

## Filter Data Sheets

### Solder Mounted Feedthrough Capacitors

TF, DF

|  |                                      |            |                              |                             |                           |                   |               |     |                               |
|--|--------------------------------------|------------|------------------------------|-----------------------------|---------------------------|-------------------|---------------|-----|-------------------------------|
| <p><b>Ordering Information</b><br/>As Part Number</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"><b>Tangent of loss angle (Tan δ)</b></td> <td>0.035 max.</td> </tr> <tr> <td><b>Insulation Resistance</b></td> <td>7.5 GW Min at Rated Voltage</td> </tr> <tr> <td><b>Proof Test Voltage</b></td> <td>3 × Rated Voltage</td> </tr> <tr> <td><b>Finish</b></td> <td>Tin</td> </tr> </table> <p><b>Case Dimensions</b><br/>All dimensions in mm. Limits ± 0.2 unless otherwise stated.</p> | <b>Tangent of loss angle (Tan δ)</b> | 0.035 max. | <b>Insulation Resistance</b> | 7.5 GW Min at Rated Voltage | <b>Proof Test Voltage</b> | 3 × Rated Voltage | <b>Finish</b> | Tin | <p><b>Circuit Diagram</b></p> |
| <b>Tangent of loss angle (Tan δ)</b>   | 0.035 max.                           |            |                              |                             |                           |                   |               |     |                               |
| <b>Insulation Resistance</b>   | 7.5 GW Min at Rated Voltage          |            |                              |                             |                           |                   |               |     |                               |
| <b>Proof Test Voltage</b>  | 3 × Rated Voltage                    |            |                              |                             |                           |                   |               |     |                               |
| <b>Finish</b>  | Tin                                  |            |                              |                             |                           |                   |               |     |                               |

### Characteristics

| Case Type   | Part Number | Cap. (pF) | Tolerance  | Current Rating (A) | Rated Voltage V d.c. -55°C to +85°C | Typical Insertion Loss (dB) |         |       |        |
|---|-------------|-----------|------------|--------------------|-------------------------------------|-----------------------------|---------|-------|--------|
|   |             |           |            |                    |                                     | 10 MHz                      | 100 MHz | 1 GHz | 10 GHz |
|   | TF500PP2420 | 500       | - 0 + 100% | —                  | 300                                 | 3                           | 16      | 36    | 55     |
|   | TF01N0Z2420 | 1000      | - 20 + 80% | —                  | 300                                 | 6                           | 23      | 43    | 60     |
|   | TF01N0Z2415 | 1000      | - 20 + 80% | 15                 | 300                                 | 6                           | 23      | 43    | 60     |
|   |             |           |            |                    |                                     |                             |         |       |        |
|   | TF01N0P2404 | 1000      | - 0 + 100% | 10                 | 500                                 | 6                           | 23      | 43    | 60     |
|   | TF01N0Z2404 | 1000      | - 20 + 80% | 10                 | 500                                 | 6                           | 23      | 43    | 60     |
|   | TF500PE2404 | 500       | ± 25%      | 10                 | 500                                 | 3                           | 16      | 36    | 55     |
|   | TF04N2M2404 | 4200      | ± 20%      | 10                 | 500                                 | 12                          | 35      | 50    | 60     |
| <p><b>Note:</b> Type 2500 L = 3.2<br/>Type 2501 L = 6.4</p> | TF01N0Z2500 | 1000      | - 20 + 80% | 10                 | 500                                 | 3                           | 16      | 36    | 55     |
|   | TF01N5Z2500 | 1500      | - 20 + 80% | 10                 | 500                                 | 9                           | 28      | 48    | 60     |
|   | TF03N0Z2500 | 3000      | - 20 + 80% | 10                 | 500                                 | 12                          | 32      | 53    | 60     |
|   | TF01N0Z2501 | 1000      | - 20 + 80% | 10                 | 500                                 | 3                           | 16      | 36    | 55     |
|   | TF01N5Z2501 | 1500      | - 20 + 80% | 10                 | 500                                 | 9                           | 28      | 48    | 60     |
|   | TF03N0Z2501 | 3000      | - 20 + 80% | 10                 | 500                                 | 12                          | 32      | 53    | 60     |
|   | DF01N0ZO100 | 1000      | - 20 + 80% | 15                 | 500                                 | 3                           | 16      | 36    | 55     |
|   | DF01N0ZO101 | 1000      | - 20 + 80% | 15                 | 500                                 | 3                           | 16      | 36    | 55     |

Other values of capacitance are available on request.

