Amps | A               | B               | C               | D              | E              |
|------|-----------------|-----------------|-----------------|----------------|----------------|
| 3A   | 2.000<br>(50,8) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .752<br>(19,1) |
| 6A   | 2.500<br>(63,5) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .752<br>(19,1) |
| 10A  | 2.500<br>(63,5) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .752<br>(19,1) |



# F1600 RFI Filters

High Performance

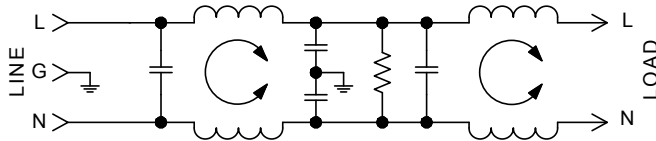
SINGLE PHASE FILTERS



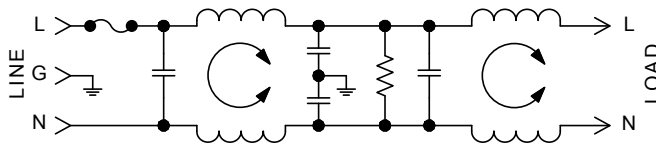
## Features:

- T Section, Dual Coil Design – High Insertion Loss for Switching Power Supply Emissions
- Low-Leakage Current Design
- Space-Efficient with Integral IEC Connector and Compact Case in Current Ratings up to 10Amps
- Available in Fused IEC Connector and PC Mounted Versions

## F1600CX Simplified Schematic



## F1600FA Simplified Schematic



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

| 115VAC | 250VAC |
|--------|--------|
| 3A     | 1.5A   |
| 6A     | 3A     |
| 10A    | 6A     |

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

|                |         |
|----------------|---------|
| Line to Ground | 1500VAC |
| Line to Line   | 1768VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

A: QC – Quick Connect  
B: Wire  
C: IEC Receptacle  
P: PC – P.C. Board

**Maximum Leakage Current:**

| Each Line to Ground | F1600  |
|---------------------|--------|
| 115VAC, 60Hz:       | 0.25mA |
| 250VAC, 50Hz:       | 0.40mA |

**Agency Approvals:**

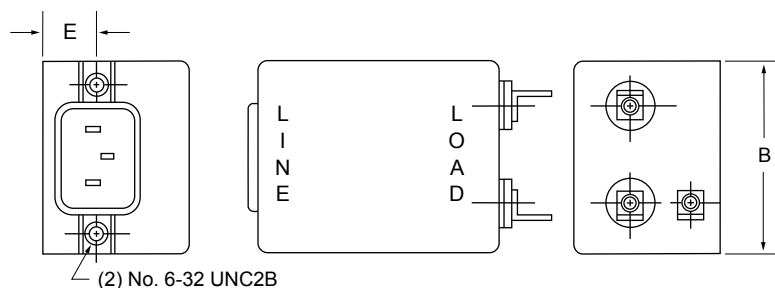


| Nominal Current Rating | Part Number                                      | Termination Line/Load                        | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|--------------------------------------------------|----------------------------------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |                                                  |                                              | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |                                                  |                                              |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | F1600CA03<br>F1600CP03<br>F1600FA03<br>F1600CB03 | IEC/QC<br>IEC/PC<br>Fused IEC/QC<br>IEC/Wire | Common                                       | 52              | 65  | 65  | 65  | 65 | 65 |
|                        |                                                  |                                              | Differential                                 | 40              | 50  | 60  | 65  | 65 | 50 |
| 6A                     | F1600CA06<br>F1600CP06<br>F1600FA06<br>F1600CB06 | IEC/QC<br>IEC/PC<br>Fused IEC/QC<br>IEC/Wire | Common                                       | 45              | 65  | 65  | 65  | 65 | 59 |
|                        |                                                  |                                              | Differential                                 | 30              | 45  | 55  | 50  | 50 | 50 |
| 10A                    | F1600CA10<br>F1600CB10                           | IEC/QC<br>IEC/Wire                           | Common                                       | 50              | 65  | 65  | 65  | 65 | 54 |
|                        |                                                  |                                              | Differential                                 | 23              | 45  | 55  | 50  | 50 | 50 |

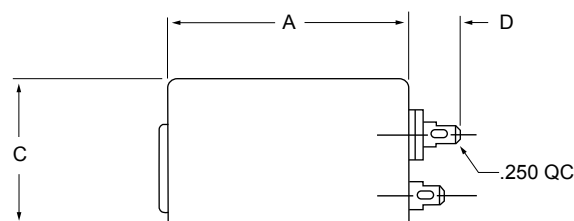
NOTE: Other combinations of terminals may be specified on special order.



## F1600CA (3, 6 and 10Amp) Dimensions F1600CB (3, 6 and 10Amp) Dimensions



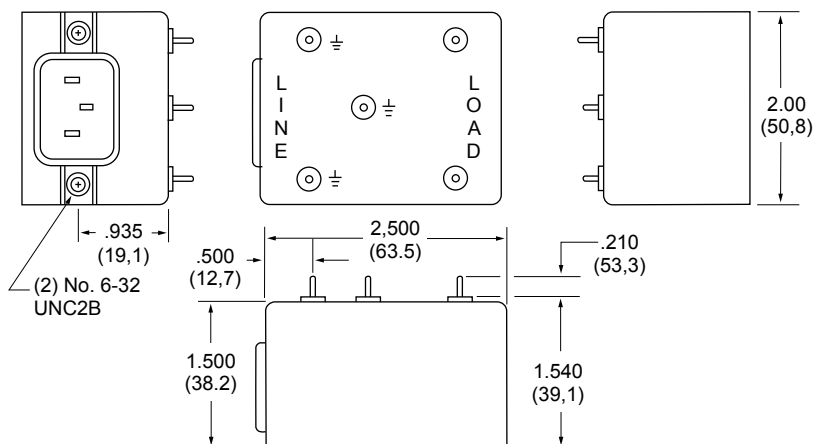
Refer to Page 40  
for Standard  
Mounting Cutouts



| Amps | A               | B               | C               | D              | E              |
|------|-----------------|-----------------|-----------------|----------------|----------------|
| 3A   | 2.500<br>(63,5) | 2.000<br>(50,8) | 1.500<br>(38,2) | .550<br>(14,0) | .565<br>(14,3) |
| 6A   | 2.500<br>(63,5) | 2.000<br>(50,8) | 1.500<br>(38,2) | .550<br>(14,0) | .565<br>(14,3) |
| 10A  | 3.750<br>(95,2) | 2.250<br>(57,2) | 1.750<br>(44,5) | .550<br>(14,0) | .640<br>(16,3) |

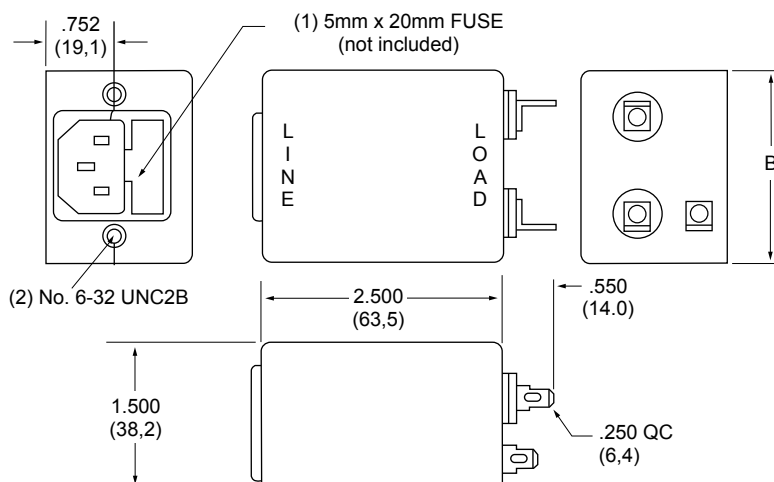
## F1600CP (3 and 6Amp) Dimensions

Refer to Page 40  
for Standard  
Mounting Cutouts



## F1600FA (3 and 6Amp) Dimensions

Refer to Page 40  
for Standard  
Mounting Cutouts



# F1700/F1799 RFI Filters

## Features:

- General Purpose — Designed for Applications with Higher Differential Mode Noise
- Higher Line-to-Line Capacitance for Protection from Pulsed, Intermittent or Continuous RFI
- A Cost-Effective Replacement for Independent Coil Design in Many SMPS Applications
- Available with Integral IEC Connector



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

| Rated Current: | 115VAC | 250VAC |
|----------------|--------|--------|
|                | 3A     | 2.5A   |
|                | 6A     | 4A     |
|                | 10A    | 6A     |
|                | 20A    | 10A    |
|                | 30A    | 15A    |

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

|                |         |
|----------------|---------|
| Line to Ground | 1500VAC |
| Line to Line   | 1768VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

|                       |                   |
|-----------------------|-------------------|
| A: QC – Quick Connect | C: IEC Receptacle |
| B: Wire               | D: Screw          |

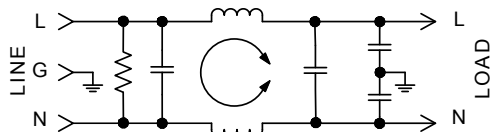
**Maximum Leakage Current:**

|                     | F1700  | F1710 | F1720  | F1740  | F1799  |
|---------------------|--------|-------|--------|--------|--------|
| Each Line to Ground |        |       |        |        |        |
| 115VAC, 60Hz:       | 0.40mA | .15mA | .002mA | .060mA | 0.25mA |
| 250VAC, 50Hz:       | 0.75mA | .25mA | .005mA | .120mA | 0.45mA |

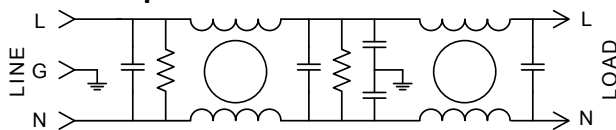
**Agency Approvals:**



## F1700 Simplified Schematic



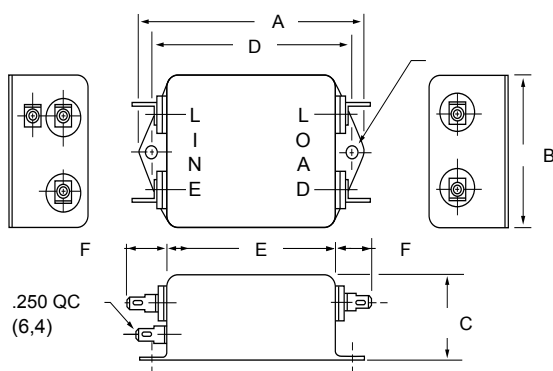
## F1799 Simplified Schematic



| Nominal Current Rating | Part Number                         | Termination Line/Load        | MODE                   | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |          |          |          |          |          |
|------------------------|-------------------------------------|------------------------------|------------------------|----------------------------------------------|----------|----------|----------|----------|----------|
|                        |                                     |                              |                        | .15                                          | .50      | 1.0      | 5.0      | 10       | 30       |
| 3A                     | F1700AA03<br>F1700BB03<br>F1700CA03 | QC/QC<br>Wire/Wire<br>IEC/QC | Common<br>Differential | 20<br>25                                     | 35<br>60 | 43<br>65 | 52<br>65 | 55<br>50 | 50<br>50 |
|                        | F1710AA03                           | QC/QC                        | Common<br>Differential | 20<br>25                                     | 34<br>60 | 40<br>65 | 45<br>65 | 45<br>50 | 40<br>50 |
|                        | F1720AA03                           | QC/QC                        | Common<br>Differential | 20<br>35                                     | 32<br>60 | 35<br>65 | 35<br>60 | 35<br>55 | 40<br>40 |
|                        | F1740AA03                           | QC/QC                        | Common<br>Differential | 20<br>35                                     | 30<br>60 | 35<br>65 | 35<br>60 | 35<br>55 | 40<br>40 |
| 6A                     | F1700AA06<br>F1700BB06<br>F1700CA06 | QC/QC<br>Wire/Wire<br>IEC/QC | Common<br>Differential | 10<br>15                                     | 22<br>50 | 30<br>65 | 46<br>60 | 50<br>60 | 45<br>60 |
| 10A                    | F1700AA10<br>F1700BB10<br>F1700CA10 | QC/QC<br>Wire/Wire<br>IEC/QC | Common<br>Differential | 10<br>20                                     | 22<br>45 | 30<br>60 | 46<br>65 | 50<br>60 | 45<br>55 |
| 20A                    | F1700AA20                           | QC/QC<br>Screw/Screw         | Common<br>Differential | 10<br>15                                     | 22<br>45 | 30<br>60 | 42<br>65 | 47<br>60 | 40<br>55 |
|                        | F1700DD20<br>F1720DD20              | Screw/Screw                  | Common<br>Differential | 10<br>15                                     | 22<br>45 | 30<br>60 | 42<br>65 | 47<br>60 | 52<br>55 |
| 30A                    | F1700DD30                           | Screw/Screw                  | Common<br>Differential | 7<br>15                                      | 15<br>45 | 20<br>60 | 34<br>65 | 42<br>60 | 40<br>55 |
|                        | F1799DD30                           | Screw/Screw                  | Common<br>Differential | 10<br>15                                     | 45<br>65 | 55<br>65 | 60<br>65 | 60<br>60 | 50<br>55 |

NOTE: Other combinations of terminals may be specified on special order.

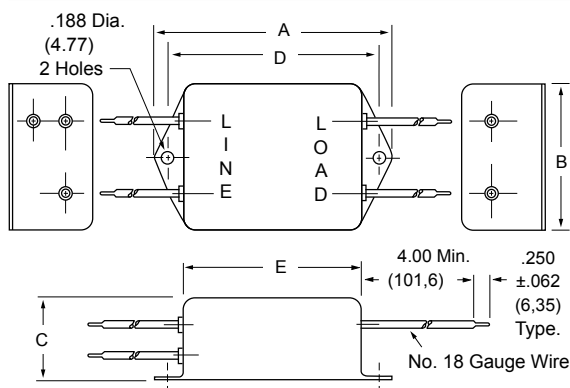


**F1700AA, 1710, 1720, 1740 (3, 6 and 10Amp) Dimensions**

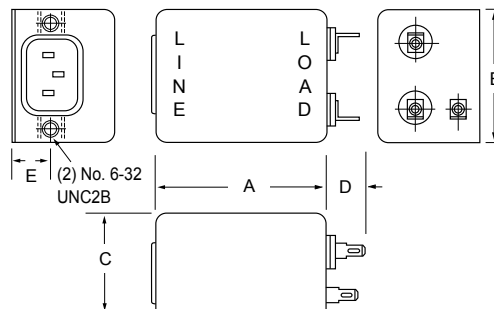
| Amps | A                                | B               | C               | D               | E               | F              |
|------|----------------------------------|-----------------|-----------------|-----------------|-----------------|----------------|
| 3A   | 2.750<br>(69,8)                  | 1.750<br>(44,4) | 1.125<br>(28,5) | 2.375<br>(60,3) | 2.000<br>(50,8) | .550<br>(14,0) |
| 6A   | 3.312<br>(84,1)                  | 2.000<br>(50,8) | 1.125<br>(28,5) | 2.940<br>(74,7) | 2.500<br>(63,5) | .550<br>(14,0) |
| 10A  | 3.312<br>(84,1)                  | 2.000<br>(50,8) | 1.500<br>(38,2) | 2.940<br>(74,7) | 2.500<br>(63,5) | .550<br>(14,0) |
| 20A  | See 1700DD20 for Case Dimensions |                 |                 |                 |                 |                |

**F1700BB (3, 6 and 10Amp) Dimensions**

| Amps | A               | B               | C               | D               | E               |
|------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 3A   | 2.750<br>(69,8) | 1.750<br>(44,4) | 1.125<br>(28,5) | 2.375<br>(60,3) | 2.000<br>(50,8) |
| 6A   | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.125<br>(28,5) | 2.940<br>(74,7) | 2.500<br>(63,5) |
| 10A  | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,1) | 2.940<br>(74,7) | 2.500<br>(63,5) |

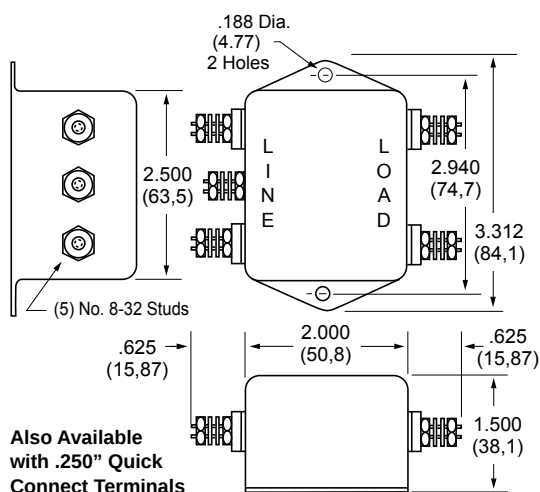
**F1700CA**

(3, 6 and 10Amp)  
Dimensions



Refer to Page 40  
for Standard  
Mounting Cutouts

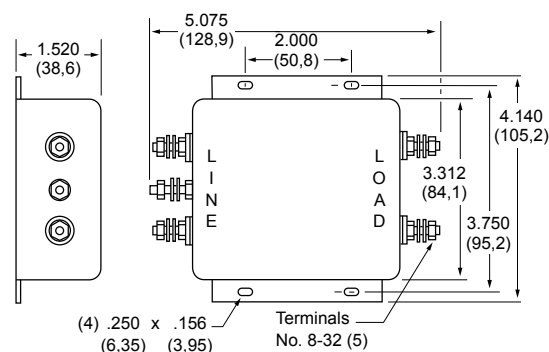
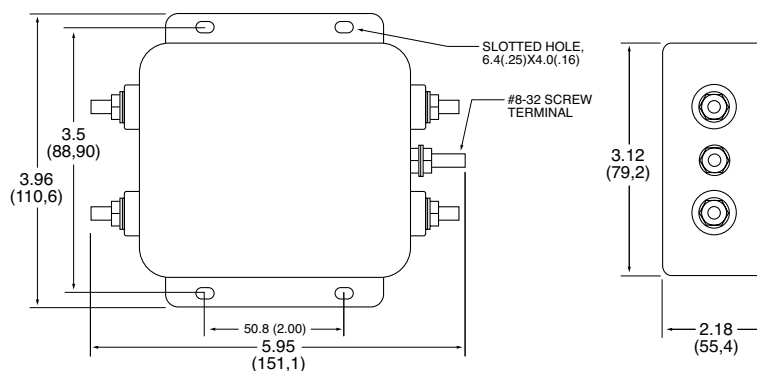
| Amps | A               | B               | C               | D              | E              |
|------|-----------------|-----------------|-----------------|----------------|----------------|
| 3A   | 2.000<br>(50,8) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .565<br>(14,3) |
| 6A   | 2.500<br>(63,5) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .565<br>(14,3) |
| 10A  | 2.500<br>(63,5) | 2.000<br>(50,8) | 1.500<br>(38,1) | .550<br>(14,0) | .565<br>(14,3) |

**F1700DD20 (20Amp) Dimensions**

Also Available  
with .250" Quick  
Connect Terminals

**F1700DD30**

(30Amp)  
Dimensions

**F1799DD (30Amp) Dimensions**

# F1760/F1770/F1780 RFI Filters

High Performance

SINGLE PHASE FILTERS



## Features:

- Designed for Applications Where Switching Power Supplies, SCR's and TTL Circuits Are Utilized
- Protection from Pulsed, Intermittent or Continuous RFI
- Effective CM and DM Suppression for Most FCC VDE Requirements Down to 150KHz
- Available in Stud and Quick Connect Terminal Versions

## Specifications:

**Rated Voltage:** 250VAC, Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
20A 14A

**Current Overload:** 6X for 8 seconds

### Hi-Pot Test (1 min):

Line to Ground 1500VAC  
Line to Line 1768VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

### Termination:

A: QC – Quick Connect  
D: Screw

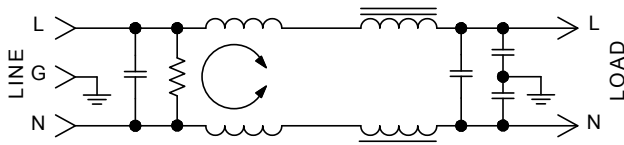
### Maximum Leakage Current:

Each Line to Ground **F1760/1770/1780**  
115VAC, 60Hz: 0.5mA  
250VAC, 50Hz: 1.0mA

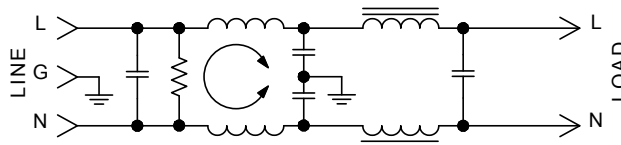
### Agency Approvals:



## F1760 Simplified Schematic

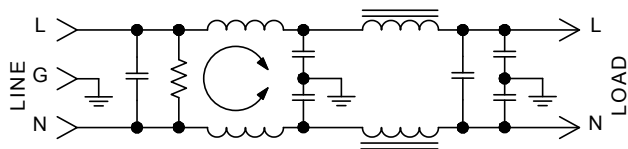


## F1770 Simplified Schematic



| Nominal Current Rating | Part Number | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |    |
|------------------------|-------------|-----------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|----|
|                        |             |                       | MODE                                         | Frequency - MHz |     |     |     |    |    |    |
|                        |             |                       |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 20 | 30 |
| 3A                     | F1760AA03   | QC/QC                 | Common                                       | 15              | 30  | 40  | 45  | 50 | 45 | 45 |
|                        | F1760DD03   | Screw/Screw           | Differential                                 | 40              | 65  | 65  | 60  | 55 | 55 | 55 |
|                        | F1780AA03   | QC/QC                 | Common                                       | 13              | 25  | 40  | 60  | 60 | 55 | 50 |
|                        | F1780DD03   | Screw/Screw           | Differential                                 | 40              | 65  | 65  | 62  | 55 | 45 | 45 |
| 6A                     | F1760AA06   | QC/QC                 | Common                                       | 15              | 30  | 35  | 35  | 44 | 43 | 42 |
|                        | F1760DD06   | Screw/Screw           | Differential                                 | 40              | 65  | 65  | 65  | 53 | 52 | 50 |
|                        | F1780AA06   | QC/QC                 | Common                                       | 13              | 30  | 40  | 65  | 65 | 53 | 48 |
|                        | F1780DD06   | Screw/Screw           | Differential                                 | 40              | 65  | 65  | 62  | 55 | 45 | 45 |
| 10A                    | F1760AA10   | QC/QC                 | Common                                       | 15              | 30  | 35  | 50  | 50 | 40 | 40 |
|                        | F1760DD10   | Screw/Screw           | Differential                                 | 40              | 65  | 65  | 55  | 50 | 50 | 50 |
|                        | F1780AA10   | QC/QC                 | Common                                       | 13              | 20  | 35  | 65  | 65 | 55 | 50 |
|                        | F1780DD10   | Screw/Screw           | Differential                                 | 40              | 65  | 65  | 62  | 55 | 45 | 45 |
| 20A                    | F1760AA20   | QC/QC                 | Common                                       | 12              | 25  | 31  | 42  | 47 | 50 | 40 |
|                        | F1760DD20   | Screw/Screw           | Differential                                 | 41              | 65  | 65  | 65  | 60 | 60 | 55 |
|                        | F1780AA20   | QC/QC                 | Common                                       | 12              | 30  | 32  | 60  | 60 | 60 | 55 |
|                        | F1780DD20   | Screw/Screw           | Differential                                 | 41              | 65  | 65  | 65  | 60 | 60 | 55 |

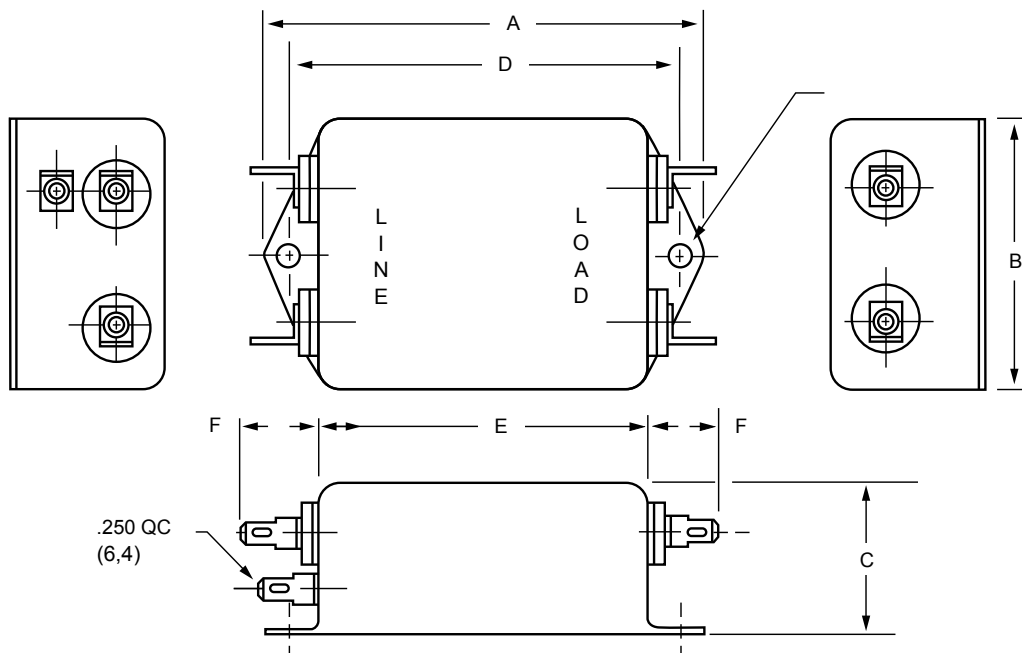
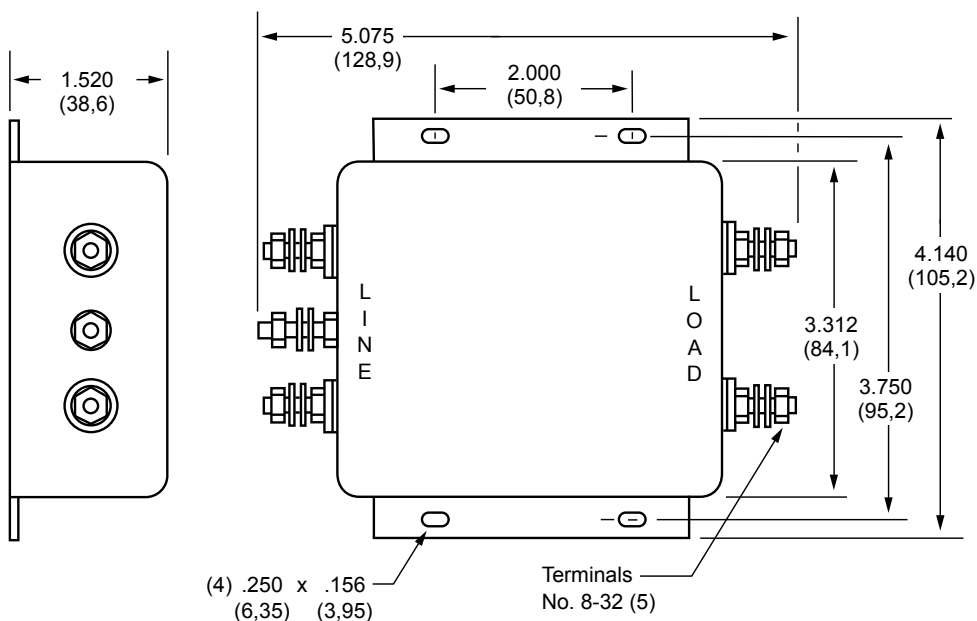


**F1780 Simplified Schematic**

| Amps | A               | B               | C               | D               | E               | F              |
|------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|
| 3A   | 2.750<br>(69,8) | 1.750<br>(44,4) | 1.125<br>(28,5) | 2.375<br>(60,3) | 2.000<br>(50,8) | .550<br>(14,0) |
| 6A   | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,2) | 2.940<br>(74,7) | 2.500<br>(63,5) | .550<br>(14,0) |
| 10A  | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,2) | 2.940<br>(74,7) | 2.500<br>(63,5) | .550<br>(14,0) |

**F1760/F1770/1780AA**

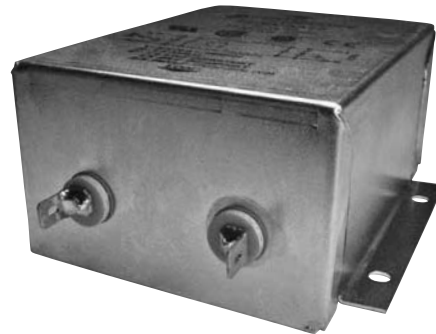
(3, 6, and 10Amp) Dimensions

**F1760/F1770/1780 (20Amp Only) Dimensions**

# F2800 RFI Filters

High Performance

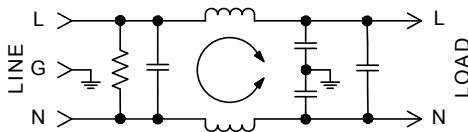
SINGLE PHASE FILTERS



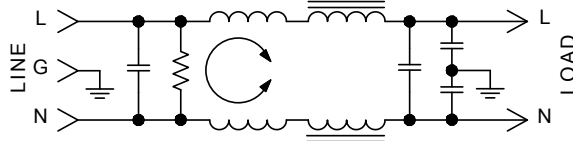
## Features:

- Designed for VDE "A" and FCC "B" Switching Power Supply Applications
- Low-Leakage Current
- Compact Case Sizes in Current Ratings up to 15A
- Effective Reduction of Common Mode and Differential Mode Noise from 100KHz to 30MHz

## F2800 Simplified Schematic 3 & 6Amp



## F2800 Simplified Schematic 10 & 15Amp



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

|                       |        |        |
|-----------------------|--------|--------|
| <b>Rated Current:</b> | 115VAC | 250VAC |
|                       | 3A     | 1.5A   |
|                       | 6A     | 4A     |
|                       | 10A    | 6A     |
|                       | 15A    | 12A    |

**Current Overload:** 6X for 8 seconds

### Hi-Pot Test (1 min):

|                |         |
|----------------|---------|
| Line to Ground | 1500VAC |
| Line to Line   | 1768VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

### Termination:

A: QC – Quick Connect  
B: Wire

### Maximum Leakage Current:

|                     |              |
|---------------------|--------------|
| Each Line to Ground | <b>F2800</b> |
| 115VAC, 60Hz:       | 0.25mA       |
| 250VAC, 50Hz:       | 0.40mA       |

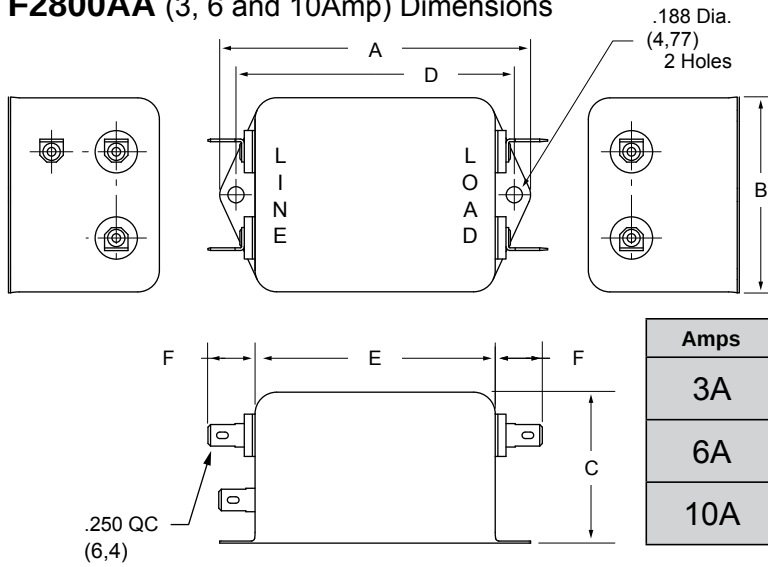
### Agency Approvals:



| Nominal Current Rating | Part Number            | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |     |     |    |    |
|------------------------|------------------------|-----------------------|----------------------------------------------|-----------------|-----|-----|-----|-----|-----|----|----|
|                        |                        |                       | MODE                                         | Frequency - MHz |     |     |     |     |     |    |    |
|                        |                        |                       |                                              | .01             | .05 | .15 | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | F2800AA03<br>F2800BB03 | QC/QC<br>Wire/Wire    | Common                                       | 10              | 30  | 35  | 35  | 35  | 40  | 45 | 50 |
|                        |                        |                       | Differential                                 | 5               | 25  | 50  | 60  | 65  | 50  | 45 | 45 |
| 6A                     | F2800AA06<br>F2800BB06 | QC/QC<br>Wire/Wire    | Common                                       | 5               | 20  | 30  | 35  | 40  | 40  | 40 | 50 |
|                        |                        |                       | Differential                                 | 5               | 10  | 40  | 60  | 60  | 50  | 50 | 45 |
| 10A                    | F2800AA10<br>F2800BB10 | QC/QC<br>Wire/Wire    | Common                                       | 5               | 15  | 25  | 30  | 35  | 40  | 45 | 50 |
|                        |                        |                       | Differential                                 | 7               | 20  | 50  | 60  | 60  | 60  | 60 | 55 |
| 15A                    | F2800AA15<br>F2800BB15 | QC/QC<br>Wire/Wire    | Common                                       | 8               | 21  | 29  | 33  | 36  | 38  | 45 | 50 |
|                        |                        |                       | Differential                                 | 10              | 30  | 70  | 70  | 70  | 70  | 70 | 60 |

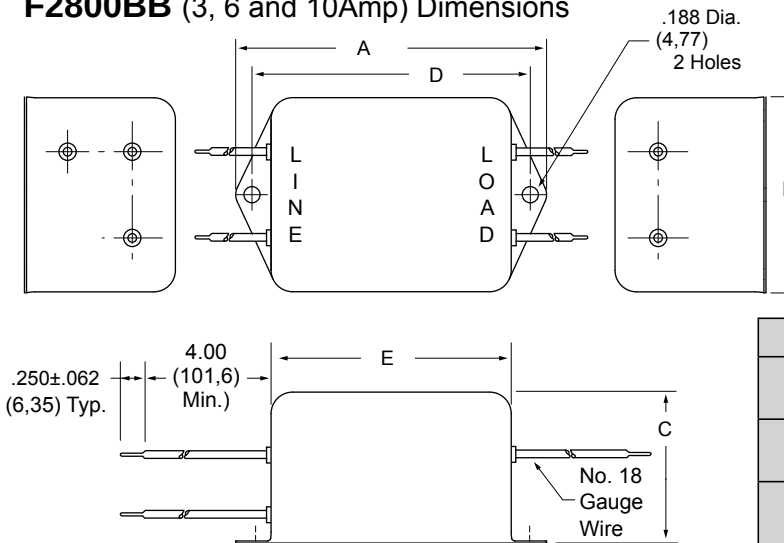


### F2800AA (3, 6 and 10Amp) Dimensions



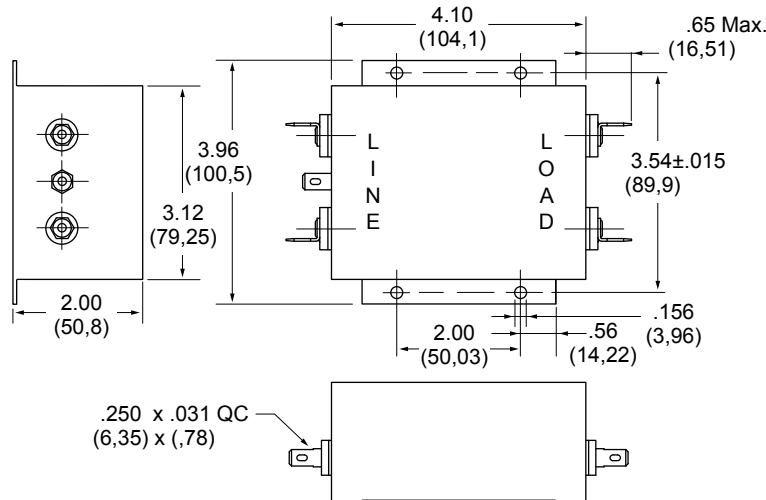
| Amps | A               | B               | C               | D                | E               | F              |
|------|-----------------|-----------------|-----------------|------------------|-----------------|----------------|
| 3A   | 3.310<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,2) | 2.940<br>(74,7)  | 2.500<br>(63,5) | .550<br>(14,0) |
| 6A   | 3.310<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,2) | 2.940<br>(74,7)  | 2.500<br>(63,5) | .550<br>(14,0) |
| 10A  | 4.44<br>(113)   | 2.250<br>(57,1) | 1.750<br>(44,4) | 4.063<br>(103,2) | 3.630<br>(92,2) | .650<br>(16,5) |

