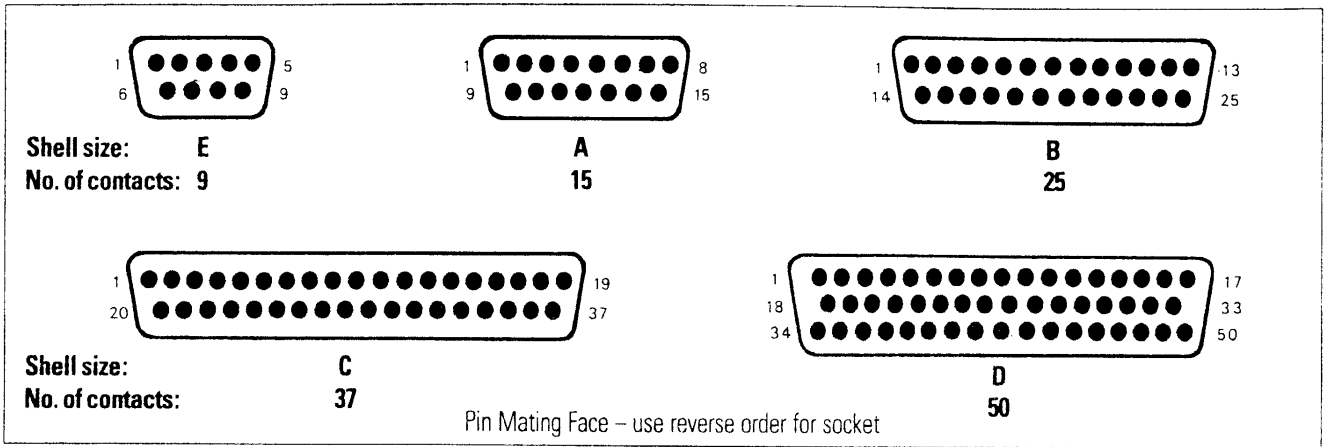


## Standard contact arrangements / Layout



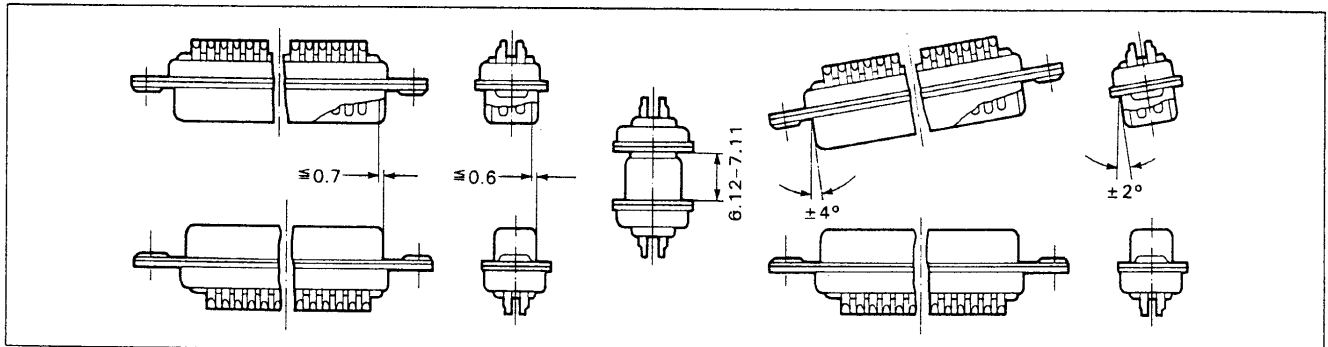
## Plating Specification

| Performance Level | Performance   | Comments            |
|-------------------|---|---------------------|
| 1                 | 500 matings minimum followed by 21 day industrial atmosphere test and 21 day damp heat test to BS 2011  | Exceeds DIN class 2 |
| 2                 | 250 matings minimum followed by 21 day damp heat test and 4 day industrial atmosphere test  | Meets DIN class 2   |
| 3                 | 250 matings minimum followed by 21 day damp heat at 93% relative humidity to BS 21011<br>Net contact resistance will not then exceeds 5 milliohms | Exceeds DIN class 3 |

## Shell Finish

The traditional finish for D connector shells is zinc plating with a yellow chromate passivation. However, to meet the requirements of FCC Docket 20780, VDE NORM 0871 and BS 6527 the mated connector shells need to make positive electrical contact. This is achieved by grounding indents on the plug shells and by plating the shells with bright tin. Alternative shell finishes and materials are available e.g. nickel plated mild steel and gold plated brass. Please contact sales office for specific requirements.

