

FCC  
SERIES

# FILTER PRODUCTS



# Amphenol®

[www.amphenol.com](http://www.amphenol.com)

## The Company

*Amphenol Canada Corp.* a subsidiary of Amphenol Corporation, is an international leader in the manufacture of *Filtered Connectors* and *Specialty Interconnect Devices*, and has been pioneering EMI and EMP technologies for more than 40 years.

Located in Toronto, Canada, our ISO 9001 certified facility employs approximately 400 people. Our activities are dedicated to the design, development and manufacture of EMI/EMP filter

connector products which are used in Commercial, Industrial, Communications, Military and Aerospace applications worldwide. Our expertise in understanding and supporting our customers' filter interconnect needs has earned Amphenol Canada a reputation of quality and excellence among the world's leading users of electronic components.

## What is a Filtered Connector?

A **filtered connector** is the combination of filter elements in a connector, forming one neat, compact interconnect device that can filter unwanted EMI. The most popular configuration is when

capacitors are mounted inside the connector between each of the contacts and the connector ground shell.

## Benefits

**Better EMI Control** — With minimized lead inductances and short, direct paths to ground of the filter, performance will typically out perform the same filter components on a P.C.B. by a factor of three to one.

**PCB Space Savings** — Incorporating filter elements into the connector, enables simplification of the required filter schematic for the necessary performance plus a savings of 2-4 square inches.

**Cost Savings** — Filter elements, such as inductors and capacitors, must no longer be purchased, stocked, assembled or tested. Fewer components means greater reliability at lower cost.

**Easy EMI/RFI Upgrade** — These compact filtered connectors fit standard non-filtered connector footprints. For improved EMC performance, simply replace the existing connector with a filtered connector.

**EMC Compliance & Immunity** — EMI that is generated from the electronic device, radiated or conducted, will be re-directed to chassis ground through the connector shell. This same device will also protect the system from external EMI/RFI noise (such as radio transmitters, ESD, or natural phenomena such as lightning) in the same way.

## Choosing the Right Capacitance for Your Filter Connector

- (1) Determine the highest frequency that the filter connector needs to pass unaffected.
- (2) Which frequencies are causing trouble, either with emissions or with immunity to interference?

- (3) Scan the Insertion Loss charts on page 2 to select a filter which provides little or no insertion loss (filtering) at the frequency determined from step 1, yet gives the greatest possible insertion loss at the frequencies determined in step 2.

Nominal Insertion Loss values described in this catalog are based on the Mil-STD-220 test method - a 50 ohm balanced load and source impedance. Different systems will differ from this and

hence, the filter connector may perform differently. The final decision will be determined from actual EMI/RFI testing of the equipment in question.

## *D-Sub Series*



|                     |                                                    |              |
|---------------------|----------------------------------------------------|--------------|
| <b>FCC17 Series</b> | <b>Electrical Data, Insertion Loss Performance</b> | <b>2</b>     |
|                     | <b>Mechanical and Environmental Data</b>           | <b>3</b>     |
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|                     | <b>Filtered D-Sub Connectors: How To Order</b>     | <b>5-10</b>  |
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## *Micro-Ribbon Series*



|                     |                                                       |              |
|---------------------|-------------------------------------------------------|--------------|
| <b>FCC57 Series</b> | <b>Electrical Data, Insertion Loss Performance</b>    | <b>2</b>     |
|                     | <b>Mechanical and Environmental Data</b>              | <b>3</b>     |
|                     | <b>Filtered Micro-Ribbon Connectors: How To Order</b> | <b>17-22</b> |

## *RF Series*



|                   |                                             |              |
|-------------------|---------------------------------------------|--------------|
| <b>456 Series</b> | <b>Capacitively Decoupled RF Connectors</b> | <b>23-35</b> |
|-------------------|---------------------------------------------|--------------|

## *Modular Jacks*



|                        |                                   |
|------------------------|-----------------------------------|
| <b>FRJ/FRJA Series</b> | <b>Filtered &amp; Shielded -</b>  |
|                        | <b>See Modular Jack Catalogue</b> |

# FCC17 & FCC57 Series

## ELECTRICAL DATA

**Contact Resistance:** 15 milliohms maximum per MIL-STD-1344 Method 3002  
**Insulation Resistance:** 3000 megohms minimum per MIL-STD-1344 Method 3003.1  
**Current Rating:** 5 Amps DC maximum  
 2 Amps RF filtering maximum  
**FCC17 Combo:** 20-40 Amps

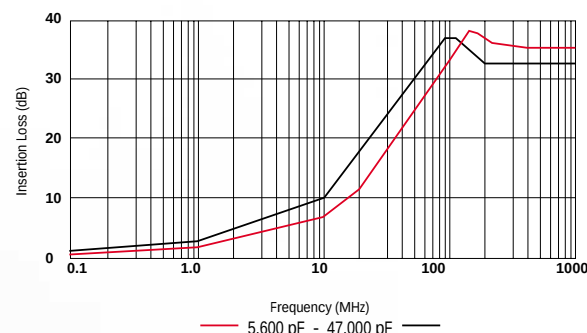
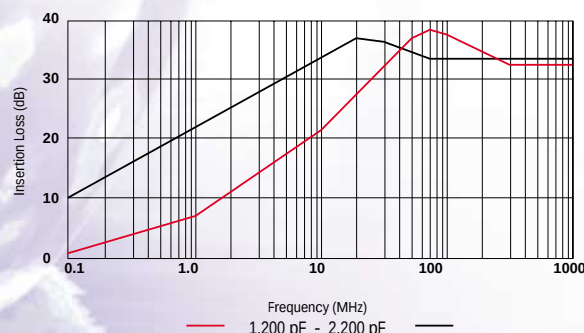
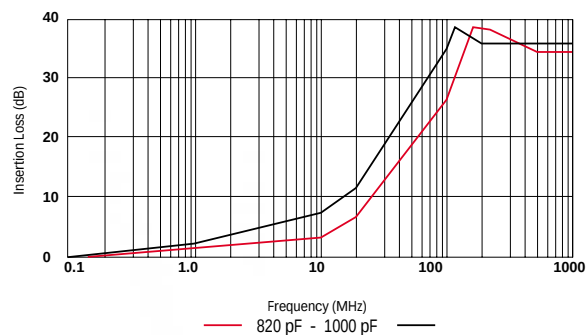
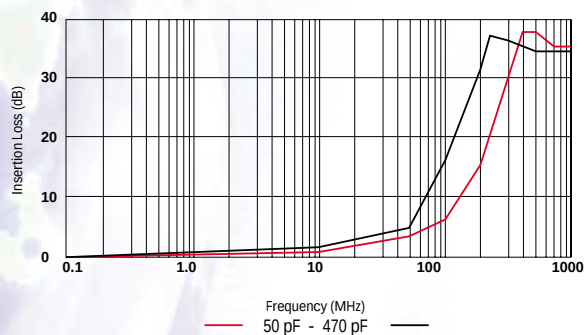
### Filter Performance:

|                                                   |          |       |       |       |       |       |       |       |       |       |
|---------------------------------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Filter Capacitance (pF)<br>@25°C, 1 kHz, 1.0 VRMS | 50       | 180   | 330   | 470   | 820   | 1000  | 1200  | 2200  | 5600  | 47000 |
|                                                   | ± 15%    | ± 15% | ± 15% | ± 15% | ± 15% | ± 15% | ± 15% | ± 15% | ± 20% | ± 20% |
| Dielectric Material: NPO or X7R                   |          |       |       |       |       |       |       |       |       |       |
| Insertion Loss (dB)<br>(per MIL-STD-220 @ 25°C)   |          |       |       |       |       |       |       |       |       |       |
|                                                   | .5 MHz   |       |       |       |       |       |       |       | 3     | 15    |
|                                                   | 1 MHz    |       |       |       |       |       |       | 1     | 5     | 20    |
|                                                   | 5 MHz    |       |       | 1     | 1     | 1     | 1     | 5     | 11    | 27    |
|                                                   | 10 MHz   |       |       | 2     | 3     | 3     | 4     | 8     | 16    | 32    |
|                                                   | 50 MHz   |       | 4     | 7     | 11    | 16    | 17    | 23    | 32    | 32    |
|                                                   | 100 MHz  | 2     | 12    | 15    | 22    | 30    | 30    | 32    | 32    | 32    |
|                                                   | 200 MHz  | 12    | 27    | 28    | 30    | 32    | 32    | 32    | 32    | 32    |
|                                                   | 1000 MHz | 32    | 32    | 32    | 32    | 32    | 32    | 32    | 32    | 32    |
| Working Voltage (VDC)                             | 300      | 300   | 300   | 300   | 200   | 200   | 200   | 200   | 200   | 50    |
| DWV (VDC) *                                       | 600      | 600   | 600   | 600   | 600   | 600   | 600   | 600   | 600   | 150   |

NOTE: A larger range of capacitors available - consult factory.

\* FCC57 connectors can be specified to meet the requirements of FCC Docket 20780, Part 68, Subpart F (1000 VAC for one minute. Consult factory for details).  
 FCC17 and FCC57 connectors can withstand a transient voltage spike of 700 V with a rise time of 1 µsec (500 V for 47000 pF).  
 FCC17 and FCC57 connectors can be specified to meet higher DWV and transient voltage requirement (consult factory).