### F2800BB (3, 6 and 10Amp) Dimensions

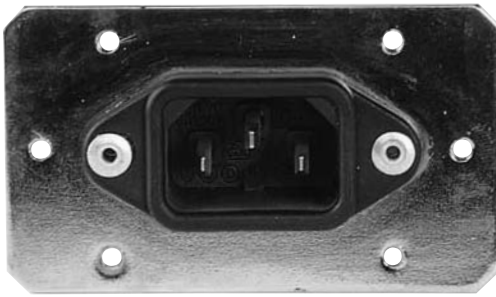


| Amps | A               | B               | C               | D                | E               |
|------|-----------------|-----------------|-----------------|------------------|-----------------|
| 3A   | 3.310<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,1) | 2.940<br>(74,7)  | 2.500<br>(63,5) |
| 6A   | 3.310<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,1) | 2.940<br>(74,7)  | 2.500<br>(63,5) |
| 10A  | 4.690<br>(119)  | 2.250<br>(57,1) | 1.750<br>(44,4) | 4.063<br>(103,2) | 3.630<br>(92,2) |

### F2800AA F2800BB (15Amp) Dimensions



# F5100 RFI Filters



Ideal for Linear Power Supplies in Digital Equipment

## Features:

- General Purpose Filter with Extended High-Frequency Insertion Loss Characteristics
- Effective Suppression of Incoming Common Mode and Differential Mode Noise
- Low-Profile Package with Integral IEC Connector
- Available in 3, 6 and 10Amp Ratings

| Nominal Current Rating | Part Number | Termination Line/Load |
|------------------------|-------------|-----------------------|
| 3A                     | F5100CG03   | IEC/ Solder Tab       |
| 6A                     | F5100CG06   | IEC/ Solder Tab       |
| 10A                    | F5100CG10   | IEC/ Solder Tab       |

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

|        |        |
|--------|--------|
| 115VAC | 250VAC |
| 3A     | 1.5A   |
| 6A     | 4A     |
| 10A    | 6A     |

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

|                |         |
|----------------|---------|
| Line to Ground | 1400VDC |
| Line to Line   | 1450VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

C: IEC Receptacle  
G: Wire Wrap/Solder

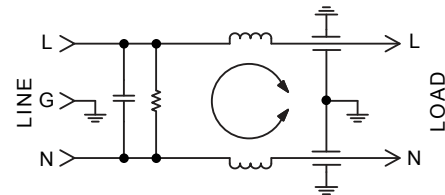
**Maximum Leakage Current:**

|                     |              |
|---------------------|--------------|
| Each Line to Ground | <b>F5100</b> |
| 115VAC, 60Hz:       | 0.25mA       |
| 250VAC, 60Hz:       | 0.50mA       |

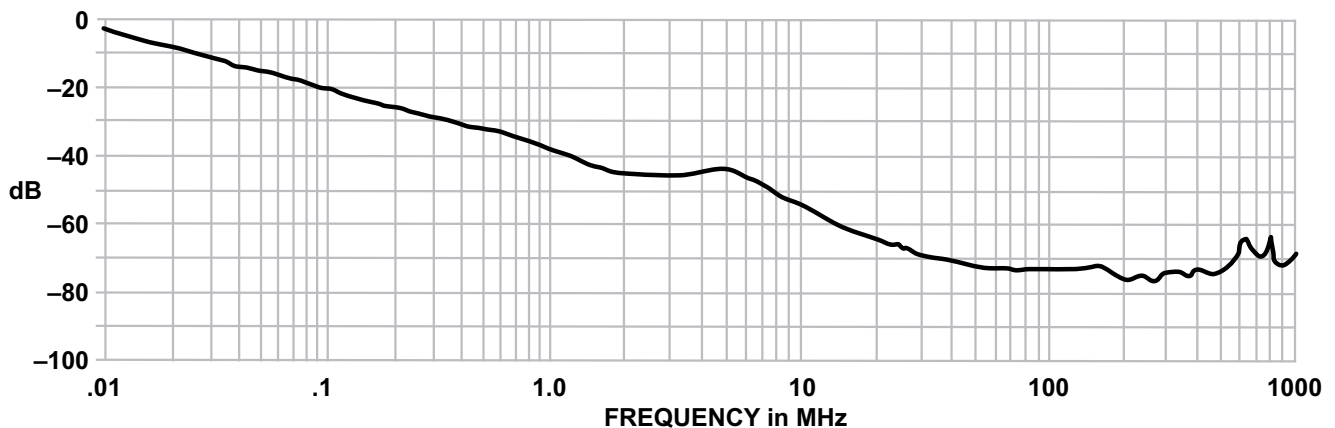
**Agency Approvals:**



## F5100 Simplified Schematic

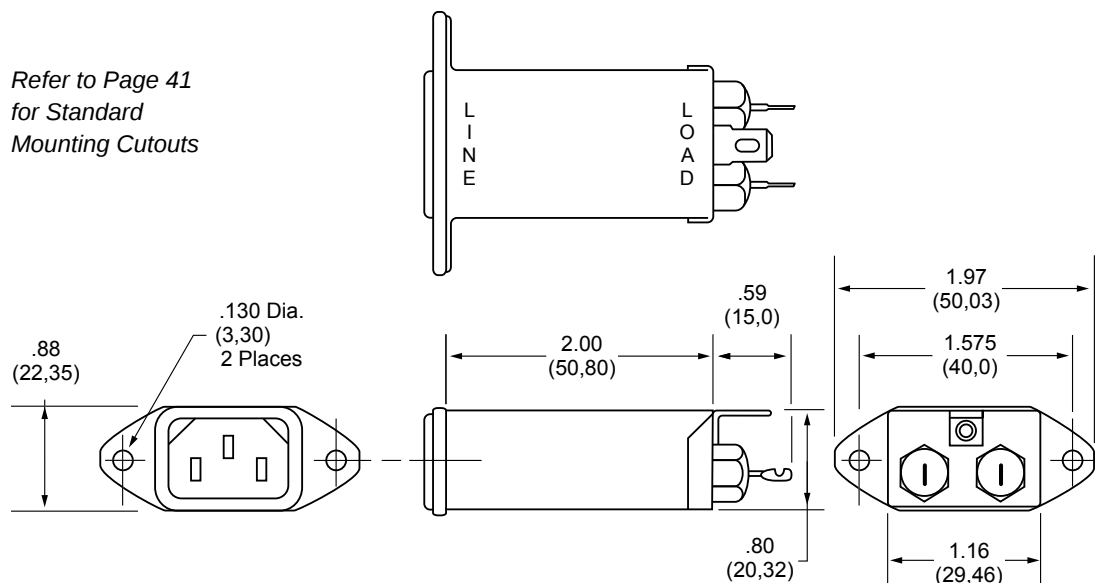


**F5100 SERIES  
TYPICAL COMMON MODE  
INSERTION LOSS — dB  
(50 OHM CIRCUIT)**

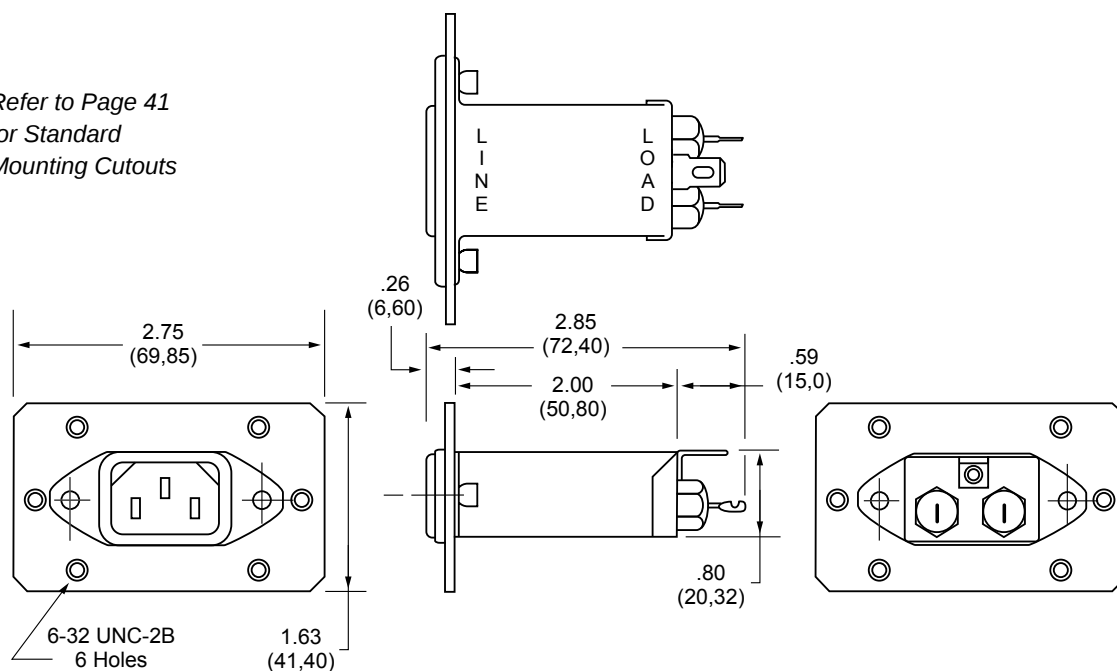


**F5100CG** (3, 6 and 10Amp) Dimensions

Refer to Page 41  
for Standard  
Mounting Cutouts

**F5101CG** (3, 6 and 10Amp) Dimensions with attached mounting plate

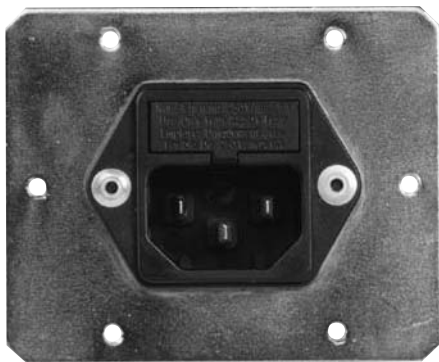
Refer to Page 41  
for Standard  
Mounting Cutouts



# F5200 RFI Filters

Wide Band

SINGLE PHASE FILTERS



Ideal for Linear Power Supplies in Digital Equipment

## Features:

- General Purpose Filter with Extended High-Frequency Insertion Loss Characteristics
- Effective Suppression of Incoming Common Mode and Differential Mode Noise
- Low-Profile Package with Integral IEC Connector
- Available in 3 and 6Amp Ratings

| Nominal Current Rating | Part Number | Termination Line/Load    |
|------------------------|-------------|--------------------------|
| 3A                     | F5200FG03   | Fused IEC/<br>Solder Tab |
| 6A                     | F5200FG06   | Fused IEC/<br>Solder Tab |

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
3A 1.5A  
6A 4A

**Current Overload:** 6X for 8 seconds

### Hi-Pot Test (1 min):

Line to Ground 1400VDC

Line to Line 1450VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

### Termination:

F: Fused IEC Receptacle

G: Wire Wrap/Solder

### Maximum Leakage Current:

Each Line to Ground **F5200**

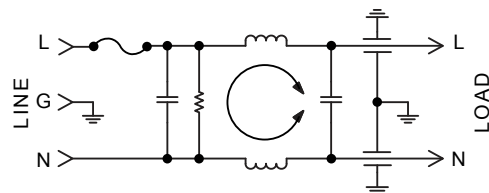
115VAC, 60Hz: 0.25mA

250VAC, 60Hz: 0.50mA

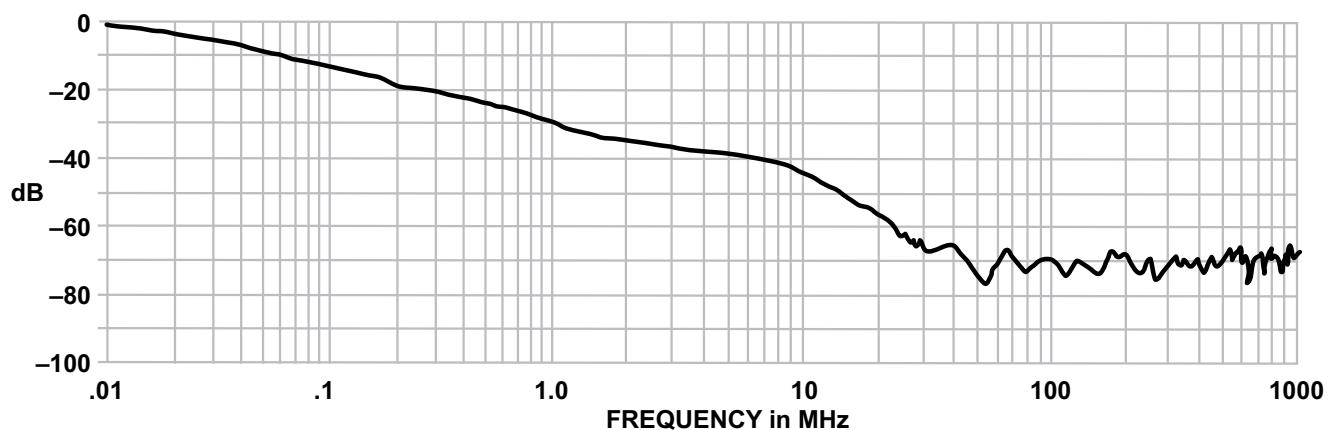
### Agency Approvals:



## F5200 Simplified Schematic

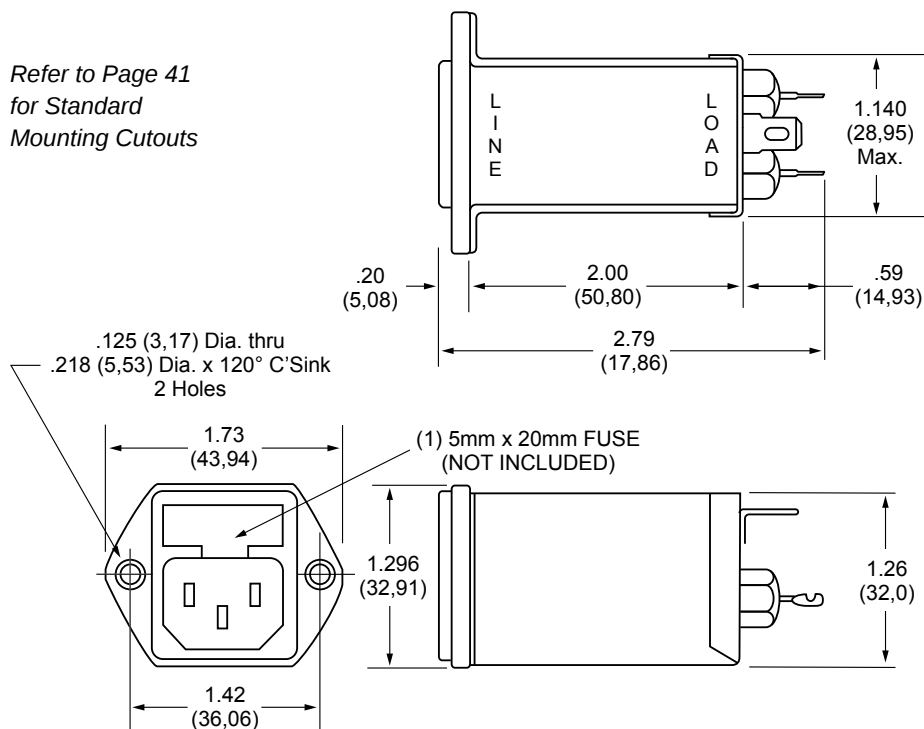


## F5200 SERIES TYPICAL COMMON MODE INSERTION LOSS — dB (50 OHM CIRCUIT)



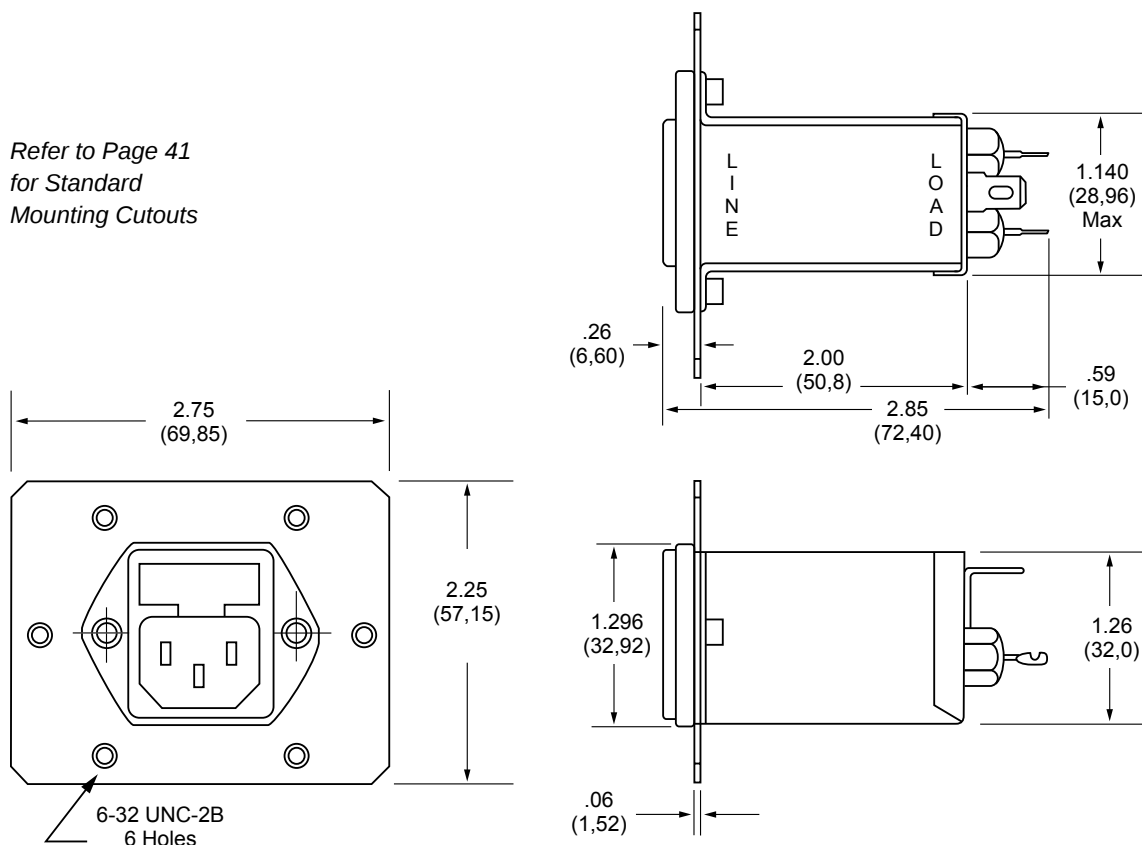
## F5200FG (3 and 6Amp) Dimensions

Refer to Page 41  
for Standard  
Mounting Cutouts



## F5201FG (3 and 6Amp) Dimensions with attached mounting plate

Refer to Page 41  
for Standard  
Mounting Cutouts



# F5500 RFI Filters

Wide Band

SINGLE PHASE FILTERS

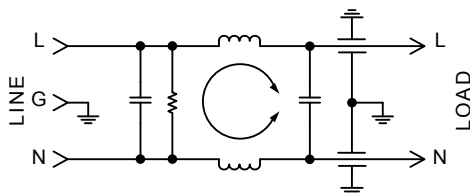


Ideal for Linear and Switching Power Supplies

## Features:

- FCC and VDE Level "A" Applications
- High Inductance Single Coil Design Provides High Common Mode and Differential Mode Performance Above 150KHz
- High-Frequency Construction Techniques Maintain >50dB Insertion Loss from 10MHz to 1GHz
- Compact, Space-Saving Package Available in 3, 6 and 10-Amp Ratings

## F5500 Simplified Schematic



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

| 115VAC | 250VAC |
|--------|--------|
| 3A     | 3A     |
| 6A     | 4A     |
| 10A    | 6A     |

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

|                |         |
|----------------|---------|
| Line to Ground | 1400VDC |
| Line to Line   | 1450VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

C: IEC Receptacle  
G: Wire Wrap/Solder

**Maximum Leakage Current:**

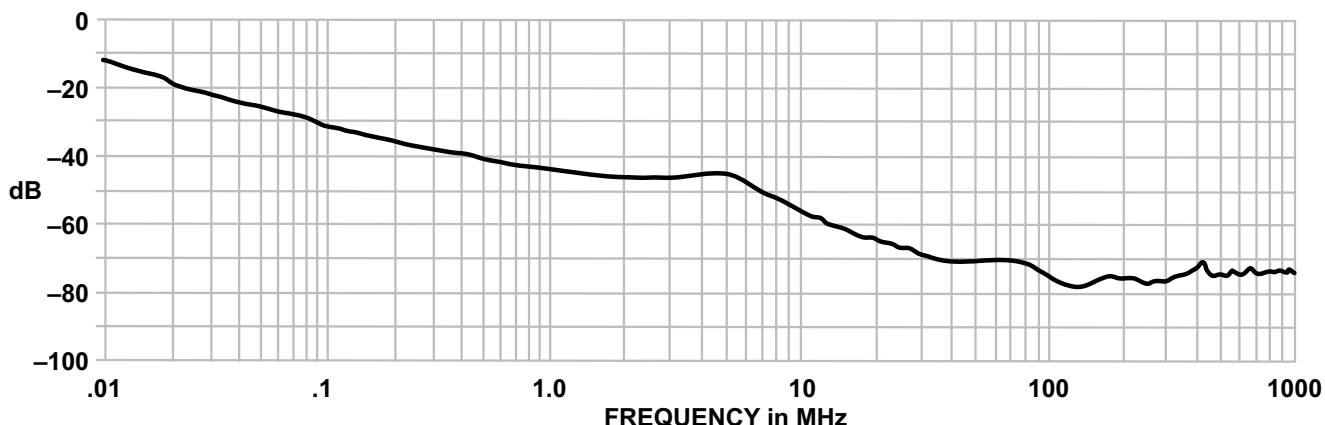
| Each Line to Ground | F5500  |
|---------------------|--------|
| 115VAC, 60Hz:       | 0.25mA |
| 250VAC, 60Hz:       | 0.50mA |

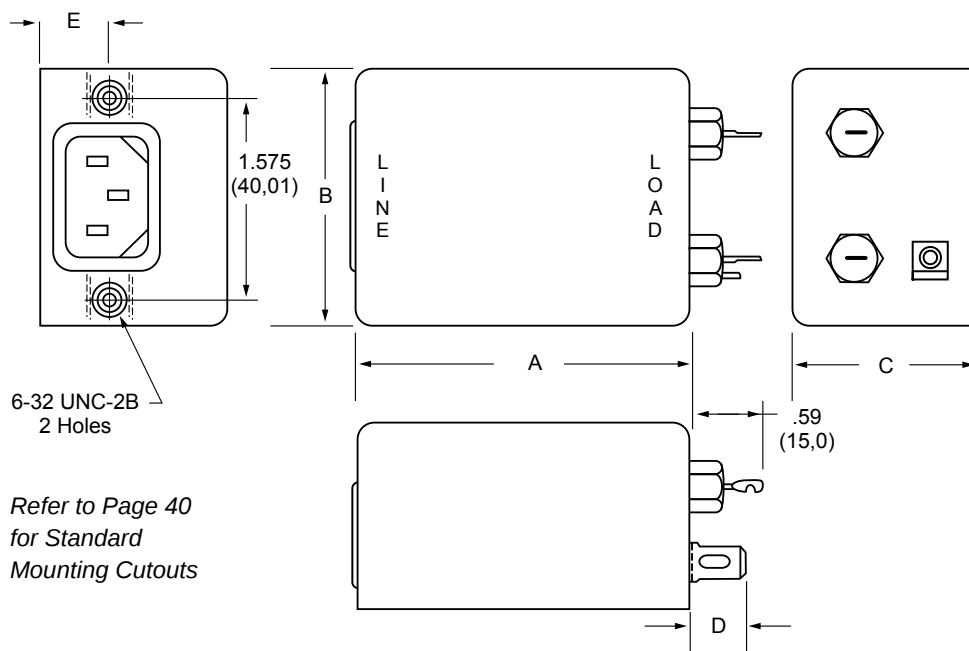
**Agency Approvals:**



| Nominal Current Rating | Part Number | Termination Line/Load |
|------------------------|-------------|-----------------------|
| 3A                     | F5500CG03   | IEC/<br>Solder Tab    |
| 6A                     | F5500CG06   | IEC/<br>Solder Tab    |
| 10A                    | F5500CG10   | IEC/<br>Solder Tab    |

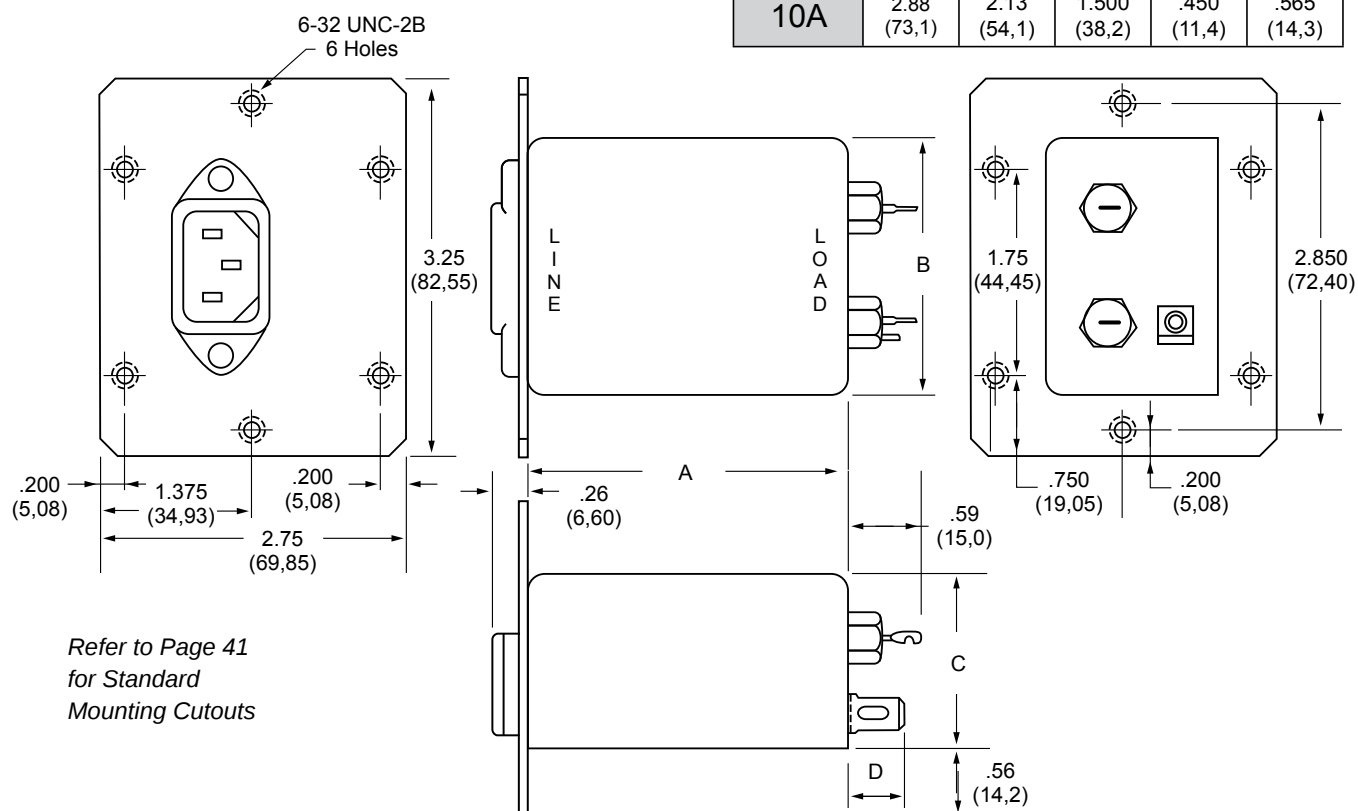
**F5500 SERIES  
TYPICAL COMMON MODE  
INSERTION LOSS — dB  
(50 OHM CIRCUIT)**



**F5500CG** (3, 6 and 10Amp) Dimensions

Refer to Page 40  
for Standard  
Mounting Cutouts

| Amps | A               | B               | C               | D              | E              |
|------|-----------------|-----------------|-----------------|----------------|----------------|
| 3A   | 2.000<br>(50,8) | 2.000<br>(50,8) | 1.500<br>(38,2) | .450<br>(11,4) | .565<br>(14,3) |
| 6A   | 2.88<br>(73,1)  | 2.13<br>(54,1)  | 1.500<br>(38,2) | .450<br>(11,4) | .565<br>(14,3) |
| 10A  | 2.88<br>(73,1)  | 2.13<br>(54,1)  | 1.500<br>(38,2) | .450<br>(11,4) | .565<br>(14,3) |

**F5501CG** (3, 6 and 10Amp) Dimensions  
with attached mounting plate

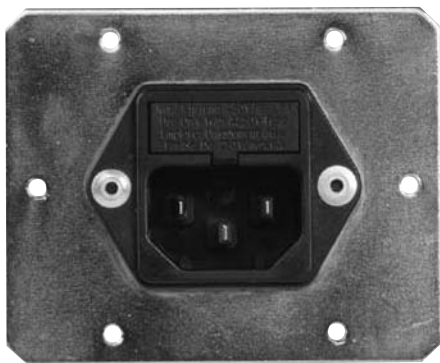
Refer to Page 41  
for Standard  
Mounting Cutouts



# F5600 RFI Filters

Wide Band

SINGLE PHASE FILTERS



## Features:

- Suited for FCC "B" and VDE "A" Switching Power Supply Applications
- High Inductance, Multi-Stage Design with High Common Mode and Differential Mode Insertion Loss for Switching Power Supply Emissions
- >70dB Insertion Loss from 200KHz to 1GHz
- Compact, Space-Efficient Package Available in 3 and 6Amp Ratings

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
3A 1.5A  
6A 4A

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

Line to Ground 1400VDC

Line to Line 1450VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

C: IEC Receptacle

F: Fused IEC Receptacle

G: Wire Wrap/Solder

**Termination:** Quick Connect

**Maximum Leakage Current:**

Each Line to Ground **F5600**

115VAC, 60Hz: 0.50mA

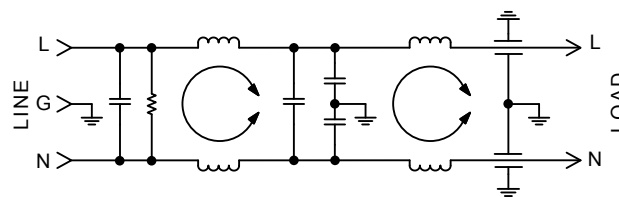
250VAC, 60Hz: 1.20mA

**Agency Approvals:**

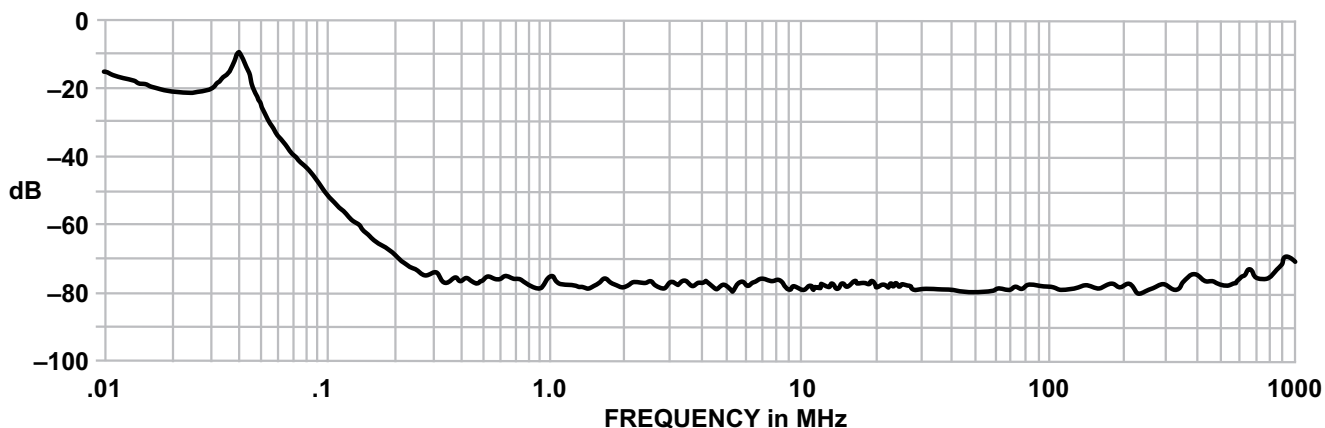


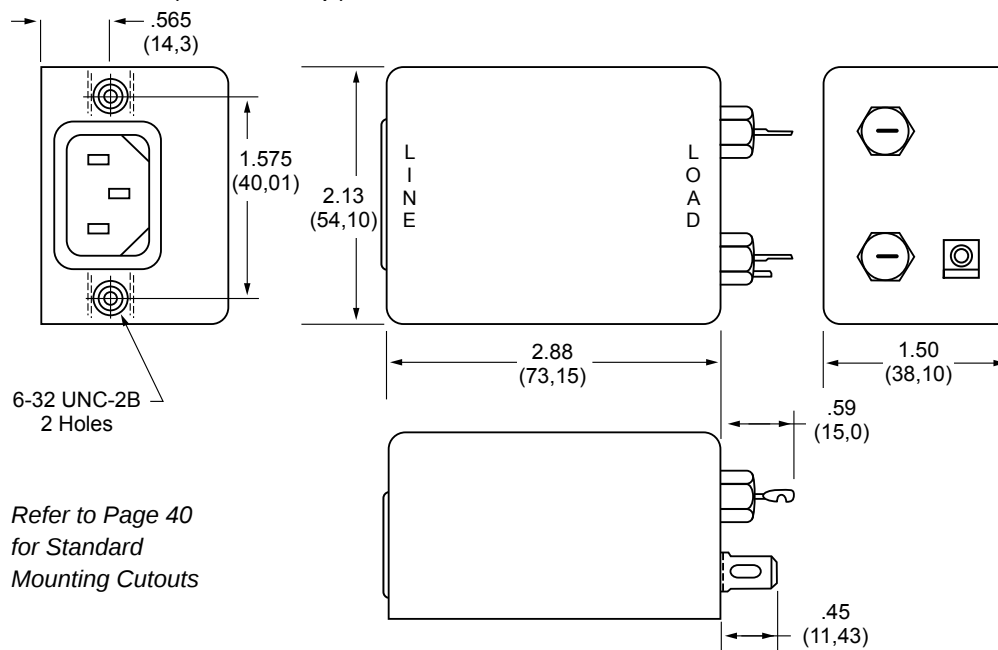
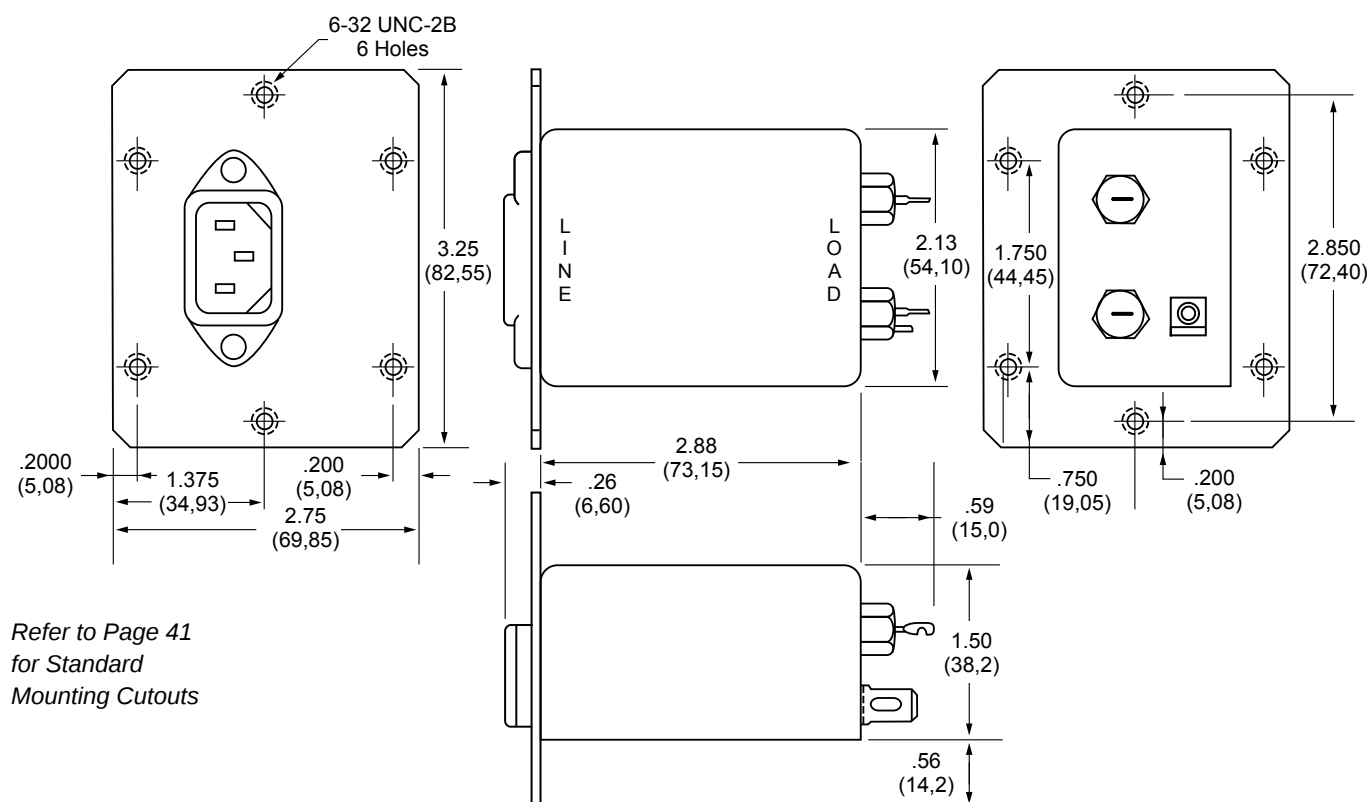
| Nominal Current Rating | Part Number | Termination Line/Load |
|------------------------|-------------|-----------------------|
| 3A                     | F5600CG03   | IEC/Solder Tab        |
|                        | F5600FG03   | Fused IEC/Solder Tab  |
| 6A                     | F5600CG06   | IEC/Solder Tab        |
|                        | F5600FG06   | Fused IEC/Solder Tab  |