## Mating Details



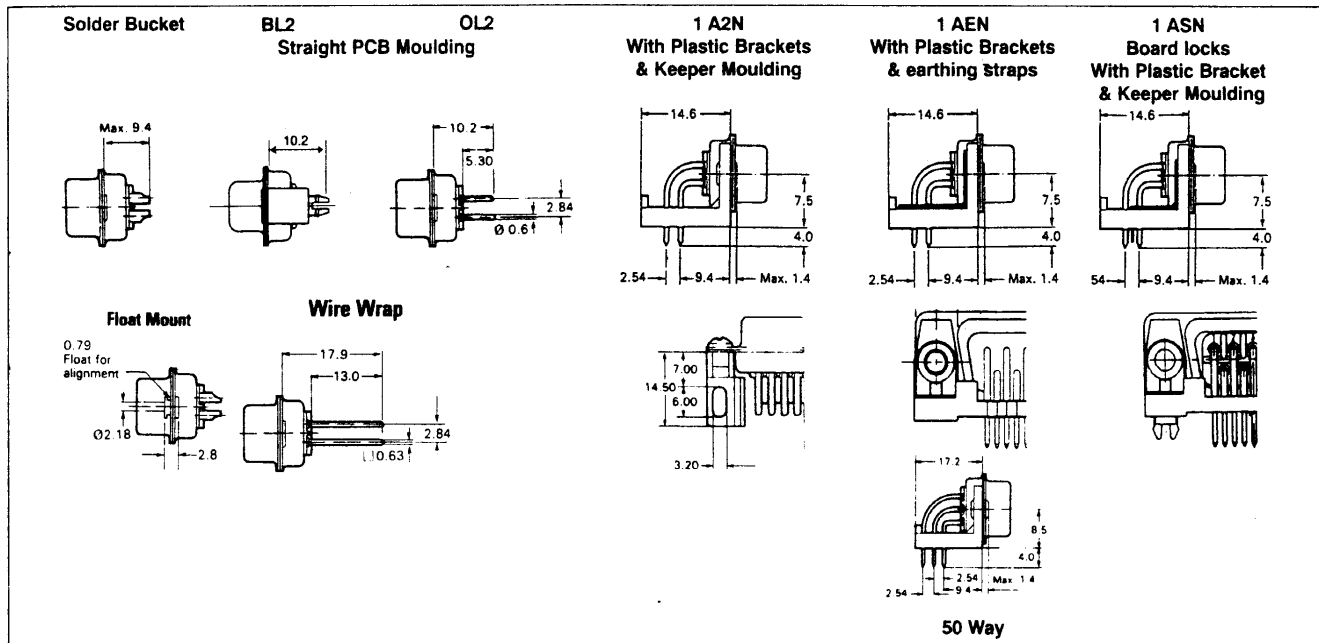
## Mounting table

| Type | Mounting Description                                | Type | Mounting Description  |
|------|---|------|---|
| B    | 4-40 rivnut rear panel mount                        | BL2  | Vertical board lock straight PCB Connectors                     |
| P    | M3 rivnut rear panel mount                          | 1A1N | Plastic Brackets  |
| D    | fitted with D-20418-0 female screwlocks             | 1A2N | Riveted Kooper Mould  |
| E    | 4-40 clinch out rear panel mount, vibration feature | 1A3N | Metal Brackets used with B, P or D above                        |
| Y    | Universal Float Mount                               | 1AEN | Keeper Mould and earthing strap used with B, P, or D above.     |
|      |   | 1ASN | Keeper Mould, earthing strap and boardlocks used with B, P or D |