Solder Mounted C and Pi Circuit Filters

SLT

Ordering Information

Please state Part Number.

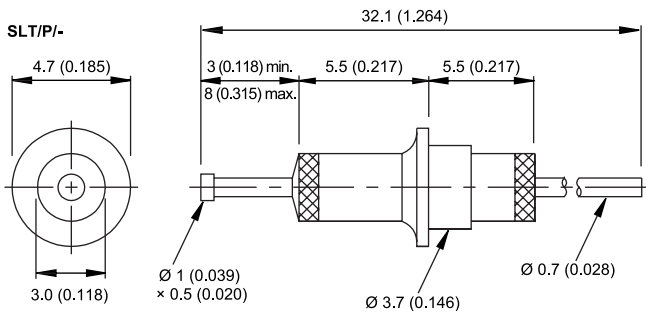
Materials

Mounting eyelet: Brass, silver finish

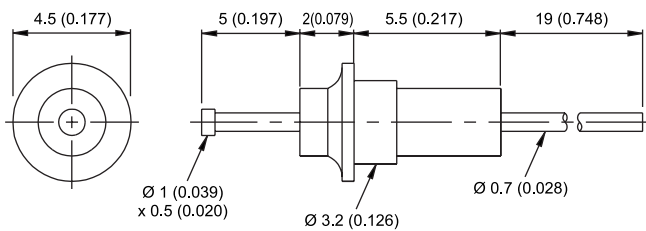
Feedthrough terminations: Copper alloy, tin lead or silver finish.

Case Dimensions

All dimensions in mm (inches)

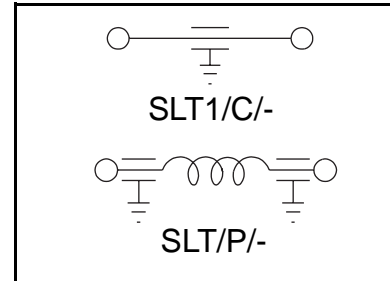


SLT/P/-



SLT1/C/1000

Circuit Diagram



Voltage Rating

| Type C      |        | Type Pi     |            |
|-------------|--------|-------------|------------|
| -55 to 85°C | +125°C | -55 to 85°C | +125°C     |
| 400 V d.c.  | -      | 200 V d.c.  | 100 V d.c. |

For Test Conditions see page 59

| Type        | Mounting Hole   | Minimum Pitch   |
|-------------|-----------------|-----------------|
| SLT1/C/1000 | 3.4 mm (0.134") | 4.8 mm (0.189") |
| SLT/P/680   | 4 mm (0.157")   | 5 mm (0.197")   |
| SLT/P/1500  | 4 mm (0.157")   | 5 mm (0.197")   |
| SLT/P/5000  | 4 mm (0.157")   | 5 mm (0.197")   |

Characteristics

| Part Number | Cap. (pF) (min.) | Current Rating (A d.c. & 400 Hz a.c.) | Typical Insertion Loss (dB) (50 Ω system) |        |         |       |        | Color Code |
|-------------|------------------|---------------------------------------|---|--------|---------|-------|--------|------------|
|             |                  |                                       | 1 MHz                                     | 10 MHz | 100 MHz | 1 GHz | 10 Ghz |            |
| SLT1/C/1000 | 1000             | 10                                    | -   | 5      | 24      | 40    | 65     | -          |
| SLT/P/680   | 680              | 10                                    | -   | 4      | 35      | 60    | 70     | GREEN      |
| SLT/P/1500  | 1500             | 10                                    | 1   | 12     | 50      | 75    | 75     | BLUE       |
| SLT/P/5000  | 5000             | 10                                    | 4   | 25     | 70      | 75    | 75     | RED        |