## F5600 Simplified Schematic



## F5600 SERIES TYPICAL COMMON MODE INSERTION LOSS — dB (50 OHM CIRCUIT)



**F5600CG (3 and 6Amp) Dimensions****F5601CG (3 and 6Amp) Dimensions with attached mounting plate**

# F5700 RFI Filters

Wide Band

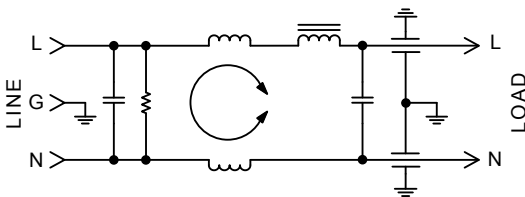
SINGLE PHASE FILTERS



## Features:

- Ideal for VDE "B" and MIL-STD-461 Switching Power Supply Applications
- Very High Inductance Design with Differential Mode Choke to Provide Improved Performance Below 100KHz
- Wide-Band Insertion Loss >60dB from 10MHz to 1GHz
- Compact, Space-Efficient Package Available in 3 and 6Amp Ratings

## F5700 Simplified Schematic



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
3A 2A  
6A 4A

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

Line to Ground 1400VDC

Line to Line 1450VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

C: IEC Receptacle

G: Wire Wrap/Solder

**Maximum Leakage Current:**

Each Line to Ground **F5700**

115VAC, 60Hz: 0.50mA

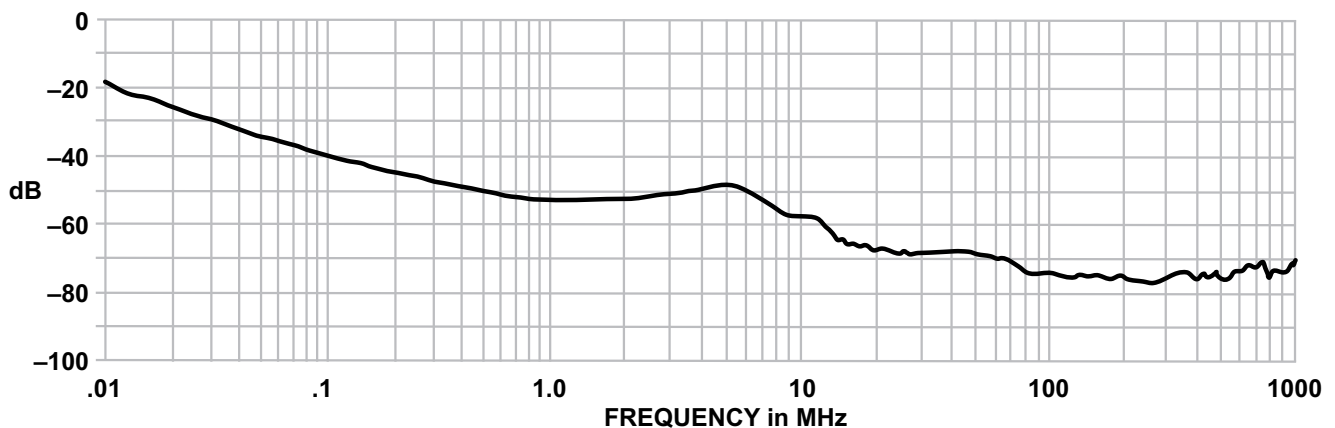
250VAC, 60Hz: 1.20mA

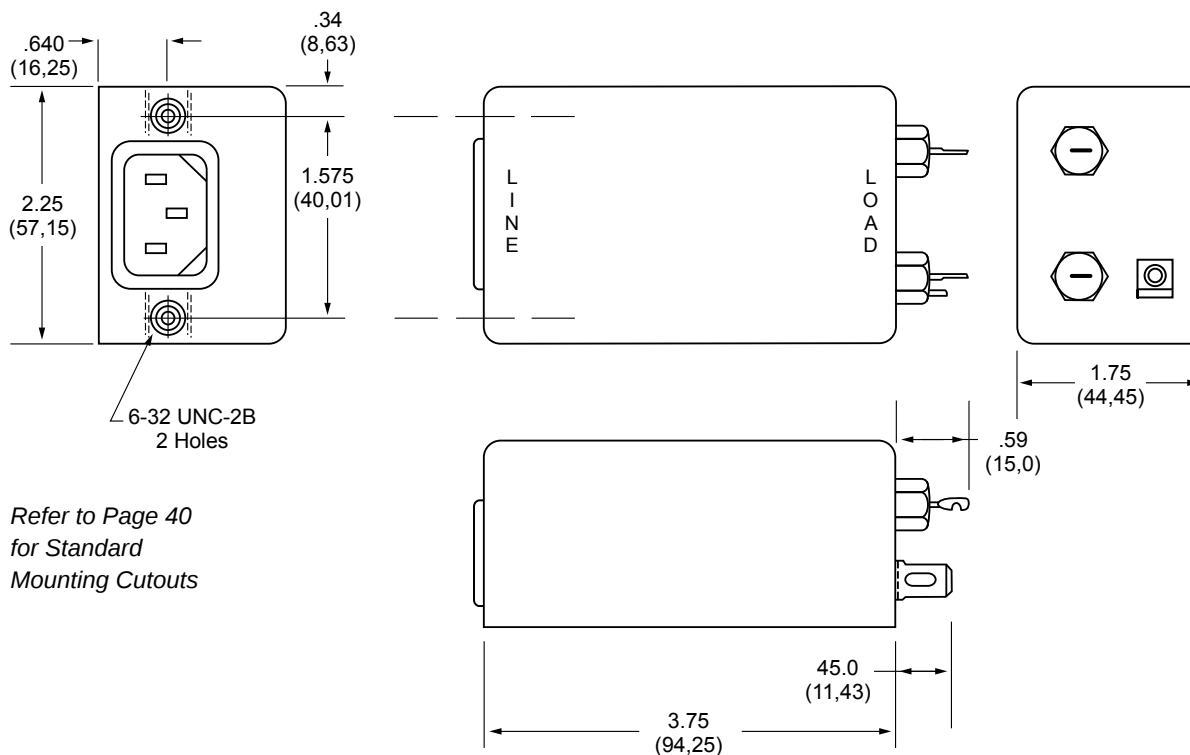
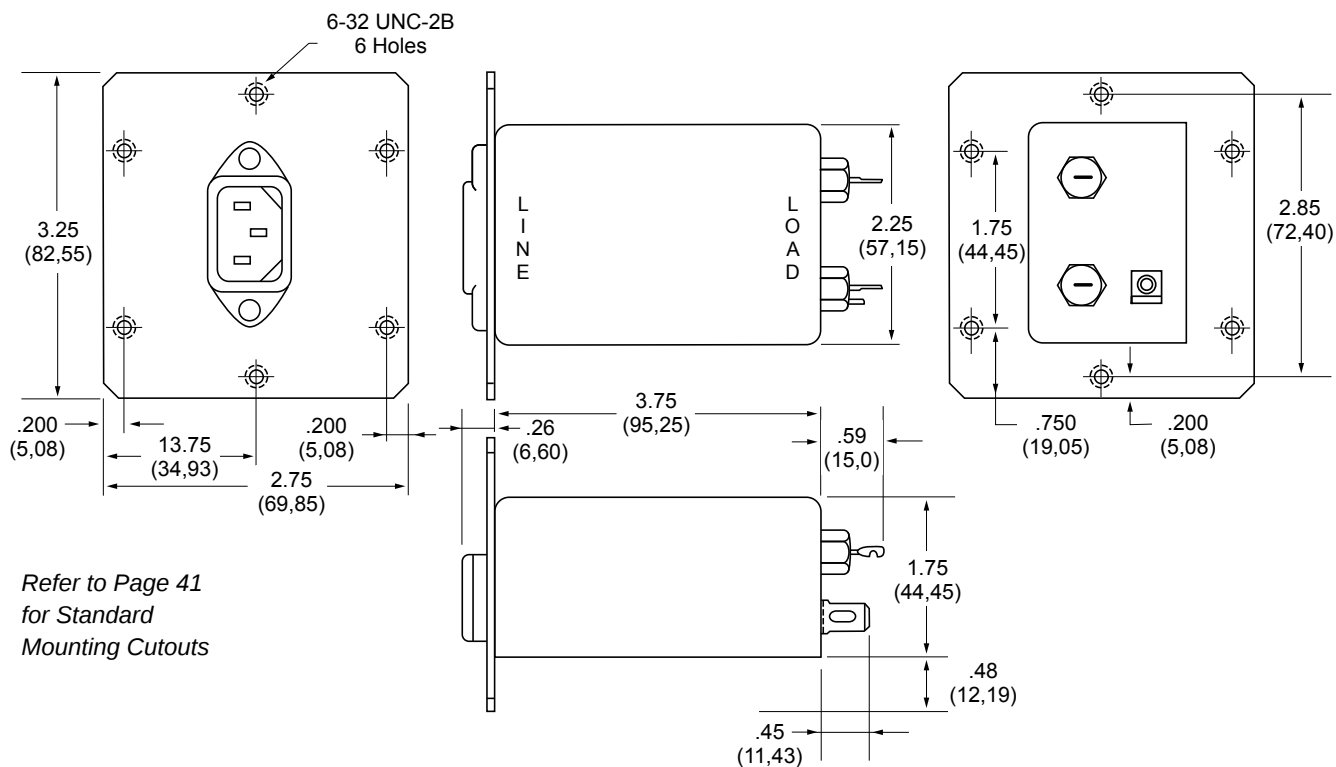
**Agency Approvals:**



| Nominal Current Rating | Part Number | Termination Line/Load |
|------------------------|-------------|-----------------------|
| 3A                     | F5700CG03   | IEC/<br>Solder Tab    |
| 6A                     | F5700CG06   | IEC/<br>Solder Tab    |

**F5700 SERIES  
TYPICAL COMMON MODE  
INSERTION LOSS — dB  
(50 OHM CIRCUIT)**

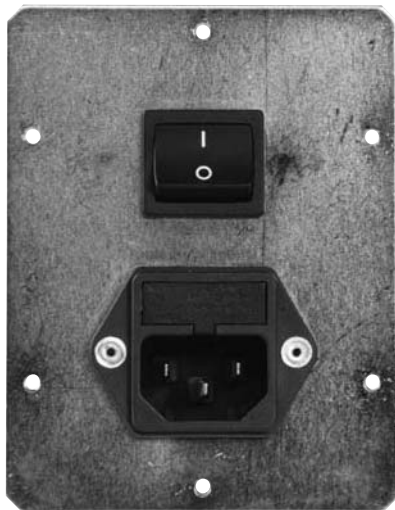


**F5700CG (3 and 6Amp) Dimensions****F5701CG (3 and 6Amp) Dimensions with attached mounting plate**

# F5900 RFI Filters

Wide Band

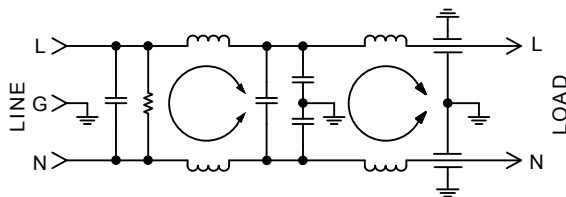
SINGLE PHASE FILTERS



## Features:

- High Performance Filter Designed for Switching Power Supply Emissions
- >70dB Insertion Loss from 200KHz to 1GHz
- Integral Power Switch and 5 x 20mm Fuse Holder
- Available in 3 and 6Amp Versions with Optional Mounting Faceplates

## F5900 Simplified Schematic without Switch



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

|  | 115VAC | 250VAC |
|--|--------|--------|
|  | 3A     | 1.5A   |
|  | 6A     | 4A     |

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

Line to Ground 1500VDC

Line to Line 1450VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

C: IEC Receptacle

F: Fused IEC

G: Wire Wrap/Solder

J: Switched IEC

**Maximum Leakage Current:**

Each Line to Ground **F5900**

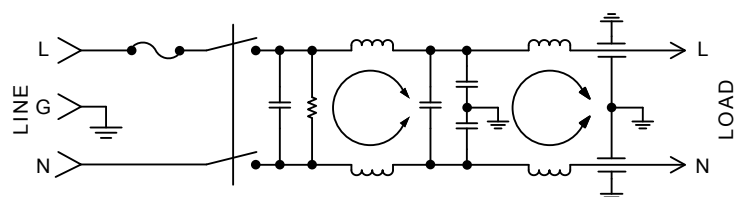
115VAC, 60Hz: 0.50mA

250VAC, 60Hz: 1.20mA

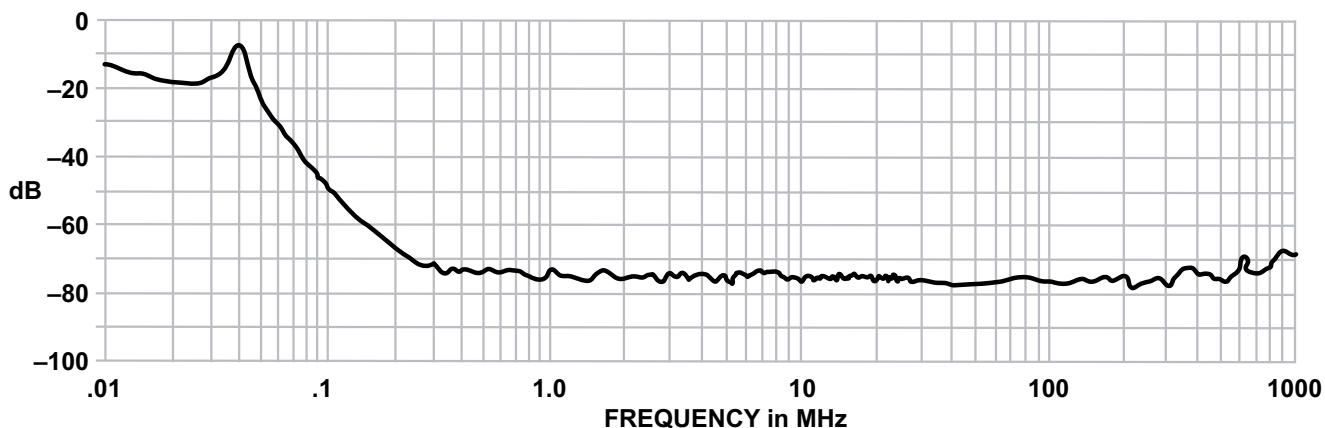
**Agency Approvals:**



## F5900 Simplified Schematic with Switch

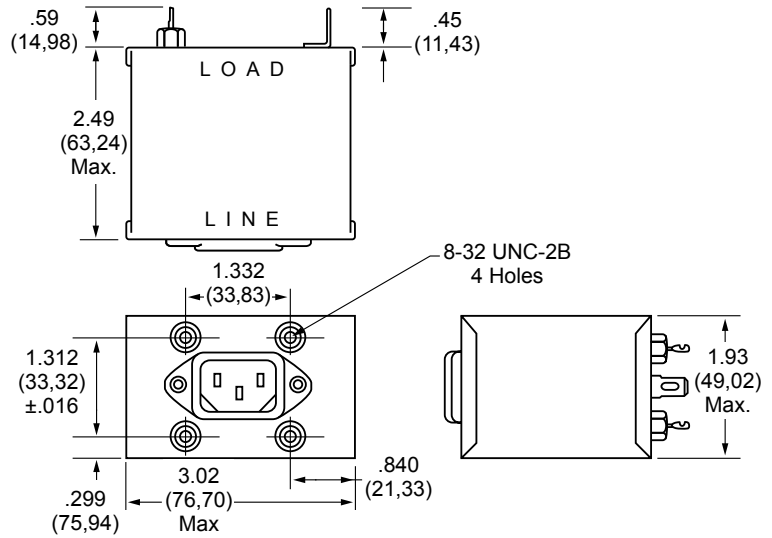


**F5900 SERIES  
TYPICAL COMMON MODE  
INSERTION LOSS — dB  
(50 OHM CIRCUIT)**



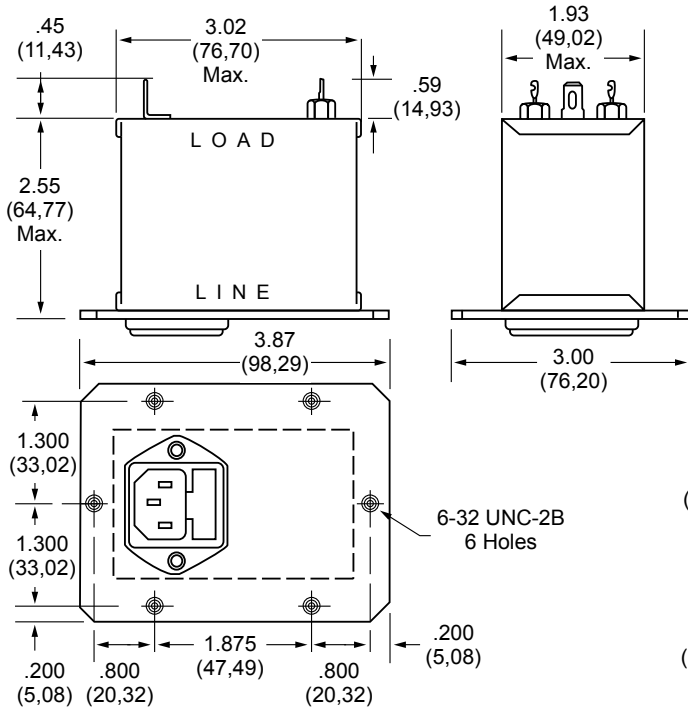
## F5900CG (3 and 6Amp) Dimensions

Refer to Page 42  
for Standard  
Mounting Cutouts



## F5900FG (3 and 6Amp) Dimensions

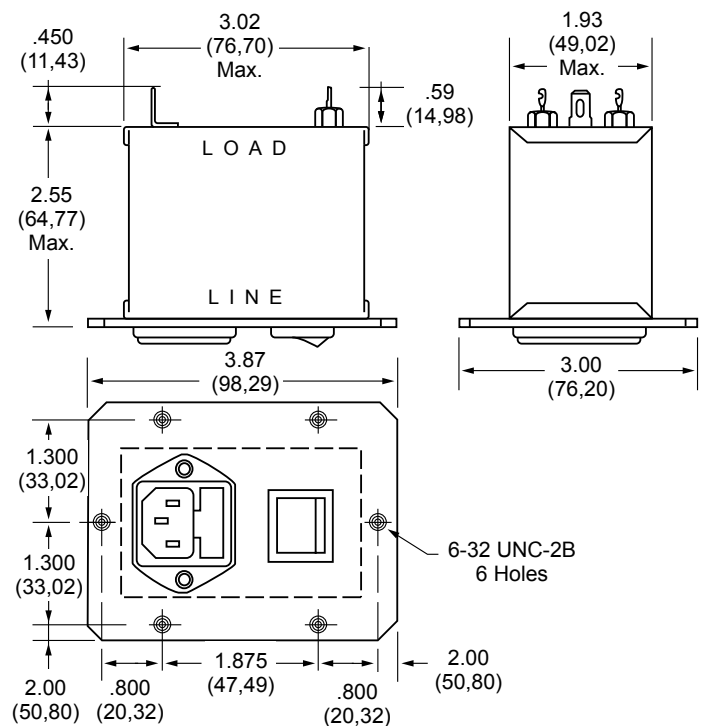
Refer to Page 42 for Standard Mounting Cutouts



| Nominal Current Rating | Part Number | Termination Line/Load   |
|------------------------|-------------|-------------------------|
| 3A                     | F5900CG03   | IEC/Solder Tab          |
|                        | F5900FG03   | Fused IEC/Solder Tab    |
|                        | F5900JG03   | Switched IEC/Solder Tab |
| 6A                     | F5900CG06   | IEC/Solder Tab          |
|                        | F5900FG06   | Fused IEC/Solder Tab    |
|                        | F5900JG06   | Switched IEC/Solder Tab |

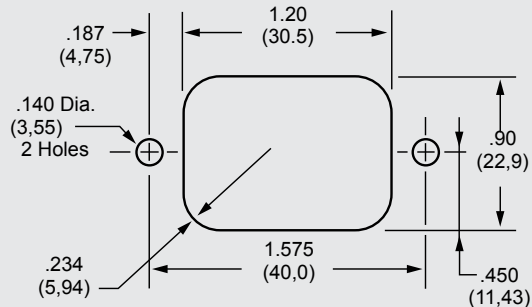
## F5900JG (3 and 6Amp) Dimensions

Refer to Page 42  
for Standard  
Mounting Cutouts

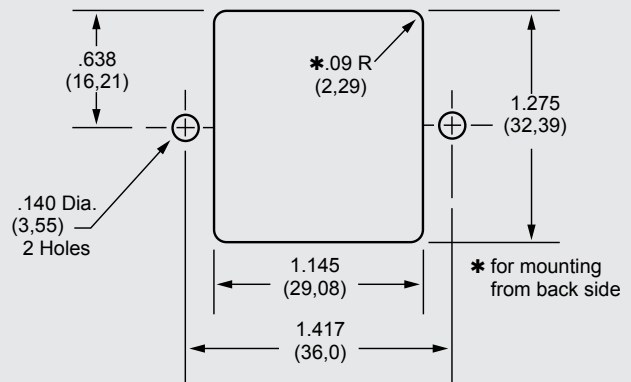


# Standard Mounting Cutouts

## F1200CA, F1300CA, F1400CA, F1500CA, F1600CA, F1700CA



## F1500FA, F1600FA,



## How to Order

The Curtis part numbering system is made up of four elements. Each element denotes a specific requirement (mechanical or electrical) which, when properly sequenced, fully identifies the required catalog filter. As shown, the first five alpha/numeric characters denote the series type; the sixth character (alpha) denotes the type of line termination; the seventh character (alpha) denotes the type of load termination; the last two characters (numeric) denote the current rating.

Compose your part number as follows: Select the series required, add two alpha character for the line and load termination, followed by two numeric characters for the required current rating. For example, F1100AB06 completely identifies an F1100 series filter with quick connects on line side and wire leads on load side, with a 6-amp rating.

## F1100 X X X

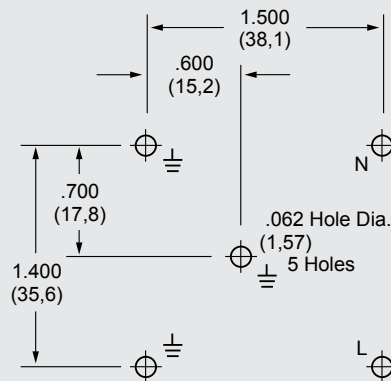
SERIES  
PE = Power Entry  
PM = Medical  
Power Entry

LINE TERMINATION  
A = Quick Connects  
B = Wire Leads  
C = IEC Connector  
D = Screw Terminals  
(20 & 30 amp only)  
F = Fused IEC  
P = Printed Circuit Pins  
W = Dual Fused IEC  
J = Switched IEC

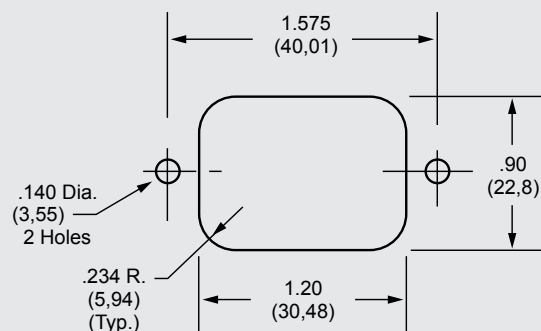
LOAD TERMINATION  
A = Quick Connects  
B = Wire Leads  
D = Screw Terminals  
(20 & 30 amp only)  
P = Printed Circuit Pins  
S = Solder Tab

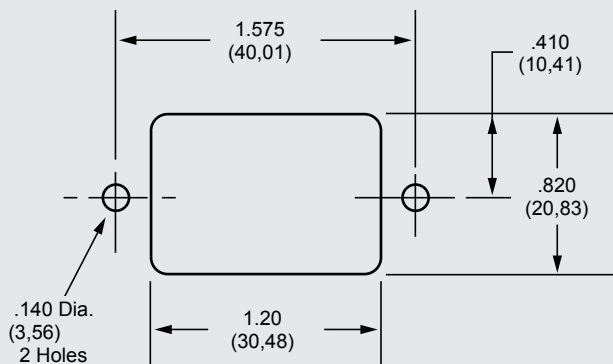
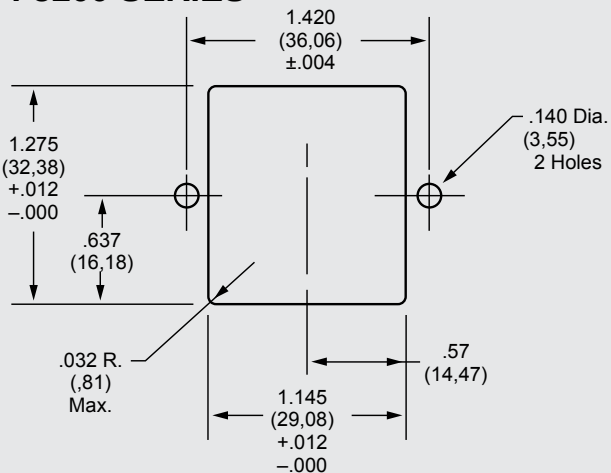
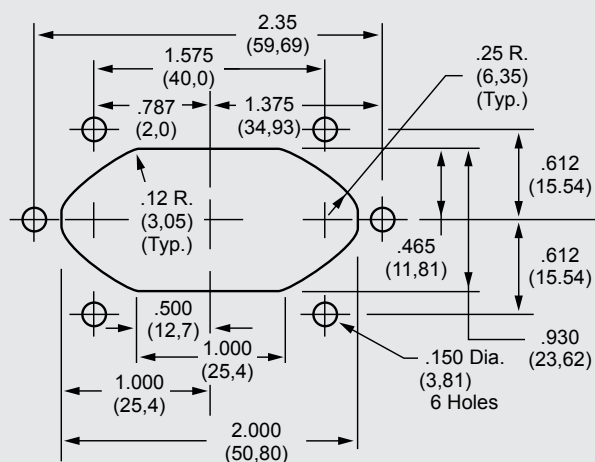
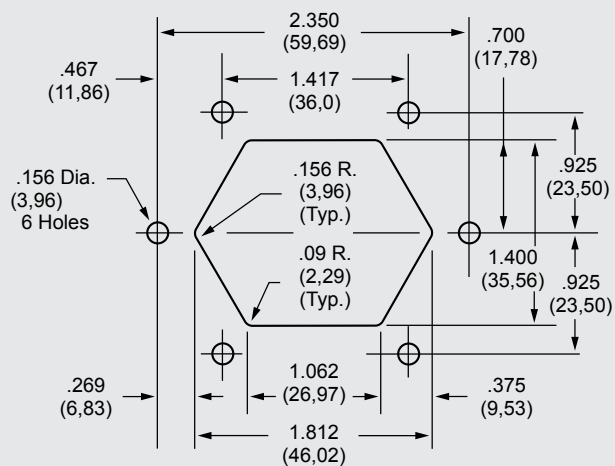
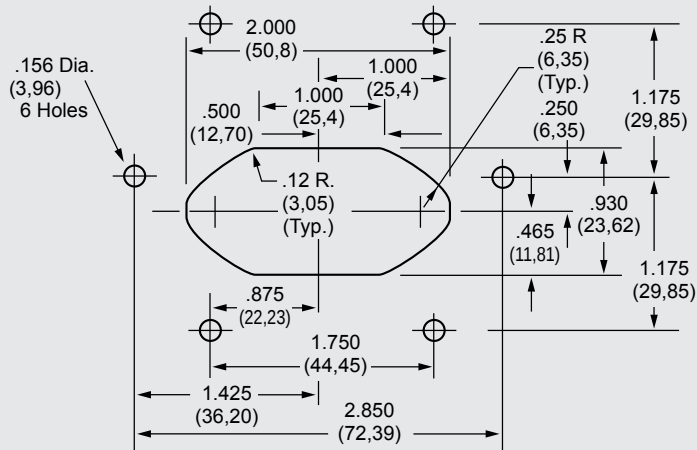
CURRENT RATING  
01 = 1 Amp  
03 = 3 Amps  
06 = 6 Amps  
10 = 10 Amps  
15 = 15 Amps  
20 = 20 Amps  
30 = 30 Amps

## F1300CP, F1600CP



## F5500/5600/5700 SERIES



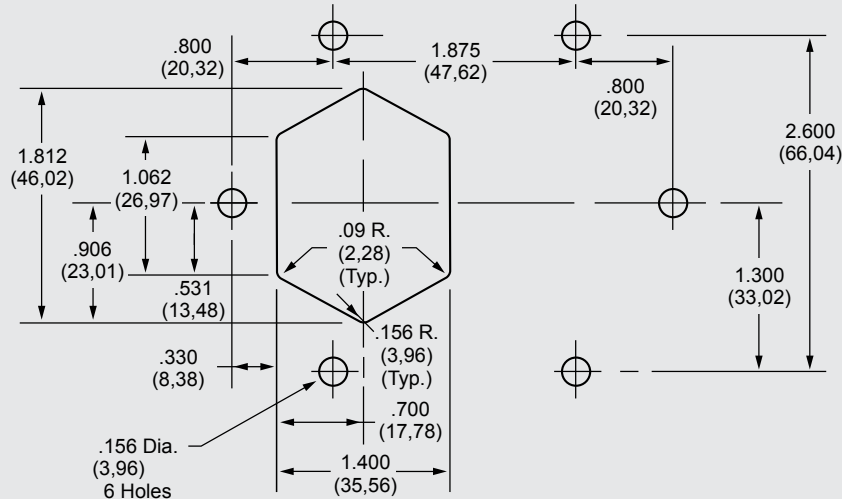
**F5100 SERIES****F5200 SERIES****F5101 SERIES****F5201 SERIES****F5501/5601/5701 SERIES**

NOTE: Tolerance for all dimensions unless otherwise specified: .XXX three place  $\pm .004$ , .XX two place  $\pm 0.10$

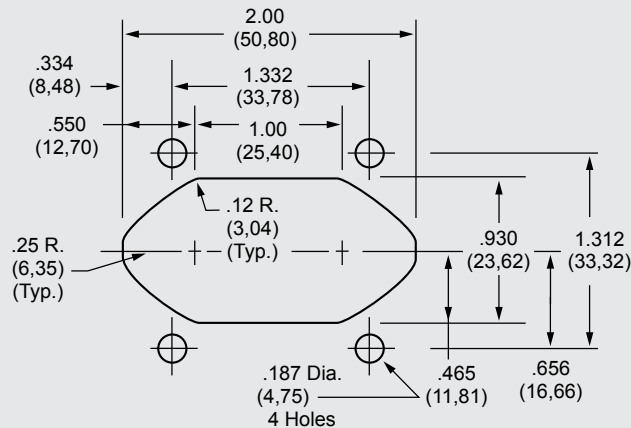


# Standard Mounting Cutouts

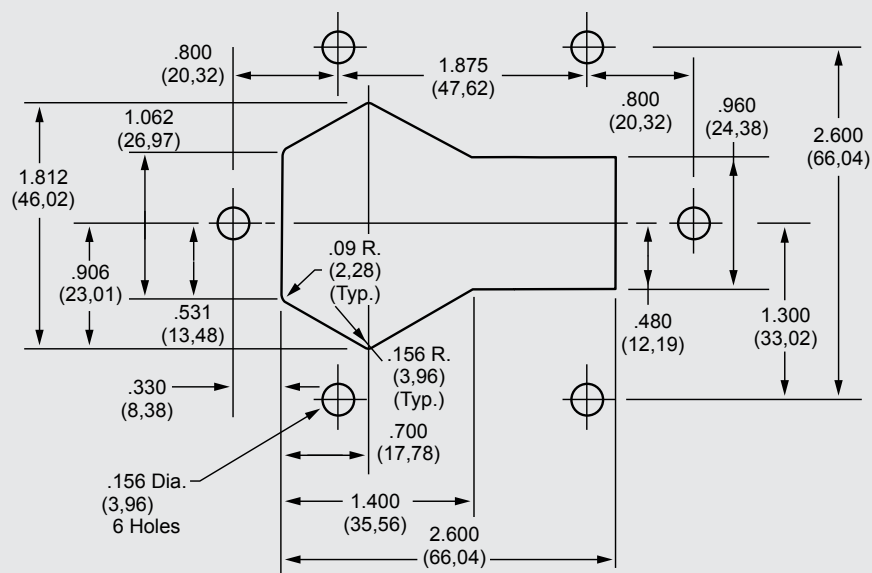
**F5900FG**



**F5900CG**



**F5900JG**



NOTE: Tolerance for all dimensions unless otherwise specified: .XXX three place  $\pm .004$ , .XX two place  $\pm 0.10$