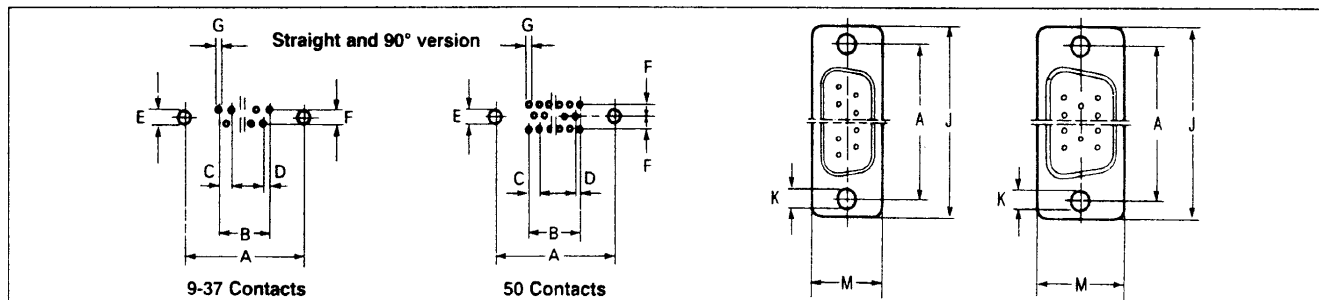
# TECHNICAL DATA



## Dimensions for D Subminiature Connectors



## PCB Mounting Details

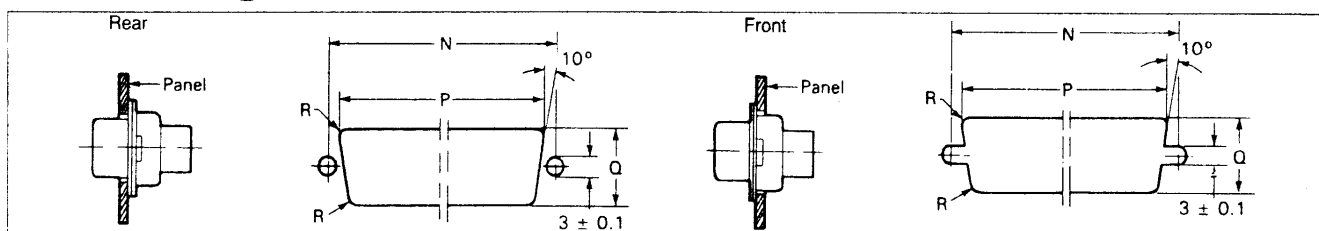


Dimensions (mm)

| Number of contacts | A±0,1 | B     | C    | D    | E    | G min | J±0,38 | K±0,13 | M±0,38 |
|--------------------|-------|-------|------|------|------|-------|--------|--------|--------|
| 9                  | 24.99 | 11.04 | 2.76 | 1.38 | 3.20 | 0.90  | 30.81  | 3.05   | 12.55  |
| 15                 | 33.32 | 19.32 | 2.76 | 1.38 | 3.20 | 0.90  | 39.14  | 3.05   | 12.55  |
| 25                 | 47.04 | 33.12 | 2.76 | 1.38 | 3.20 | 0.90  | 53.04  | 3.05   | 12.55  |
| 37                 | 63.50 | 49.68 | 2.76 | 1.38 | 3.20 | 0.90  | 69.32  | 3.05   | 12.55  |
| 50                 | 61.11 | 44.16 | 2.76 | 1.38 | 3.20 | 0.90  | 66.93  | 3.05   | 15.37  |

F - 2.84mm For Straight PCB Mount Versions / 2.54mm For 90° PCB Mount Versions

## Panel Mounting



| Number of Contacts | Dimensions (mm) |          |             |          |             |         | Number of Contacts | Dimensions (mm) |          |             |         |       |         |
|--------------------|-----------------|----------|-------------|----------|-------------|---------|--------------------|-----------------|----------|-------------|---------|-------|---------|
|                    | N±(0,2)         | P±(0,2)  |             | Q±(0,2)  |             | R±(0,2) |                    | N±(0,2)         | P±(0,2)  |             | Q±(0,2) |       | R±(0,2) |
|                    |                 | Standard | Float Mount | Standard | Float Mount |         |                    |                 | Standard | Float Mount |         |       |         |
| 9                  | 24.99           | 20.32    | 21.16       | 11.30    | 12.09       | 3.50    | 9                  | 24.99           | 22.07    | 22.88       | 12.90   | 13.71 | 2.25    |
| 15                 | 33.32           | 28.70    | 29.49       | 11.30    | 12.09       | 3.50    | 15                 | 33.32           | 30.40    | 31.22       | 12.90   | 13.71 | 2.25    |
| 25                 | 47.04           | 42.42    | 43.20       | 11.30    | 12.09       | 3.50    | 25                 | 47.04           | 44.14    | 44.95       | 12.90   | 13.71 | 2.25    |
| 37                 | 63.50           | 58.93    | 59.77       | 11.30    | 12.09       | 3.50    | 37                 | 63.50           | 60.60    | 61.42       | 12.90   | 13.71 | 2.25    |
| 50                 | 61.11           | 56.26    | 57.02       | 13.97    | 14.78       | 3.50    | 50                 | 61.11           | 58.21    | 59.44       | 15.69   | 16.51 | 2.25    |