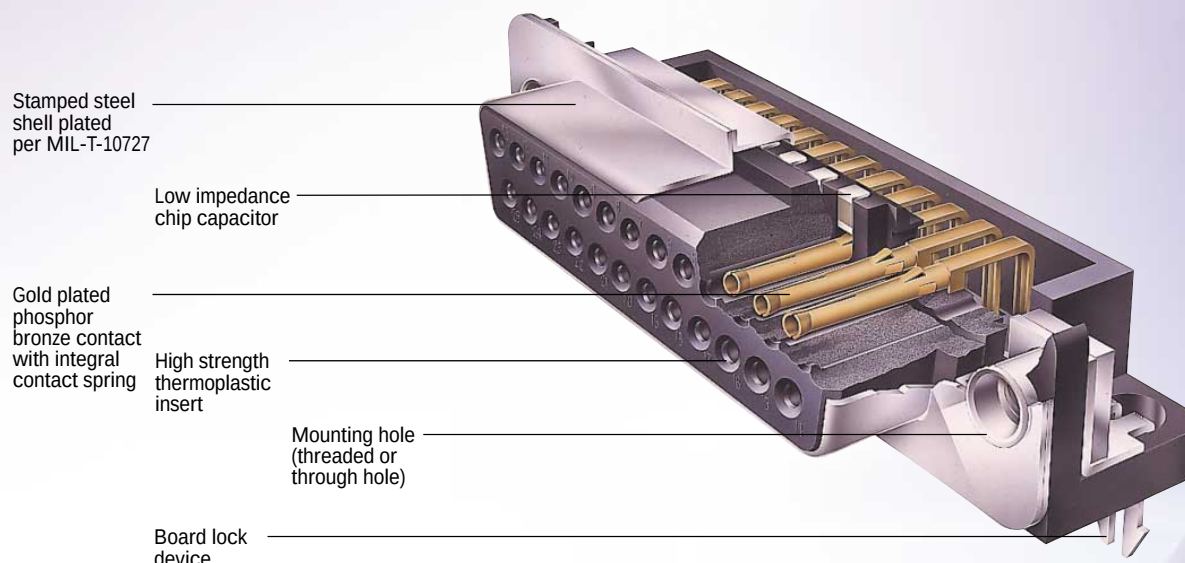
## Typical Insertion Loss Performance (dB)(Per MIL-STD-220, no load)



# FCC17 & FCC57 Series

## MECHANICAL DATA

### FCC17 Series Construction



### FCC17 & FCC57 Mechanical & Environmental Data

#### MATERIALS

##### FCC17

**Shell** Stamped Steel;  
Tin Plated

**Contacts** Phosphor Bronze;  
15μ inches  
[0.38 microns]  
Au over Ni  
Optional 50μ inches  
[1.27 microns]  
Au available

##### FCC17 Combo

Copper Alloy  
30μ inches  
[0.76 microns]  
Au over Ni

**Inserts** High Strength  
Thermoplastic.  
Complies with UL  
flammability  
requirements of  
94V-O per UL-STD-94.

##### FCC57

**Shell** Stamped Steel,  
Zinc or Aluminum  
Diecast; Tin Plated

**Contacts** Phosphor Bronze;  
30μ inches  
[0.76 microns]  
Au over Ni  
Optional 50μ inches  
[1.27 microns]  
Au available

**Inserts** High Strength  
Thermoplastic.  
Complies with UL  
flammability  
requirements of  
94V-O per UL-STD-94.

#### ENVIRONMENTAL

##### FCC17 & FCC57

**OPERATING TEMPERATURE** • -40°C to +85°C

**TEMPERATURE CYCLING** • To MIL-STD-1344,  
Method 1003, Test Cond. A

**HUMIDITY** • To MIL-STD-1344,  
Method 1002, Type I,  
Test Condition C

**VIBRATION** • To MIL-STD-1344,  
Method 2005, Test Cond. III

**DURABILITY** • 200 Cycles Minimum,  
to MIL-STD-1344,  
Method 2016

**UL File #** E135615  
**CSA File #** LR68598

# FCC17 Series

## FILTERED STACKED D-SUB CONNECTORS

### Ordering Information – Stacked D-Sub

**FCC17 - 2 BP BS - 4 5 5 X**

**FCC17 SERIES DESIGNATION**

**2 VERTICAL MOUNTING DIMENSION BETWEEN CONNECTORS**  
 1 = .625" [15.88 mm]  
 2 = .750" [19.05 mm]

**BP UPPER CONNECTOR CONFIGURATION (Size and Style)**  
 EP: 9 pin BP: 25 pin  
 ES: 9 socket BS: 25 socket  
 AP: 15 pin CP: 37 pin  
 AS: 15 socket CS: 37 socket

**BS LOWER CONNECTOR CONFIGURATION (Size and Style) same as Upper Connector Configuration**

**4 MOUNTING**  
 2: .120" [3.05 mm] Diameter Through Hole on Flanges  
 4: 4-40 Threaded Inserts on Flanges  
 E: 4-40 Hex Jack Sockets (supplied loose)

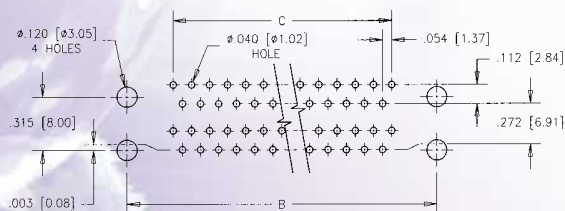
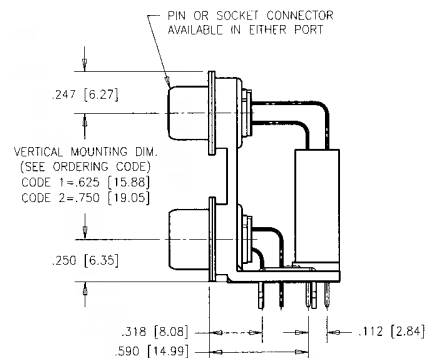
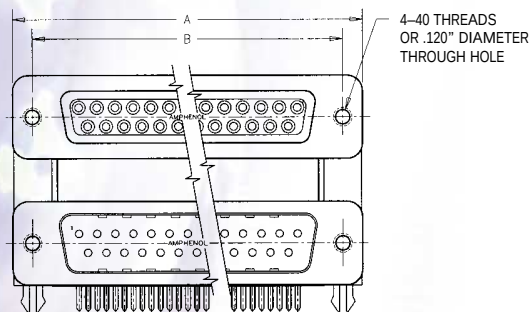
**MODIFIER**  
 0: Standard Product  
 x: Special or Custom Versions

**LOWER CONNECTOR FILTER CAPACITANCE**  
 same as Upper Connector Filter Capacitance Designation

**UPPER CONNECTOR FILTER CAPACITANCE**

|           |              |
|-----------|--------------|
| D: 50 pF  | 5: 1,000 pF  |
| 0: 180 pF | E: 2,200 pF  |
| F: 330 pF | 7: 1,200 pF  |
| 1: 470 pF | 9: 5,600 pF  |
| 4: 820 pF | 8: 47,000 pF |

\* For Additional Mounting Options and Filter Capacitance - Consult Factory



PCB LAYOUT

#### Dimensions

| Connector size | A             | B             | C             |
|----------------|---------------|---------------|---------------|
| 9 / 9          | 1.213 [30.81] | .984 [24.99]  | .432 [10.97]  |
| 15 / 15        | 1.541 [39.14] | 1.312 [33.32] | .756 [19.20]  |
| 25 / 25        | 2.088 [53.04] | 1.852 [47.04] | 1.304 [33.12] |
| 37 / 37        | 2.729 [69.32] | 2.500 [63.50] | 1.956 [49.68] |

Consult factory for alternative arrangements

### Specifications

**Filter Characteristics:** See Page 2  
**Electrical Data:** See Page 2  
**Material and Finishes:** See Page 3  
**Environmental Data:** See Page 3  
**UL File # :** E135615  
**CSA File # :** LR68598



These products are protected by U.S. Patent # 4500159

### Ordering Information – D-Sub

**FCC17 - B25 S C - 4 4 0 G**

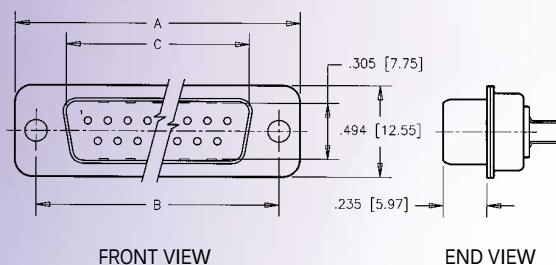
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>FCC17</b> <b>SERIES DESIGNATION</b></p> <p><b>B25</b> <b>SIZE</b><br/>         E09<br/>         A15<br/>         B25<br/>         C37</p> <p><b>S</b> <b>CONNECTOR TYPE</b><br/>         A - Adapter<br/>         P - Pin<br/>         S - Socket</p> <p><b>C</b> <b>TERMINATION TYPE</b><br/>         A - Right Angle PC Tail, .318" [8.08 mm] Footprint<br/>         B - Right Angle PC Tail, .405" [10.29 mm] Footprint<br/>         C - Right Angle PC Tail, .590" [14.99 mm] Footprint<br/>         D - Pin/Socket Adapter<br/>         E - Vertical Mount PC Tail<br/>         M - Solder Cup<br/>         N - Vertical Mount PC Tail - Long Body</p> <p><b>4</b> <b>MOUNTING OPTIONS*</b><br/>         A: 4-40 Threaded PC Tail Standoffs with Boardlock, Vertical Mount Only<br/>         E: 4-40 Hex Jack Sockets (supplied loose)<br/>         F: 4-40 Round Fixed Jack Sockets<br/>         2: .120 [3.05 mm] diameter Through hole<br/>         3: Self-Locking 4-40 Threaded Inserts<br/>         4: 4-40 Threaded Inserts (Standard)<br/>         5: 4-40 Threaded Stand-Offs, Vertical Mount<br/>         6: M3 Threaded inserts</p> | <p><b>SPECIALS</b><br/>         No Digit: Standard 15μ inches gold<br/>         G: 50 micro inches gold<br/>         K: 30 micro inches gold<br/>         L: Standard Connector with added ferrite block</p> <p><b>MODIFIER</b><br/>         0 = Standard Product (Boardlocks on Right Angle D-Subs)<br/>         B = Metal Mounting Brackets, for Right Angle D-Subs<br/>         D = .315" to Boardlock for .590" footprint<br/>         E = Plastic Bracket - No Boardlock<br/>         F = No Boardlock, No plastic or metal Bracket - Alignment Strip Only<br/>         X = Specials or Custom Versions</p> <p><b>FILTER CAPACITANCE [pF]*</b><br/>         D: 50 pF<br/>         B: 100 pF<br/>         0: 180 pF<br/>         F: 330 pF<br/>         1: 470 pF<br/>         4: 820 pF<br/>         5: 1,000 pF<br/>         7: 1,200 pF<br/>         E: 2,200 pF<br/>         9: 5,600 pF<br/>         8: 47,000 pF</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

\* For Additional Mounting Options and Filter Capacitance - Consult Factory

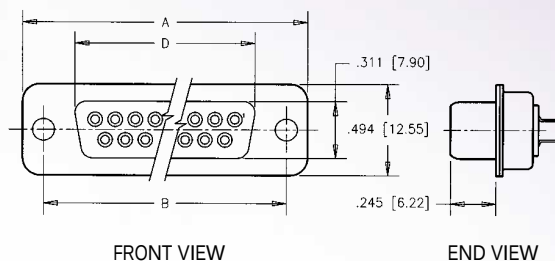
# FCC17 Series

## FILTERED D-SUB CONNECTORS

### Pin



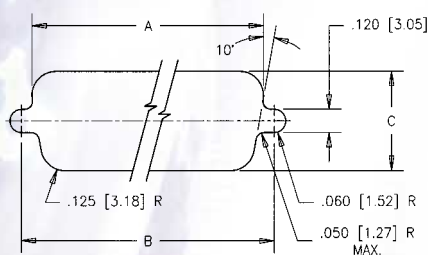
### Socket



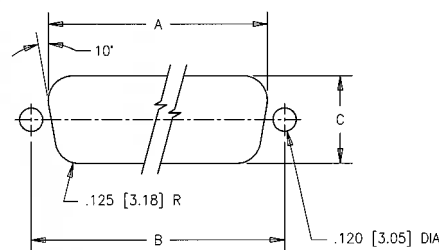
All Dimensions in Inches (mm)

| Shell Size | Standard Number of Contacts | A             | B             | C<br>(for pin connector) | D<br>(for socket connector) |
|------------|-----------------------------|---------------|---------------|--------------------------|-----------------------------|
| E          | 9                           | 1.213 [30.81] | .984 [24.99]  | .666 [16.92]             | .643 [16.33]                |
| A          | 15                          | 1.541 [39.14] | 1.312 [33.32] | .994 [25.25]             | .971 [24.66]                |
| B          | 25                          | 2.088 [53.04] | 1.852 [47.04] | 1.534 [38.96]            | 1.511 [38.38]               |
| C          | 37                          | 2.729 [69.32] | 2.500 [63.50] | 2.182 [55.42]            | 2.159 [54.84]               |