## POWER ENTRY MODULES ]

### *General Purpose Combination*



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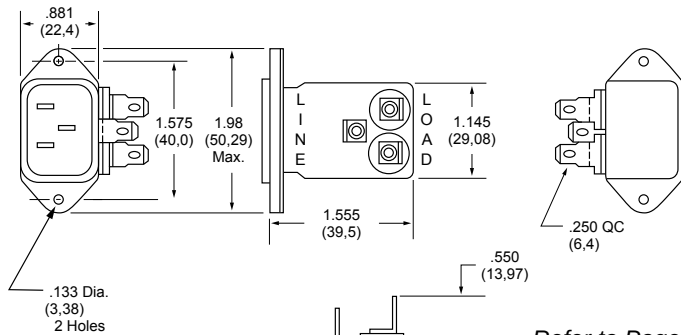
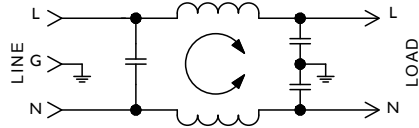
# F2199/F2200 RFI Filters



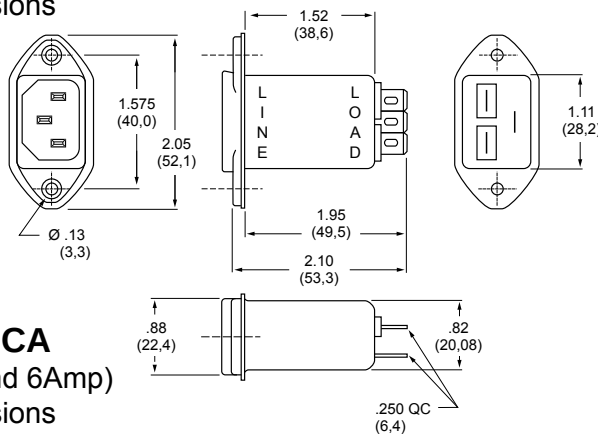
## Features:

- General Purpose Filters — Designed for Common Mode Emissions or Susceptibility Applications
- Integral IEC Connector in Space-Efficient Package
- Ideal for Linear Power Supplies in Digital Equipment

## F2199/F2200 Simplified Schematic



## F2200CA (1, 3 and 6Amp) Dimensions



## F2199CA (1, 3 and 6Amp) Dimensions

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

| 115VAC | 250VAC |
|--------|--------|
| 1A     | 1A     |
| 3A     | 3A     |
| 6A     | 6A     |
| 10A    | 8A     |

**Current Overload:** 6X for 8 seconds

### Hi-Pot Test (1 min):

|                |         |
|----------------|---------|
| Line to Ground | 1500VAC |
| Line to Line   | 1768VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

### Termination:

A: QC — Quick Connect  
C: IEC Receptacle

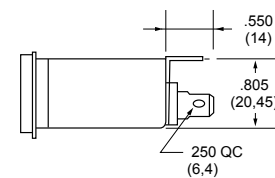
### Maximum Leakage Current:

| Each Line to Ground | F2100/F2200 |
|---------------------|-------------|
| 115VAC, 60Hz:       | 0.25mA      |
| 250VAC, 50Hz:       | 0.40mA      |

### Agency Approvals:



## F2199CA10 (10Amp) Dimensions



| Nominal Current Rating | Part Number | Termination Line/Load | MODE         | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |     |     |     |    |    |
|------------------------|-------------|-----------------------|--------------|----------------------------------------------|-----|-----|-----|----|----|
|                        |             |                       |              | Frequency - MHz                              |     |     |     |    |    |
|                        |             |                       |              | .15                                          | .50 | 1.0 | 5.0 | 10 | 30 |
| 1A                     | F2199CA01   | IEC/QC                | Common       | 22                                           | 35  | 40  | 46  | 50 | 50 |
|                        | F2200CA01   | IEC/QC                | Differential | —                                            | 2   | 3   | 35  | 40 | 40 |
| 3A                     | F2199CA03   | IEC/QC                | Common       | 15                                           | 25  | 30  | 45  | 50 | 50 |
|                        | F2200CA03   | IEC/QC                | Differential | —                                            | 2   | 3   | 35  | 40 | 40 |
| 6A                     | F2199CA06   | IEC/QC                | Common       | 10                                           | 20  | 29  | 43  | 45 | 50 |
|                        | F2200CA06   | IEC/QC                | Differential | —                                            | 2   | 7   | 28  | 46 | 57 |
| 10A                    | F2199CA10   | IEC/QC                | Common       | 9                                            | 17  | 23  | 39  | 45 | 45 |
|                        |             |                       | Differential | —                                            | 2   | 7   | 12  | 37 | 60 |

NOTE: Other combinations of terminals may be specified on special order.



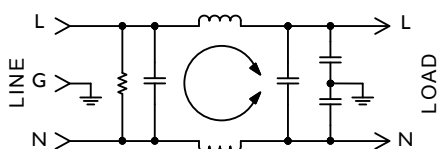
# F2300 RFI Filters



## Features:

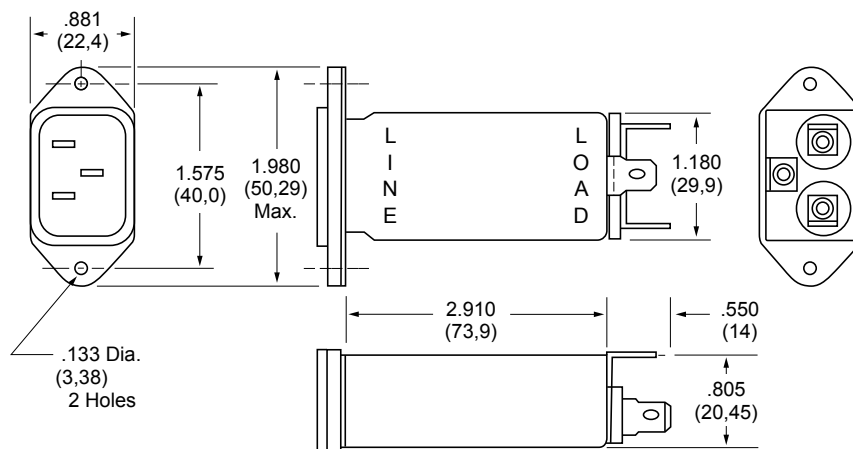
- Effective Protection from Pulsed, Intermittent or Continuous RFI for FCC "A" Applications
- High-Performance Low-Leakage Filter in Low Profile Package with Integral IEC Connector
- Increased Inductance and Line-to-Line Capacitance Provide Enhanced Common Mode and Differential Mode Attenuation

## F2300CA Simplified Schematic



## F2300CA (6Amp) Dimensions

Refer to Page 58  
for Standard  
Mounting Cutouts



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
6A 6A

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

Line to Ground 1500VAC  
Line to Line 1768VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

A: QC – Quick Connect  
C: IEC Receptacle

**Maximum Leakage Current:**

Each Line to Ground **F2300**  
115VAC, 60Hz: 0.25mA  
250VAC, 50Hz: 0.40mA

**Agency Approvals:**



| Nominal Current Rating | Part Number | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|-------------|-----------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |             |                       | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |             |                       |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 6A                     | F2300CA06   | IEC/QC                | Common                                       | 25              | 37  | 45  | 45  | 45 | 45 |
|                        |             |                       | Differential                                 | 12              | 30  | 50  | 65  | 65 | 60 |

NOTE: Other combinations of terminals may be specified on special order.

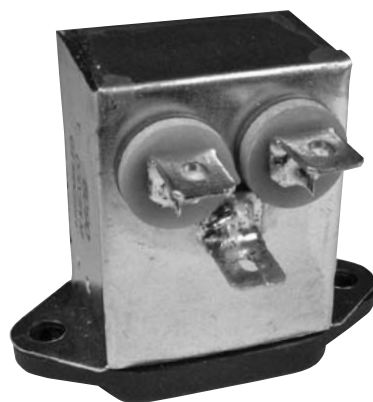
Dimensions are in inches and millimeters unless otherwise specified.  
Values in parentheses are metric equivalents.



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1-800-657-0853

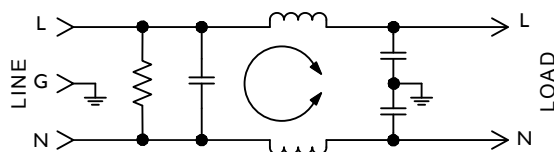
# F2400/2500 RFI Filters



## Features:

- Higher Performance Filters Designed for Common Mode and Differential Mode Applications
- 4X Greater Differential Mode Insertion Loss at 1 MHz than F2100/F2200 Series with No Increase in Physical Size
- Especially Suited for Use with Linear Power Supplies and FCC "A" Applications

## F2400/2500 Simplified Schematic



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

| 115VAC | 250VAC |
|--------|--------|
| 3A     | 1.5A   |
| 6A     | 3A     |
| 10A    | 10A    |
| 15A    | 10A    |

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

|                |         |
|----------------|---------|
| Line to Ground | 1500VAC |
| Line to Line   | 1768VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

A: QC – Quick Connect  
C: IEC Receptacle

**Maximum Leakage Current:**

| Each Line to Ground | F2400/F2500 |
|---------------------|-------------|
| 115VAC, 60Hz:       | 0.25mA      |
| 250VAC, 50Hz:       | 0.40mA      |

**Agency Approvals:**



(F2400 Only)



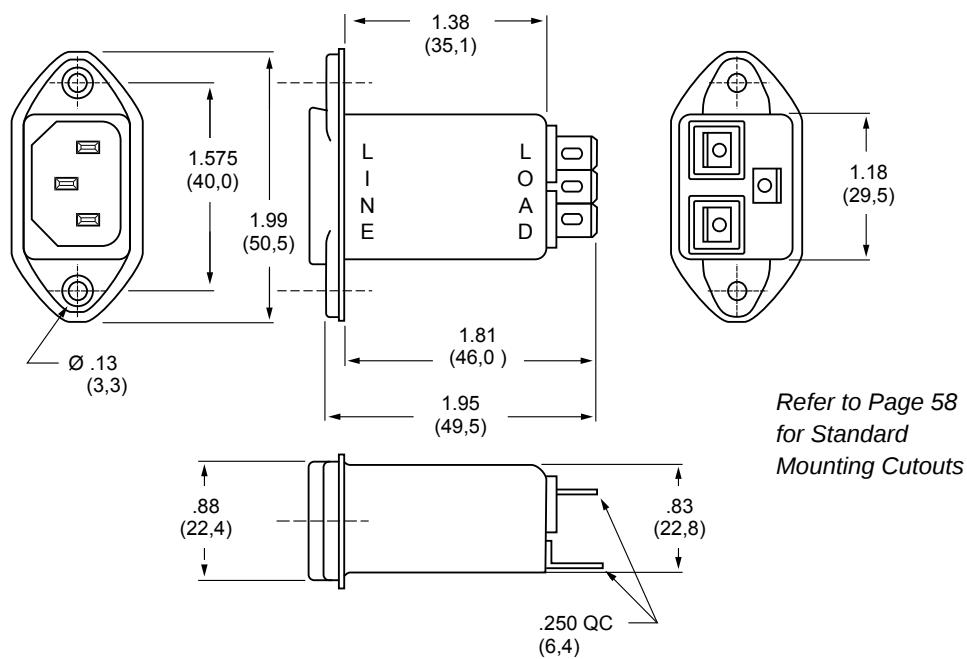
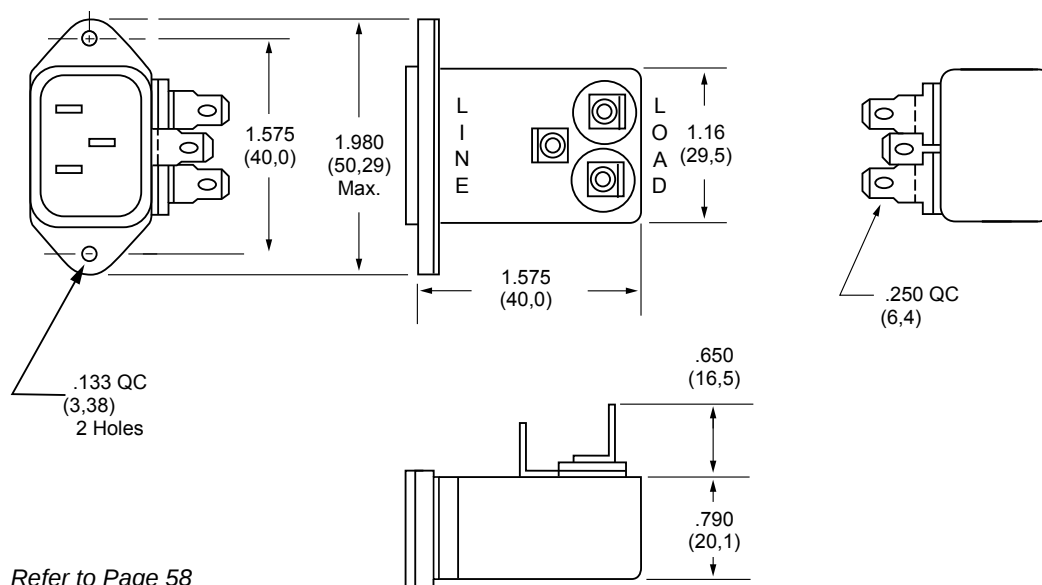
(F2500 Only)



| Nominal Current Rating | Part Number            | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|------------------------|-----------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |                        |                       | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |                        |                       |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | F2400CA03<br>F2500CA03 | IEC/QC<br>IEC/QC      | Common                                       | 22              | 35  | 40  | 46  | 50 | 50 |
|                        |                        |                       | Differential                                 | 8               | 18  | 24  | 40  | 50 | 40 |
| 6A                     | F2400CA06<br>F2500CA06 | IEC/QC<br>IEC/QC      | Common                                       | 15              | 24  | 31  | 42  | 45 | 50 |
|                        |                        |                       | Differential                                 | 8               | 18  | 24  | 40  | 50 | 40 |
| 10/15A                 | F2400CA10<br>F2400CA15 | IEC/QC<br>IEC/QC      | Common                                       | 4               | 10  | 13  | 28  | 35 | 40 |
|                        |                        |                       | Differential                                 | 2               | 8   | 15  | 30  | 35 | 35 |

NOTE: Other combinations of terminals may be specified on special order.



**F2400CA (3, 6, 10 and 15Amp) Dimensions****F2500CA (3 and 6Amp) Dimensions**

# F2600 RFI Filters



## Features:

- General Purpose "L-Type" Circuit Effective in Reducing Both Incoming and Outgoing Powerline Noise Levels in FCC "A" Applications
- Integral 5 X 20mm Single or Dual Fused IEC Connector
- Optional SST Switched IEC Connector
- All Series Available in Labor-Saving PC Mounted Case Style

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
3A 3A  
6A 6A

**Current Overload:** 6X for 8 seconds

### Hi-Pot Test (1 min):

Line to Ground 1500VAC  
Line to Line 1768VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max at rated current

**Humidity Range:** 0% to 95% R.H.

### Termination:

A: QC – Quick Connect  
F: Fused IEC  
J: Switched IEC  
P: PC – P.C. Board  
W: Dual Fused IEC

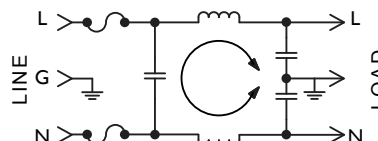
### Maximum Leakage Current:

Each Line to Ground **F2600**  
115VAC, 60Hz: 0.25mA  
250VAC, 50Hz: 0.40mA

### Agency Approvals:



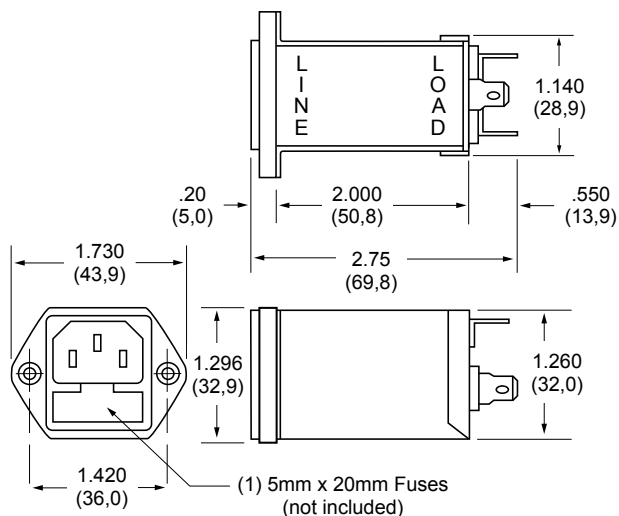
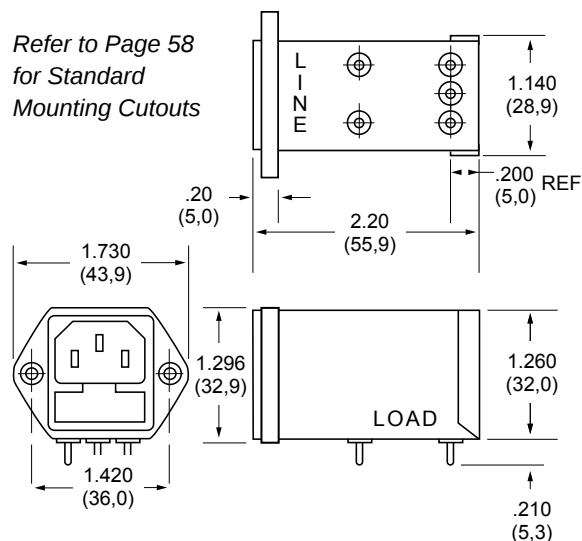
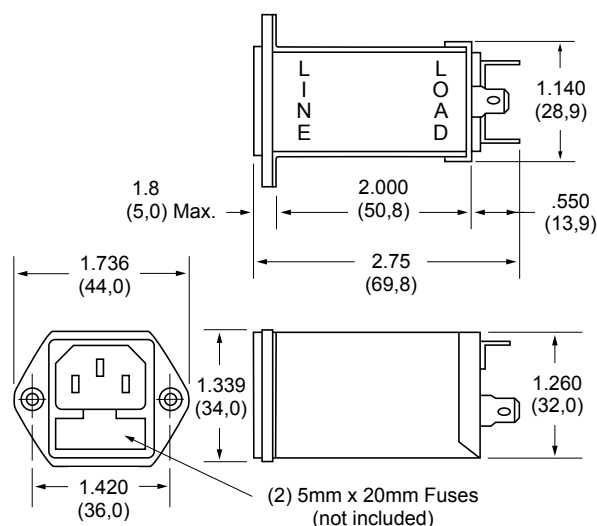
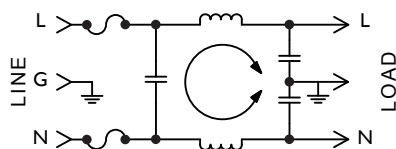
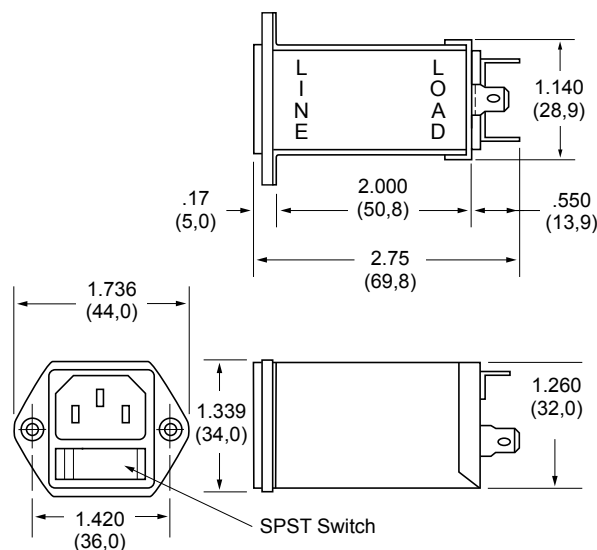
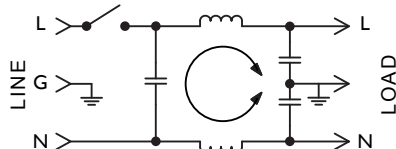
## F2600F Simplified Schematic



| Nominal Current Rating | Part Number            | Termination Line/Load                  | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|------------------------|----------------------------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |                        |                                        | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |                        |                                        |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | F2600FA03<br>F2600FP03 | Fused IEC/QC<br>Fused IEC/PC           | Common                                       | 21              | 35  | 41  | 50  | 50 | 50 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 40  | 50 | 40 |
| 6A                     | F2600FA06<br>F2600FP06 | Fused IEC/QC<br>Fused IEC/PC           | Common                                       | 18              | 34  | 41  | 45  | 45 | 45 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 40  | 50 | 50 |
| 3A                     | F2600WA03<br>F2600WP03 | Dual Fused IEC/QC<br>Dual Fused IEC/PC | Common                                       | 21              | 35  | 41  | 45  | 45 | 50 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 40  | 50 | 40 |
| 6A                     | F2600WA06<br>F2600WP06 | Dual Fused IEC/QC<br>Dual Fused IEC/PC | Common                                       | 18              | 34  | 41  | 40  | 40 | 45 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 40  | 50 | 50 |
| 3A                     | F2600JA03<br>F2600JP03 | Switched IEC/QC<br>Switched IEC/PC     | Common                                       | 21              | 35  | 41  | 45  | 45 | 50 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 40  | 50 | 40 |
| 6A                     | F2600JA06<br>F2600JP06 | Switched IEC/QC<br>Switched IEC/PC     | Common                                       | 18              | 34  | 41  | 40  | 40 | 45 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 40  | 50 | 50 |

NOTE: Other combinations of terminals may be specified on special order.



**F2600FA (3 and 6Amp) Dimensions****F2600FP (3 and 6Amp) Dimensions****F2600WA (3 and 6Amp) Dimensions****F2600W Simplified Schematic****F2600JA (3 and 6Amp) Dimensions****F2600J Simplified Schematic**

# F2700 RFI Filters

General Purpose Filtered Modules



## Features:

- Designed for FCC "B" and VDE "B" Switching Power Supply Applications
- Very High Inductance Design with Differential Mode Choke to Provide Improved Performance Below 100KHz
- Compact, Space-Efficient Package Available in 3 and 6Amp Ratings
- Also Available with Integral Fused IEC Connector and "ON/OFF" Power Switch

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**

|        |        |
|--------|--------|
| 115VAC | 250VAC |
| 3A     | 2A     |
| 6A     | 4A     |

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

|                |         |
|----------------|---------|
| Line to Ground | 1500VAC |
| Line to Line   | 1768VDC |

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

A: QC – Quick Connect  
B: Wire  
C: IEC Receptacle  
F: Fused IEC

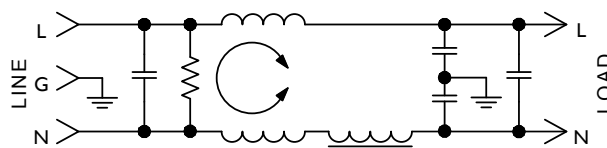
**Maximum Leakage Current:**

|                     |              |
|---------------------|--------------|
| Each Line to Ground | <b>F2700</b> |
| 115VAC, 60Hz:       | 0.25mA       |
| 250VAC, 50Hz:       | 0.40mA       |

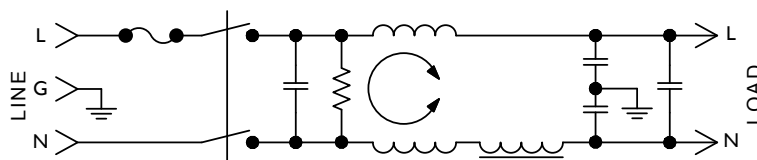
**Agency Approvals:**



## F2700 Without Switch Simplified Schematic



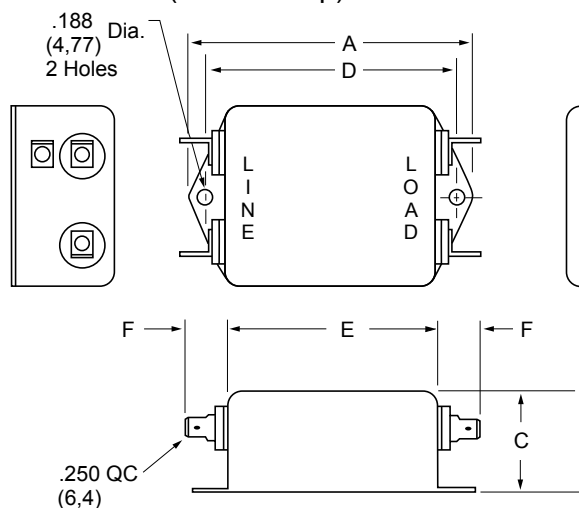
## F2700 Without Switch Simplified Schematic (3Amp Only)



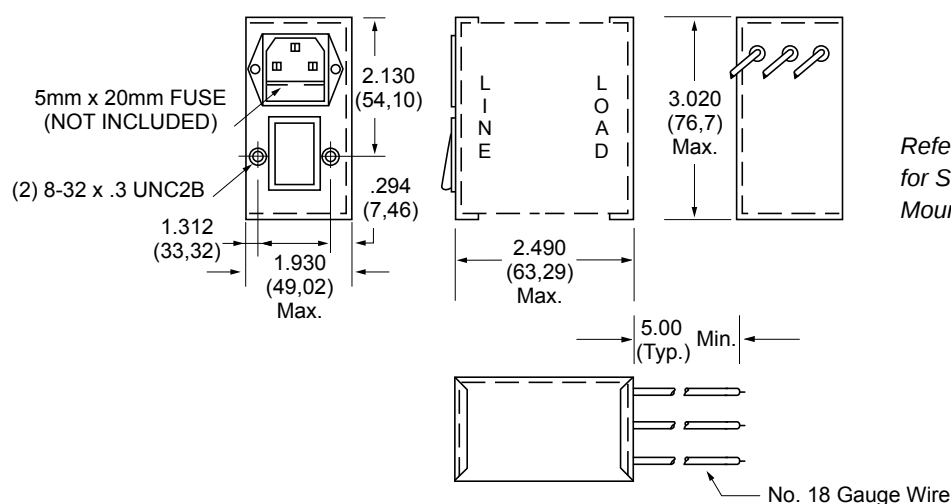
| Nominal Current Rating | Part Number            | Termination Line/Load    | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |     |     |     |    |    |
|------------------------|------------------------|--------------------------|----------------------------------------------|-----------------|-----|-----|-----|-----|-----|-----|----|----|
|                        |                        |                          | MODE                                         | Frequency - MHz |     |     |     |     |     |     |    |    |
|                        |                        |                          |                                              | .01             | .02 | .05 | .15 | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | F2700AA03              | QC/QC                    | Common                                       | 20              | 27  | 36  | 45  | 42  | 42  | 42  | 40 | 38 |
|                        |                        |                          | Differential                                 | 5               | 27  | 52  | 70  | 70  | 70  | 70  | 60 | 58 |
|                        | F2700CA03<br>F2700FB03 | IEC/QC<br>Fused IEC/Wire | Common                                       | 20              | 27  | 36  | 45  | 42  | 42  | 42  | 40 | 38 |
|                        |                        |                          | Differential                                 | 5               | 27  | 52  | 70  | 70  | 70  | 70  | 60 | 58 |
| 6A                     | F2700AA06              | QC/QC                    | Common                                       | 10              | 18  | 28  | 39  | 42  | 45  | 45  | 45 | 45 |
|                        | F2700CA06              | IEC/QC                   | Differential                                 | 5               | 20  | 48  | 70  | 70  | 70  | 70  | 70 | 65 |

NOTE: Other combinations of terminals may be specified on special order.

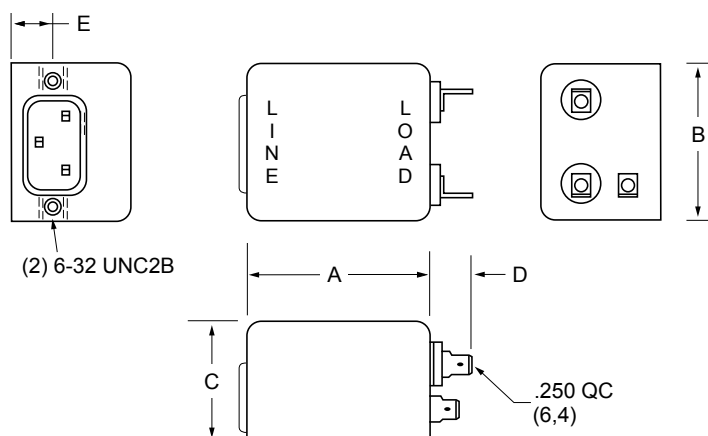


**F2700AA (3 and 6Amp) Dimensions**

| Amps | A                | B               | C               | D                | E               | F              |
|------|------------------|-----------------|-----------------|------------------|-----------------|----------------|
| 3A   | 3.315<br>(84,2)  | 2.000<br>(50,8) | 1.500<br>(38,1) | 2.940<br>(74,7)  | 2.500<br>(63,5) | .550<br>(14,0) |
| 6A   | 4.440<br>(112,8) | 2.250<br>(57,2) | 1.750<br>(44,5) | 4.063<br>(103,2) | 3.620<br>(91,9) | .550<br>(14,0) |

**F2700FB03 (3Amp) Dimensions**

Refer to Page 58  
for Standard  
Mounting Cutouts

**F2700CA (3 and 6Amp) Dimensions**

Refer to Page 58  
for Standard  
Mounting Cutouts

| Amps | A               | B               | C               | D              | E               |
|------|-----------------|-----------------|-----------------|----------------|-----------------|
| 3A   | 2.880<br>(73,2) | 2.125<br>(54,0) | 1.719<br>(43,6) | .550<br>(14,0) | .575<br>(14,6)  |
| 6A   | 3.750<br>(95,2) | 2.250<br>(57,1) | 1.750<br>(44,4) | .550<br>(14,0) | .640<br>(16,29) |



# PE7/PE8 Series

Combination



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
3A 3A  
6A 6A

**Current Overload:** 6X for 8 Seconds

**Hi-Pot Test (1 min):**

Line to Ground 1500VAC  
Line to Line 1768VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at Rated Current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

- IEC Receptacle
- Wire Wrap/Solder

**Maximum Leakage Current:**

Each Line to Ground **PE7, PE 8**  
115VAC, 60Hz: 0.25mA  
250VAC, 50Hz: 0.40mA

**Voltage Select Card:** Installed in 120VAC position unless otherwise specified

**Agency Approvals:**

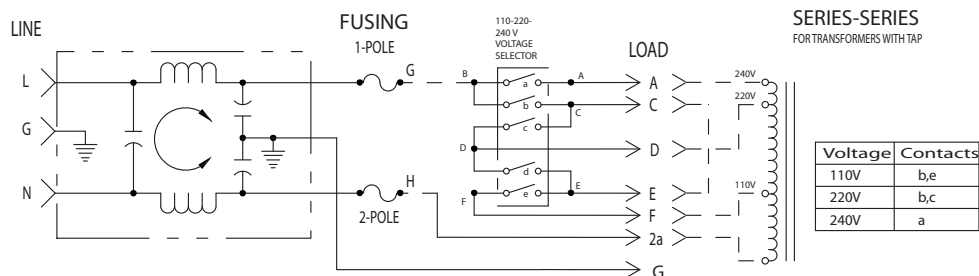


Refer to Page 55 for Ordering Instructions

## Features:

- RFI Filter Module Combines IEC Connector, Fusing, and Voltage Select Features in One Unit
- PE7 Series Filters Provide 20% More Differential Mode Attenuation Than Comparable Units
- Accepts Either U.S. or European Standard Fuse Sizes

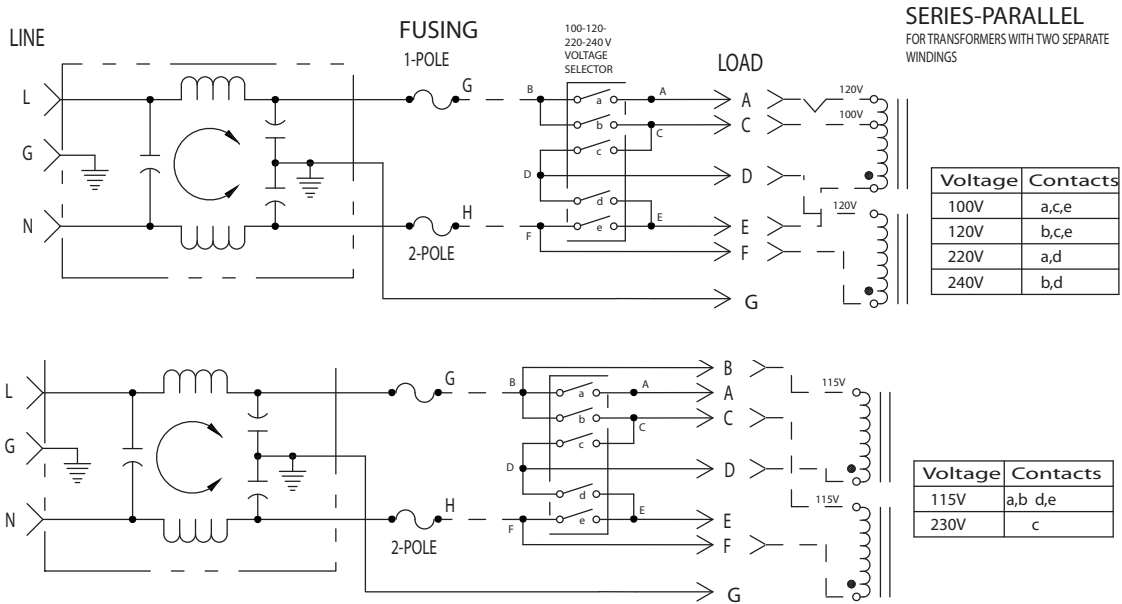
## PE7 Series Simplified Schematic



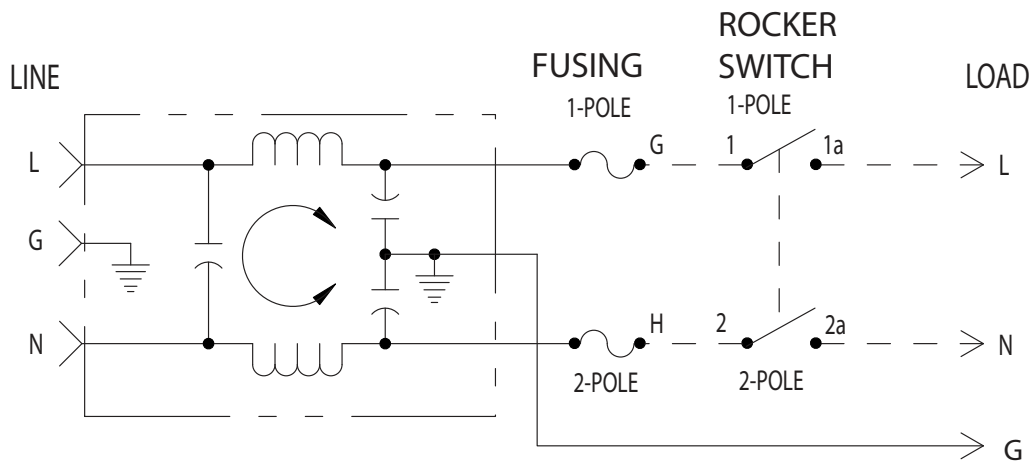
| Nominal Current Rating | Part Number | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|-------------|-----------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |             |                       | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |             |                       |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | PE7XXX03    | IEC/Solder Tabs       | Common                                       | 18              | 24  | 30  | 45  | 45 | 50 |
|                        | PE8XXX03    |                       | Differential                                 | 8               | 18  | 24  | 46  | 50 | 40 |
| 6A                     | PE7XXX06    | IEC/Solder Tabs       | Common                                       | 10              | 19  | 24  | 39  | 44 | 50 |
|                        | PE8XXX06    |                       | Differential                                 | 8               | 18  | 24  | 39  | 40 | 40 |