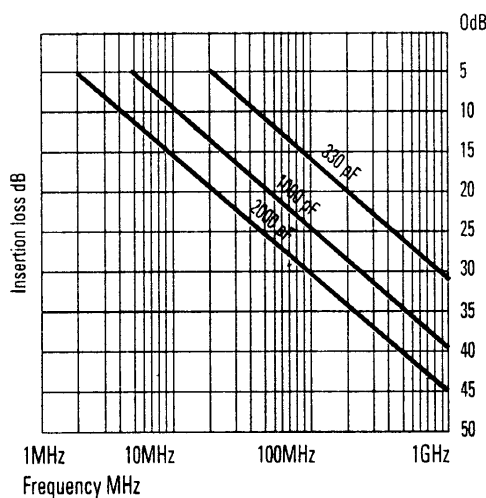


# FILTER D CONNECTORS

CINCH has been producing filter connectors for years and has acquired an in depth knowledge of EMC protection. CINCH offers fast delivery on a wide range of standard filtered connectors and will be your partner to design the product you need to meet European and FCC regulations.

## Features

- The Cinch Filter D Sub is a high quality turned pin contact connector.
- Tubular capacitors are individually inserted on each contact.
- The encapsulation of capacitors is made with epoxy for maximum resistance to hazardous environments.
- Cinch filter D Sub have the same size and footprint as standard D Sub connectors.
- Meets the relevant dimensional requirements of CECC 73301- 802, MIL-C 24308, DIN 41652, BS 9523 F0013, BT 217, HE501.
- Bright tin or nickel finish with grounding indent for EMI/RFI shielding.



Typical performance relates to 50 Ω system  
Mil -Std. - measured at 1 KHz 0.1 rms

- 1-1000 pF
- 2-2000 pF
- 3-330 pF

## Technical Data

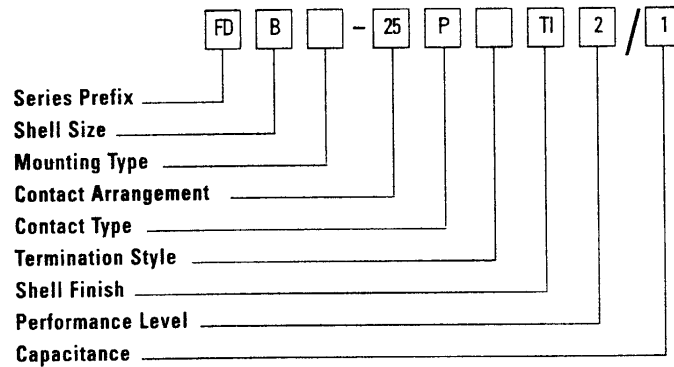
|   |   |
|---|---|
| <b>Termination options</b>                    | Solder bucket, Flow solder,<br>Straight & 90°, Mini wrap. |
| <b>Number of contacts</b>                     | 9    15    25    27    50                                 |
| <b>Maximum insertion and extraction force</b> | 30    50    83    123    167N                             |
| <b>Performance level</b>                      | 1,2 & 3   |
| <b>Wire accommodation</b>                     | ≤ 0,5 mm <sup>2</sup>                                     |
| <b>Plug contact material</b>                  | Copper alloy  |
| <b>Socket contact material</b>                | Copper alloy  |

|                              |   |
|------------------------------|---|
| <b>Current rating</b>        | 5A  |
| <b>Capacitance</b>           | 330 pF, 1000 pF and 2000pF Tol + 80% -20%               |
| <b>Working voltage</b>       | 200 V d.c. or a.c. peak                                 |
| <b>Contact resistance</b>    | 5 m Ω max   |
| <b>Insulation resistance</b> | ≥ 5 x 10 <sup>9</sup> Ω                                 |
| <b>Temperature range</b>     | -25° to + 85°   |
| <b>Insulator materials</b>   | High impact Epoxy & GF Polyester UL94V-0 rated          |
| <b>Shell materials</b>       | Steel-Bright tin finish with grounding indents on plugs |