Solder Mounted Pi Circuit Filters

TPS

| <p><b>Ordering Information</b></p> <p>e.g TPS014A</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Blank - No special conditioning<br/>                 Bu - Standard burn in<br/>                 Bx - Burn in to Cust. req.</p> </div> | <p><b>Insulation Resistance</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Rated Voltage at 85°C</th> <th>Test Voltage</th> <th>I.R.</th> </tr> <tr> <td>&lt; 100 V d.c.</td> <td>10 ± 1 V d.c.</td> <td rowspan="3">&gt; 5GΩ</td> </tr> <tr> <td>≥ 100 to &lt; 500 V d.c.</td> <td>100 ± 15 V d.c.</td> </tr> <tr> <td>≥ 500</td> <td>500 ± 50 V d.c.</td> </tr> </table><br><table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Tangent of loss angle (Tan δ)</td> <td>0.04 max.</td> </tr> <tr> <td>Finish</td> <td>Tin</td> </tr> </table> | Rated Voltage at 85°C                  | Test Voltage | I.R. | < 100 V d.c. | 10 ± 1 V d.c. | > 5GΩ | ≥ 100 to < 500 V d.c. | 100 ± 15 V d.c. | ≥ 500 | 500 ± 50 V d.c. | Tangent of loss angle (Tan δ) | 0.04 max. | Finish | Tin | <p><b>Circuit Diagram</b></p> |
|---|---|--|--------------|------|--------------|---------------|-------|-----------------------|-----------------|-------|-----------------|-------------------------------|-----------|--------|-----|-------------------------------|
| Rated Voltage at 85°C   | Test Voltage  | I.R.                                   |              |      |              |               |       |                       |                 |       |                 |                               |           |        |     |                               |
| < 100 V d.c.  | 10 ± 1 V d.c.   | > 5GΩ                                  |              |      |              |               |       |                       |                 |       |                 |                               |           |        |     |                               |
| ≥ 100 to < 500 V d.c.   | 100 ± 15 V d.c.   |  |              |      |              |               |       |                       |                 |       |                 |                               |           |        |     |                               |
| ≥ 500   | 500 ± 50 V d.c.   |  |              |      |              |               |       |                       |                 |       |                 |                               |           |        |     |                               |
| Tangent of loss angle (Tan δ)   | 0.04 max.   |  |              |      |              |               |       |                       |                 |       |                 |                               |           |        |     |                               |
| Finish  | Tin   |  |              |      |              |               |       |                       |                 |       |                 |                               |           |        |     |                               |
| <p><b>Environmental Classification</b> 55/125/56</p>  |   | <p>For Test Conditions see page 59</p> |              |      |              |               |       |                       |                 |       |                 |                               |           |        |     |                               |
| <p><b>Case Dimensions</b></p> <p>All dimensions in mm. Maximum unless otherwise stated.</p>   |   |  |              |      |              |               |       |                       |                 |       |                 |                               |           |        |     |                               |