## PE7 Series Simplified Schematic



## PE8 Series Simplified Schematic



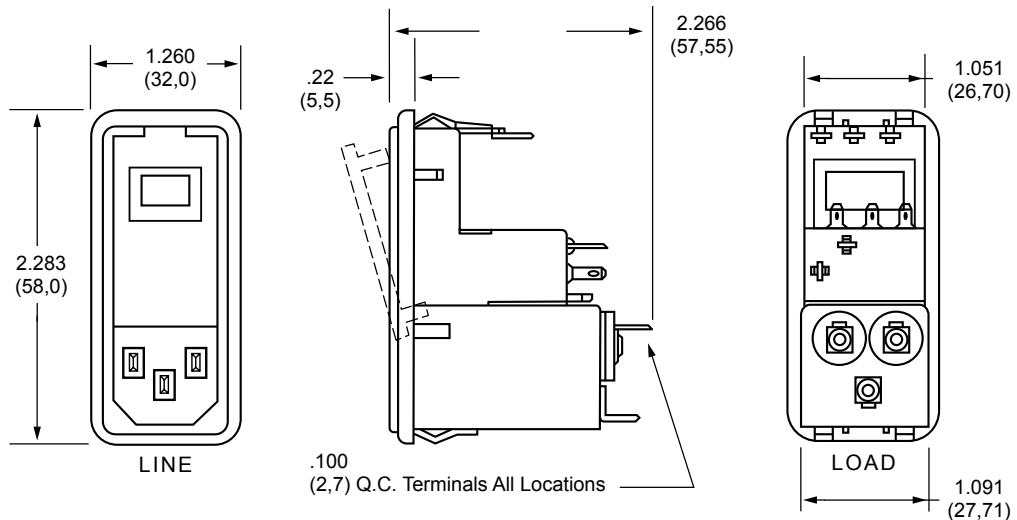
# PE7/PE8 Series *(continued)*

## PE7/PE8

### Snap-Mount Series

(3 and 6Amp) Dimensions

Refer to Page 55  
for Standard  
Mounting Cutouts

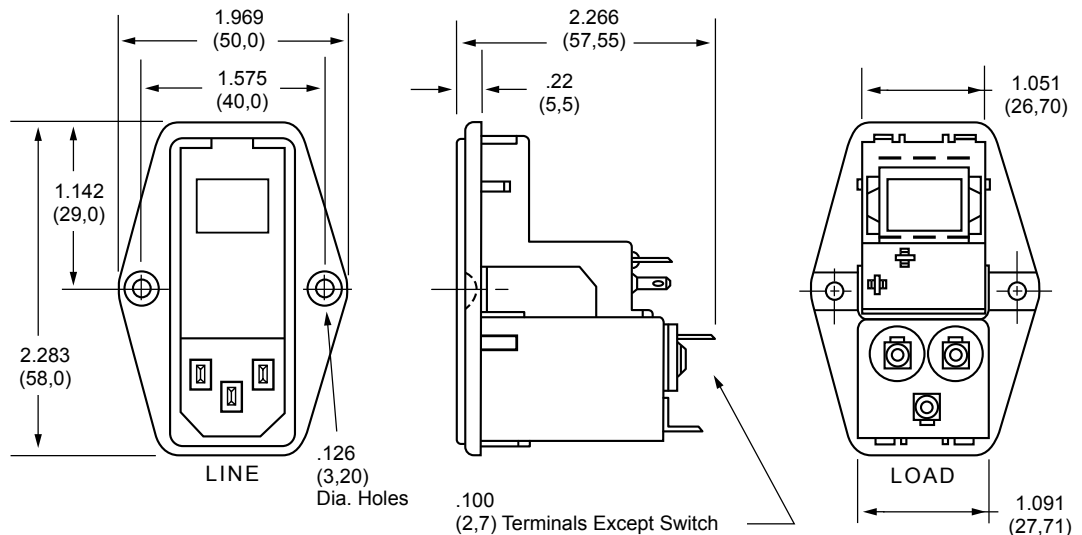


## PE7/PE8

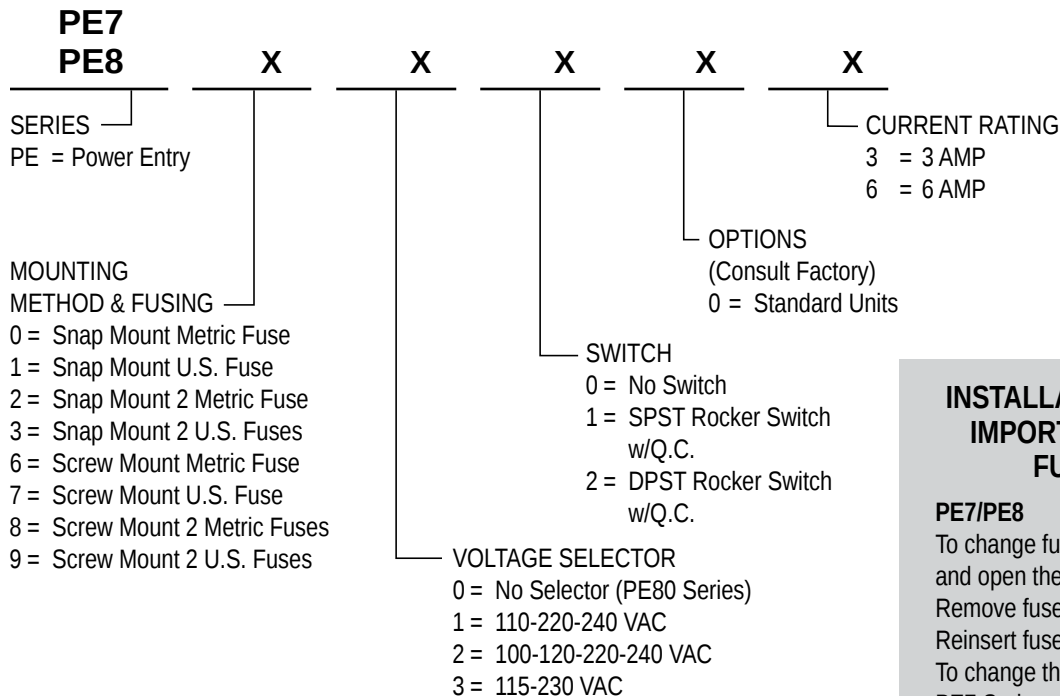
### Screw-Mount Series

(3 and 6Amp) Dimensions

Refer to Page 55  
for Standard  
Mounting Cutouts



## How to Order



### INSTALLATION INSTRUCTION IMPORTANT – CHANGING FUSE/VOLTAGE

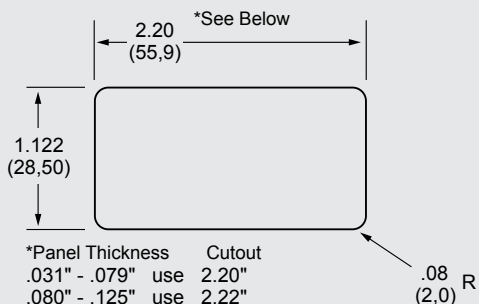
#### PE7/PE8

To change fuse, remove power cord and open the front cover on the module. Remove fuse holder and replace fuse. Reinsert fuse holder and close cover. To change the operating voltage on the PE7 Series, remove the power cord and open front cover. Rotate voltage select wheel until desired voltage appears in window of cover.

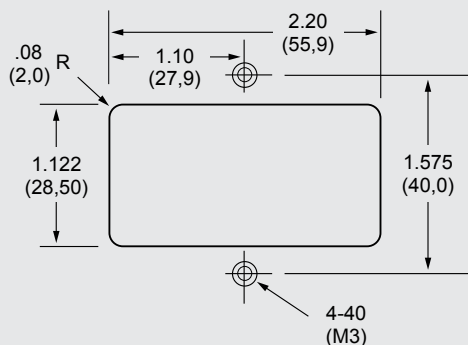
- Filter shipped without fuse.

Always use caution when selecting and changing fuses and voltage requirements. Curtis Industries is not responsible for malfunction due to improper installation/selection of fuse and/or voltage select.

### PE7/PE8 Snap-Mount Series



### PE7/PE8 Screw Mount Series



# PE1 Series



## Features:

- RFI Filter Module Combines IEC Connector, Fusing, Optional Voltage Select and On/Off Switch into a Single, Space-Efficient Assembly
- Enhanced Low Frequency Response with No Resonant Peaks
- Fully Shielded for Radiative Noise Control
- Accepts Either U.S. or European Standard Fuse Sizes. Dual or Single Power Line Fusing

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
10A 10A

**Current Overload:** 6X for 8 seconds

### Hi-Pot Test (1 min):

Line to Ground 1500VAC  
Line to Line 2250VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max at rated current

**Humidity Range:** 0% to 95% R.H.

### Termination:

- QC – Quick Connect
- IEC Receptacle

### Maximum Leakage Current:

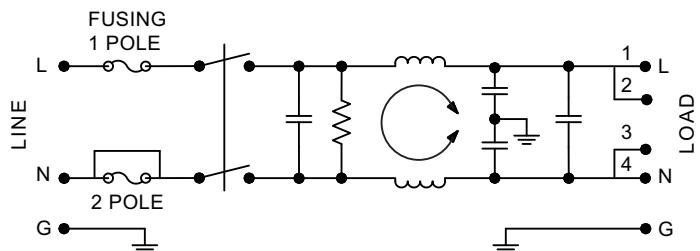
| Each Line to Ground | PE1    | PE1-PO |
|---------------------|--------|--------|
| 115VAC, 60Hz:       | 0.25mA | 0.4mA  |
| 250VAC, 50Hz:       | 0.40mA | .75mA  |

**Voltage Select Card:** Installed in 120VAC position unless otherwise specified

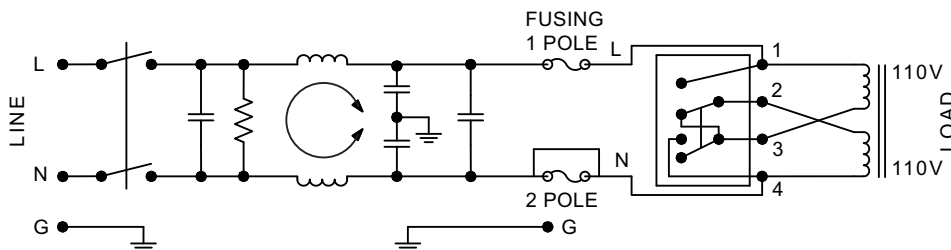
### Agency Approvals:



**PE1 Series Simplified Schematic without Voltage Selector**



**PE1 Series Simplified Schematic with Voltage Selector**



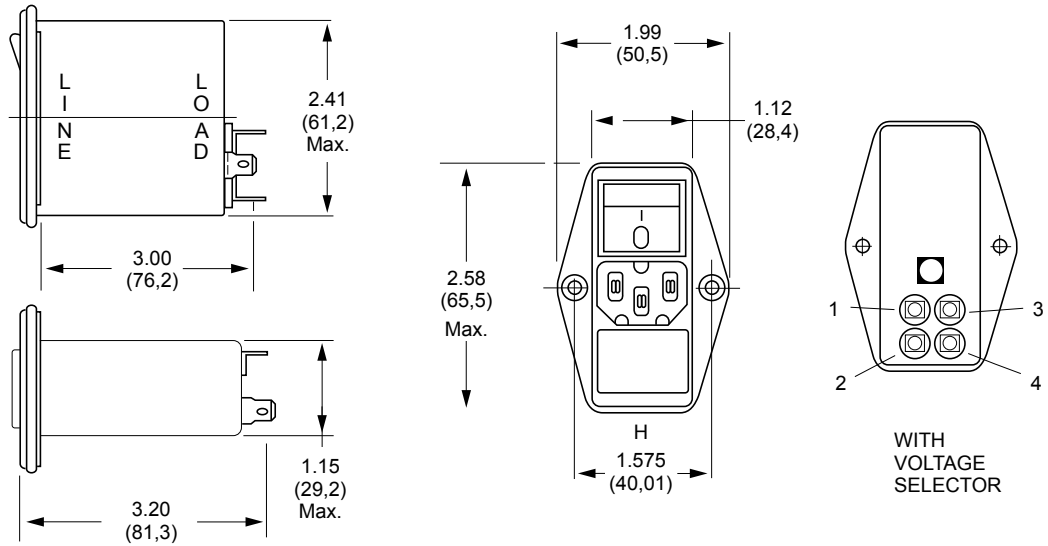
| Nominal Current Rating | Part Number | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |     |    |    |
|------------------------|-------------|-----------------------|----------------------------------------------|-----------------|-----|-----|-----|-----|----|----|
|                        |             |                       | MODE                                         | Frequency - MHz |     |     |     |     |    |    |
|                        |             |                       |                                              | .05             | .15 | .50 | .10 | 5.0 | 10 | 30 |
| 10A                    | PE1XXX10    | IEC/QC                | Common                                       | 10              | 20  | 30  | 38  | 45  | 50 | 50 |
|                        |             |                       | Differential                                 | 10              | 20  | 30  | 35  | 55  | 60 | 55 |
|                        | PE1XXXP0    | IEC/QC                | Common                                       | 13              | 24  | 33  | 38  | 48  | 54 | 54 |
|                        |             |                       | Differential                                 | 10              | 20  | 30  | 35  | 65  | 65 | 55 |

NOTE: Other combinations of terminals may be specified on special order.



## PE1 (10Amp) Dimensions

Refer to Standard  
Mounting Cutouts on  
Page 58



## How to Order

| PE1                                               | X | X | X | X | 0 |
|---------------------------------------------------|---|---|---|---|---|
| SERIES                                            |   |   |   |   |   |
| PE = Power Entry                                  |   |   |   |   |   |
| PM = Medical Power Entry                          |   |   |   |   |   |
| MOUNTING METHOD & FUSING                          |   |   |   |   |   |
| 6 = Screw Mount Metric or U.S. Fuse*              |   |   |   |   |   |
| 8 = Screw Mount 2 Metric or U.S. Fuses            |   |   |   |   |   |
| *U.S. Fuse not available without voltage selector |   |   |   |   |   |
| VOLTAGE SELECTOR                                  |   |   |   |   |   |
| 0 = No Selector                                   |   |   |   |   |   |
| 3 = 115-230 VAC                                   |   |   |   |   |   |
| OPTIONS (Consult Factory)                         |   |   |   |   |   |
| 1 = Standard Units                                |   |   |   |   |   |
| P = High Performance Insertion Loss               |   |   |   |   |   |
| CURRENT RATING                                    |   |   |   |   |   |
| 0 = 10 AMP                                        |   |   |   |   |   |
| SWITCH                                            |   |   |   |   |   |
| 0 = No Switch                                     |   |   |   |   |   |
| 1 = SPST Rocker Switch                            |   |   |   |   |   |
| 2 = DPST Rocker Switch                            |   |   |   |   |   |

## INSTALLATION INSTRUCTION IMPORTANT – CHANGING FUSE/VOLTAGE

### PE1

To change fuse, remove power cord. Remove voltage selector and replace fuse. Reinsert fuse holder. To change the operating voltage on the PE1 Series, remove the power cord and rotate fuse holder block until desired voltage aligns with the mark on the module housing.

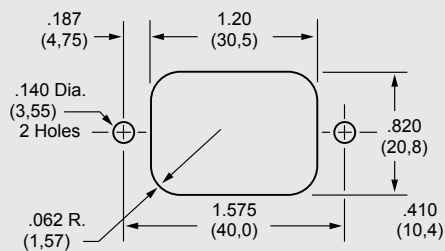
- Filter shipped without fuse.

Always use caution when selecting and changing fuses and voltage requirements. Curtis Industries is not responsible for malfunction due to improper installation/selection of fuse and/or voltage select.

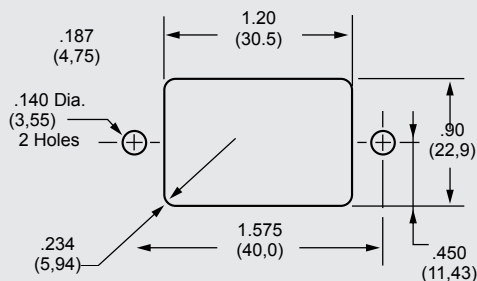


# Standard Mounting Cutouts

## F2199CA, F2200CA, F2300CA, F2400CA, F2500CA, F2700CA, F3100CA, F3200CA, F3400CA, F3500CA

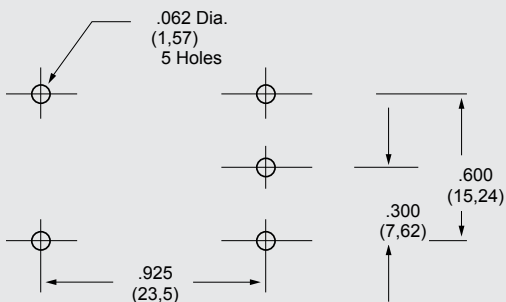


Back Mounting

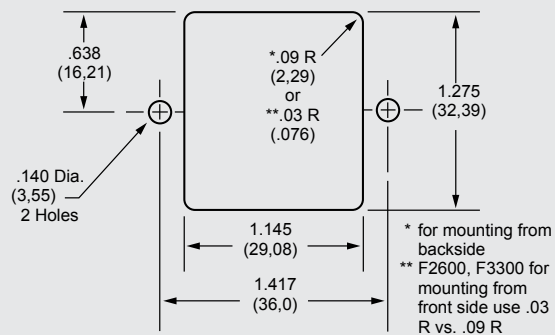


Front Mounting

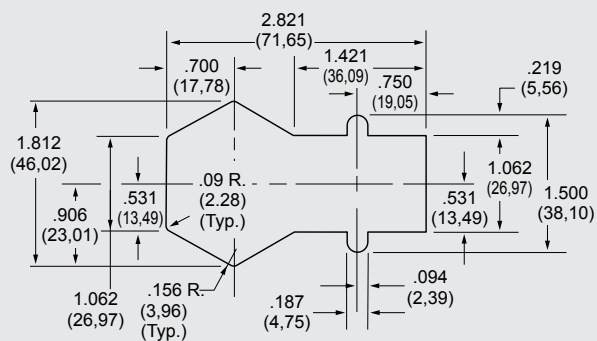
## F2600FP, F3300FP



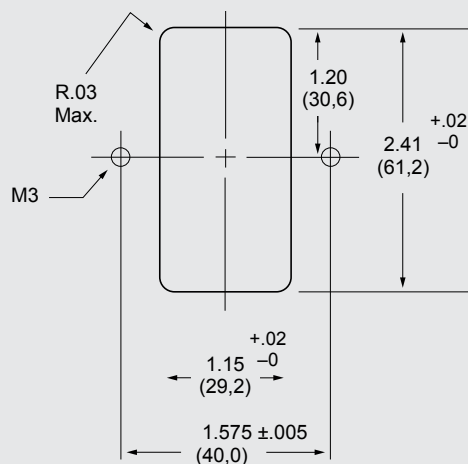
## F2600, F3300



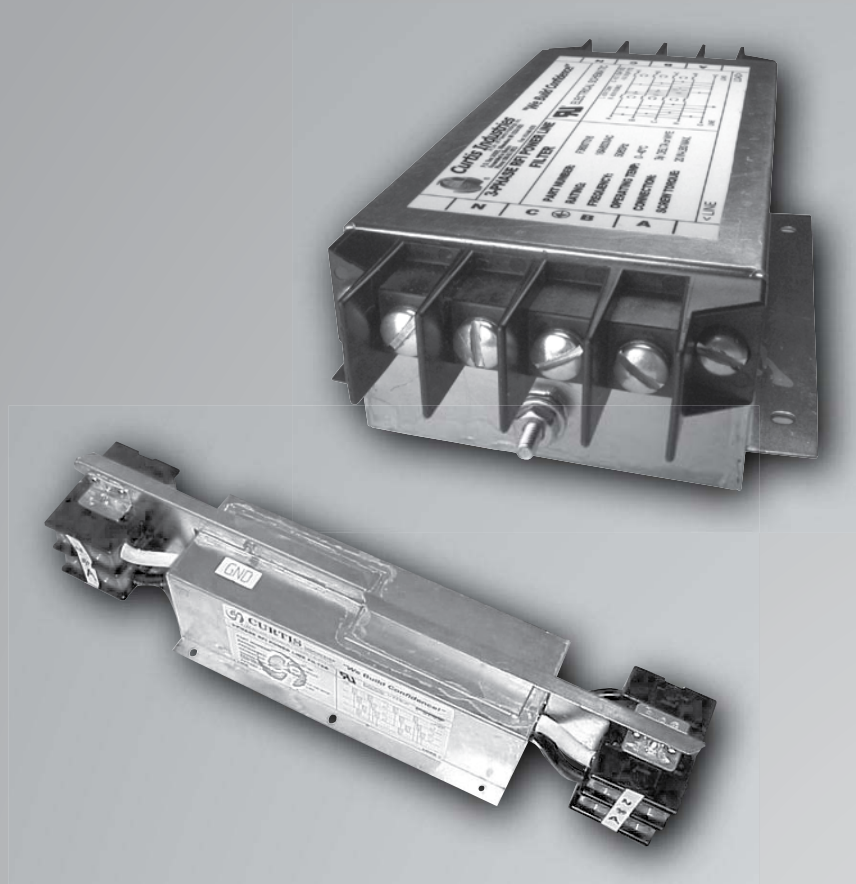
## F2700FB



## PE1 Screw Mount Series



## THREE-PHASE FILTERS ]



# Series F3480/F3600



## Specifications:

**Rated Voltage:** 480 VAC - 50/60 Hz  
600 VAC - 50/60 Hz

**Rated Current:** 480 VAC - 9A to 608A  
600 VAC - 8A to 600A

**Current Overload:** 6X for 8 seconds

|                             |               |               |
|-----------------------------|---------------|---------------|
| <b>Hi-Pot Test (1 min):</b> | <b>480VAC</b> | <b>600VAC</b> |
| Line to Ground              | 2210 VDC      | 3150 VDC      |
| Line to Line                | 2780 VDC      | 3150 VDC      |

**Insulation Resistance:** 1000 MΩ min. at 250 VDC

**Ambient Temperature:** 0°C to 40°C (32°F to 104°F)

**Humidity Range:** 0% to 95% R.H.

### Termination:

- Wire
- Terminal Blocks
- Pressure Terminal Blocks

**Weight:** 3 to 65lbs (1.36 to 29.50kg)

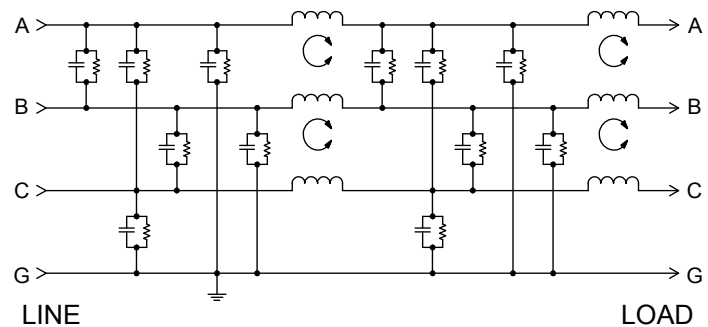
### Agency Approvals:



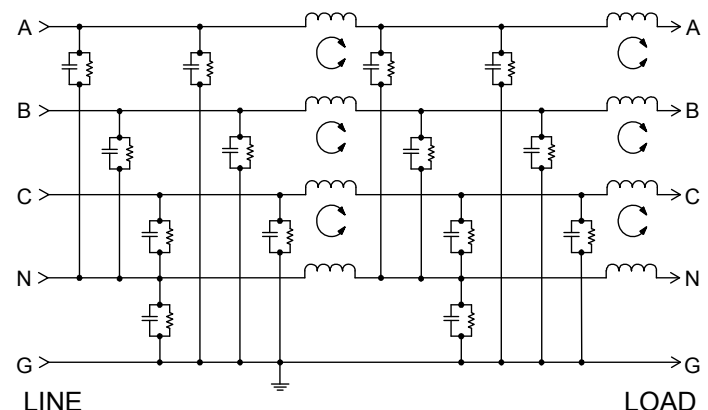
Designed to attenuate conducted interference in a small package providing excellent insertion loss, the F3480/F3600 series filters will provide effective EMC solutions up to 600A at 600VAC and power applications up to 360kVA. With effective noise suppression in the critical 150kHz-30MHz range, this advanced 2-stage filter line will support both Delta and Wye connected loads. Curtis three phase filters are designed to provide EMC solutions in many applications such as:

- Motor
- Motor Control Centers
- Facility Filters
- Uninterruptible Power Supplies
- Power Conditioning Units
- Laser Welders
- Automated Test Equipment
- Robotics
- CNC Machinery
- Elevators
- Industrial Ovens

## F3480 Simplified Schematic

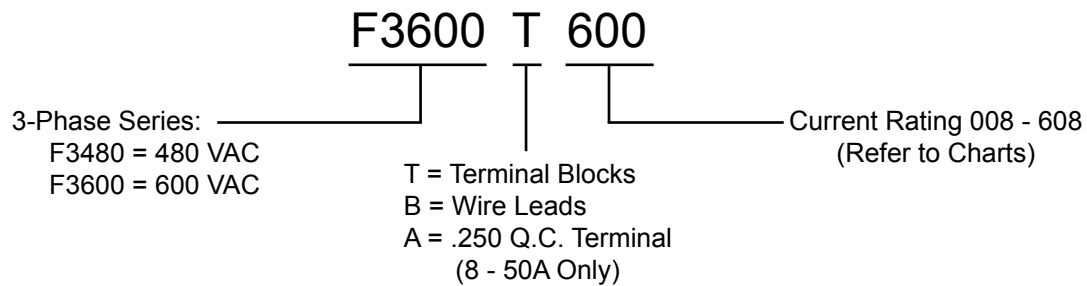


## F3600 Simplified Schematic



# 3-Phase Power Line Filters

## Ordering Information:

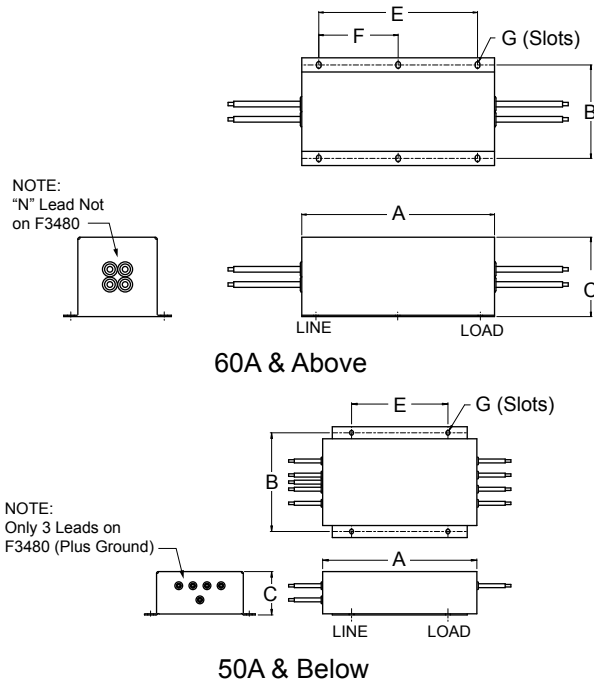


| F3480 Series - 480 VAC |             |                                       |                             |                 |    |    |    |    |       |                     |       |      |      |       |       |      |           |
|------------------------|-------------|---------------------------------------|-----------------------------|-----------------|----|----|----|----|-------|---------------------|-------|------|------|-------|-------|------|-----------|
| Rated Current (Amps)   | Part Number | Maximum Leakage Each L/G (250V, 60Hz) | Minimum Insertion Loss (dB) |                 |    |    |    |    |       | Dimensions (Inches) |       |      |      |       |       |      |           |
|                        |             |                                       |                             |                 |    |    |    |    |       | A                   | B     | C    | D    | E     | F     | G    |           |
| 608A                   | F3480T608   | 140mA                                 |                             | Frequency (MHz) |    |    |    |    |       |                     | 18.75 | 5.25 | 5.93 | 41.25 | 16.00 | 8.00 | .28 x .40 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 |       |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 60                          | 70              | 70 | 60 | 45 | 30 | 18.75 | 5.25                | 4.50  | --   |      |       |       |      |           |
|                        | DM          |                                       | 30                          | 40              | 40 | 35 | 30 | 20 |       |                     |       |      |      |       |       |      |           |
| 322A                   | F3480T322   | 90mA                                  |                             | Frequency (MHz) |    |    |    |    |       |                     | 10.50 | 5.25 | 4.63 | 23.50 | 8.00  | 4.00 | .28 x .40 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 |       |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 60                          | 70              | 70 | 65 | 55 | 45 | 10.50 | 5.25                | 4.50  | --   |      |       |       |      |           |
|                        | DM          |                                       | 30                          | 40              | 40 | 40 | 35 | 20 |       |                     |       |      |      |       |       |      |           |
| 185A                   | F3480T185   | 90mA                                  |                             | Frequency (MHz) |    |    |    |    |       |                     | 11.25 | 4.12 | 4.25 | 20.25 | 10.00 | 5.00 | .20 x .30 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 |       |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 60                          | 70              | 70 | 65 | 55 | 45 | 11.25 | 4.12                | 3.50  | --   |      |       |       |      |           |
|                        | DM          |                                       | 30                          | 35              | 35 | 45 | 40 | 30 |       |                     |       |      |      |       |       |      |           |
| 135A                   | F3480T136   | 80mA                                  |                             | Frequency (MHz) |    |    |    |    |       |                     | 8.50  | 4.12 | 4.25 | 16.00 | 7.00  | 3.50 | .20 x .30 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 |       |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 60                          | 65              | 70 | 60 | 50 | 40 | 8.50  | 4.12                | 3.50  | --   |      |       |       |      |           |
|                        | DM          |                                       | 25                          | 35              | 45 | 30 | 30 | 20 |       |                     |       |      |      |       |       |      |           |
| 112A                   | F3480T112   | 80mA                                  |                             | Frequency (MHz) |    |    |    |    |       |                     | 8.50  | 4.12 | 4.25 | 16.00 | 7.00  | 3.50 | .20 x .30 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 |       |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 60                          | 65              | 70 | 60 | 50 | 40 | 8.50  | 4.12                | 3.50  | --   |      |       |       |      |           |
|                        | DM          |                                       | 25                          | 35              | 45 | 30 | 30 | 20 |       |                     |       |      |      |       |       |      |           |
| 80A                    | F3480T080   | 30mA                                  |                             | Frequency (MHz) |    |    |    |    |       |                     | 8.50  | 4.12 | 4.25 | 16.00 | 7.00  | 3.50 | .20 x .30 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 |       |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 60                          | 70              | 70 | 65 | 55 | 45 | 8.50  | 4.12                | 3.50  | --   |      |       |       |      |           |
|                        | DM          |                                       | 15                          | 25              | 45 | 40 | 40 | 30 |       |                     |       |      |      |       |       |      |           |
| 60A                    | F3480T060   | 30mA                                  |                             | Frequency (MHz) |    |    |    |    |       |                     | 8.50  | 4.12 | 4.25 | 16.00 | 7.00  | 3.50 | .20 x .30 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 |       |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 60                          | 70              | 70 | 65 | 55 | 45 | 8.50  | 4.12                | 3.50  | --   |      |       |       |      |           |
|                        | DM          |                                       | 15                          | 25              | 45 | 40 | 40 | 30 |       |                     |       |      |      |       |       |      |           |
| 50A                    | F3480A050   | 15mA                                  |                             | Frequency (MHz) |    |    |    |    |       |                     | 8.00  | 5.12 | 2.25 | --    | 5.00  | --   | .19 x .25 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 | --    |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 60                          | 75              | 80 | 75 | 70 | 50 | --    |                     |       |      |      |       |       |      |           |
|                        | DM          |                                       | 10                          | 40              | 50 | 50 | 50 | 40 | 10.10 |                     |       |      |      |       |       |      |           |
| 32A                    | F3480A032   | 7mA                                   |                             | Frequency (MHz) |    |    |    |    |       |                     | 8.00  | 5.12 | 2.25 | --    | 5.00  | --   | .19 x .25 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 | --    |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 60                          | 70              | 80 | 75 | 65 | 45 | --    |                     |       |      |      |       |       |      |           |
|                        | DM          |                                       | 10                          | 45              | 50 | 50 | 50 | 40 | 10.10 |                     |       |      |      |       |       |      |           |
| 16A                    | F3480A016   | 3mA                                   |                             | Frequency (MHz) |    |    |    |    |       |                     | 6.00  | 3.88 | 2.00 | --    | 4.00  | --   | .16 x .20 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 | --    |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 50                          | 70              | 80 | 75 | 65 | 50 | --    |                     |       |      |      |       |       |      |           |
|                        | DM          |                                       | 10                          | 50              | 50 | 40 | 40 | 40 | 10.10 |                     |       |      |      |       |       |      |           |
| 9A                     | F3480A009   | 3mA                                   |                             | Frequency (MHz) |    |    |    |    |       |                     | 6.00  | 3.88 | 2.00 | --    | 4.00  | --   | .16 x .20 |
|                        |             |                                       | .15                         | .5              | 1  | 5  | 10 | 30 | --    |                     |       |      |      |       |       |      |           |
|                        | CM          |                                       | 60                          | 80              | 80 | 70 | 60 | 50 | --    |                     |       |      |      |       |       |      |           |
|                        | DM          |                                       | 30                          | 45              | 50 | 50 | 50 | 50 | 10.10 |                     |       |      |      |       |       |      |           |