## Mounting Dimensions



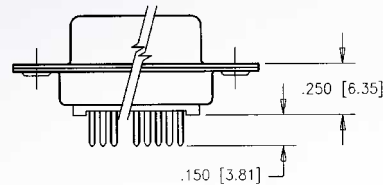
FRONT MOUNTING CUT-OUT



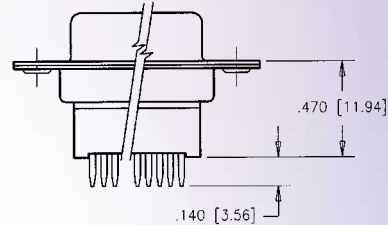
REAR MOUNTING CUT-OUT

| Size | Mounting | A             | B             | C            |
|------|----------|---------------|---------------|--------------|
| 9    | Front    | .875 [22.23]  | .984 [24.99]  | .512 [13.00] |
|      | Rear     | .807 [20.50]  | .984 [24.99]  | .449 [11.40] |
| 15   | Front    | 1.200 [30.48] | 1.312 [33.32] | .512 [13.00] |
|      | Rear     | 1.134 [28.80] | 1.312 [33.32] | .449 [11.40] |
| 25   | Front    | 1.744 [44.30] | 1.852 [47.04] | .512 [13.00] |
|      | Rear     | 1.673 [42.49] | 1.852 [47.04] | .449 [11.40] |
| 37   | Front    | 2.389 [60.68] | 2.500 [63.50] | .512 [13.00] |
|      | Rear     | 2.326 [59.08] | 2.500 [63.50] | .449 [11.40] |

### Vertical Mount



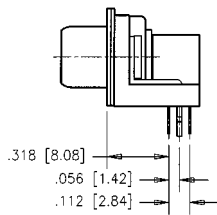
Termination Type E



Termination Type N

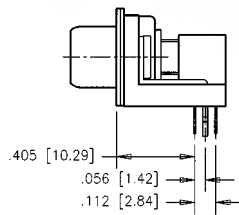
### Right Angle, with Boardlocks & Plastic Mounting Brackets

**.318" FOOTPRINT**



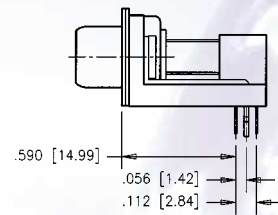
Termination Type A  
with Modifier option O

**.405" FOOTPRINT**



Termination Type B  
with Modifier option O

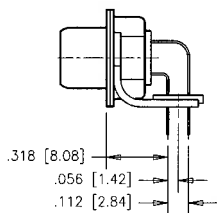
**.590" FOOTPRINT**



Termination Type C  
with Modifier option O

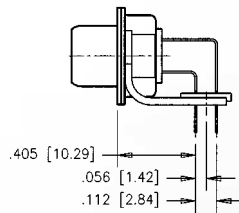
### Right Angle, with Metal Mounting Brackets

**.318" FOOTPRINT**



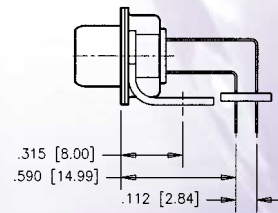
Termination Type A  
with Modifier option B

**.405" FOOTPRINT**



Termination Type B  
with Modifier option B

**.590" FOOTPRINT**



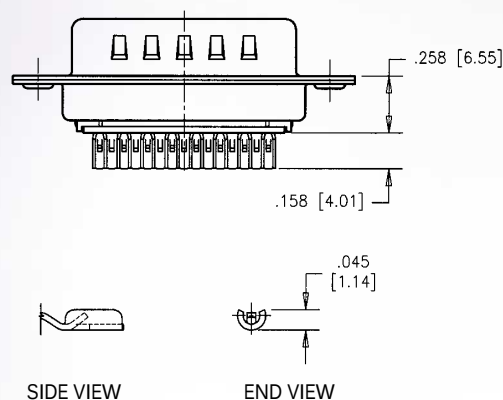
Termination Type C  
with Modifier option B

# FCC17 Series

## FILTERED D-SUB CONNECTORS

### Solder Cup Termination

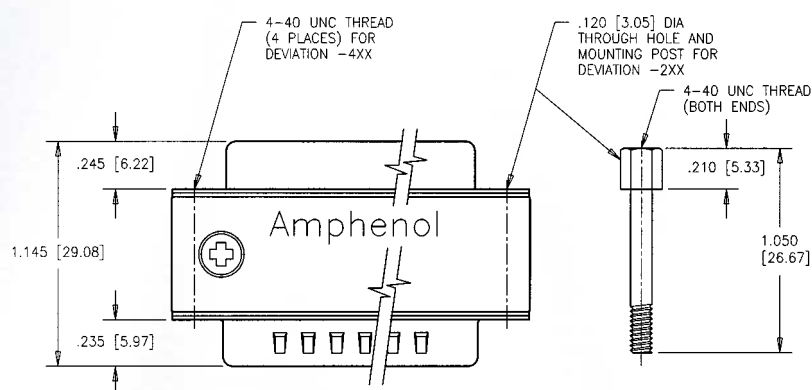
Termination type M



SOLDER CUP DETAIL  
(ACCEPTS UP TO 20 AWG WIRE)

### Pin-to-Socket Adapter

Termination type D



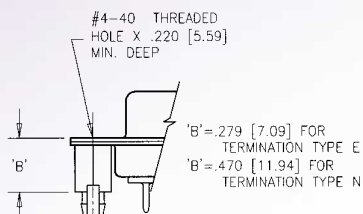
**Mounting Options**  
Through Hole with Mounting Post  
4-40 Threaded Inserts

**Part No. Example**  
FCC17-B25AD-2x0  
FCC17-B25AD-4x0

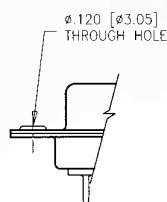
x = To complete the P/N, see page 5 to assign Filter Capacitance Code.  
For electrical and mechanical specifications, see pages 2 and 3.

### Mounting Options (on Flange)

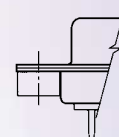
Shown for Vertical Mount Connectors. Codes 2, 3, 4, 6, E and F also available on right angle connectors.



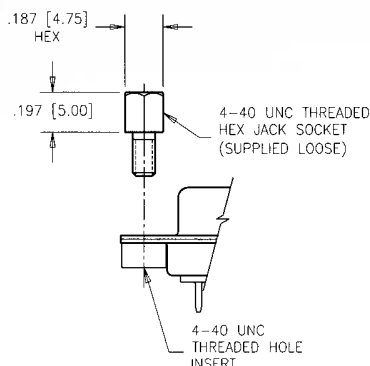
**-A x x**  
4-40 Threaded Standoffs with Boardlocks (Vertical Mount only)  
Mounting code A



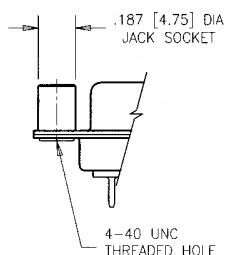
**-2 x x**  
.120" (3.05 mm) diameter thru hole  
Mounting code 2



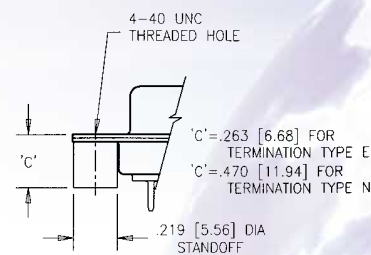
**-3 x x, 4 x x and 6 x x**  
4-40 Threaded Inserts - Self locking  
4-40 Threaded inserts (standard)  
M3 threaded inserts  
Mounting codes 3, 4 and 6



**-E x x**  
4-40 Hex Jack Sockets (supplied loose)  
Mounting code E

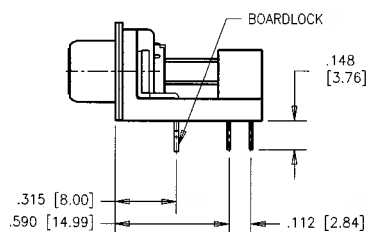


**-F x x**  
4-40 Round fixed Jack Sockets  
Mounting code F

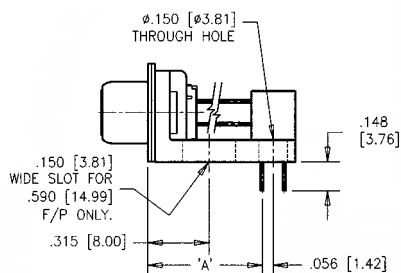


**-5 x x**  
4-40 Threaded Standoff (vertical mount only)  
Mounting code 5

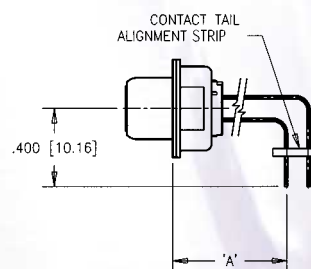
### Bracket Options & Specials



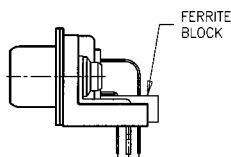
**-x xD**  
.315" to Boardlock  
for .590" Footprint only  
Modifier option D



**-x xE**  
Plastic bracket only  
Modifier option E



**-x xF**  
Alignment Strip Only  
No bracket or boardlocks  
Modifier option F



FERRITE

Consult Factory for details

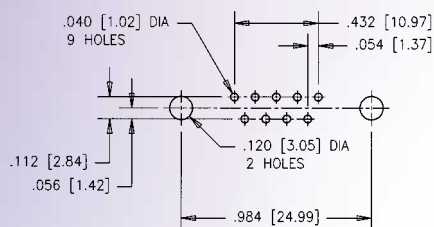
| Termination Type | "A" Dimension |
|------------------|---------------|
| A                | .318 (8.08)   |
| B                | .405 (10.29)  |
| C                | .590 (14.99)  |