Characteristics

| Case Type  | Part Number | Min Cap. (pF) | Rated Voltage V d.c. |       | Current d.c. (A) | Minimum No Load Insertion Loss (dB) at 25°C |         |       |        |
|--|-------------|---------------|----------------------|-------|------------------|---|---------|-------|--------|
|  |             |               | 85°C                 | 125°C |                  | 10 MHz                                      | 100 MHz | 1 GHz | 10 GHz |
|  | TPS051A     | 1500          | 350                  | 210   | 10               | 6   | 45      | 60    | 60     |
|  | TPS051B     | 5000          | 200                  | 120   | 10               | 15  | 65      | 70    | 70     |
| <p>* TPS103 - No Pin Head</p>  | TPS003A     | 1500          | 600                  | 360   | 10               | 5   | 45      | 70    | 70     |
|  | TPS103A     | 1500          | 600                  | 360   | 10               | 5   | 45      | 70    | 70     |
|  | TPS003B     | 4000          | 350                  | 210   | 10               | 15  | 65      | 70    | 70     |
|  | TPS103B     | 4000          | 350                  | 210   | 10               | 15  | 65      | 70    | 70     |
|  | TPS203E     | 5000          | 350                  | 210   | 10               | 20  | 70      | 70    | 70     |
| <p>* TPS114 - No Pin Head</p>  | TPS014A     | 1750          | 350                  | 210   | 10               | 5   | 50      | 60    | 60     |
|  | TPS114A     | 1750          | 350                  | 210   | 10               | 5   | 50      | 60    | 60     |
|  | TPS014B     | 800           | 600                  | 360   | 10               | 3   | 30      | 60    | 60     |
|  | TPS114B     | 800           | 600                  | 360   | 10               | 3   | 30      | 60    | 60     |
|  |             |               |                      |       |                  |   |         |       |        |
|  | TPS014C     | 1750          | 350                  | 210   | 10               | 5   | 35      | 50    | 50     |
|  | TPS014D     | 800           | 600                  | 360   | 10               | 3   | 23      | 50    | 50     |
|  | TPS023A     | 3000          | 200                  | 120   | 15               | 7   | 50      | 65    | 60     |
|  | TPS023B     | 1500          | 350                  | 210   | 15               | 5   | 25      | 60    | 60     |
| <p>* TPS104 - No Lead Forming<br/>                 TPS204 - Lead Lengths †30 Min and ‡36.5 Min</p> | TPS004A     | 3000          | 830                  | 500   | 25               | 8   | 50      | 70    | 70     |
|  | TPS104A     | 3000          | 830                  | 500   | 25               | 8   | 50      | 70    | 70     |
|  | TPS204A     | 3000          | 830                  | 500   | 25               | 8   | 50      | 70    | 70     |
|  | TPS004B     | 2000          | 1000                 | 600   | 25               | 5   | 50      | 65    | 65     |
|  | TPS104B     | 2000          | 1000                 | 600   | 25               | 5   | 50      | 65    | 65     |
|  | TPS204B     | 2000          | 1000                 | 600   | 25               | 5   | 50      | 65    | 65     |
|  | TPS017A     | 3000          | 350                  | 210   | 10               | 8   | 55      | 65    | 65     |

# Solder Mounted Feedthrough Capacitors

DCS

### Ordering Information

e.g. **DCS204N**

Blank - Seal positioning per outline drawing  
Z - Seal positions rev

Capacitance, e.g.  
100 pf = 100P  
2700 pf = 02N7

Blank - Tin finish  
G - Gold

### Circuit Diagram

### Environmental Classification 55/125/56

For Test Conditions see page 59

### Case Dimensions

All dimensions maximum unless otherwise stated, in mm.

\* Available with Glass/Resin Seal Positions Reversed – See Ordering Information

### Voltage Rating

| DCS# _ _ _ _ |                          |                           |                                  |
|--------------|--------------------------|---------------------------|----------------------------------|
| #            | -55°C to +85°C<br>V d.c. | -55°C to +125°C<br>V d.c. | -55°C to +125°C<br>V a.c. 400 Hz |
| 2            | 70                       | 60                        | —                                |
| 4            | 100                      | 87                        | 62                               |
| 5            | 150                      | 130                       | 90                               |
| 7            | 300                      | 260                       | 185                              |

### Case Diameter

| DCS _ # # _ _ |     |      |        |           |
|---------------|-----|------|--------|-----------|
| # #           | D1  | D2   | L1     | L2        |
| 04            | 4.2 | 3.35 | 16 ± 1 | 6.6 ± 0.5 |
| 21            | 6.5 | 5.6  | 11 ± 1 | 4.0 ± 0.5 |