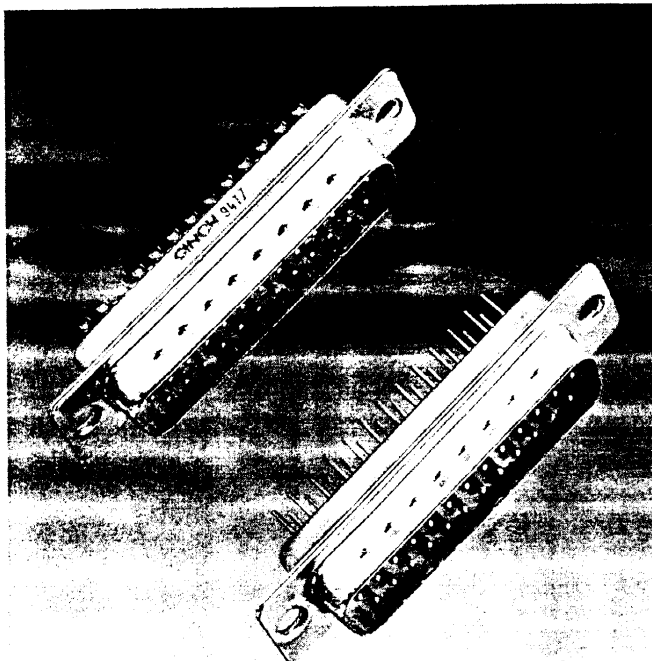
# FILTER D CONNECTORS



## Part Numbering



|                             |                                |  |
|-----------------------------|--------------------------------|--|
| <b>Series Prefix</b>        | <b>FD</b>                      | - Filtered D (Standard Prefix)   |
| <b>Shell Size</b>           | <b>E, A, B, C or D</b>         | (All Standard)   |
| <b>Mounting Type</b>        | <b>B</b>                       | - 4-40 rivnut for rear panel mounting (Standard)   |
|                             | <b>P</b>                       | - M3 rivnut for rear panel mounting  |
|                             | <b>D</b>                       | - With female screw locks fitted   |
|                             | <b>E</b>                       | - 4-40 clinch-nut for rear panel mounting with locking feature for high vibration applications       |
|                             | <b>F</b>                       | - Float mount for rear panel mounting  |
|                             | <b>Y</b>                       | - Universal float mount  |
|                             | <b>No designation</b>          | - Ø 3.05 mm mounting hole (Standard)<br>90° Flow Solder versions are not available with float mounts |
| <b>Contact Arrangement</b>  | <b>9, 15, 25, 37 or 50</b>     | (All Standard)   |
| <b>Contact Type</b>         | <b>P or S</b>                  | (Both Standard)  |
| <b>Termination Style</b>    |                                |  |
| 90° Flow Solder             | <b>1A0N</b>                    | - Without brackets (Standard)  |
|                             | <b>1A2N</b>                    | - With plastic brackets and keeper moulding  |
|                             | <b>1AEN</b>                    | - With earthing straps on plastic brackets (Standard) with keeper moulding*                          |
|                             | <b>1ASN</b>                    | - With board locks, earthing straps, plastic (Standard) bracket and keeper moulding*                 |
|                             |                                | For reverse orientation of contacts relative to shell, replace N with R.                             |
|                             |                                | *Please specify rivnuts or screw locks, mounting types B, P, or D (rivnuts Standard)                 |
| <b>Straight Flow Solder</b> | <b>OL2</b>                     | - Termination 0.6 mm, 5.3 mm long (Standard)   |
|                             | <b>BL2</b>                     | - As OL2 with vertical Boardlocks 4/40 threads   |
|                             | <b>F179A</b>                   | - 0.61 mm square section pins for up to 3 wrap.  |
| <b>Solder Bucket</b>        | <b>No designation required</b> | (Standard)   |
| <b>Shell Finish</b>         | <b>T</b>                       | - Bright tin (Standard)  |
|                             | <b>TI</b>                      | - Bright tin with grounding indents (plugs only)<br>- Nickel on rear shell                           |
| (Standard)                  |                                |  |
| <b>Performance Level</b>    | <b>1</b>                       | - Exceeds Din Class 2  |
|                             | <b>2</b>                       | - Din Class 2 (Standard)   |
|                             | <b>3</b>                       | - Exceeds DIN Class 3  |
| <b>Capacitance</b>          | <b>1</b>                       | - 1000 pF  |
|                             | <b>2</b>                       | - 2000 pF  |
|                             | <b>3</b>                       | - 330 pF   |