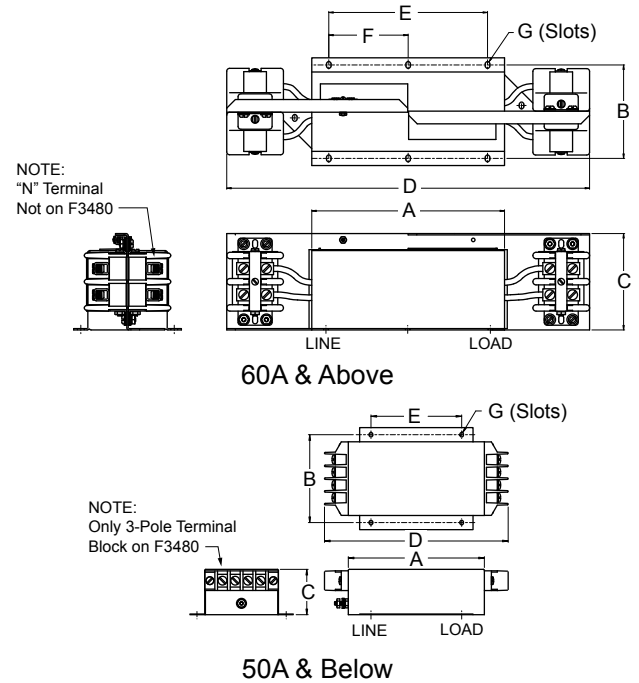


# Series F3480/F3600

## F3480B & F3600B Dimensions



## F3480T & F3600T Dimensions



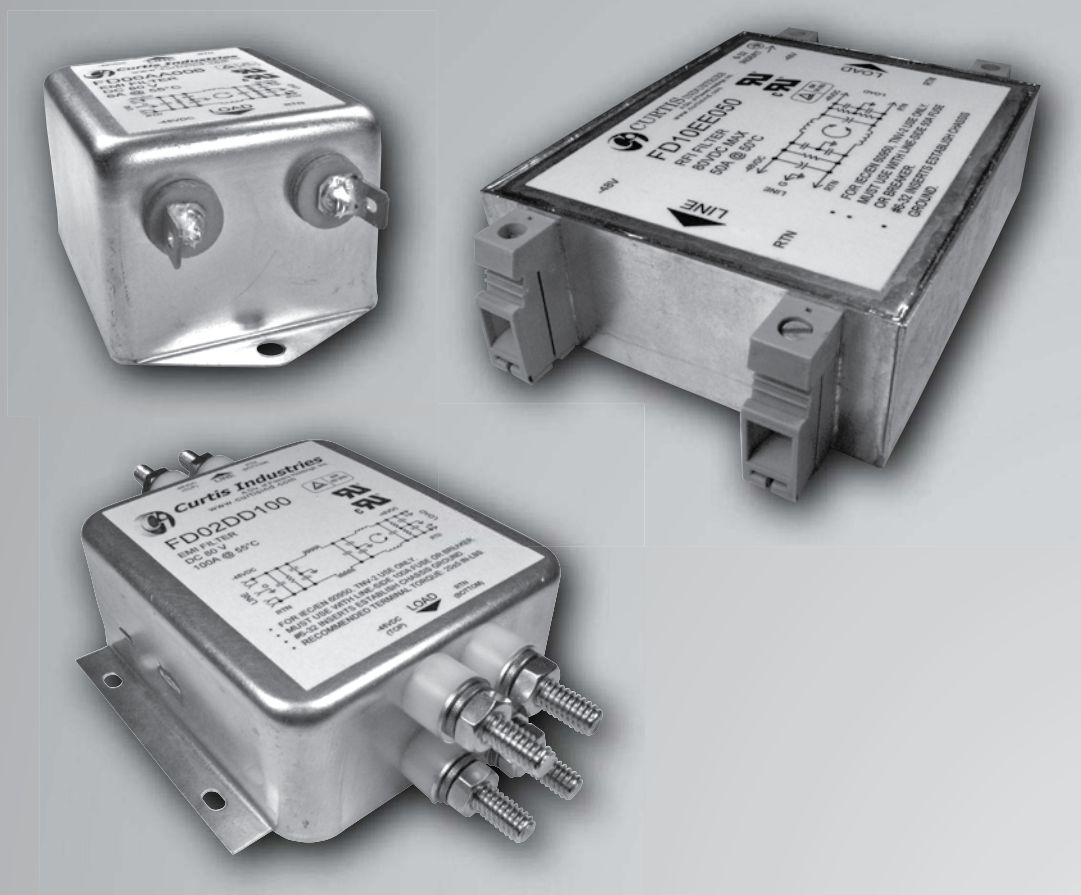
## F3600 Series - 600 VAC

| Rated<br>Current<br>(Amps) | Part<br>Number | Maximum<br>Leakage<br>Each L/G<br>(250V,<br>60Hz) | Minimum<br>Insertion Loss (dB) |                 |    |    |    |    | Dimensions (Inches) |       |      |      |       |       |      |              |
|----------------------------|----------------|---------------------------------------------------|--------------------------------|-----------------|----|----|----|----|---------------------|-------|------|------|-------|-------|------|--------------|
|                            |                |                                                   |                                |                 |    |    |    |    | A                   | B     | C    | D    | E     | F     | G    |              |
| 600A                       | F3600T600      | 120mA                                             |                                | Frequency (MHz) |    |    |    |    |                     | 18.75 | 5.25 | 5.93 | 41.25 | 16.00 | 8.00 | .28 x<br>.40 |
|                            |                |                                                   | .15                            | .5              | 1  | 5  | 10 | 30 | 18.75               | 5.25  | 4.50 | --   |       |       |      |              |
|                            | CM             |                                                   | 60                             | 60              | 50 | 50 | 40 | 30 |                     |       |      |      |       |       |      |              |
|                            | F3600B600      |                                                   | DM                             | 20              | 35 | 35 | 30 | 25 | 20                  |       |      |      |       |       |      |              |
| 300A                       | F3600T300      | 60mA                                              |                                | Frequency (MHz) |    |    |    |    |                     | 10.50 | 5.25 | 5.93 | 26.50 | 8.00  | 4.00 | .28 x<br>.40 |
|                            |                |                                                   | .15                            | .5              | 1  | 5  | 10 | 30 | 10.50               | 5.25  | 4.50 | --   |       |       |      |              |
|                            | CM             |                                                   | 60                             | 60              | 50 | 50 | 40 | 30 |                     |       |      |      |       |       |      |              |
|                            | F3600B300      |                                                   | DM                             | 25              | 30 | 35 | 45 | 30 | 20                  |       |      |      |       |       |      |              |
| 180A                       | F3600T180      | 60mA                                              |                                | Frequency (MHz) |    |    |    |    |                     | 11.25 | 4.12 | 4.25 | 20.25 | 10.00 | 5.00 | .20 x<br>.30 |
|                            |                |                                                   | .15                            | .5              | 1  | 5  | 10 | 30 | 11.25               | 4.12  | 3.50 | --   |       |       |      |              |
|                            | CM             |                                                   | 60                             | 60              | 60 | 60 | 50 | 40 |                     |       |      |      |       |       |      |              |
|                            | F3600B180      |                                                   | DM                             | 20              | 30 | 35 | 45 | 40 | 30                  |       |      |      |       |       |      |              |
| 80A                        | F3600T080      | 30mA                                              |                                | Frequency (MHz) |    |    |    |    |                     | 8.50  | 4.12 | 4.25 | 16.00 | 7.00  | 3.50 | .20 x<br>.30 |
|                            |                |                                                   | .15                            | .5              | 1  | 5  | 10 | 30 | 8.50                | 4.12  | 3.50 | --   |       |       |      |              |
|                            | CM             |                                                   | 60                             | 60              | 60 | 60 | 50 | 40 |                     |       |      |      |       |       |      |              |
|                            | F3600B080      |                                                   | DM                             | 15              | 25 | 25 | 40 | 40 | 30                  |       |      |      |       |       |      |              |
| 45A                        | F3600A045      | 10mA                                              |                                | Frequency (MHz) |    |    |    |    |                     | 8.00  | 5.12 | 2.25 | --    | 5.00  | --   | .19 x<br>.25 |
|                            |                |                                                   | .15                            | .5              | 1  | 5  | 10 | 30 | --                  |       |      |      |       |       |      |              |
|                            | CM             |                                                   | 60                             | 60              | 80 | 70 | 60 | 45 | 10.10               |       |      |      |       |       |      |              |
|                            | F3600B045      |                                                   | DM                             | 10              | 10 | 15 | 50 | 40 | 30                  |       |      |      |       |       |      |              |
|                            | F3600T045      |                                                   |                                | Frequency (MHz) |    |    |    |    |                     |       |      |      |       |       |      |              |
| 25A                        | F3600A025      | 8mA                                               |                                | Frequency (MHz) |    |    |    |    |                     | 8.00  | 5.12 | 2.25 | --    | 5.00  | --   | .19 x<br>.25 |
|                            |                |                                                   | .15                            | .5              | 1  | 5  | 10 | 30 | --                  |       |      |      |       |       |      |              |
|                            | CM             |                                                   | 60                             | 60              | 80 | 70 | 60 | 45 | 10.10               |       |      |      |       |       |      |              |
|                            | F3600B025      |                                                   | DM                             | 5               | 5  | 30 | 50 | 40 | 30                  |       |      |      |       |       |      |              |
|                            | F3600T025      |                                                   |                                | Frequency (MHz) |    |    |    |    |                     |       |      |      |       |       |      |              |
| 16A                        | F3600A016      | 4mA                                               |                                | Frequency (MHz) |    |    |    |    |                     | 6.00  | 3.88 | 2.00 | --    | 4.00  | --   | .16 x<br>.20 |
|                            |                |                                                   | .15                            | .5              | 1  | 5  | 10 | 30 | --                  |       |      |      |       |       |      |              |
|                            | CM             |                                                   | 50                             | 70              | 80 | 70 | 60 | 45 | 8.10                |       |      |      |       |       |      |              |
|                            | F3600B016      |                                                   | DM                             | 5               | 5  | 35 | 40 | 40 | 40                  |       |      |      |       |       |      |              |
|                            | F3600T016      |                                                   |                                | Frequency (MHz) |    |    |    |    |                     |       |      |      |       |       |      |              |
| 8A                         | F3600A008      | 4mA                                               |                                | Frequency (MHz) |    |    |    |    |                     | 6.00  | 3.88 | 2.00 | --    | 4.00  | --   | .16 x<br>.20 |
|                            |                |                                                   | .15                            | .5              | 1  | 5  | 10 | 30 | --                  |       |      |      |       |       |      |              |
|                            | CM             |                                                   | 60                             | 70              | 80 | 70 | 60 | 45 | 8.10                |       |      |      |       |       |      |              |
|                            | F3600B008      |                                                   | DM                             | 5               | 10 | 50 | 40 | 40 | 40                  |       |      |      |       |       |      |              |
|                            | F3600T008      |                                                   |                                | Frequency (MHz) |    |    |    |    |                     |       |      |      |       |       |      |              |



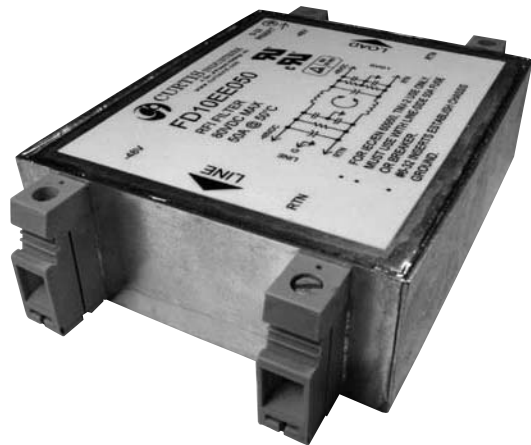
## DC FILTERS ]

# *General Purpose High Performance*



*Curtis Industries*  
A Division of Powers Holdings, Inc.

# FD Series Filters



The FD Series of DC filters are designed as a general purpose line of filters for DC applications. They are designed to comply with UL/EN 60950 and UL 1459, CISPER 22 and Telecordia (Bellcore) GR-1089 at 25Amps and above. These filters are available with and without circuit breakers for additional protection.

The FD Series is a compact size that can filter up to 300MHz ideally suited for the telecom-datacom market. The FD0 Series is available from 6Amps to 100Amps in the smallest, economical package. The FD02 is a high frequency filter up to 3GHz (3,000MHz) in a compact package.

These filters are ideally used in communications and central office equipment.

- Power Supplies for Communications Equipment
- Network Routing Equipment
- Switching Equipment
- Base Stations
- Modems
- Services
- Ethernet Hubs



## Specifications:

**Rated Voltage:** 80VDC Maximum

**Rated Current:** 6A  
10A  
20A  
25A  
50A  
75A  
100A

**Current Overload:** 6X for 8 seconds

**Hi-Pot Rating (1 min):**

Line to Ground 1060VDC  
Line to Line 100VDC

**Insulation Resistance:** 1000 MΩ at 80VDC

**Ambient Temperature:** 0°C to 55°C (32°F to 131°F)

**Humidity Range:** 0% to 95% R.H.

**Termination:** See Chart at Right

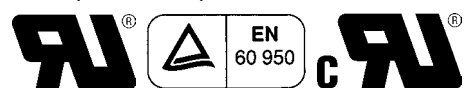
**Wire Leads:** 18AWG 6A to 20A (FD0)  
(FD0 25Amp to 100Amp not available with wire leads)  
10AWG 30Amp (FD1, FD2, FD3)  
6AWG 50Amp  
4AWG 75Amp & 100Amp

**Agency Approvals:**

6Amp to 20Amp



25Amp to 100Amp



General Purpose

DC FILTERS



# Power Line Filter Selection Guide

## FD00 & FD02 SERIES

| FILTER<br>Part Number | Current Rating<br>(Amps) | Termination    |            |       |
|-----------------------|--------------------------|----------------|------------|-------|
|                       |                          | Quick Connects | Wire Leads | Studs |
| FD00AA006             | 6                        | X              |            |       |
| FD00BB006             | 6                        |                | X          |       |
| FD00DD006             | 6                        |                |            | X     |
| FD00AA010             | 10                       | X              |            |       |
| FD00BB010             | 10                       |                | X          |       |
| FD00DD010             | 10                       |                |            | X     |
| FD00AA020             | 20                       | X              |            |       |
| FD00DD020             | 20                       |                |            | X     |
| FD00BD025             | 25                       |                | X          | X     |
| FD00DD025             | 25                       |                |            | X     |
| FD00BD050             | 50                       |                | X          | X     |
| FD00DD050             | 50                       |                |            | X     |
| FD00BD075             | 75                       |                | X          | X     |
| FD00DD075             | 75                       |                |            | X     |
| FD00BD100             | 100                      |                | X          | X     |
| FD00DD100             | 100                      |                |            | X     |
| FD02BD025             | 25                       |                | X          | X     |
| FD02DD025             | 25                       |                |            | X     |
| FD02DD050             | 50                       |                |            | X     |
| FD02BD050             | 50                       |                | X          | X     |
| FD02DD075             | 75                       |                |            | X     |
| FD02BD075             | 75                       |                | X          | X     |
| FD02DD100             | 100                      |                |            | X     |
| FD02BD100             | 100                      |                | X          | X     |

## FD1, FD2, FD3 SERIES

| FILTER<br>Part Number | Current Rating<br>(Amps)    | Disconnect Type               |                               |                               | Termination |                           |                |                   |
|-----------------------|-----------------------------|-------------------------------|-------------------------------|-------------------------------|-------------|---------------------------|----------------|-------------------|
|                       |                             | Single Pole<br>Rocker Breaker | Double Pole<br>Rocker Breaker | Double Pole<br>Handle Breaker | Wire Leads  | High Current<br>Connector | Euro Connector | Dual Stud T-Block |
| FD10BB030             | 30                          |                               |                               |                               | X           |                           |                |                   |
| FD10EE030             | 30                          |                               |                               |                               |             |                           | X              |                   |
| FD10BB050             | 50                          |                               |                               |                               | X           |                           |                |                   |
| FD10EE050             | 50                          |                               |                               |                               |             |                           | X              |                   |
| FD10BB075             | 75                          |                               |                               |                               | X           |                           |                |                   |
| FD10BB100             | 100                         |                               |                               |                               | X           |                           |                |                   |
| FD20B_ _ _            | 30,<br>50,<br>or 80         |                               |                               |                               | X           |                           |                |                   |
| FD20E_ _ _            |                             |                               |                               |                               |             |                           | X              |                   |
| FD20R_ _ _            |                             | X                             |                               |                               |             |                           |                | X                 |
| FD20D_ _ _            |                             |                               | X                             |                               |             |                           |                | X                 |
| FD20H_ _ _            |                             |                               |                               | X                             |             |                           |                | X                 |
| FD20_B_ _ _           |                             |                               |                               |                               | X           |                           |                |                   |
| FD20_C_ _ _           |                             |                               |                               |                               |             | X                         |                |                   |
| FD20_E_ _ _           |                             |                               |                               |                               |             |                           | X              |                   |
| FD20_T_ _ _           |                             |                               |                               |                               |             |                           |                | X                 |
| FD30B_ _ _            | 30,<br>50,<br>75,<br>or 100 |                               |                               |                               | X           |                           |                |                   |
| FD30E_ _ _            |                             |                               |                               |                               |             |                           | X              |                   |
| FD30R_ _ _            |                             | X                             |                               |                               |             |                           |                | X                 |
| FD30D_ _ _            |                             |                               | X                             |                               |             |                           |                | X                 |
| FD30H_ _ _            |                             |                               |                               | X                             |             |                           |                | X                 |
| FD30_B_ _ _           |                             |                               |                               |                               | X           |                           |                |                   |
| FD30_C_ _ _           |                             |                               |                               |                               |             | X                         |                |                   |
| FD30_E_ _ _           |                             |                               |                               |                               |             |                           | X              |                   |
| FD30_T_ _ _           |                             |                               |                               |                               |             |                           |                | X                 |

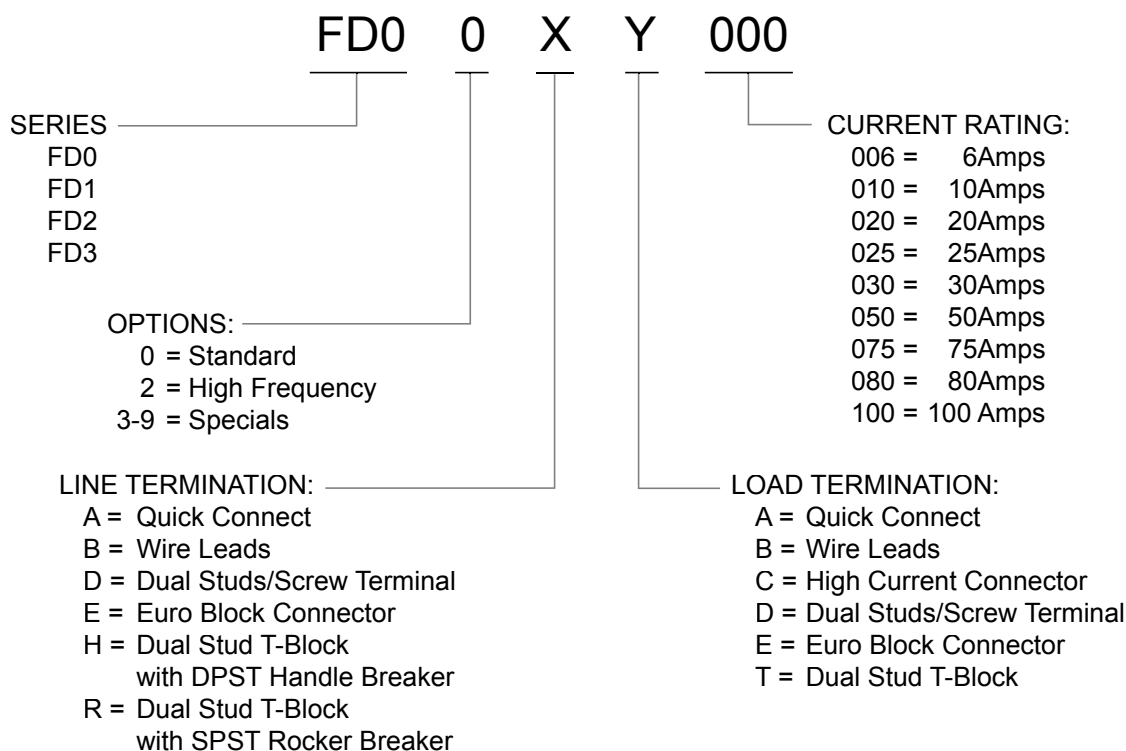
General Purpose

DC FILTERS



# FD Series Filters

## How to Order



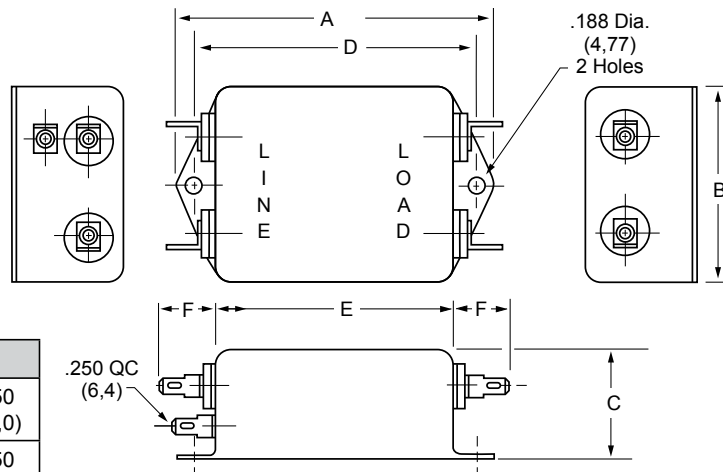
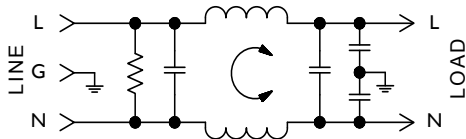
**NOTE: Not all terminations are available in all models.**

| Part Number                                      | MODE                   | TYPICAL INSERTION LOSS - dB (50 ohm Circuit) |          |          |          |          |          |          |          |          |          |          |          |          |
|--------------------------------------------------|------------------------|----------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                                                  |                        | Frequency - MHz                              |          |          |          |          |          |          |          |          |          |          |          |          |
|                                                  |                        | .01                                          | .03      | .10      | .15      | .50      | 1.0      | 5.0      | 10       | 30       | 100      | 300      | 1000     | 3000     |
| FD00XX006<br>FD00XX010<br>FD00XX020              | Common<br>Differential | —<br>—                                       | —<br>—   | —<br>—   | 10<br>15 | 22<br>45 | 30<br>60 | 42<br>60 | 47<br>50 | 40<br>50 | —<br>—   | —<br>—   | —<br>—   | —<br>—   |
| FD00XX025<br>FD00XX050<br>FD00XX075<br>FD00XX100 | Common<br>Differential | —<br>—                                       | —<br>—   | —<br>—   | 22<br>32 | 50<br>38 | 60<br>50 | 50<br>55 | 45<br>50 | 40<br>40 | —<br>—   | —<br>—   | —<br>—   | —<br>—   |
| FD02XX025<br>FD02XX050<br>FD02XX100              | Common<br>Differential | 5<br>40                                      | 5<br>45  | 35<br>45 | 45<br>45 | 60<br>48 | 60<br>50 | 55<br>45 | 55<br>55 | 50<br>48 | 40<br>45 | 10<br>15 | 20<br>58 | 25<br>40 |
| FD10XX030<br>FD10XX050<br>FD10XX075<br>FD10XX100 | Common<br>Differential | 5<br>55                                      | 15<br>60 | 48<br>70 | 60<br>70 | 65<br>70 | 65<br>65 | 60<br>70 | 60<br>60 | 55<br>50 | 25<br>35 | 25<br>15 | —<br>—   | —<br>—   |
| FD20XX030<br>FD20XX050<br>FD20XX080              | Common<br>Differential | 5<br>55                                      | 15<br>65 | 48<br>70 | 60<br>65 | 70<br>60 | 70<br>65 | 70<br>55 | 60<br>50 | 55<br>45 | —<br>—   | —<br>—   | —<br>—   | —<br>—   |
| FD30XX030<br>FD30XX050<br>FD30XX075<br>FD30XX100 | Common<br>Differential | 12<br>50                                     | 20<br>60 | 44<br>70 | 60<br>70 | 60<br>70 | 60<br>70 | 60<br>55 | 60<br>70 | 55<br>60 | —<br>—   | —<br>—   | —<br>—   | —<br>—   |



# FD00 Filters

## FD00AA (6, 10 and 20Amp) Dimensions

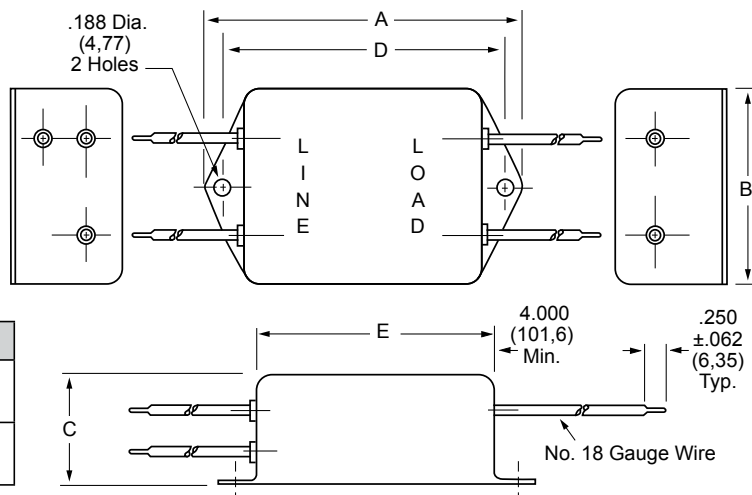


| Amps | A                                    | B               | C               | D               | E               | F              |
|------|--------------------------------------|-----------------|-----------------|-----------------|-----------------|----------------|
| 6A   | 3.312<br>(84,1)                      | 2.000<br>(50,8) | 1.125<br>(28,5) | 2.940<br>(74,7) | 2.500<br>(63,5) | .550<br>(14,0) |
| 10A  | 3.312<br>(84,1)                      | 2.000<br>(50,8) | 1.500<br>(38,2) | 2.940<br>(74,7) | 2.500<br>(63,5) | .550<br>(14,0) |
| 20A  | See FD00DD below for Case Dimensions |                 |                 |                 |                 |                |

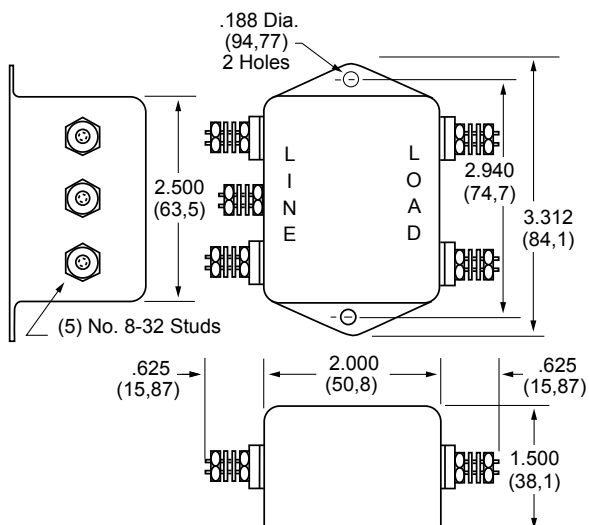
## FD00BB

(6 and 10Amp) Dimensions

| Amps | A               | B               | C               | D                | E               |
|------|-----------------|-----------------|-----------------|------------------|-----------------|
| 6A   | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.125<br>(28,5) | 2.940<br>(74,7)  | 2.500<br>(50,8) |
| 10A  | 3.312<br>(84,1) | 2.000<br>(50,8) | 1.500<br>(38,1) | 2.940<br>(74,70) | 2.500<br>(50,8) |



## FD00DD (20Amp) Dimensions



Dimensions are in inches and millimeters  
unless otherwise specified.  
Values in parentheses are metric equivalents.



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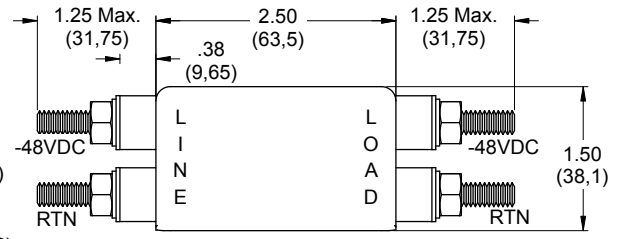
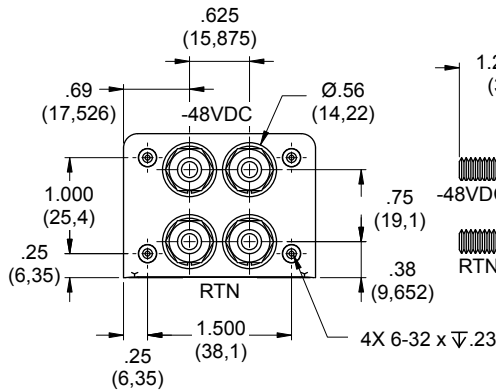
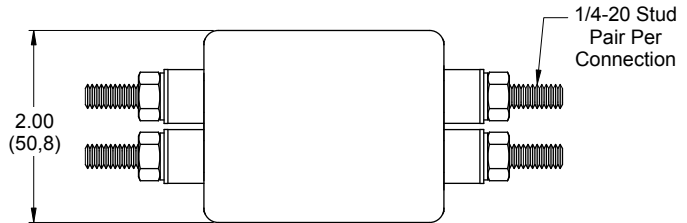
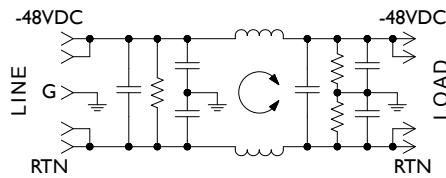
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General Purpose

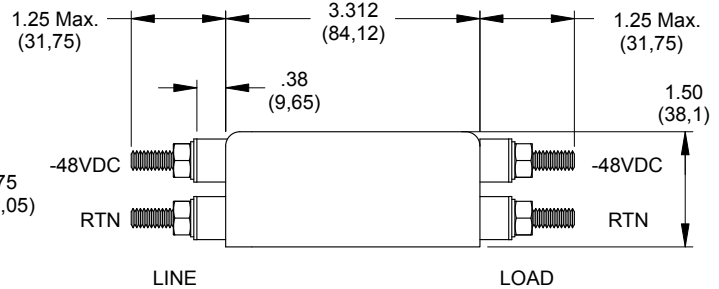
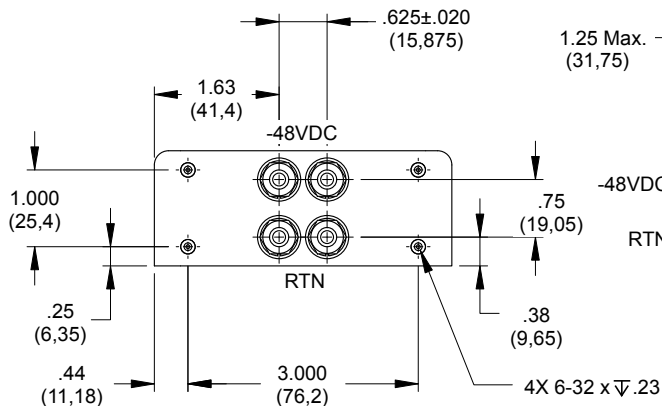
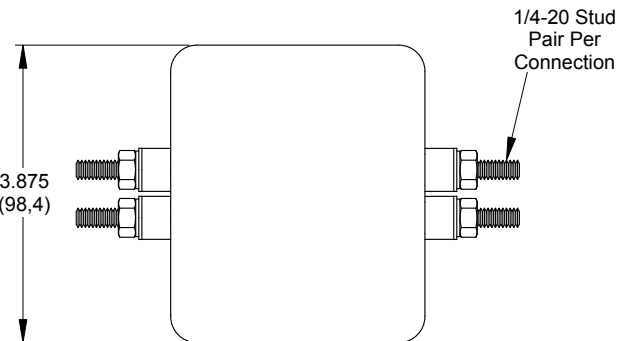
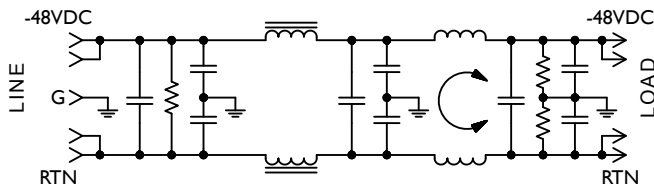
DC FILTERS

# FD00 & FD02 Filters

## FD00DD (25, 50, 75 and 100Amp) Dimensions



## FD02DD (25, 50 and 100Amp) Dimensions



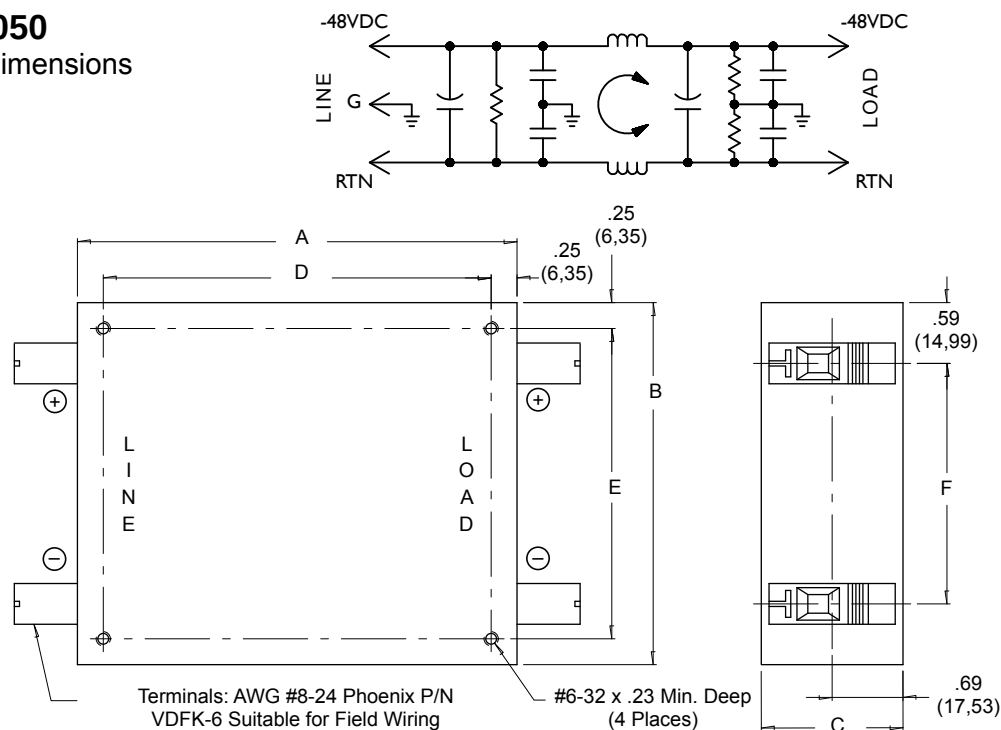
General Purpose

DC FILTERS



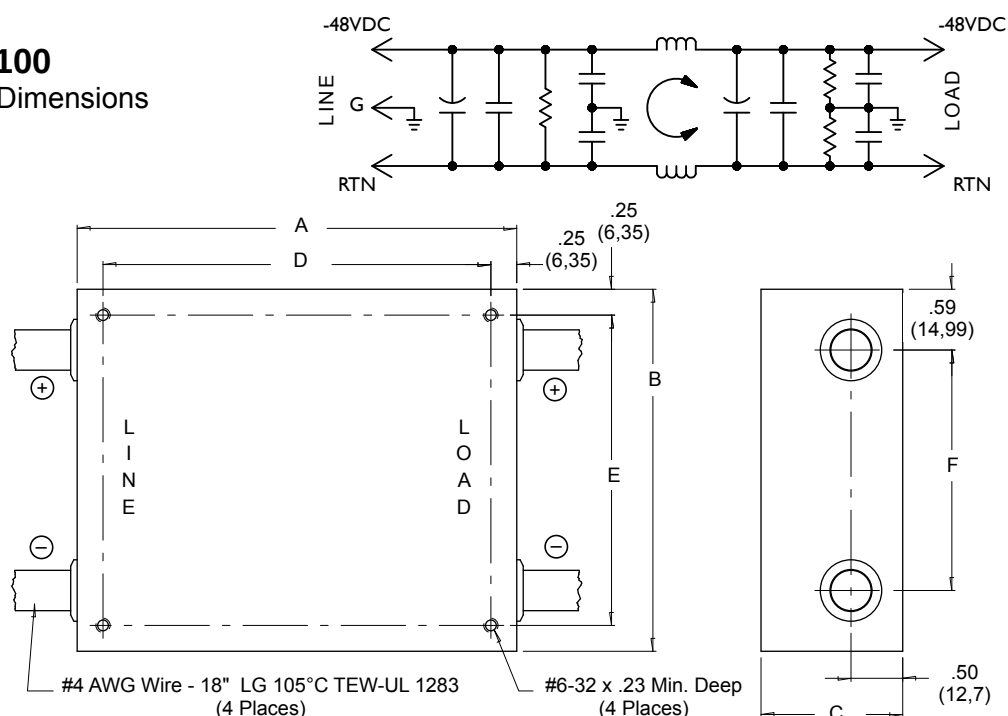
# FD1 Filters

## FD10EE050 (50Amp) Dimensions



| Amps | A                | B              | C               | D                | E               | F               |
|------|------------------|----------------|-----------------|------------------|-----------------|-----------------|
| 50A  | 4.25<br>(107,95) | 3.50<br>(88,9) | 1.37<br>(34,79) | 3.750<br>(95,25) | 3.000<br>(76,2) | 2.33<br>(59,18) |
| 100A | 4.25<br>(107,95) | 3.50<br>(88,9) | 1.37<br>(34,79) | 3.750<br>(95,25) | 3.000<br>(76,2) | 2.33<br>(59,18) |

## FD10BB100 (100Amp) Dimensions



Dimensions are in inches and millimeters unless otherwise specified.  
Values in parentheses are metric equivalents.