# FCC17 Series

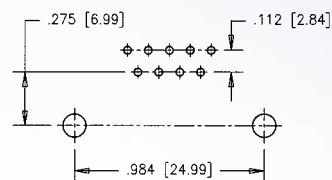
## FILTERED D-SUB CONNECTORS

### PCB Layout

#### 9 SIZE

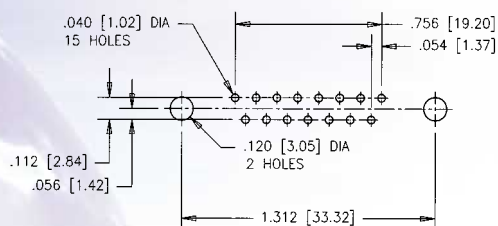


Standard PCB layout

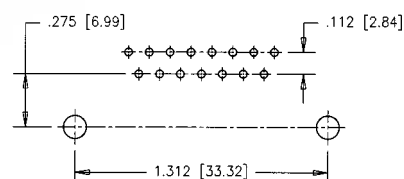


PCB layout for  
.590 footprint with Modifier  
Options B or D only

#### 15 SIZE

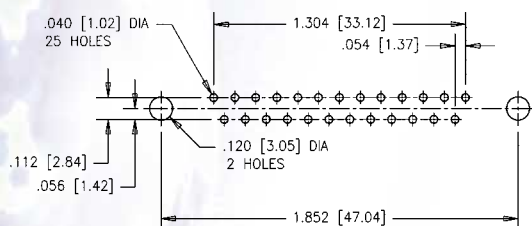


Standard PCB layout

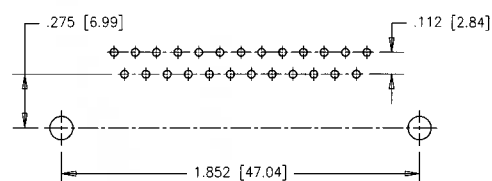


PCB layout for  
.590 footprint with Modifier  
Options B or D only

#### 25 SIZE

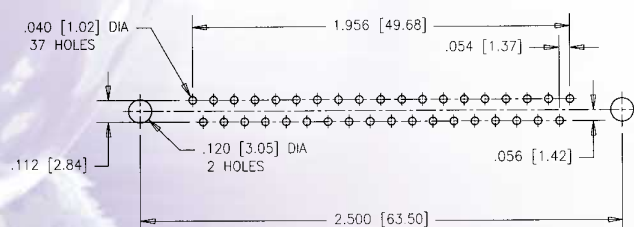


Standard PCB layout

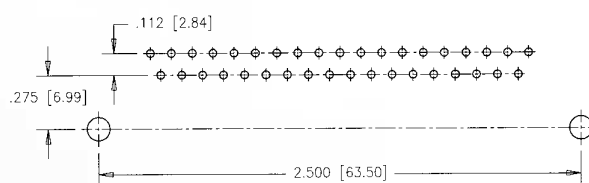


PCB layout for  
.590 footprint with Modifier  
Options B or D only

#### 37 SIZE



Standard PCB layout



PCB layout for  
.590 footprint with Modifier  
Options B or D only

# FCC17 Series

## COMBO D-SUB FILTER CONNECTORS

### Specifications

**Filter Characteristics:** See Page 2

**Electrical Data:** See Page 2

**Material and Finishes:** See Page 3

**Environmental Data:** See Page 3

**UL File # :** E135615

**CSA File # :** LR68598



These products are protected by U.S. Patent # 4500159

### Ordering Information – Combo D-Sub



\* For Additional Mounting Options and Filter Capacitance - Consult Factory

# FCC17 Series

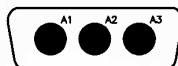
## COMBO D-SUB FILTER CONNECTORS

### Insert Arrangements - Male Front View



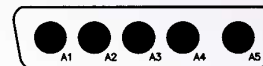
Shell Size E  
Arrangement 2W2  
No. of Signal Contacts 0  
No. of Power Contacts 2

Consult factory  
for availability



Shell Size A  
Arrangement 3W3  
No. of Signal Contacts 0  
No. of Power Contacts 3

Keyed Version  
also available  
Consult factory  
for availability



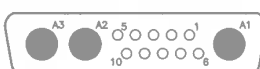
Shell Size B  
Arrangement 5W5  
No. of Signal Contacts 0  
No. of Power Contacts 5

Keyed Version  
also available  
Consult factory  
for availability



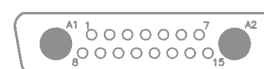
Shell Size B  
Arrangement 9W4  
No. of Signal Contacts 5  
No. of Power Contacts 4

Consult factory  
for availability



Shell Size B  
Arrangement 13W3  
No. of Signal Contacts 10  
No. of Power Contacts 3

Consult factory  
for availability



Shell Size B  
Arrangement 17W2  
No. of Signal Contacts 15  
No. of Power Contacts 2

Consult factory  
for availability



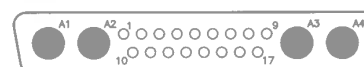
Shell Size C  
Arrangement 27W2  
No. of Signal Contacts 25  
No. of Power Contacts 2

Consult factory  
for availability



Shell Size C  
Arrangement 8W8  
No. of Signal Contacts 0  
No. of Power Contacts 8

Consult factory  
for availability



Shell Size C  
Arrangement 21WA4  
No. of Signal Contacts 17  
No. of Power Contacts 4

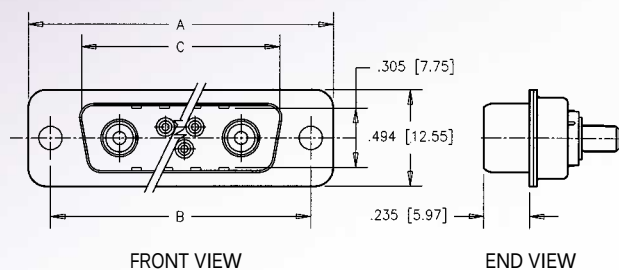
Consult factory  
for availability

Consult Factory for Additional Arrangements and Polarization

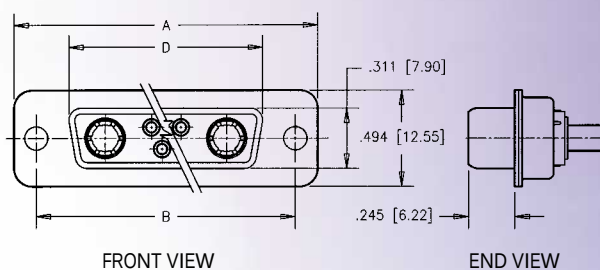
# FCC17 Series

## COMBO D-SUB FILTER CONNECTORS

### Pin



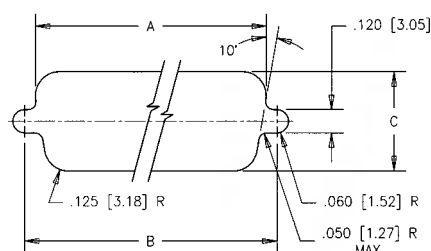
### Socket



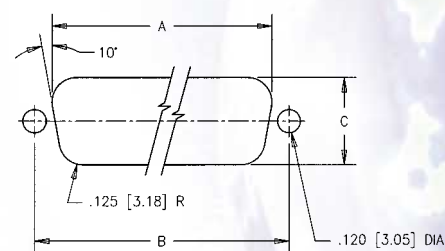
All Dimensions in Inches (mm)

| Shell Size | A             | B             | C<br>(for pin conn. only) | D<br>(for socket conn. only) |
|------------|---------------|---------------|---------------------------|------------------------------|
| E          | 1.213 [30.81] | .984 [24.99]  | .666 [16.92]              | .643 [16.33]                 |
| A          | 1.541 [39.14] | 1.312 [33.32] | .994 [25.25]              | .971 [24.66]                 |
| B          | 2.088 [53.04] | 1.852 [47.04] | 1.534 [38.96]             | 1.511 [38.38]                |
| C          | 2.729 [69.32] | 2.500 [63.50] | 2.182 [55.42]             | 2.159 [54.84]                |

## Mounting Dimensions



STANDARD CUT-OUT  
(FOR FRONT MOUNTING)



OPTIONAL CUT-OUT  
(FOR REAR MOUNTING)

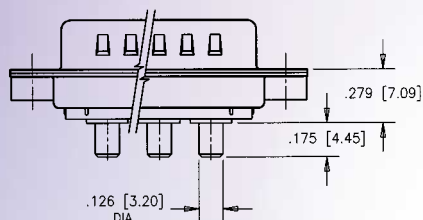
| Size | Mounting | A             | B             | C            |
|------|----------|---------------|---------------|--------------|
| E    | Front    | .875 [22.23]  | .984 [24.99]  | .512 [13.00] |
|      | Rear     | .807 [20.50]  | .984 [24.99]  | .449 [11.40] |
| A    | Front    | 1.200 [30.48] | 1.312 [33.32] | .512 [13.00] |
|      | Rear     | 1.134 [28.80] | 1.312 [33.32] | .449 [11.40] |
| B    | Front    | 1.744 [44.30] | 1.852 [47.04] | .512 [13.00] |
|      | Rear     | 1.673 [42.49] | 1.852 [47.04] | .449 [11.40] |
| C    | Front    | 2.389 [60.68] | 2.500 [63.50] | .512 [13.00] |
|      | Rear     | 2.326 [59.08] | 2.500 [63.50] | .449 [11.40] |