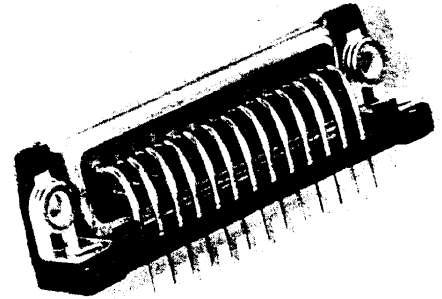


**Best Sellers**

**FILTERED D**

**Solder Bucket**

| Number of Contacts | Performance Level | Capacitance Value |         | Plug                           | Socket                  |
|--------------------|-------------------|-------------------|---------|--------------------------------|-------------------------|
|                    |                   |                   |         | Tin/Nickel Indent Plated Shell | Tin/Nickel Plated Shell |
| 9                  | 2                 | 330pf             | 1,000pf | FDE-9PTI2/3                    | FDE-9ST2/3              |
|                    |                   |                   |         | FDE-9PTI2/1                    | FDE-9ST2/1              |
| 15                 | 2                 | 330pf             | 1,000pf | FDA-15PTI2/3                   | FDA-15ST2/3             |
|                    |                   |                   |         | FDA-15PTI2/1                   | FDA-15ST2/1             |
| 25                 | 2                 | 330pf             | 1,000pf | FDB-25PTI2/3                   | FDB-25ST2/3             |
|                    |                   |                   |         | FDB-25PTI2/1                   | FDB-25ST2/1             |
| 37                 | 2                 | 330pf             | 1,000pf | FDC-37PTI2/3                   | FDC-37ST2/3             |
|                    |                   |                   |         | FDC-37PTI2/1                   | FDC-37ST2/1             |
| 50                 | 2                 | 330pf             | 1,000pf | FDD-50PTI2/3                   | FDD-50ST2/3             |
|                    |                   |                   |         | FDD-50PTI2/1                   | FDD-50ST2/1             |



**Straight PCB Mount**

| Number of Contacts | Performance Level | Capacitance Value |         | Plug                           | Vertical Boardlock      | Socket                  | Vertical Boardlock |
|--------------------|-------------------|-------------------|---------|--------------------------------|-------------------------|-------------------------|--------------------|
|                    |                   |                   |         | Tin/Nickel Indent Plated Shell | Tin/Nickel Plated Shell | Tin/Nickel Plated Shell | Plated Shell       |
| 9                  | 2                 | 330pf             | 1,000pf | FDE-9POL2TI2/3                 | FDE-9PBL2TI2/3          | FDE-9SOL2T2/3           | FDE-9SBL2T2/3      |
|                    |                   |                   |         | FDE-9POL2TI2/1                 | FDE-9PBL2TI2/1          | FDE-9SOL2T2/1           | FDE-9SBL2T2/1      |
| 15                 | 2                 | 330pf             | 1,000pf | FDA-15POL2TI2/3                | FDA-15PBL2TI2/3         | FDA-15SOL2T2/3          | FDA-15SBL2T2/3     |
|                    |                   |                   |         | FDA-15POL2TI2/1                | FDA-15PBL2TI2/1         | FDA-15SOL2T2/1          | FDA-15SBL2T2/1     |
| 25                 | 2                 | 330pf             | 1,000pf | FDB-25POL2TI2/3                | FDB-25PBL2TI2/3         | FDB-25SOL2T2/3          | FDB-25SBL2T2/3     |
|                    |                   |                   |         | FDB-25POL2TI2/1                | FDB-25PBL2TI2/1         | FDB-25SOL2T2/1          | FDB-25SBL2T2/1     |
| 37                 | 2                 | 330pf             | 1,000pf | FDC-37POL2TI2/3                | FDC-37PBL2TI2/3         | FDC-37SOL2T2/3          | FDC-37SBL2T2/3     |
|                    |                   |                   |         | FDC-37POL2TI2/1                | FDC-37PBL2TI2/1         | FDC-37SOL2T2/1          | FDC-37SBL2T2/1     |
| 50                 | 2                 | 330pf             | 1,000pf | FDD-50POL2TI2/3                | FDD-50PBL2TI2/3         | FDD-50SOL2T2/3          | FDD-50SBL2T2/3     |
|                    |                   |                   |         | FDD-50POL2TI2/1                | FDD-50PBL2TI2/1         | FDD-50SOL2T2/1          | FDD-50SBL2T2/1     |