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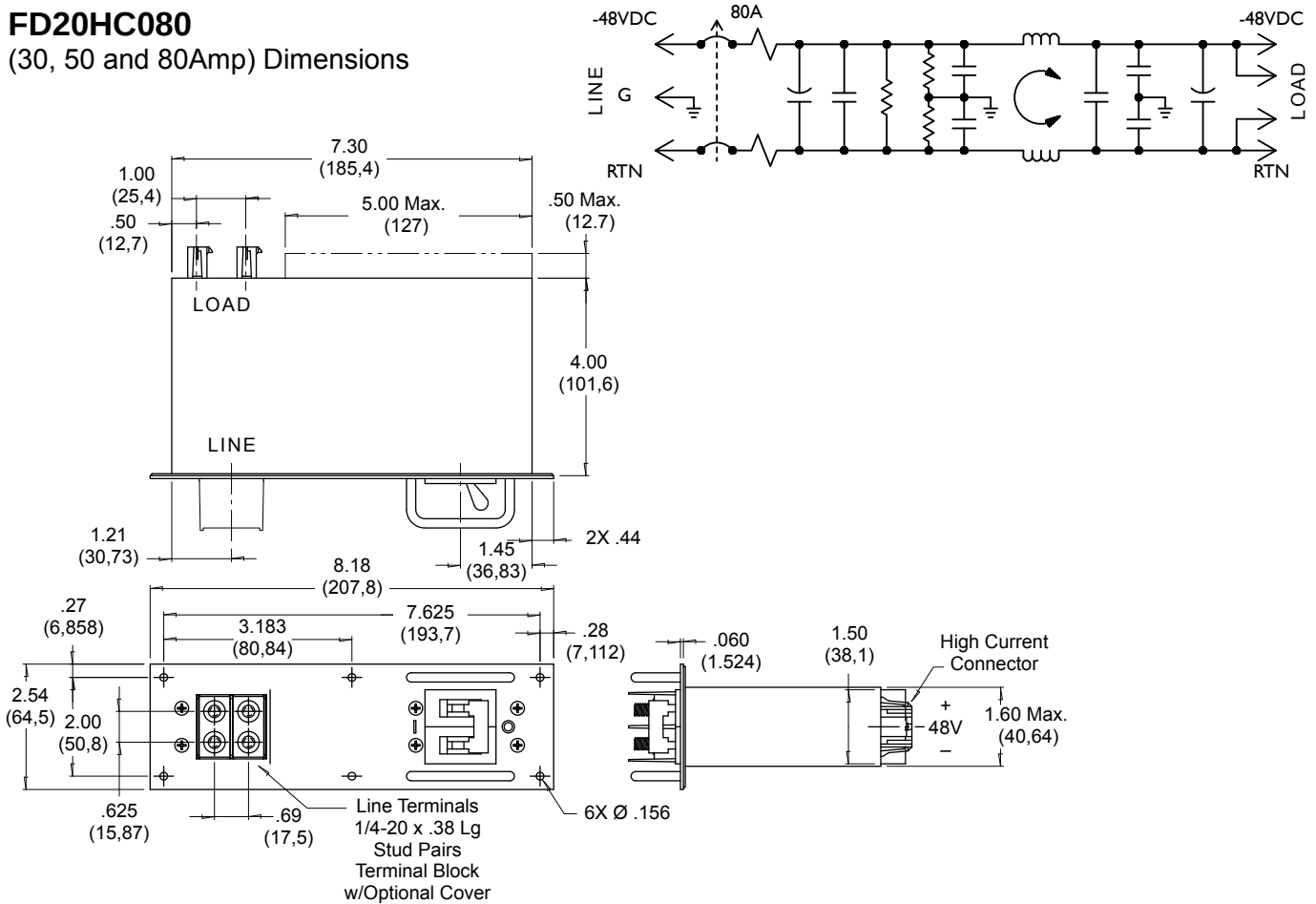
High Performance

DC FILTERS

# FD2 & FD3 Filters

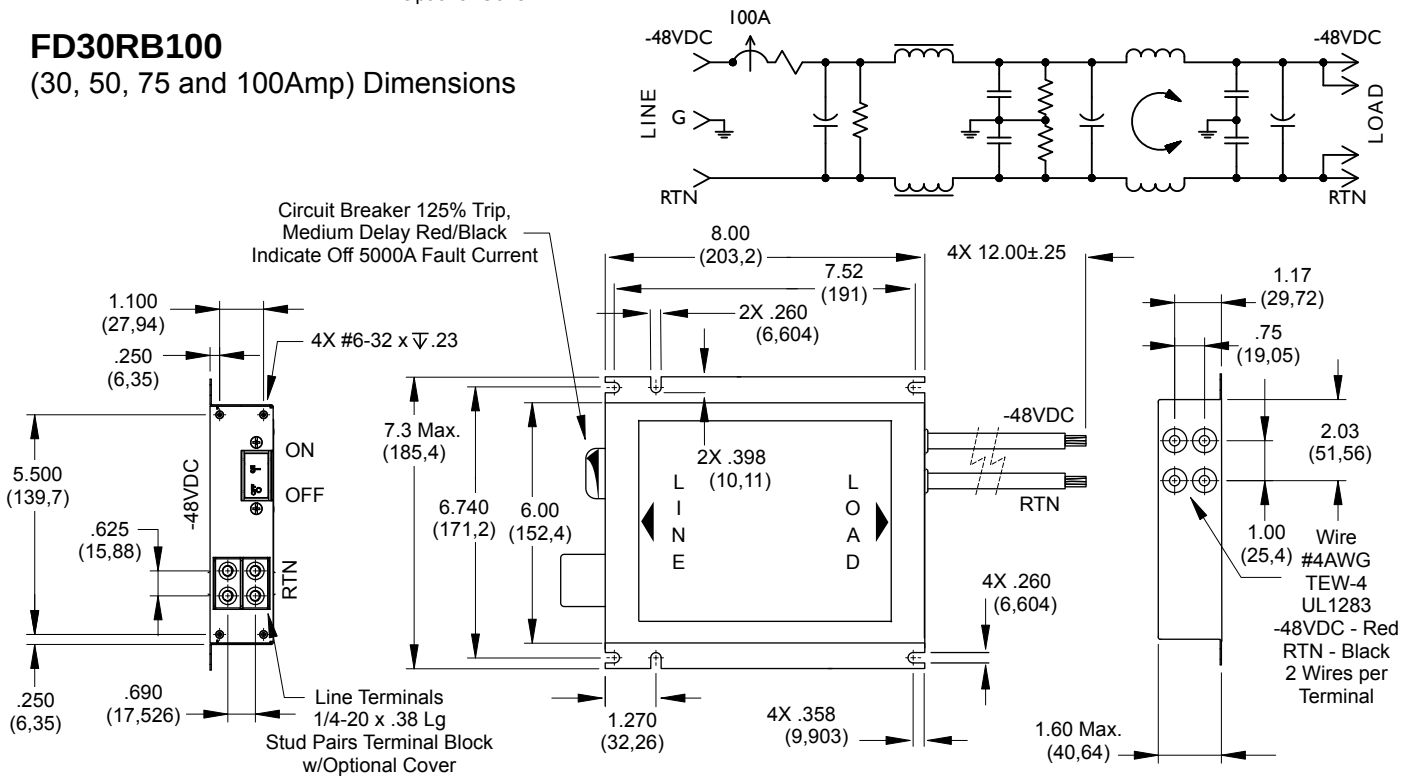
## FD20HC080

(30, 50 and 80Amp) Dimensions



## FD30RB100

(30, 50, 75 and 100Amp) Dimensions



High Performance

DC FILTERS



## MEDICAL FILTERS ]

### *General Purpose Combination*



*Curtis Industries*  
A Division of Powers Holdings, Inc.



# F3099 RFI Filters



## Specifications:

**Maximum Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 250VAC  
6A

**Current Overload:** 6X for 8 seconds

### Hi-Pot Test (1 min):

Line to Ground 1500VAC

Line to Line 1450VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max at rated current

**Humidity Range:** 0% to 95% R.H.

### Termination:

A: Quick Connect

B: Wire

### Maximum Leakage Current:

Each Line to Ground **F3000 Series**

115VAC, 60Hz: 2  $\mu$ A

250VAC, 50Hz: 5  $\mu$ A

### Agency Approvals:

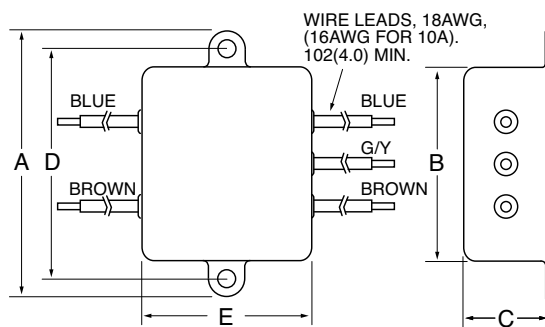
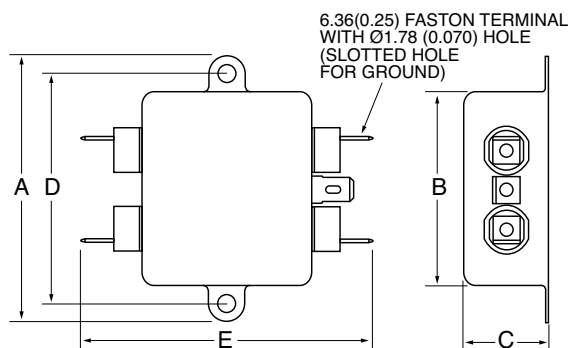


## Features:

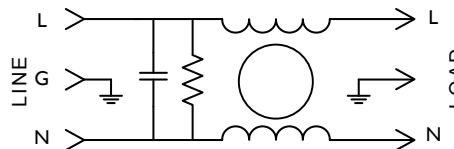
- Designed to Meet UL544 and IEC601 Specifications for Medical and Dental Equipment, both patient care and onpatient categories.
- Leakage current in this series is extremely low to satisfy the stringest leakage current limit imposed by safety regulations for medical and dental equipment.

## F3099AA (6Amp) Dimensions

| Amps | A               | B              | C              | D               | E               |
|------|-----------------|----------------|----------------|-----------------|-----------------|
| 6A   | 2.53<br>(64,30) | 1.82<br>(46,2) | 0.78<br>(19,8) | 2.126<br>(54,0) | 2.53<br>(64,30) |
|      | 2.53<br>(64,30) | 1.82<br>(46,2) | 0.78<br>(19,8) | 2.126<br>(54,0) | 1.32<br>(33,5)  |



## F3099 Series Simplified Schematic



| Nominal Current Rating | Part Number            | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |      |     |     |     |     |    |    |
|------------------------|------------------------|-----------------------|----------------------------------------------|-----------------|------|-----|-----|-----|-----|----|----|
|                        |                        |                       | MODE                                         | Frequency - MHz |      |     |     |     |     |    |    |
|                        |                        |                       |                                              | 0.05            | 0.10 | .15 | .50 | 1.0 | 5.0 | 10 | 30 |
| 6A                     | F3099AA06<br>F3099BB06 | QC/QC<br>Ø            | Common                                       | 3               | 7    | 11  | 20  | 22  | 24  | 22 | 18 |
|                        |                        |                       | Differential                                 | 3               | 6    | 14  | 20  | 30  | 35  | 35 | 35 |

NOTE: Other combinations of terminals may be specified on special order.



# F3000/3100/3200/3400/3500 RFI Filters



General Purpose Filtered Modules

MEDICAL FILTERS



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
3A 3A  
6A 6A

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

Line to Ground 1500VAC

Line to Line 1768VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

A: QC – Quick Connect

C: IEC Receptacle

**Maximum Leakage Current:**

Each Line to Ground **F3000 Series**

115VAC, 60Hz: 2  $\mu$ A

250VAC, 50Hz: 5  $\mu$ A

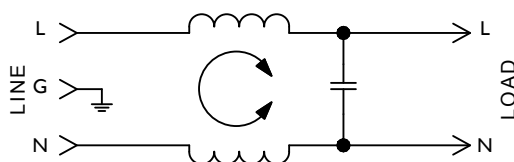
**Agency Approvals:**



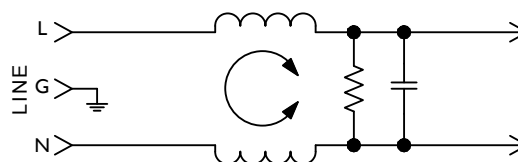
## Features:

- Designed to Meet UL544 Specification for Medical and Dental Equipment. Available to UL/IEC 60601 Standard
- F3400/F3500 Have Enhanced Differential Mode Performance
- Effective in Other Low-Leakage Current Applications

**F3000/F3100/F3200 Series  
Simplified Schematic**



**F3400/F3500 Series  
Simplified Schematic**



| Nominal Current Rating | Part Number                         | Termination Line/Load     | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|-------------------------------------|---------------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |                                     |                           | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |                                     |                           |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | F3400CA03<br>F3500CA03              | IEC/QC<br>IEC/QC          | Common                                       | 22              | 32  | 35  | 30  | 25 | 20 |
|                        |                                     |                           | Differential                                 | 8               | 18  | 24  | 35  | 35 | 35 |
| 6A                     | F3000AA06<br>F3100CA06<br>F3200CA06 | QC/QC<br>IEC/QC<br>IEC/QC | Common                                       | 10              | 20  | 23  | 25  | 23 | 15 |
|                        |                                     |                           | Differential                                 |                 | 2   | 8   | 32  | 34 | 23 |
|                        |                                     |                           | Common                                       | 15              | 21  | 24  | 24  | 22 | 26 |
|                        | F3400CA06<br>F3500CA06              | IEC/QC<br>IEC/QC          | Differential                                 | 8               | 18  | 24  | 35  | 35 | 35 |

NOTE: Other combinations of terminals may be specified on special order.

Dimensions are in inches and millimeters unless otherwise specified.  
Values in parentheses are metric equivalents.



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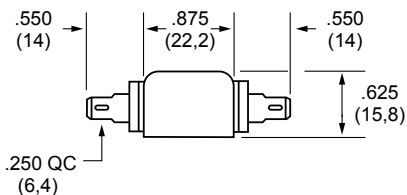
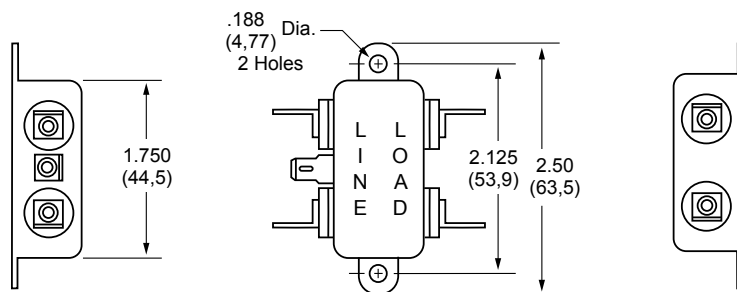
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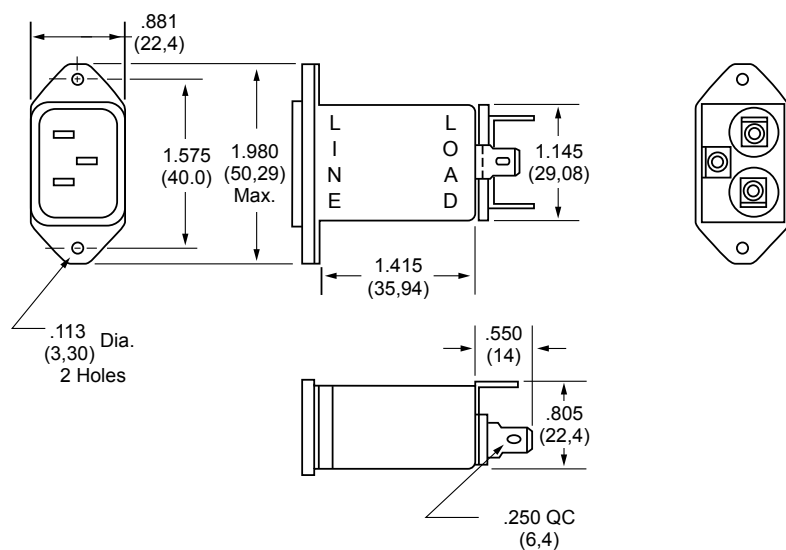
# F3000/3100/3200/3400/3500 RFI Filters (continued)

General Purpose Filtered Modules

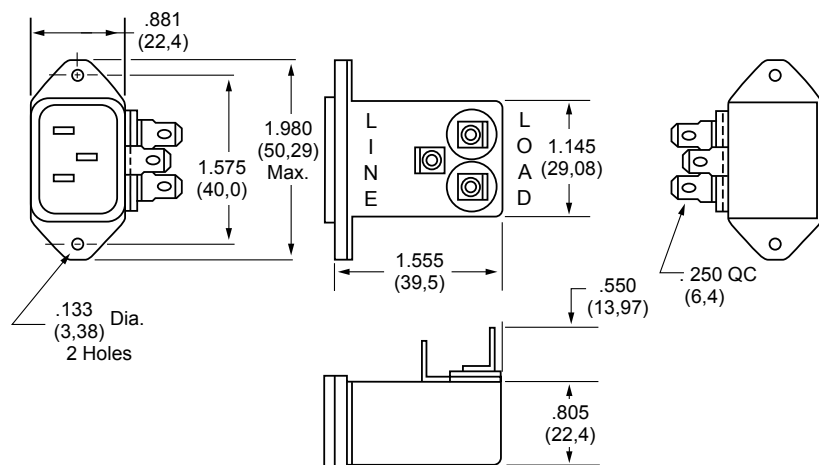
## F3000AA (6Amp) Dimensions



## F3100CA (6Amp) F3400CA (3 and 6Amp) Dimensions



## F3200CA (6Amp) F3500CA (3 and 6Amp) Dimensions



MEDICAL FILTERS



# F3300 RFI Filters



## Features:

- General Purpose “L-Type” Circuit Effective in Reducing Both Incoming and Outgoing Powerline Noise Levels in FCC “A” Applications
- Integral 5 X 20mm Single or Dual Fused IEC Connector
- Optional SST Switched IEC Connector
- Low-Leakage
- Available to UL/IEC 60601 Standard and Meets UL 544 Specification for Medical and Dental Applications
- Available in Labor-Saving PC Mounted Case Style

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:**      115VAC      250VAC  
                                 3A              3A  
                                 6A              6A

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

Line to Ground      1500VAC  
Line to Line          1768VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at Rated Current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

A: QC – Quick Connect  
F: Fused IEC  
J: Switched IEC  
P: PC – P.C. Board  
W: Dual Fused IEC

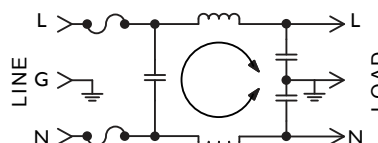
**Maximum Leakage Current:**

Each Line to Ground      **F3300**  
115VAC, 60Hz:              .015mA  
250VAC, 50Hz:              .025mA

**Agency Approvals:**



## F3300F Simplified Schematic



| Nominal Current Rating | Part Number            | Termination Line/Load                  | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|------------------------|----------------------------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |                        |                                        | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |                        |                                        |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | F3300FA03<br>F3300FP03 | Fused IEC/QC<br>Fused IEC/PC           | Common                                       | 21              | 32  | 36  | 30  | 28 | 28 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 35  | 35 | 35 |
| 6A                     | F3300FA06<br>F3300FP06 | Fused IEC/QC<br>Fused IEC/PC           | Common                                       | 18              | 30  | 34  | 26  | 25 | 25 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 35  | 35 | 35 |
| 3A                     | F3300WA03<br>F3300WP03 | Dual Fused IEC/QC<br>Dual Fused IEC/PC | Common                                       | 21              | 32  | 36  | 30  | 28 | 28 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 35  | 35 | 35 |
| 6A                     | F3300WA06<br>F3300WP06 | Dual Fused IEC/QC<br>Dual Fused IEC/PC | Common                                       | 18              | 30  | 34  | 26  | 25 | 25 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 35  | 35 | 35 |
| 3A                     | F3300JA03<br>F3300JP03 | Switched IEC/QC<br>Switched IEC/PC     | Common                                       | 21              | 32  | 36  | 30  | 28 | 28 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 35  | 35 | 35 |
| 6A                     | F3300JA06<br>F3300JP06 | Switched IEC/QC<br>Switched IEC/PC     | Common                                       | 18              | 30  | 34  | 26  | 25 | 25 |
|                        |                        |                                        | Differential                                 | 8               | 18  | 24  | 35  | 35 | 35 |

NOTE: Other combinations of terminals may be specified on special order.

Dimensions are in inches and millimeters unless otherwise specified.  
Values in parentheses are metric equivalents.



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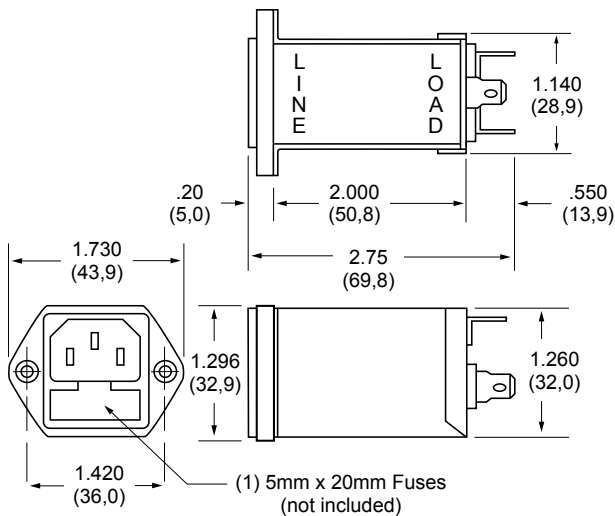
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General Purpose Filtered Modules

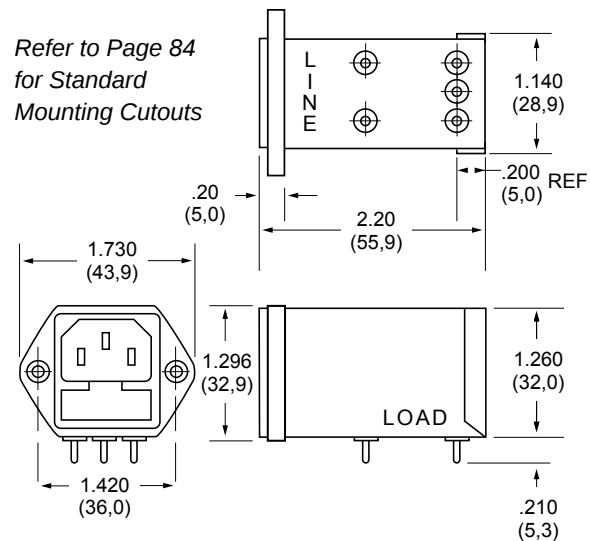
MEDICAL FILTERS

# F3300 Series *(continued)*

## F3300FA (3 and 6Amp) Dimensions

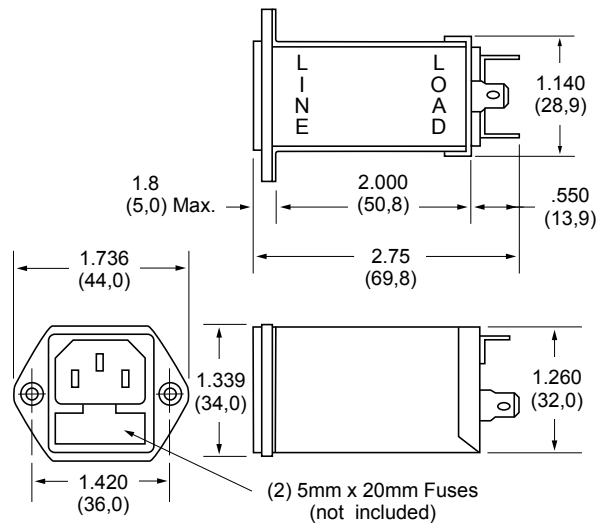
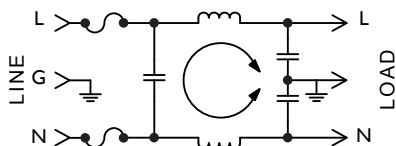


## F3300FP (3 and 6Amp) Dimensions



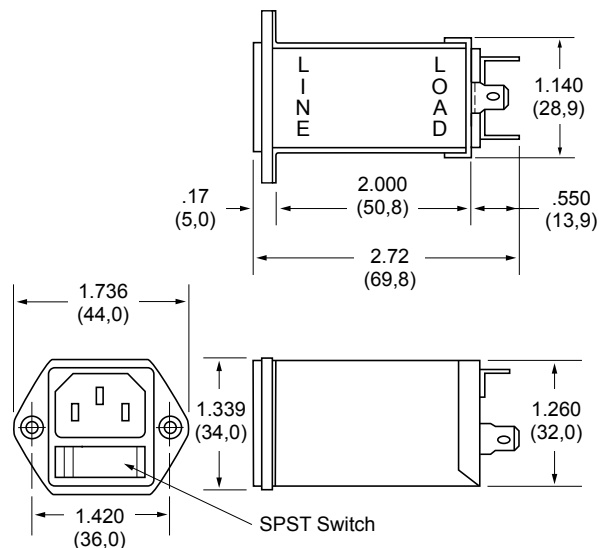
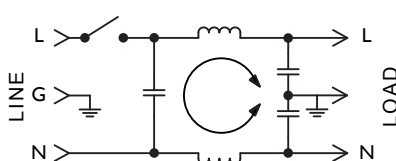
## F3300WA (3 and 6Amp) Dimensions

### F3300W Simplified Schematic



## F3300JA (3 and 6Amp) Dimensions

### F3300J Simplified Schematic



# PM7/PM8 Series



## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
3A 3A  
6A 6A

**Current Overload:** 6X for 8 Seconds

**Hi-Pot Test (1 min):**

Line to Ground 1500VAC  
Line to Line 1768VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max. at Rated Current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

- IEC Receptacle
- Wire Wrap/Solder

**Maximum Leakage Current:**

Each Line to Ground **PM7, PM 8**  
115VAC, 60Hz: 0.002mA  
250VAC, 50Hz: 0.005mA

**Voltage Select Card:** Installed in 120VAC position unless otherwise specified

**Agency Approvals:**

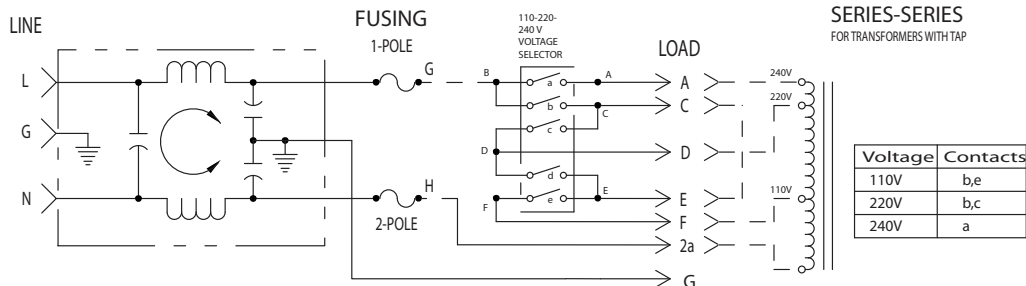


Refer to Page 80 for Ordering Instructions

## Features:

- RFI Filter Module Combines IEC Connector, Fusing, and Voltage Select Features in One Unit
- PM7 Series Filters Provide 20% More Differential Mode Attenuation Than Comparable Units
- Accepts Either U.S. or European Standard Fuse Sizes
- Available to UL/IEC 60601 Standard and Meets UL 544 Specification for Medical and Dental Applications

## PM7 Series Simplified Schematic



| Nominal Current Rating | Part Number          | Termination Line/Load | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |                 |     |     |     |    |    |
|------------------------|----------------------|-----------------------|----------------------------------------------|-----------------|-----|-----|-----|----|----|
|                        |                      |                       | MODE                                         | Frequency - MHz |     |     |     |    |    |
|                        |                      |                       |                                              | .15             | .50 | 1.0 | 5.0 | 10 | 30 |
| 3A                     | PM7XXX03<br>PM8XXX03 | IEC/Solder Tabs       | Common                                       | 14              | 20  | 22  | 24  | 22 | 15 |
|                        |                      |                       | Differential                                 | 8               | 18  | 24  | 46  | 50 | 40 |
| 6A                     | PM7XXX06<br>PM8XXX06 | IEC/Solder Tabs       | Common                                       | 10              | 15  | 18  | 18  | 18 | 15 |
|                        |                      |                       | Differential                                 | 8               | 18  | 24  | 39  | 40 | 40 |

NOTE: Other combinations of terminals may be specified on special order.

Dimensions are in inches and millimeters unless otherwise specified.  
Values in parentheses are metric equivalents.