## Characteristics

| Part Number  | Rated Current (Amps) | Min. Cap. (pF) | Min IR (GΩ) | Typical Insertion Loss (db) at Full Load Current -55°C to +125°C |         |       |        |
|--------------|----------------------|----------------|-------------|--|---------|-------|--------|
|              |                      |                |             | 10 MHz   | 100 MHz | 1 GHz | 10 GHz |
| DCS204N-100P | 10                   | 100            | 5           | -  | 3       | 20    | 28     |
| DCS204N-500P | 10                   | 500            | 5           | -  | 13      | 30    | 40     |
| DCS204N-01N2 | 10                   | 1200           | 5           | 3  | 20      | 37    | 45     |
| DCS204N-02N7 | 10                   | 2700           | 5           | 9  | 25      | 40    | 50     |
| DCS204N-05N0 | 10                   | 5000           | 5           | 14   | 30      | 45    | 55     |
| DCS421N-22P0 | 10                   | 22             | 5           | -  | -       | 6     | 23     |
| DCS421N-47P0 | 10                   | 47             | 5           | -  | -       | 11    | 28     |
| DCS421N-100P | 10                   | 100            | 5           | -  | 3       | 20    | 28     |
| DCS421N-330P | 10                   | 330            | 5           | -  | 12      | 30    | 48     |
| DCS421N-470P | 10                   | 470            | 5           | -  | 13      | 32    | 50     |
| DCS421N-680P | 10                   | 680            | 5           | -  | 16      | 34    | 50     |
| DCS421N-01N0 | 10                   | 1000           | 5           | 2  | 19      | 36    | 53     |
| DCS421N-02N2 | 10                   | 2200           | 5           | 8  | 26      | 42    | 58     |
| DCS421N-03N3 | 10                   | 3300           | 5           | 11   | 29      | 44    | 60     |
| DCS421N-04N7 | 10                   | 4700           | 5           | 13   | 32      | 44    | 60     |
| DCS421N-06N8 | 10                   | 6800           | 5           | 17   | 35      | 45    | 60     |
| DCS421N-10N0 | 10                   | 10000          | 5           | 20   | 39      | 46    | 60     |
| DCS504N-100P | 10                   | 100            | 5           | -  | 3       | 20    | 28     |
| DCS504N-500P | 10                   | 500            | 5           | -  | 13      | 35    | 50     |
| DCS504N-01N2 | 10                   | 1200           | 5           | 3  | 20      | 37    | 45     |
| DCS504N-02N7 | 10                   | 2700           | 5           | 9  | 25      | 40    | 50     |
| DCS704N-100P | 10                   | 100            | 5           | -  | 3       | 20    | 28     |
| DCS704N-500P | 10                   | 500            | 5           | -  | 13      | 30    | 40     |
| DCS704N-01N2 | 10                   | 1200           | 5           | 3  | 20      | 35    | 45     |

Solder Mounted C Circuit Filters

dBZ, D

### Ordering Information

Please state Part Number.

### Materials

Cases: Brass, silver finish  
Feedthrough terminations: Copper alloy, tin lead or silver finish.

### Case Dimensions

All dimensions in mm (inches)

#### dBZ/-/Ref 1

#### Voltage Rating

|                  |             |           |
|------------------|-------------|-----------|
|                  | -40 to 85°C | +100°C    |
| dBZ/100000/Ref 1 | 50 V d.c.   | 25 V d.c. |
| All others       | 100 V d.c.  | 50 V d.c. |

Linearly derate between 85°C and 100°C

#### dBZ/-

#### D/-

### Circuit Diagram

Terminations

dBZ/-/Ref 1, dBZ/- and D/-

|                        | D/-, dBZ/-      | dBZ/-/Ref 1                  |
|------------------------|-----------------|------------------------------|
| Mounting Hole Diameter | 5.3 mm (0.209") | 5.7-5.8 mm (0.224" - 0.228") |
| Minimum Pitch          | 5.4 mm (0.213") | 6.7 mm (0.264")              |

For Test Conditions see page 59

Characteristics

| Part Number      | Cap. (pF)<br>(-20% +80%) | Current Rating<br>(A d.c.) | Typical Insertion Loss (dB) (50 Ω system) |       |        |         |       | Color Code<br>(hex end/thread end) |
|------------------|--------------------------|----------------------------|---|-------|--------|---------|-------|------------------------------------|
|                  |                          |                            | 0.1 MHz                                   | 1 Mhz | 10 MHz | 100 MHz | 1 GHz |                                    |
| dBZ/22/Ref 1     | 22                       | 10                         | -   | -     | -      | 3       | 15    | BLACK                              |
| dBZ/47/Ref 1     | 47                       | 10                         | -   | -     | -      | 5       | 20    | YELLOW                             |
| dBZ/100/Ref 1    | 100                      | 10                         | -   | -     | -      | 8       | 28    | WHITE                              |
| dBZ/330/Ref 1    | 330                      | 10                         | -   | -     | 2      | 18      | 34    | GREEN                              |
| dBZ/470/Ref 1    | 470                      | 10                         | -   | -     | 3      | 20      | 40    | ORANGE                             |
| dBZ/680/Ref 1    | 680                      | 10                         | -   | -     | 4      | 22      | 40    | GREY                               |
| dBZ/1000/Ref 1   | 1000                     | 10                         | -   | -     | 9      | 27      | 40    | BROWN                              |
| dBZ/4700/Ref 1   | 4700                     | 10                         | -   | 3     | 20     | 38      | 53    | RED                                |
| dBZ/10000/Ref 1  | 10000                    | 10                         | 1   | 8     | 27     | 44      | 63    | BLUE                               |
| dBZ/47000/Ref 1  | 47000                    | 10                         | 2   | 20    | 41     | 45      | 74    | LIGHT BLUE                         |
| dBZ/100000/Ref 1 | 100000                   | 10                         | 4   | 25    | 45     | 57      | 75    | LIGHT BROWN                        |