**90° PCB - Plug**

| Number of Contacts | Performance Level | Capacitance Value |         | Open Frame                     | Earthing Straps              | Snap In Boardlock            |
|--------------------|-------------------|-------------------|---------|--------------------------------|------------------------------|------------------------------|
|                    |                   |                   |         | Tin/Nickel Indent Plated Shell | Tin Indent Shell 4-40 Rivnut | Tin Indent Shell 4-40 Rivnut |
| 9                  | 2                 | 330pf             | 1,000pf | FDE-9P1AONTI2/3                | FDEB-9P1AENTI2/3             | FDEB-9P1ASNTI2/3             |
|                    |                   |                   |         | FDE-9P1AONTI2/1                | FDEB-9P1AENTI2/1             | FDEB-9P1ASNTI2/1             |
| 15                 | 2                 | 330pf             | 1,000pf | FDA-15P1AONTI2/3               | FDAB-15P1AENTI2/3            | FDAB-15P1ASNTI2/3            |
|                    |                   |                   |         | FDA-15P1AONTI2/1               | FDAB-15P1AENTI2/1            | FDAB-15P1ASNTI2/1            |
| 25                 | 2                 | 330pf             | 1,000pf | FDB-25P1AONTI2/3               | FDBB-25P1AENTI2/3            | FDBB-25P1ASNTI2/3            |
|                    |                   |                   |         | FDB-25P1AONTI2/1               | FDBB-25P1AENTI2/1            | FDBB-25P1ASNTI2/1            |
| 37                 | 2                 | 330pf             | 1,000pf | FDC-37P1AONTI2/3               | FDCB-37P1AENTI2/3            | FDCB-37P1ASNTI2/3            |
|                    |                   |                   |         | FDC-37P1AONTI2/1               | FDCB-37P1AENTI2/1            | FDCB-37P1ASNTI2/1            |
| 50                 | 2                 | 330pf             | 1,000pf | FDD-50P1AONTI2/3               | FDDB-50P1AENTI2/3            | FDDB-50P1ASNTI2/3            |
|                    |                   |                   |         | FDD-50P1AONTI2/1               | FDDB-50P1AENTI2/1            | FDDB-50P1ASNTI2/1            |