Consult Factory - Shell Size D

# FCC17 Series

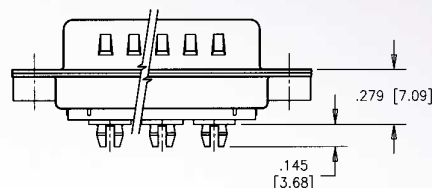
## COMBO D-SUB FILTER CONNECTORS

### Straight PCB



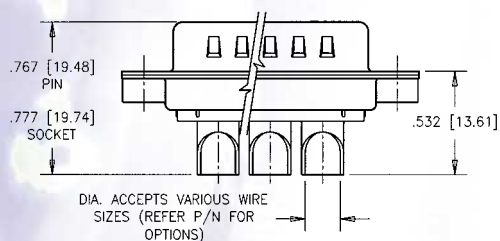
Termination type E

### Press Fit



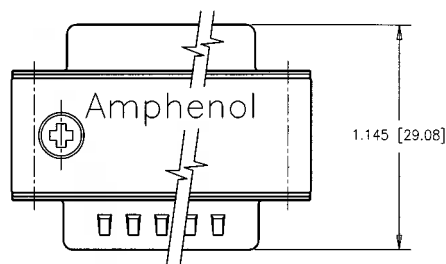
Termination type R

### Solder Cup



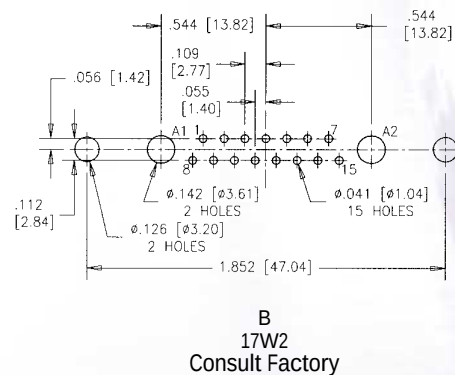
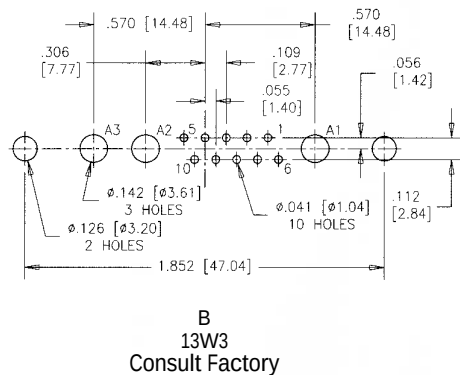
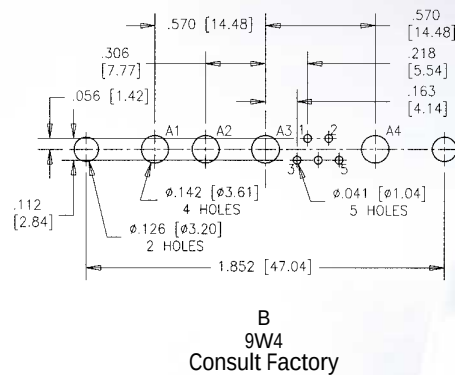
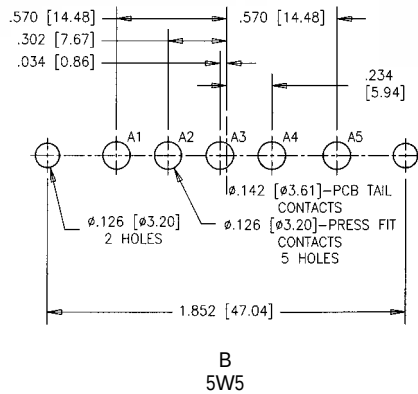
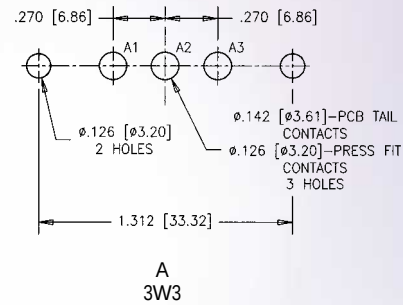
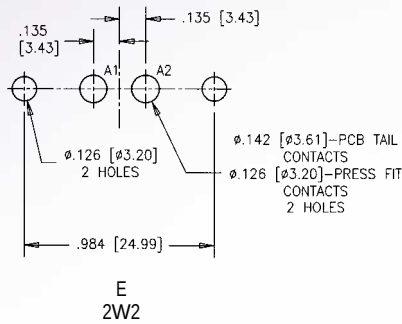
Termination types: K, L, M

### Adapter – Pin/Socket



Termination type: D

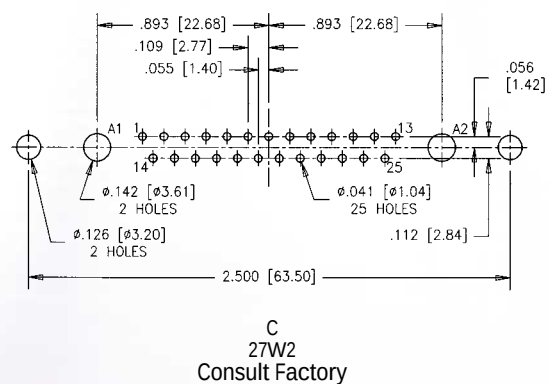
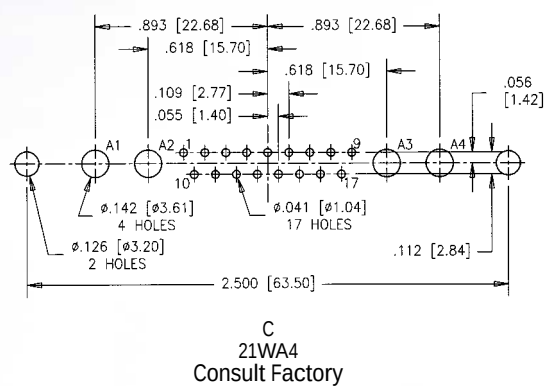
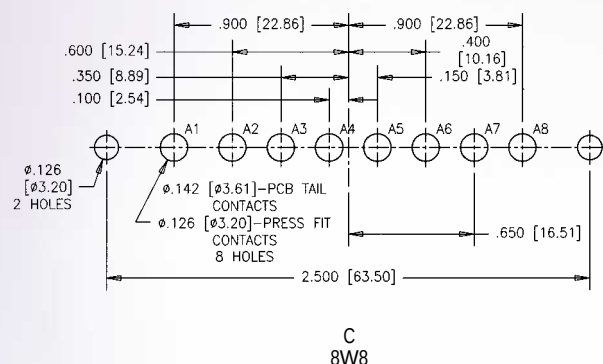
### PCB Layout - Straight PCB & Press Fit



# FCC17 Series

## COMBO D-SUB FILTER CONNECTORS

### PCB Layout - Straight PCB & Press Fit



# FCC57 Series

## FILTERED MICRO-RIBBON CONNECTORS

### Specifications

**Filter Characteristics:** See Page 2

**Electrical Data:** See Page 2

**Material and Finishes:** See Page 3

**Environmental Data:** See Page 3

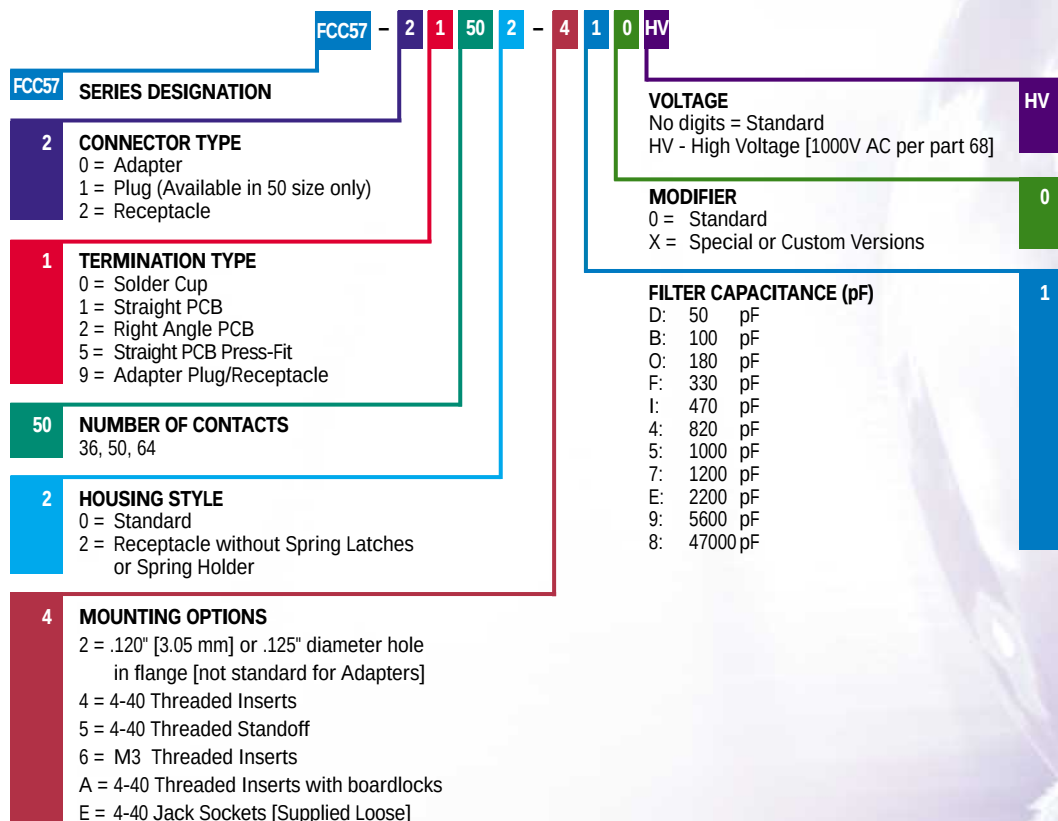
**UL File # :** E135615

**CSA File # :** LR68598



These products are protected by U.S. Patent # 4500159

### Ordering Information

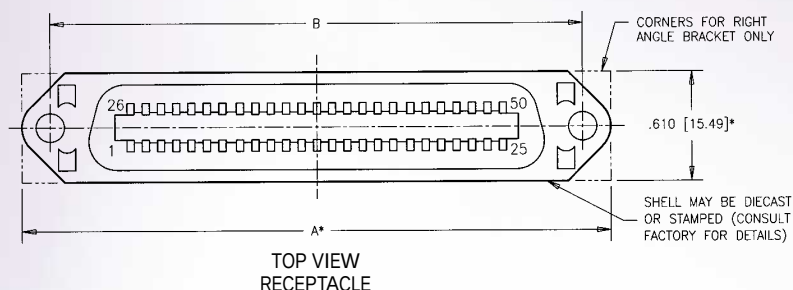


High voltage capacitors available (contact factory)

# FCC57 Series

## FILTERED MICRO-RIBBON CONNECTORS

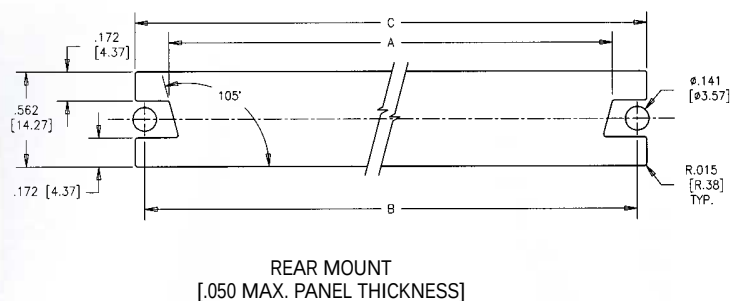
### Receptacle - 36, 50, 64 Size



| Connector Size | A             | B             |
|----------------|---------------|---------------|
| 36             | 2.637 [66.98] | 2.350 [59.69] |
| 50             | 3.260 [82.80] | 2.947 [74.85] |
| 64             | 3.835 [97.41] | 3.542 [89.97] |