The insertion loss and electrical details above also apply to types D/- and dBZ/-

Solder Mounted C Circuit Filters

dBZ2

Ordering Information

Please state Part Number.

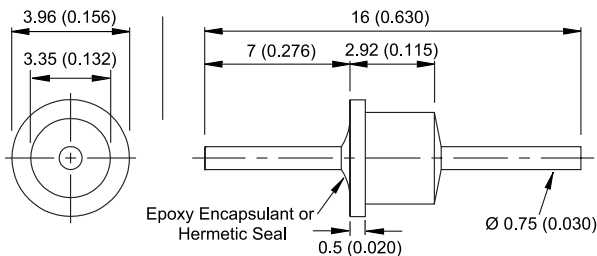
Materials

Body: Mild steel, gold finish (dBZ2/C/-/H)  
 Brass, gold finish (dBZ2/C/-)

Feedthrough terminations: Iron/cobalt/nickel alloy gold finish (dBZ2/C/-/H)  
 Copper, gold finish (dBZ2/C/-)

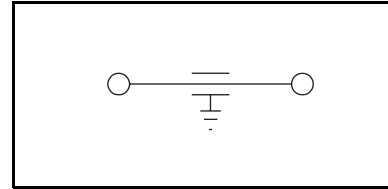
Case Dimensions

All dimensions in mm (inches)



|                               |                 |
|-------------------------------|-----------------|
| <b>Mounting Hole Diameter</b> | 3.5 mm (0.138") |
|-------------------------------|-----------------|

Circuit Diagram



Voltage Rating

|             |            |
|-------------|------------|
| -55 to 85°C | +125°C     |
| 200 V d.c.  | 100 V d.c. |

Linearly derate between 85°C and 125°C

Current Rating

|            |           |
|------------|-----------|
| dBZ2/C/-/H | 5 A d.c.  |
| dBZ2/C/-   | 10 A d.c. |

For Test Conditions see page 59

Characteristics

| Part Number   |             | Cap. (pF)<br>(min.) | Typical Insertion Loss (dB) (50 Ω system) |         |       |        | Color Code<br>(top end) |
|---------------|-------------|---------------------|---|---------|-------|--------|-------------------------|
| Hermetic Seal | Epoxy Seal  |                     | 10 MHz                                    | 100 Mhz | 1 GHz | 10 GHz |                         |
| dBZ2/C/10/H   | dBZ2/C/10   | 10                  | -   | -       | 7     | 25     | PINK                    |
| dBZ2/C/500/H  | dBZ2/C/500  | 500                 | 3   | 20      | 40    | 55     | ORANGE                  |
| dBZ2/C/1000/H | dBZ2/C/1000 | 1000                | 9   | 26      | 40    | 60     | BROWN                   |
| dBZ2/C/2700/H | dBZ2/C/2700 | 2700                | 17  | 35      | 50    | 65     | LIGHT GREEN             |
| dBZ2/C/5000/H | dBZ2/C/5000 | 5000                | 20  | 38      | 53    | 65     | RED                     |

Solder Mounted Pi Circuit Filters

dBZ4

Ordering Information

Please state Part Number.