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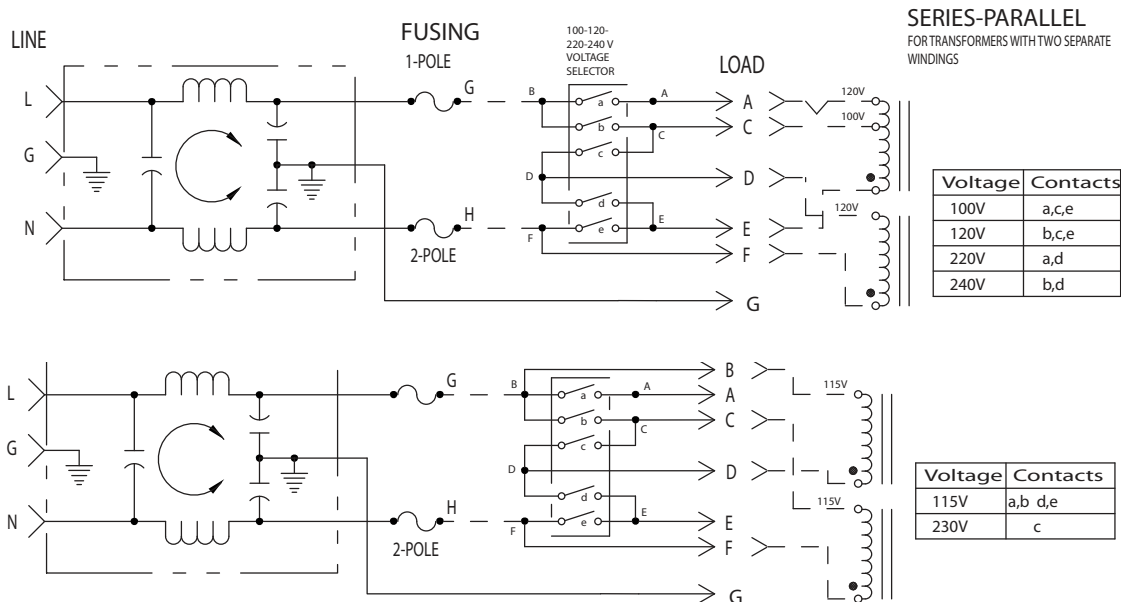
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Combination

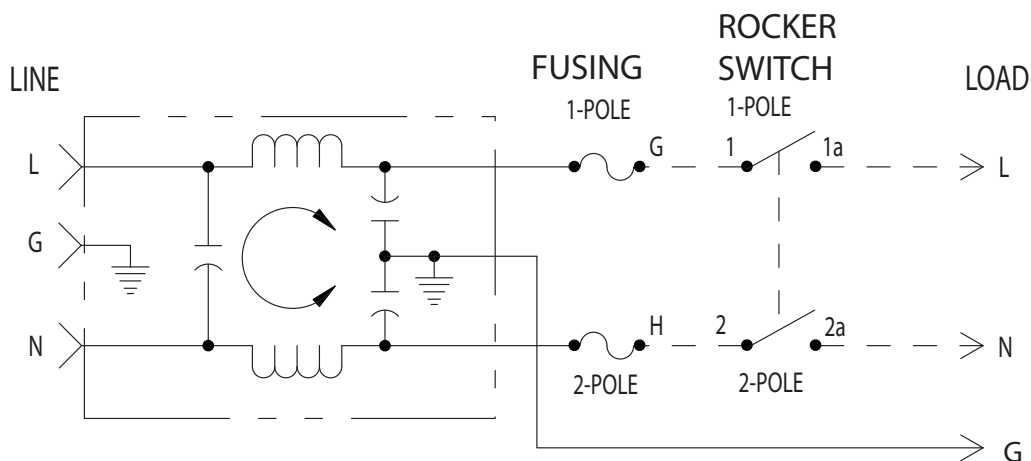
MEDICAL FILTERS

# PM7/PM8 Series *(continued)*

## PM7 Series Simplified Schematic



## PM8 Series Simplified Schematic



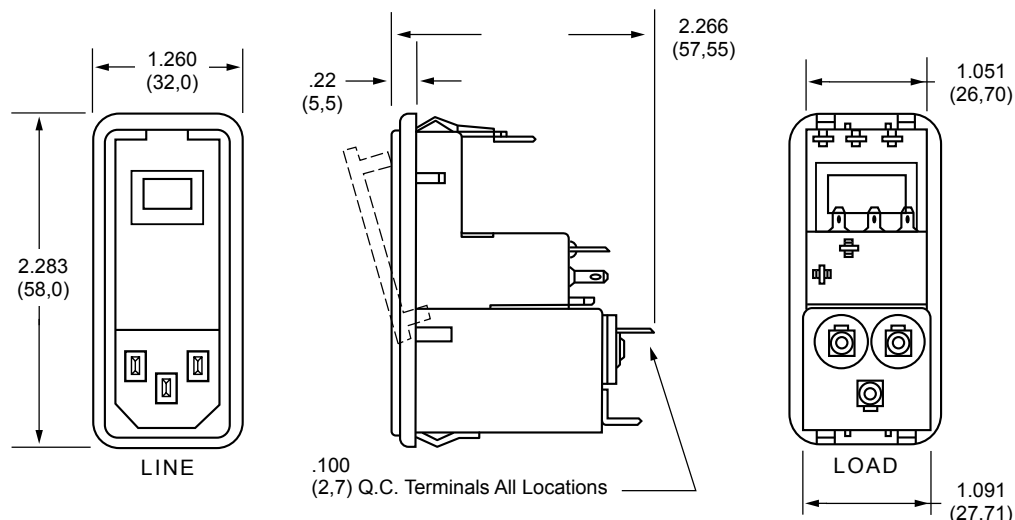
Combination

MEDICAL FILTERS



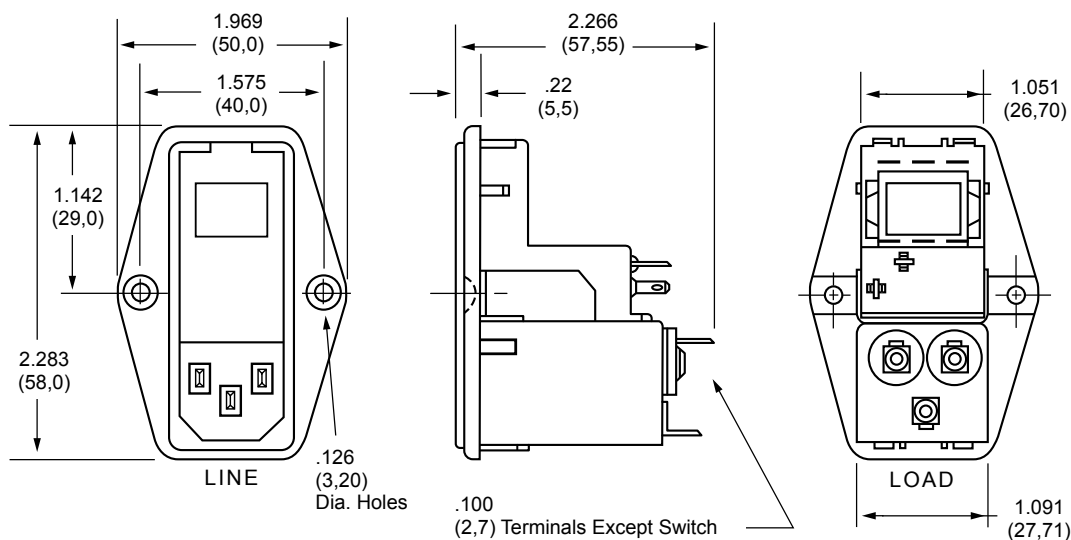
## PM7/PM8 Snap-Mount Series (3 and 6Amp) Dimensions

Refer to Page 80  
for Standard  
Mounting Cutouts



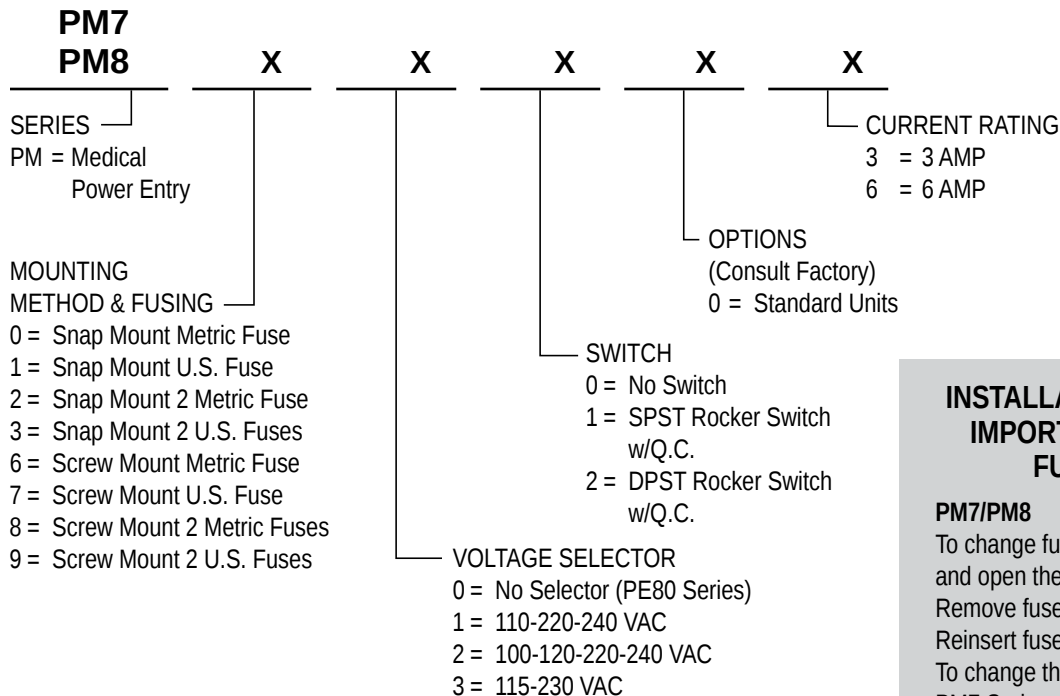
## PM7/PM8 Screw-Mount Series (3 and 6Amp) Dimensions

Refer to Page 80  
for Standard  
Mounting Cutouts



# PM7/PM8 Series *(continued)*

## How to Order



### INSTALLATION INSTRUCTION IMPORTANT – CHANGING FUSE/VOLTAGE

#### PM7/PM8

To change fuse, remove power cord and open the front cover on the module. Remove fuse holder and replace fuse. Reinsert fuse holder and close cover. To change the operating voltage on the PM7 Series, remove the power cord and open front cover. Rotate voltage select wheel until desired voltage appears in window of cover.

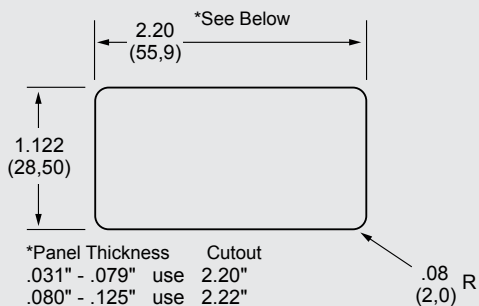
- Filter shipped without fuse.

Always use caution when selecting and changing fuses and voltage requirements. Curtis Industries is not responsible for malfunction due to improper installation/selection of fuse and/or voltage select.

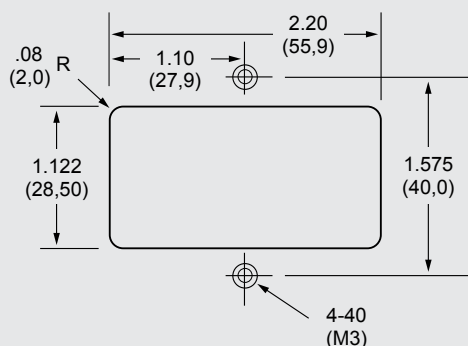
Combination

MEDICAL FILTERS

### PM7/PM8 Snap-Mount Series



### PM7/PM8 Screw Mount Series





## Features:

- RFI Filter Module Combines IEC Connector, Fusing, Optional Voltage Select and On/Off Switch into a Single, Space-Efficient Assembly
- Enhanced Low Frequency Response with No Resonant Peaks
- Fully Shielded for Radiative Noise Control
- Accepts Either U.S. or European Standard Fuse Sizes. Dual or Single Power Line Fusing
- Meets IEC 60601 Standard and Meets UL 544 Specification for Medical and Dental Applications

## Specifications:

**Rated Voltage:** 250VAC Maximum - 50/60 Hz

**Rated Current:** 115VAC 250VAC  
10A 10A

**Current Overload:** 6X for 8 seconds

**Hi-Pot Test (1 min):**

Line to Ground 1500VAC

Line to Line 2250VDC

**Insulation Resistance:**  $9 \times 10^9 \Omega$  at 100VDC

**Ambient Temperature:** 40°C Max at rated current

**Humidity Range:** 0% to 95% R.H.

**Termination:**

- QC – Quick Connect
- IEC Receptacle

**Maximum Leakage Current:**

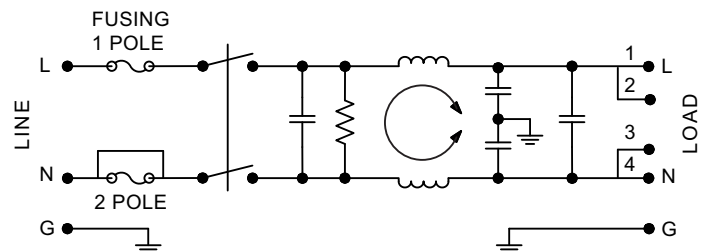
| Each Line to Ground | PM1     | PM1-PO  |
|---------------------|---------|---------|
| 115VAC, 60Hz:       | 0.002mA | 0.015mA |
| 250VAC, 50Hz:       | 0.005mA | 0.025mA |

**Voltage Select Card:** Installed in 120VAC position unless otherwise specified

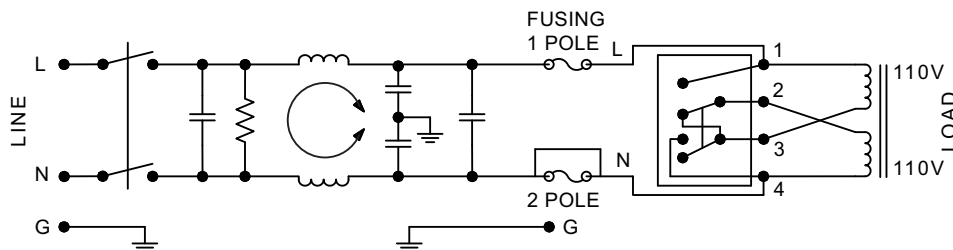
**Agency Approvals:**



**PM1 Series Simplified Schematic without Voltage Selector**



**PM1 Series Simplified Schematic with Voltage Selector**

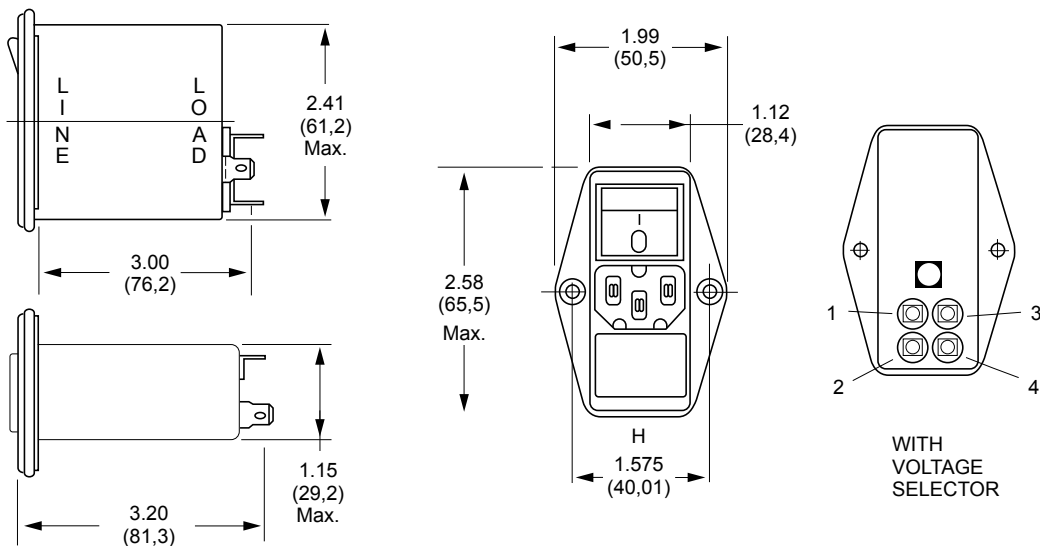


| Nominal Current Rating | Part Number | Termination Line/Load | MODE         | MINIMUM INSERTION LOSS - dB (50 ohm Circuit) |     |     |     |     |    |    |
|------------------------|-------------|-----------------------|--------------|----------------------------------------------|-----|-----|-----|-----|----|----|
|                        |             |                       |              | Frequency - MHz                              |     |     |     |     |    |    |
|                        |             |                       |              | .05                                          | .15 | .50 | .10 | 5.0 | 10 | 30 |
| 10A                    | PM1XXX10    | IEC/QC                | Common       | 10                                           | 20  | 30  | 33  | 25  | 20 | 15 |
|                        |             |                       | Differential | 10                                           | 20  | 30  | 35  | 55  | 60 | 55 |
|                        | PM1XXXP0    | IEC/QC                | Common       | 123                                          | 234 | 30  | 35  | 25  | 25 | 30 |
|                        |             |                       | Differential | 10                                           | 20  | 30  | 35  | 65  | 65 | 55 |

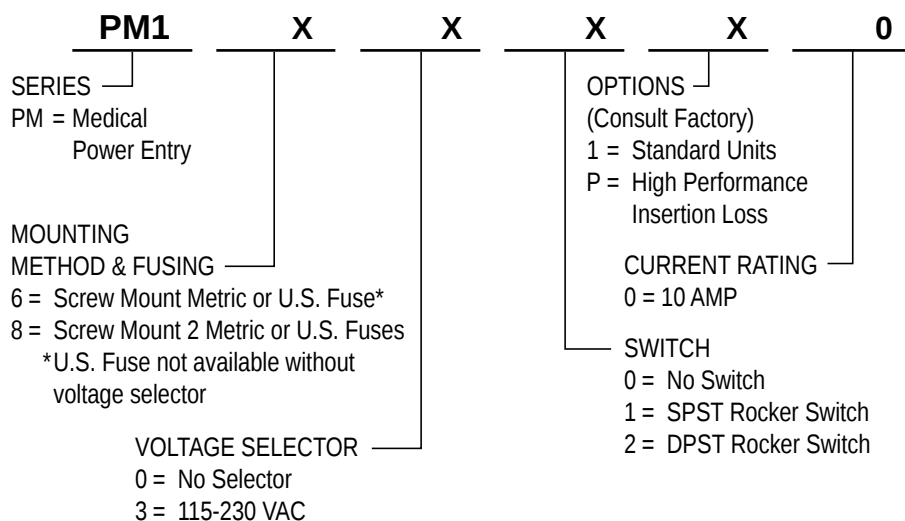
NOTE: Other combinations of terminals may be specified on special order.



## PM1 (10Amp) Dimensions



## How to Order



## INSTALLATION INSTRUCTION IMPORTANT – CHANGING FUSE/VOLTAGE

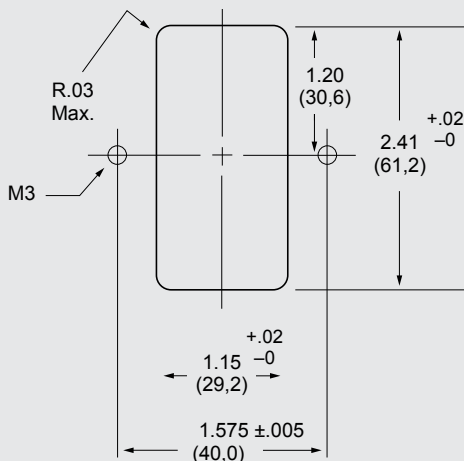
### PM1

To change fuse, remove power cord. Remove voltage selector and replace fuse. Reinsert fuse holder. To change the operating voltage on the PM1 Series, remove the power cord and rotate fuse holder block until desired voltage aligns with the mark on the module housing.

- **Filter shipped without fuse.**

**Always use caution when selecting and changing fuses and voltage requirements. Curtis Industries is not responsible for malfunction due to improper installation/selection of fuse and/or voltage select.**

## PM1 Screw Mount Series



## **TECHNICAL CONSIDERATIONS ]**

Understanding Terminology

Technical Considerations

Conducted Emissions Testing

Custom Filter Capabilities



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# Understanding Terminology

Curtis Industries, a leading manufacturer of superior-quality electronic and electrical components and assemblies for more than 70 years, offers a complete line of RFI power line filters designed to help your equipment meet FCC and CE requirements on conducted EMI.

Radio frequency interference (RFI) is unwanted noise generated by a wide variety of electronic and electrical devices. Governments of most industrial

countries, including the United States, Canada and the European Union have enacted guidelines on emitted RFI.

Curtis designs quality into every product and then tests for quality by specification compliance, including hipot, component value, grounding and leakage, on a 100% production basis. We employ a rigorous component qualification program with thorough incoming and on-line inspection procedures. Our computer-controlled 100% safety and performance testing to demanding customer requirements is your assurance of the highest quality RFI filters available today.

This section provides you with some basic knowledge on terminology and technical information helpful in solving your noise emission in power circuits. For additional information visit our website at [www.curtisind.com](http://www.curtisind.com).



TECHNICAL  
CONSIDERATIONS

## Definitions

**Attenuation:** The decrease in intensity or absorption of electromagnetic energy. Expressed in dB.

**Conducted Interference:** Electromagnetic signals entering a device through direct connection.

**Emissions:** The level of electromagnetic disturbances equipment causes to its environment.

**Filter:** Remove electrical noise or interference from the power line by cleaning up the sine wave.

**Immunity:** The level to which equipment is immune to electromagnetic disturbances in its environment

**Impedance:** Opposition to the flow of electrical current when a given voltage is applied.

**Inductor:** Passive component that produces a voltage proportional to the change in current. Measured in Henrys.

**Insertion Loss:** The electromagnetic signal loss resulting from the insertion of a filter in a transmission line. Expressed in dB.



## What is RFI?

Radio frequency interference (RFI) is the radiation or conduction of radio frequency energy (or electronic noise) produced by electrical and electronic devices at levels that interfere with the operation of adjacent equipment. Frequency ranges of most concern are 10 kHz to 30 MHz (conducted) and 30 MHz to 1 GHz (radiated).

## What causes RFI?

The most common sources include components such as switching power supplies, relays, motors and triacs. These devices are found in a wide variety of equipment used in industrial, medical, white goods, and building HVAC equipment.

## What are the types of RFI?

An electrical or electronic device emits RFI in two ways:

- **Radiated RFI** is emitted directly into the environment from the equipment itself.
- **Conducted RFI** is released from components and equipment through the power line cord into the AC power line network. This conducted RFI can affect the performance of other devices on the same network.

## How can RFI be controlled?

- **Radiated RFI** is usually controlled by providing proper shielding in the enclosure of the equipment.
- **Conducted RFI** can be attenuated to satisfactory levels by including a power line filter in the system.

The filter suppresses conducted noise leaving the unit, reducing RFI to acceptable levels. It also helps to lower the susceptibility of the equipment to incoming power line noise that can affect its performance.

## What is the government's role in regulating RFI?

Governments and safety agencies of major industrial countries, including the United States, Canada, and the European Union have established noise emission regulations that are focused on digital and other electronic equipment. The most important of these guidelines are FCC CFR 47 (Parts 15 and 18) in the United States and CISPR 11, 14 and 22 in the European Union.

FCC CFR 47 (Part 15) regulates the RF

interference of electronic computing devices, defined as any electronic device or system that generates and uses timing signals or pulses at a rate in excess of 10,000 pulses (cycles) per second and uses digital techniques. This definition includes telephone equipment that utilizes digital techniques and any device or system that generates and uses radio frequency energy for the purpose of performing data-processing functions such as electronic computations, operations, transformations, recording, filing, sorting, storage, retrieval or transfer.

FCC regulations are broken down into **Class A** computing devices marketed for use in commercial, industrial or business environments, and **Class B** devices intended for use in a residential environment.

The European Union has harmonized the various national regulations and has established the international standards CISPR 11, 14 and 22. CISPR 11 covers industrial, scientific and medical equipment. CISPR 14 covers electrical and thermal appliances and tools. CISPR 22 covers information technology equipment.

In addition to governmental regulations, safety agencies worldwide have established guidelines for all electrical/electronic components. These include UL, CSA and TUV. They are designed to protect against shock and fire hazard.

## How do RFI power line filters work?

Consisting of a multiple-port network of passive components arranged as a dual low-pass filter, the RFI filter attenuates radio frequency energy to acceptable levels, while permitting the power frequency current to pass through with little or no attenuation. Their function, essentially, is to trap noise and to prevent it from entering or leaving your equipment.

RFI is conducted through a power line in two modes. Asymmetric or **common mode** noise occurs between the line and ground. Symmetric or **differential mode** is measured from line to line. See the selection guide on page 2 under "Performance."

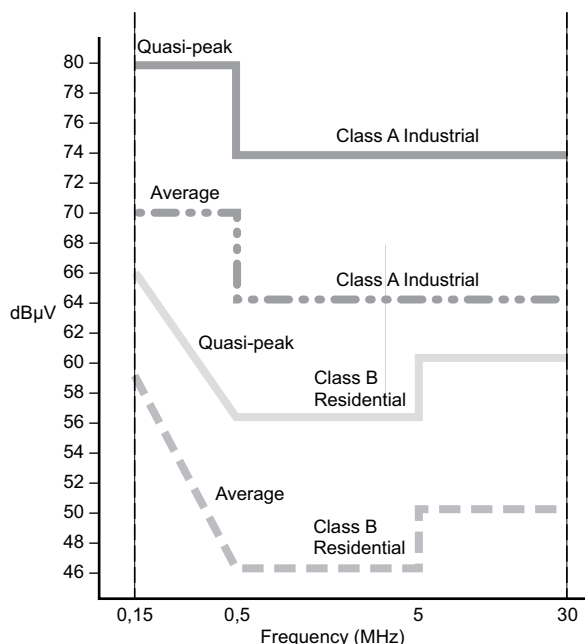


# Technical Considerations

## Meeting Emissions Standards

The emissions limits that a piece of equipment must meet will depend on the intended market for that piece of equipment. If there is more than one market, more than one emission standard may have to be met. This can have a substantial effect on the circuit, size, and cost of a filter. Standards like the CISPR's or the FCC Rules Part 15 have frequency limits of 150 kHz to 30 MHz.

### FCC 15 AND CISPR CONDUCTED EMISSION LIMITS DIGITAL EQUIPMENT



EMI measurements are generally made using Spectrum Analyzers with Average or Quasi-Peak detectors in accordance with methods described in CISPR 16. Quasi-Peak differs from Average measurements by weight-averaging the peaks into the total.

Equipment meeting these specifications can utilize a filter with a fairly high cutoff frequency. Other standards like FCC 18 with a low frequency limit of 10 kHz will result in the equipment using lower cutoff filters. As might be expected, the lower the cutoff frequency, the larger the physical size and the higher the cost of the filter.

## Conducted RFI Susceptibility

The problem of susceptibility can be extremely difficult to deal with because the amplitude and frequency of the offending RF noise are seldom known and are often intermittent. If the malfunction can be duplicated by isolating the equipment from the power line with LISN's

(Line Impedance Stabilization Network) and using signal generators to inject RF of varying amplitude and frequency, some insight can be gained as to the nature of the problem. However, the criteria for acceptable performance will have to be decided upon so that a filter yielding this level of performance can be obtained from the test procedure. Unfortunately, this still does not eliminate the need for final testing in the actual operating environment which, in many cases, occurs in the field.

Selection of a suitable filter can best be based on the type of power supply or input impedance of the equipment and on the mode of the offending RFI noise.

## Noise Modes

Power line filters attenuate noise in two different modes.

**Common Mode:** Also known as line-to-ground noise measured between the power line and ground potential.

**Differential Mode:** Also known as line-to-line noise measured between the lines of power.

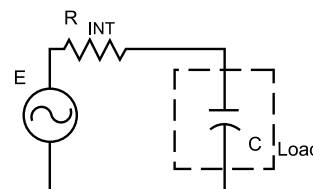
Power line filters are designed to attenuate either one or both modes of noise. The need for one design over another will depend on the magnitude of each noise type present. The attenuation is measured in dB (decibels) at various frequencies of signal.

## Circuit Configuration

Power line RFI filters are generally built with two or three-pole filter networks. As the number of poles and the corresponding component count increases, the cost will increase also. Trying to typify an equipment's impedance as either high or low for purposes of filter selection may not be successful. If it is a complex impedance, it could probably be low at some frequencies, high at others, and some intermediate value at still other frequencies.

Although we have been generally successful in recommending a two-pole network for linear power supplies and three-pole networks for switching power supplies and synchronous motors, you should not limit your testing to just one circuit type if either additional circuit performance or lower cost is desired. Consider the following: If the equipment looked strictly capacitive, the performance of a two-pole network would be reduced to that of a single-pole filter.

Figure 1a.  
A signal source (E) with its internal impedance driving a capacitive load.



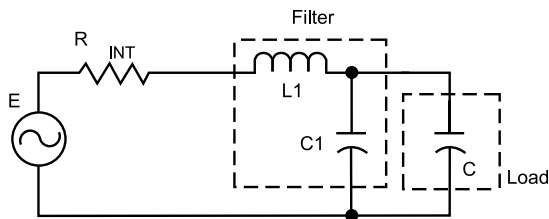
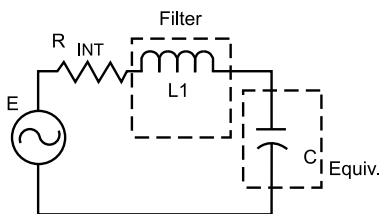


Figure 1b.

The same circuit as in Figure 1a, with the addition of a 2-pole low pass filter. Notice filter capacitor C1 is in parallel with the capacitive load.

Figure 1c.

Combining capacitor C1 in Figure 1b, with the load results in this circuit configuration.



The filter has been reduced to one inductive element, L1.

Obviously a three-pole filter would be preferred for maximum performance. Likewise, if the equipment looked strictly inductive, the performance of a three-pole network would be reduced to that of a two-pole network.

Figure 2a.

A signal source with its internal impedance driving an inductive load.

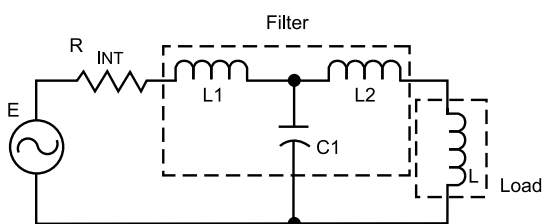
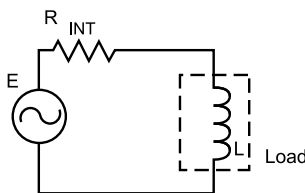


Figure 2b.

The same circuit as in Figure 2a, with the addition of a 3-pole low pass filter. Notice filter inductance L2 is in series with the inductive load.

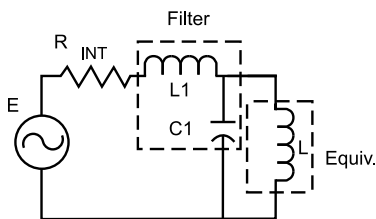


Figure 2c.

Combining inductor L2 in Figure 2b, with the load results in this circuit configuration, the filter has been reduced to two effective elements, L1 & C1.

Undoubtedly the two-pole filter would be a more economical choice with probably equal performance in this application. Since the equipment is not likely to be equivalent to either one of these simple cases, the only way to find the best cost-effective solution is to test the filters in your equipment and base your judgement on these test results.

## Leakage Current

The maximum leakage current that a device is allowed depends on the requirements of the particular safety agency involved. Here, selection of the filter is quite easy since either the filter is designed to meet a given level or it is not. Although there is no compromise when it comes to safety specifications, it should be understood that for a given level of performance, as the leakage current is reduced, the physical size of the package will increase. Curtis medical filters have a very low leakage current.

## Insertion Loss

DO NOT use the insertion loss specifications to make your final decision. Power line filters are two-terminal pair passive networks whose attenuation characteristics can be defined by a complex transfer function. How that transfer function will react in a particular system and at specific frequencies will depend on the complex impedances connected to each side of the filter. The equipment impedance and the impedance of the power line, even if a 50 ohm LISN (Line Impedance Stabilization Network) is being used during emission testing, will not generally be equal to the resistive 50 ohms used during insertion loss measurements. Therefore, the performance of the filter in the equipment cannot be related to the published insertion loss data.

## Minimum Insertion Loss

Do not be alarmed that the insertion loss figures we have published may be of lower value than those of our competition. You will only find guaranteed minimum insertion loss figures in this catalog, without any mention of typical values.

Insertion loss test data measured in a 50 ohm system is a valuable incoming inspection tool to assure you that consistent product is being shipped. The only figures of any importance are those that specify the criteria for acceptance or rejection of that product, and those figures are the minimum values.



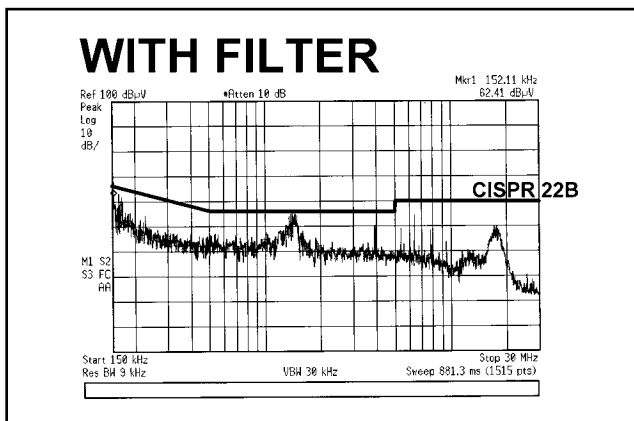
# RFI/EMI Conducted Emissions Testing

Curtis offers full RFI/EMI conducted emissions testing services for manufacturers who must produce equipment in accordance with FCC and CE standards.

Curtis testing facilities consist of a laboratory equipped to test and evaluate EMI characteristics of equipment that must comply with FCC Part 15 and/or CISPR standards. With these facilities, Curtis can provide manufacturers with greater assistance in the selection of RFI/EMI filters to help them meet the necessary emission levels.

## Isolated Environment Enhances Test Capabilities

- Totally isolated environment for both equipment under test and test instrumentation provided by separate chambers.
- RF screen room shielded against magnetic, electric and plane wave field per MIL-STD-285.
- Specially constructed line impedance stabilization networks (LISN) for FC Part 15 and CISPR testing.
- Sensitive, reliable automatic measurement and recording of conducted emissions data from 10 KHz to 1 GHz.
- Computer-controlled Agilent E7402A Spectrum Analyzer with associated amplifiers and attenuators.
- Agilent E7402A graphics capabilities allow quick generation of hard copies of emissions test results.

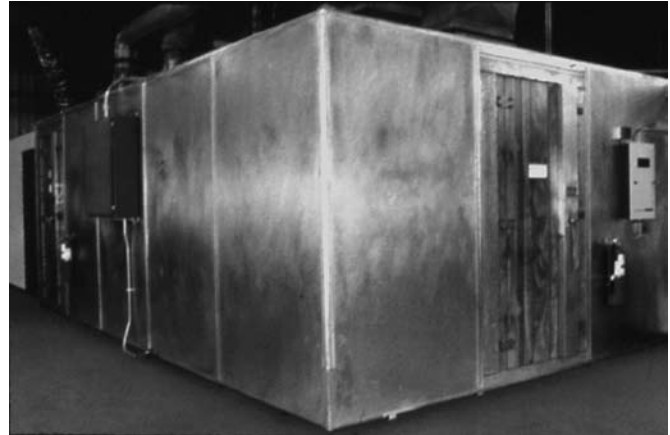


## Fast Pre-Compliance Test Results

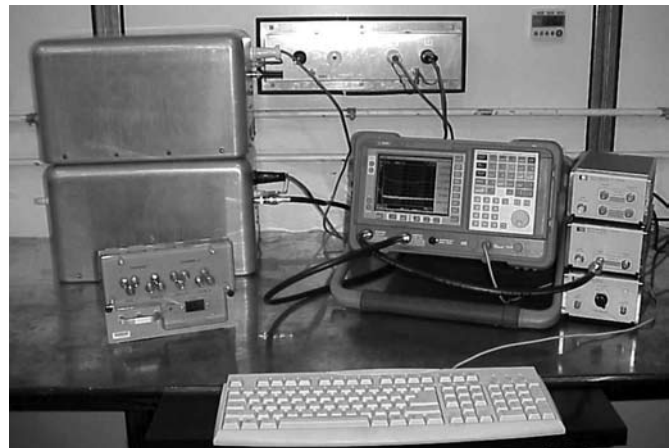
Computer-generated graphics and test reports provide the customer with fast turnaround on all testing.

On-site RFI filter design/applications engineers are available to assist in evaluating test results and to determine cost-effective solutions to conducted emissions problems before going to agencies.

Please contact your local Curtis representative or the factory sales staff to coordinate pre-compliance testing of your equipment at Curtis Industries.



The Curtis screen room provides complete RFI isolation for equipment under test and the test instrumentation.



Computer-controlled test equipment assures fast turnaround on RFI emissions testing.



Curtis can provide environmental testing to demonstrate performance and survival in harsh conditions.



# Custom Filter Capabilities *We Build Confidence!*

Curtis has the capability to modify any of our standard filters or to work with you from design to delivery on a completely custom filter to meet your exact mechanical and electrical requirements. The Curtis Filter Engineering Team, drawing from our extensive knowledge and experience, is fully equipped and qualified to consult with you on your RFI and EMI emission control problems. Curtis has the ability to test your equipment in our technologically advanced screen room to help you select the proper filter for your application.



## Information We Need From You

### Specifications:

\* Rated Voltage: \_\_\_\_\_ \* Line Frequency: \_\_\_\_\_

\* Rated Current: \_\_\_\_\_ \* Max. Temperature: \_\_\_\_\_

Current Overload: \_\_\_\_\_ Humidity Range: \_\_\_\_\_

Max. Leakage Current (Each Line to Ground) \_\_\_\_\_

Dimensions: \_\_\_\_\_

Terminal Type: Input (Line): \_\_\_\_\_

Output (Load): \_\_\_\_\_

Mounting Torque (Panel-Mount Models Only): \_\_\_\_\_

### Test Specifications:

Hipot Test: Line to Ground: \_\_\_\_\_ VAC for One min.

Line to Line: \_\_\_\_\_ VDC for One min.

Insulation Resistance: \_\_\_\_\_

\* Minimum Insertion Loss (50Ω Circuit):

|    | Frequency (MHz) |     |    |   |   |    |    |
|----|-----------------|-----|----|---|---|----|----|
|    | .01             | .15 | .5 | 1 | 5 | 10 | 30 |
| CM |                 |     |    |   |   |    |    |
| DM |                 |     |    |   |   |    |    |

Organization Approvals: UL \_\_\_\_\_ CSA \_\_\_\_\_ TUV \_\_\_\_\_ Other \_\_\_\_\_

Company Name: \_\_\_\_\_ Contact: \_\_\_\_\_

E-mail Address: \_\_\_\_\_ Phone Number: \_\_\_\_\_

*\* Required*

### Curtis Contact Information

**E-mail:** sales@curtisind.com

**Fax:** 414-649-4279

**Phone Number:** 1-800-657-0853

**Address:** P.O. Box 343925, Milwaukee, WI 53234-3925



**Curtis Industries**  
A Division of Powers Holdings, Inc.



RFI Power Line Filters



Filtered Power Entry



Custom Filters



DIN Rail

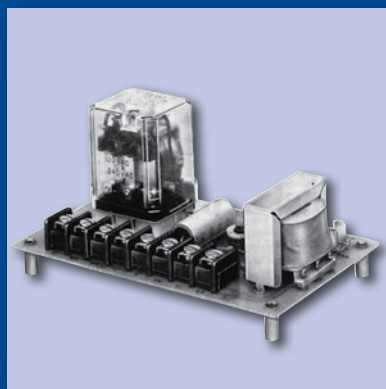
# ***Curtis*** Family of Products



Terminal Blocks



PCB Mount Blocks



Liquid Level  
Controllers



Custom Terminal Blocks



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