Dimensions are different for DieCast Shells  
Consult Factory for details

### Panel Mounting Dimensions - 36 / 50 / 64 size



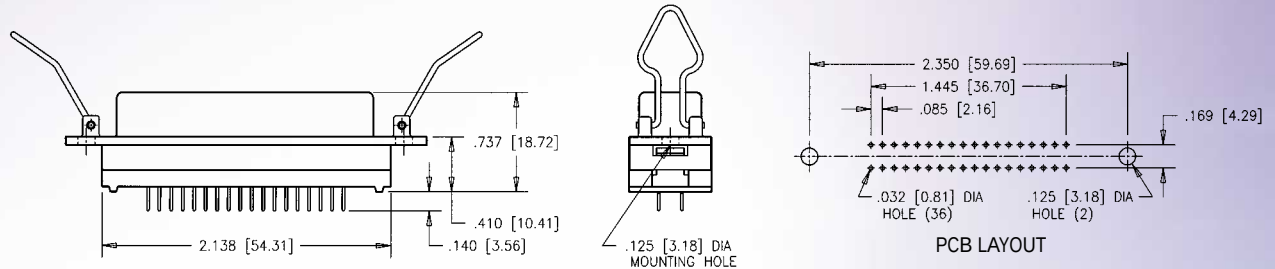
| Connector Size | A              | B             | B              |
|----------------|----------------|---------------|----------------|
| 36             | 2.043 [71.05]  | 2.350 [59.69] | 2.450 [85.20]  |
| 50             | 2.656 [92.36]  | 2.947 [74.85] | 3.062 [106.48] |
| 64             | 3.251 [113.06] | 3.542 [89.97] | 3.657 [127.18] |

# FCC57 Series 36 Size

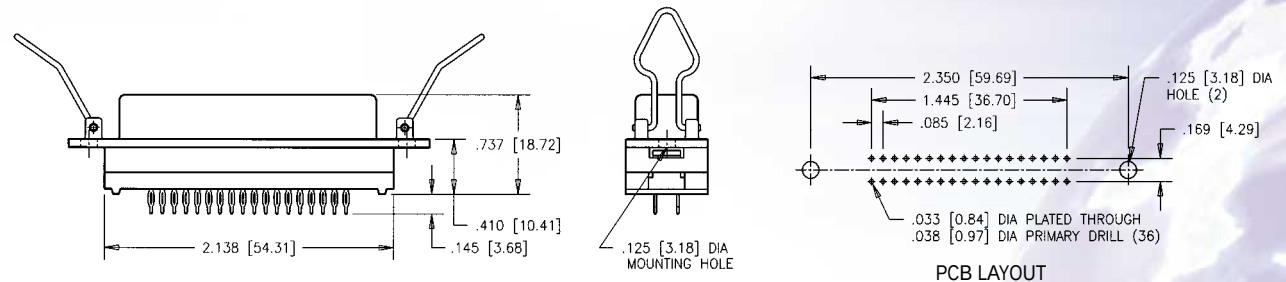
## FILTERED MICRO-RIBBON CONNECTORS

### Receptacle

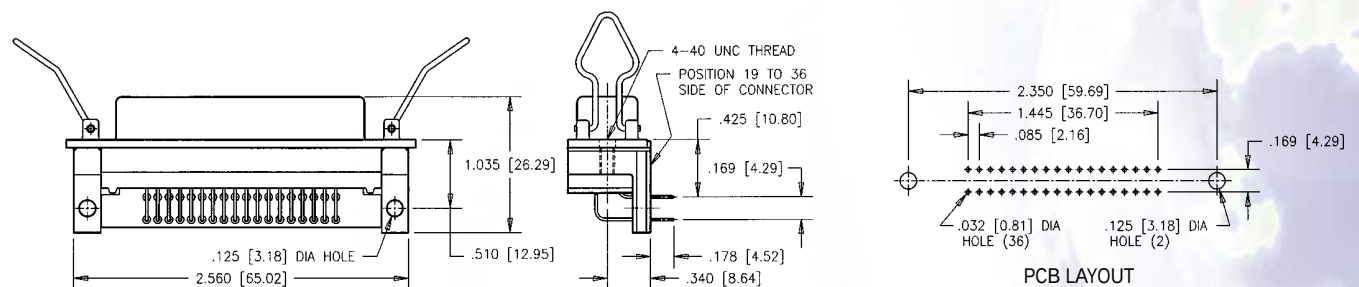
#### STRAIGHT PCB (FCC57 - 21360 - 1 x 0)



#### STRAIGHT PRESS-FIT (FCC57 - 25360 - 1 x 0)

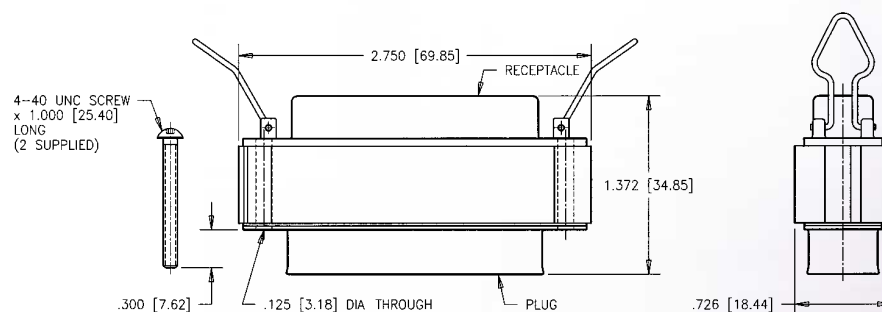


#### RIGHT ANGLE PCB (FCC57 - 22360 - 1 x 0)



### Adapter

#### PLUG/RECEPTACLE (FCC57 - 09360 - 1 X 0)

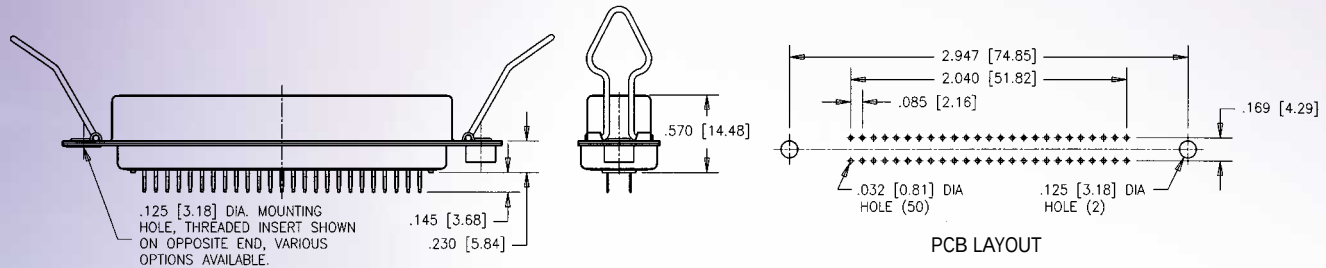


# FCC57 Series 50 Size

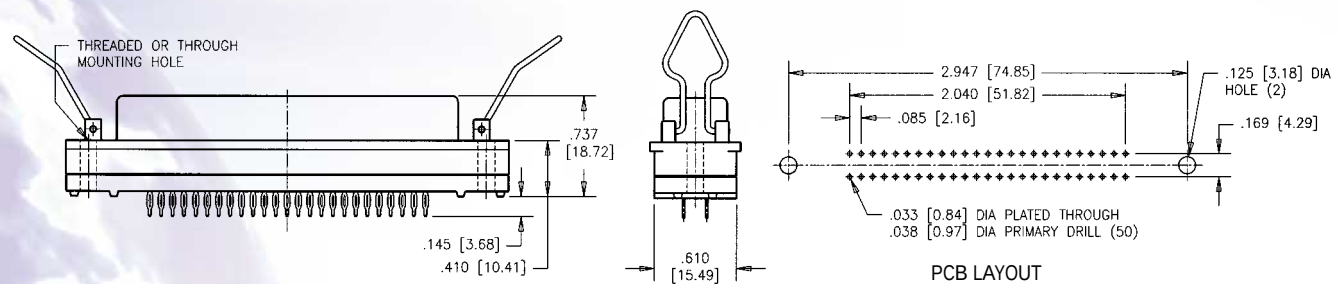
## FILTERED MICRO-RIBBON CONNECTORS

### Receptacle

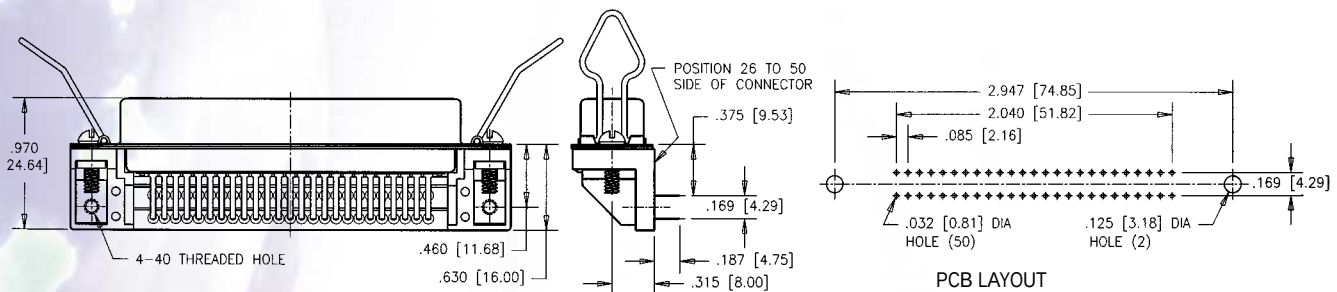
#### STRAIGHT PCB (FCC57 - 21500 - x x 0)



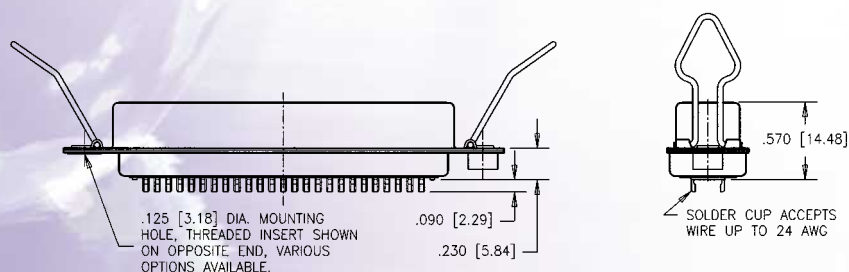
#### STRAIGHT PRESS-FIT (FCC57 - 25500 - x x 0)