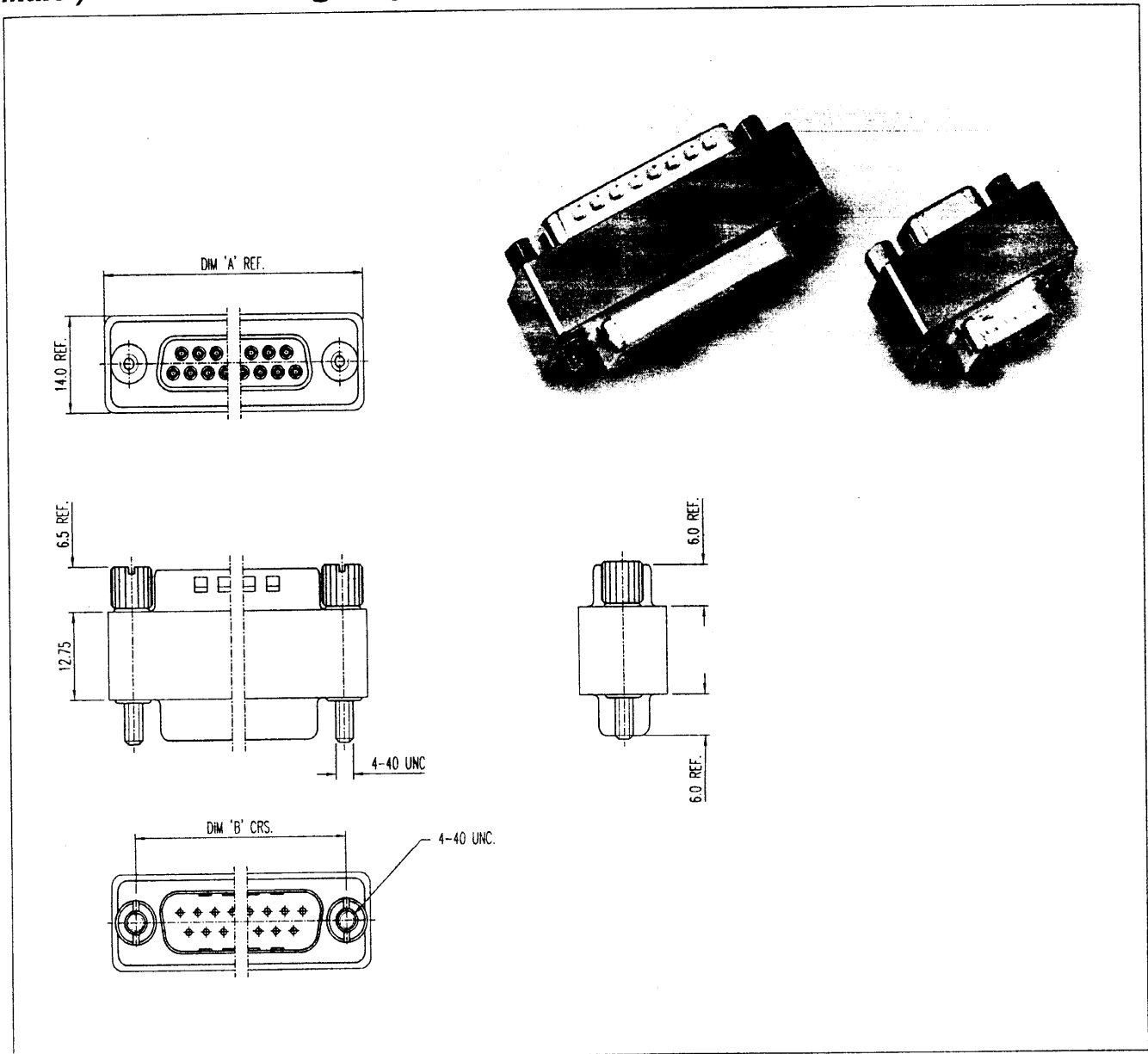
**90° PCB - Socket**

| Number of Contacts | Performance Level | Capacitance Value |         | Open Frame                     | Earthing Straps              | Snap In Boardlock            |
|--------------------|-------------------|-------------------|---------|--------------------------------|------------------------------|------------------------------|
|                    |                   |                   |         | Tin/Nickel Indent Plated Shell | Tin Indent Shell 4-40 Rivnut | Tin Indent Shell 4-40 Rivnut |
| 9                  | 2                 | 330pf             | 1,000pf | FDE-9S1AONT2/3                 | FDEB-9S1AENT2/3              | FDEB-9S1ASNT2/3              |
|                    |                   |                   |         | FDE-9S1AONT2/1                 | FDEB-9S1AENT2/1              | FDEB-9S1ASNT2/1              |
| 15                 | 2                 | 330pf             | 1,000pf | FDA-15S1AONT2/3                | FDAB-15S1AENT2/3             | FDAB-15S1ASNT2/3             |
|                    |                   |                   |         | FDA-15S1AONT2/1                | FDAB-15S1AENT2/1             | FDAB-15S1ASNT2/1             |
| 25                 | 2                 | 330pf             | 1,000pf | FDB-25S1AONT2/3                | FDBB-25S1AENT2/3             | FDBB-25S1ASNT2/3             |
|                    |                   |                   |         | FDB-25S1AONT2/1                | FDBB-25S1AENT2/1             | FDBB-25S1ASNT2/1             |
| 37                 | 2                 | 330pf             | 1,000pf | FDC-37S1AONT2/3                | FDCB-37S1AENT2/3             | FDCB-37S1ASNT2/3             |
|                    |                   |                   |         | FDC-37S1AONT2/1                | FDCB-37S1AENT2/1             | FDCB-37S1ASNT2/1             |
| 50                 | 2                 | 330pf             | 1,000pf | FDD-50S1AONT2/3                | FDDB-50S1AENT2/3             | FDDB-50S1ASNT2/3             |
|                    |                   |                   |         | FDD-50S1AONT2/1                | FDDB-50S1AENT2/1             | FDDB-50S1ASNT2/1             |

# FILTER ADAPTOR



## Male / Female Filtering Adaptor



### Technical, Part Numbering Information

|                          | Working Voltage    | Proof Voltage | Capacitance To Ground | Capacitance Tolerance | Temperature Range | DIM "A" REF. | DIM "B" REF. |
|--------------------------|--------------------|---------------|-----------------------|-----------------------|-------------------|--------------|--------------|
| FA 9 PS/1<br>FA 9 PS/3   | 200V DC OR AC PEAK | 500V          | 1000 pF               | +80% -20%             | -25° +85°C        | 32.7         | 24.99        |
| 330 pF                   |                    |               | +50% -20%             |                       |                   |              |              |
| FA 15 PS/1<br>FA 15 PS/3 | 200V DC OR AC PEAK | 500V          | 1000 pF               | +80% -20%             | -25° +85°C        | 41.0         | 33.32        |
| 330 pF                   |                    |               | +50% -20%             |                       |                   |              |              |
| FA 25 PS/1<br>FA 25 PS/3 | 200V DC OR AC PEAK | 500V          | 1000 pF               | +80% -20%             | -25° +85°C        | 54.9         | 47.04        |
| 330 pF                   |                    |               | +50% -20%             |                       |                   |              |              |
| FA 37 PS/1<br>FA 37 PS/3 | 200V DC OR AC PEAK | 500V          | 1000 pF               | +80% -20%             | -25° +85°C        | 71.2         | 63.50        |
| 330 pF                   |                    |               | +50% -20%             |                       |                   |              |              |

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