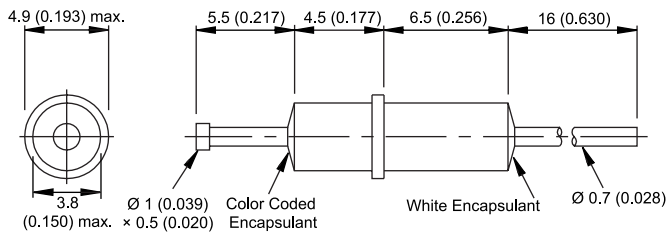
Materials

Body: Brass, silver finish  
 Feedthrough terminations: Copper alloy, tin lead or silver finish.

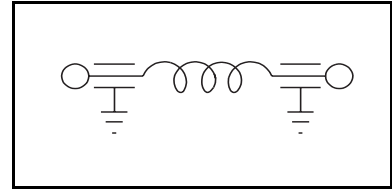
For Test Conditions see page 59

Case Dimensions

All dimensions in mm (inches)



Circuit Diagram



Voltage Rating

|             |           |
|-------------|-----------|
| -55 to 85°C | +125°C    |
| 200 V d.c.  | 100 Vd.c. |

Linearly derate between 85°C and 125°C

| All Types     |               |
|---------------|---------------|
| Mounting Hole | 4 mm (0.157") |
| Minimum Pitch | 5 mm (0.197") |

Characteristics

| Part Number  | Cap. (pF)<br>(-20% +80%) | Current Rating<br>(A d.c.) | Typical Insertion Loss (dB) (50 Ω system) |       |        |         |       |        | Color Code       | Marking* |
|--------------|--------------------------|----------------------------|---|-------|--------|---------|-------|--------|------------------|----------|
|              |                          |                            | 0.1 MHz                                   | 1 Mhz | 10 MHz | 100 MHz | 1 GHz | 10 Ghz |                  |          |
| dBZ4/P/5000  | 5000                     | 10                         | -   | 4     | 25     | 70      | 75    | 75     | GREEN/WHITE      | OXp 5n0  |
| dBZ4/P/22000 | 22000                    | 10                         | 1   | 14    | 40     | 70      | 75    | 75     | DARK BLUE/WHITE  | OXp 22n  |
| dBZ4/P/44000 | 44000                    | 10                         | 3   | 17    | 50     | 70      | 75    | 75     | LIGHT BLUE/WHITE | OXp 44n  |

\*Color Coding may be replaced by a marker.

Printed Circuit Mounted Pi Filters

SLT-/PC2

Ordering Information

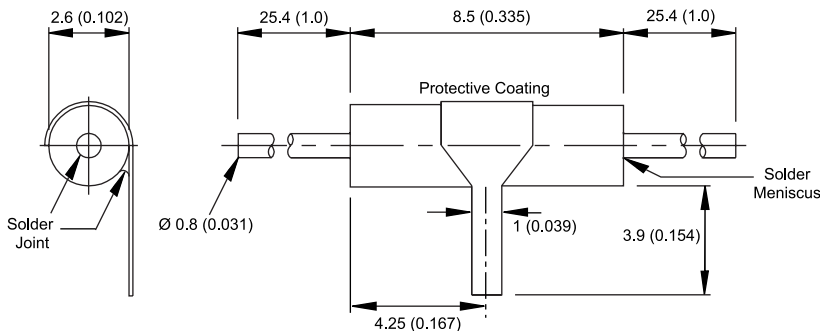
Please state Part Number.

Materials

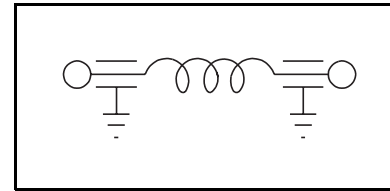
Feedthrough terminations: Copper alloy, tin lead finish.  
 Earth tag: Brass, tin lead on area for user soldering, silver finish on remainder.