#### RIGHT ANGLE PCB (FCC57 - 22500 - x x 0)



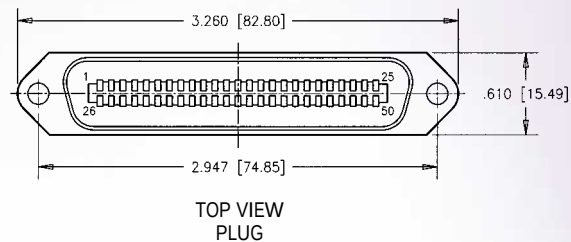
#### SOLDER CUP (FCC57 - 20500 - x x 0)



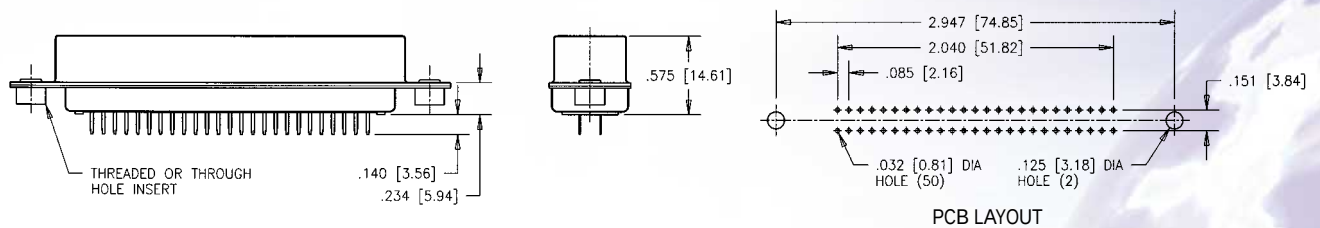
# FCC57 Series 50 Size

## FILTERED MICRO-RIBBON CONNECTORS

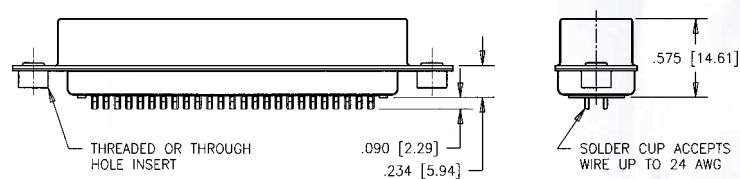
### Plug



### STRAIGHT PCB (FCC57 - 11500 - x x 0)

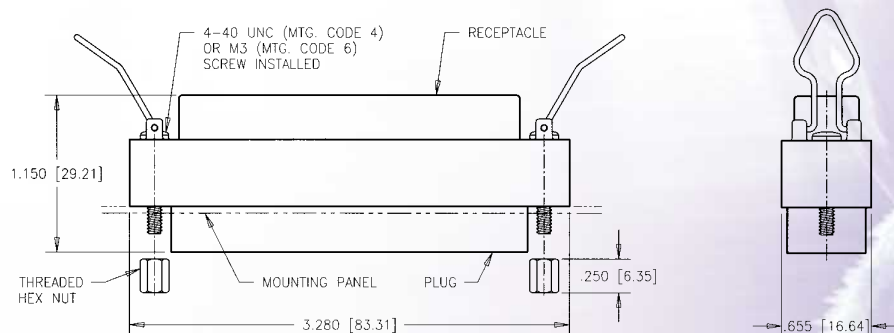


### SOLDER CUP (FCC57 - 10500 - x x 0)



### Adapter

### PLUG/RECEPTACLE (FCC57 - 09500 - x x 0)

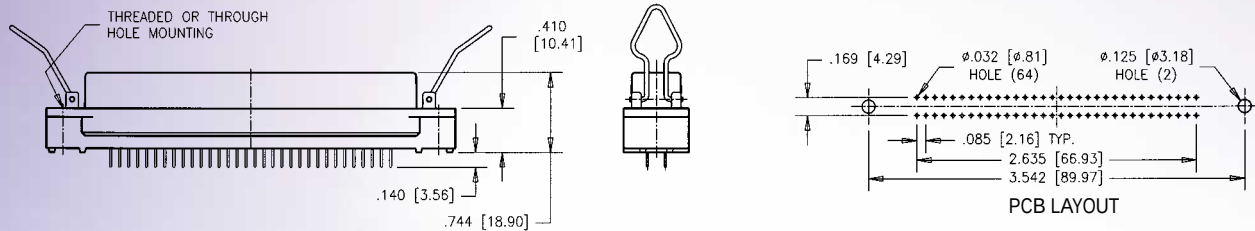


# FCC57 Series 64 Size

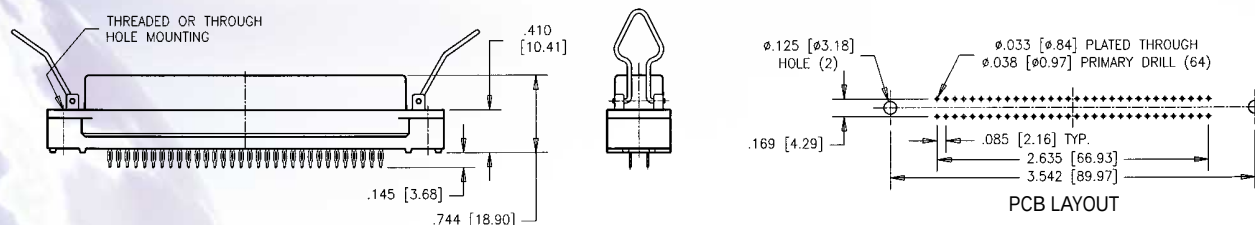
## FILTERED MICRO-RIBBON CONNECTORS

### Receptacle

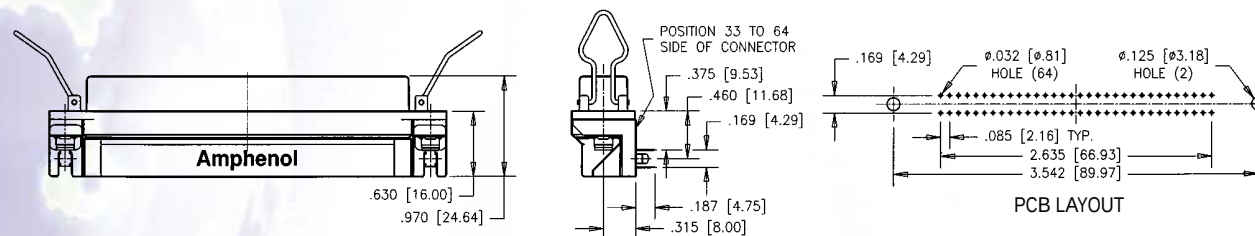
#### STRAIGHT PCB (FCC57 - 21640 - x 0)



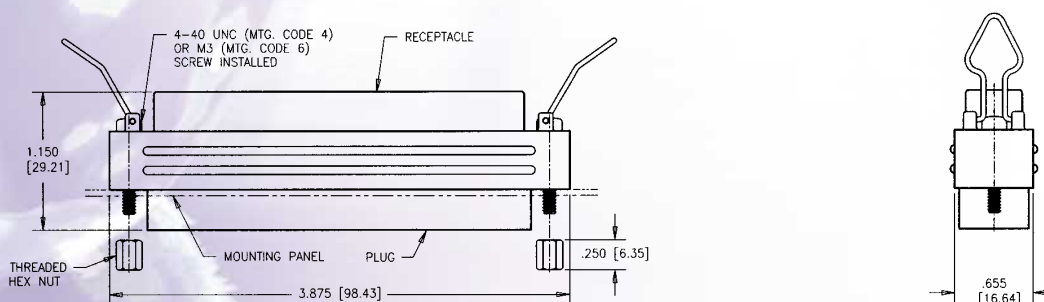
#### STRAIGHT PRESS-FIT (FCC57 - 25640 - x x 0)



#### RIGHT ANGLE PCB (FCC57 - 22640 - x x 0)



#### ADAPTER\* (FCC57 - 09640 - x x 0)



\*Consult Factory

### Specifications

#### Mechanical Data:

|                           |                                                                                 |
|---------------------------|---------------------------------------------------------------------------------|
| <b>Shell:</b>             | Zinc Diecast or Brass; Nickel plated                                            |
| <b>Insulator Body:</b>    | Thermoplastic                                                                   |
| <b>Contact Insulator:</b> | Nylon or Teflon                                                                 |
| <b>Center Contact:</b>    | Phosphor Bronze or Beryllium Copper;<br>Gold plated (456-107S is silver plated) |
| <b>UL File # :</b>        | E135615                                                                         |
| <b>CSA File # :</b>       | LR68598                                                                         |

#### Filter Performance:

|                            |                               |
|----------------------------|-------------------------------|
| Capacitance                | 10,000 pF                     |
| Working Voltage            | 200 VDC (500AC Rear Mt)       |
| DWV                        | 600 VDC (1000VDC for Rear Mt) |
| Filter Insertion Loss (dB) | 1 MHz 4                       |
| (per MIL-STD-220           | 5 MHz 16                      |
| @ 25°C and                 | 10 MHz 18                     |
| no load)                   | 30 MHz 25                     |
|                            | 50 MHz 30                     |
|                            | 1000 MHz 30                   |

\* OTHER CAPACITANCE VALUES ARE AVAILABLE. CONSULT THE FACTORY FOR DETAILS.

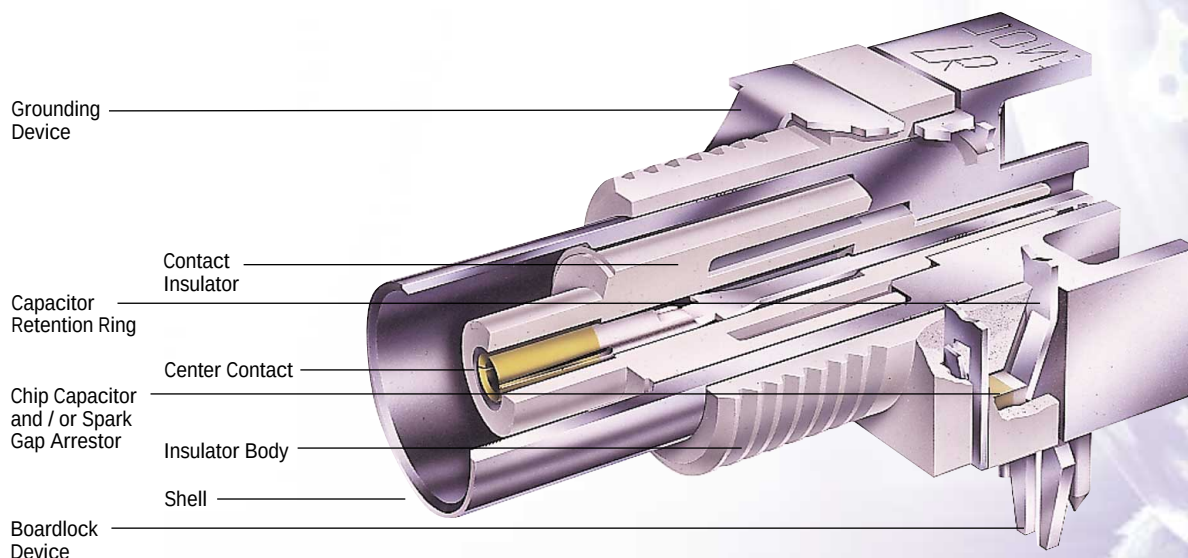


These products are protected by U.S. Patent # 4,772,221.

Amphenol's 456 Series of RF connectors provides capacitive decoupling between the connector body and the mounting panel. EMI on the coaxial shield is shunted to the chassis ground through capacitors, while not affecting the DC and power supply frequencies. This reduces ground loop problems and provides a mechanism to harmlessly dissipate ESD to chassis ground.

The RF parameters of these connectors are the same as their non-filtered counterparts. Filtering does not affect the signal contact, but only the shell-to-ground connection. Capacitively decoupled RF connectors are intermateable and inter-changeable with standard non-filtered versions.

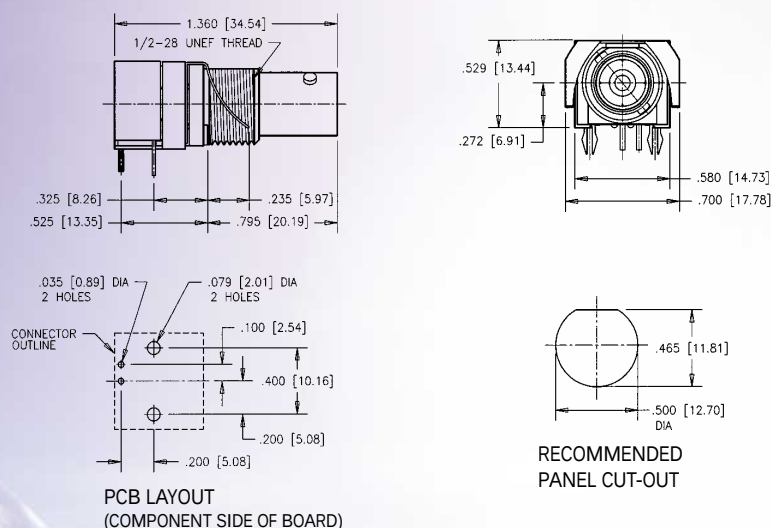
### 456 Series Construction



# 456 Series

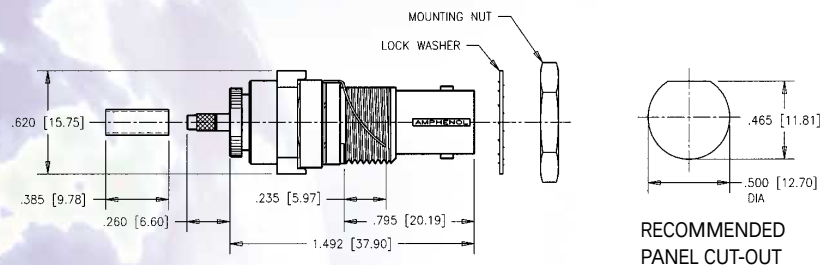
## CAPACITIVELY DECOUPLED RF CONNECTORS

### Rear Mount BNC, Right Angle, PCB



| Type                                                              | 50 $\Omega$ | 75 $\Omega$ |
|-------------------------------------------------------------------|-------------|-------------|
| Filtered                                                          | 456-117     | 456-717     |
| Filtered (10,000pF),<br>1000V Spark Gap                           | 456-117S    | 456-717S    |
| Filtered (10,000pF),<br>1000V Spark Gap,<br>1 M $\Omega$ Resistor | 456-117F    | 456-717F    |
| Grounded                                                          | 456-117G    | 456-717G    |
| Non-Filtered.<br>Panel Insulated<br>(no ground spring)            | 456-117NF   | 456-717NF   |

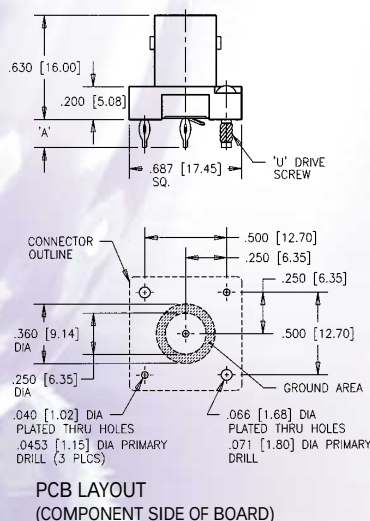
### Rear Mount BNC, Crimp, Cable Size RG179



| Type     | 50 $\Omega$ | 75 $\Omega$ |
|----------|-------------|-------------|
| Filtered | 456-208     | 456-218     |
| Grounded | 456-208G    | 456-218G    |

Note: Also available with Spark gap and / or resistor  
\* Other Cable Sizes Available. Consult Factory.

### Vertical Mount BNC, Press-Fit



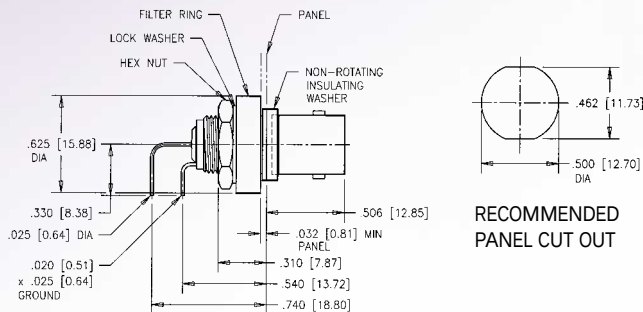
| Type         | 50 $\Omega$ | 75 $\Omega$ | Board Thickness | "A"         |
|--------------|-------------|-------------|-----------------|-------------|
| Filtered     | --          | 456-107A    | .125 (3.18)     | .170 (4.32) |
| Non-Filtered | --          | 456-107ANF  | .125 (3.18)     | .170 (4.32) |
| Filtered     | --          | 456-107B    | .200 (5.08)     | .255 (6.48) |
| Non-Filtered | --          | 456-107BNF  | .200 (5.08)     | .255 (6.48) |

-- Consult Factory for Part Number

# 456 Series

## CAPACITIVELY DECOUPLED RF CONNECTORS

### Front Mount BNC, Right Angle PCB

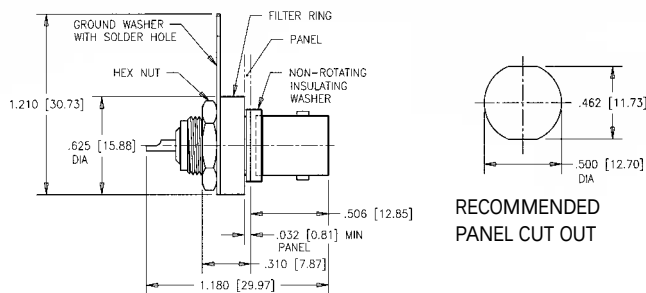


| Type     | 50 $\Omega$ | 75 $\Omega$ |
|----------|-------------|-------------|
| Filtered | --          | 456-107     |

-- Consult factory for part number

Front Mount BNC packaging consists of connector, insulating washer, filter ring, lock washer and hex nut.

### Front Mount BNC, Solder-Cup



| Type     | 50 $\Omega$ | 75 $\Omega$ |
|----------|-------------|-------------|
| Filtered | 456-107SG   | 456-107TG   |

456-107S has silver plated contact (50  $\Omega$ ).

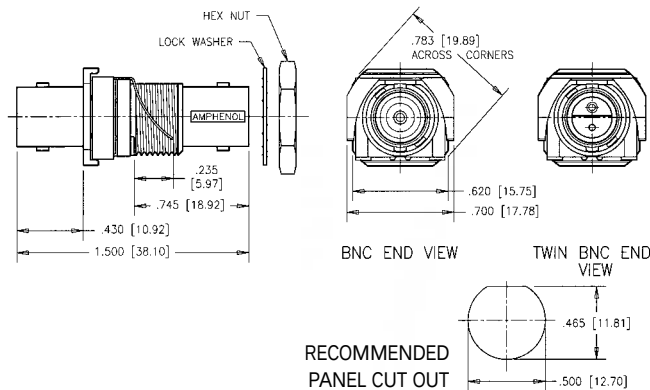
\* Overall part length

1.180 (29.97) for 456-107S

1.245 (31.62) for 456-107SG & 456-107TG.

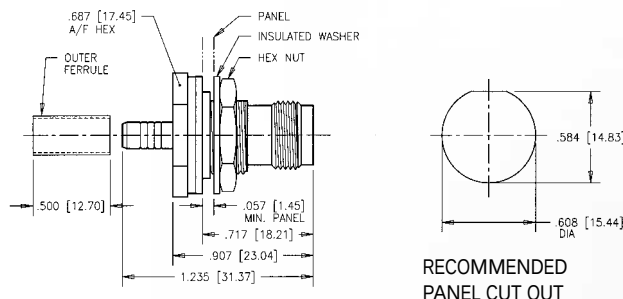
Front Mount BNC packaging consists of connector, insulating washer, filter ring, ground washer and hex nut.

### Jack-to-Jack Adapter



| Type      | 50 $\Omega$ | 75 $\Omega$ |
|-----------|-------------|-------------|
| BNC:      | Filtered    | 456-915     |
| Twin BNC: | Filtered    | 456-920     |

### TNC Bulkhead Jack, Crimp (RG58/U Cable)

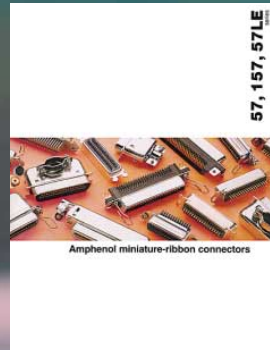
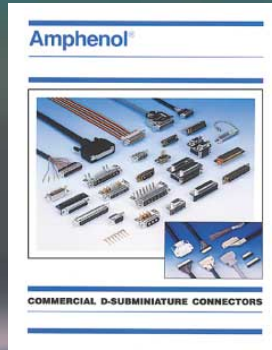


| Type     | 50 $\Omega$ | 75 $\Omega$ |
|----------|-------------|-------------|
| Filtered | 456-102     | --          |

-- Consult factory for part number

Packaging consists of connector, mounting hardware, panel insulator, crimp ferrule and heat shrink tubing.

# Amphenol Catalogues



## DATA /TELECOM PRODUCTS

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