Case Dimensions

All dimensions in mm (inches)



Circuit Diagram



For Test Conditions see page 59

| Part Number  | Mounting Hole   |
|--|---|
| SLT/P/1500/PC2   | 0.9 mm (0.035") [terminations]<br>1.2 mm (0.047") [earth tag] |
| Bends in the terminations must be at a distance not less than 2 mm (0.079") from the ceramic body. |   |

Voltage Rating

| -55 to 85°C | +125°C    |
|-------------|-----------|
| 200 V d.c.  | 100 Vd.c. |

Linearly derate between 85°C and 125°C

Characteristics

| Part Number    | Min. Cap. (pF) | Current Rating (A d.c.) | Typical Insertion Loss (dB) 50 Ω system |        |        |         |         |
|----------------|----------------|-------------------------|---|--------|--------|---------|---------|
|                |                |                         | 2 MHz                                   | 10 MHz | 50 MHz | 100 MHz | 500 MHz |
| SLT/P/1500/PC2 | 1500           | 10                      | 3                                       | 22     | 40     | 60      | 60      |



Surface Mounted Pi Filters

SLT-/SM3

Ordering Information

Please state Part Number.

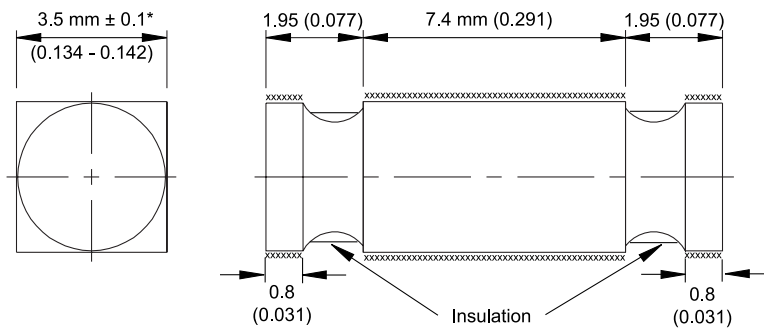
Materials

Terminations: Tin lead or silver.

For Test Conditions see page 59

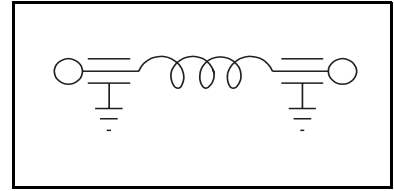
Case Dimensions

All dimensions in mm (inches)



xxx indicates solderable surface  
 \* Tin/lead finish 3.7 mm ± 0.2 (Dipped Finish)

Circuit Diagram



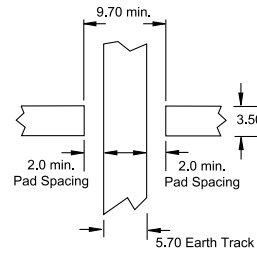
Voltage Rating

|             |           |
|-------------|-----------|
| -55 to 85°C | +125°C    |
| 200 V d.c.  | 100 Vd.c. |

Linearly derate between 85°C and 125°C

Recommended PCB Track Sizes

Dimensions in mm



Characteristics

| Part Number     | Cap. (pF)<br>(-20% +80%) | Current Rating<br>(A d.c.) | Typical Insertion Loss (dB) (50 Ω system shielded housing) |        |         |       |        |
|-----------------|--------------------------|----------------------------|--|--------|---------|-------|--------|
|                 |                          |                            | 1 MHz  | 10 MHz | 100 MHz | 1 GHz | 10 GHz |
| SLT/P/1500/SM3  | 1500                     | 10                         | 2  | 16     | 53      | 65    | 65     |
| SLT/P/22000/SM3 | 22000                    | 10                         | 12   | 48     | 65      | 65    | 65     |

# Miniature Threaded Feedthrough Capacitors

TCT

### Ordering Information

e.g. TCT150A

Blank - Unified thread  
M - Metric thread

Blank - No special conditioning  
Bu - Standard burn in  
Bx - Burn in to Cust. req.

Blank - Tin finish  
G - Gold  
S - Silver

Blank - Wavy washer and nut  
T - Toothed washer and nut  
N - No hardware

### Environmental Classification 55/125/56

|                               |                   |
|-------------------------------|-------------------|
| Tangent of loss angle (Tan δ) | 0.04 max.         |
| Proof Test Voltage            | 2 x Rated Voltage |

### Case Dimensions

All dimensions in mm. Limits unless otherwise stated:  
One decimal place ± 0.2; two decimal places ± 0.05

### Circuit Diagram

For Test Conditions see page 59

### Insulation Resistance

| Rated Voltage at 85°C (V d.c.) | Test Voltage (V d.c.) | I.R.  |
|--------------------------------|-----------------------|-------|
| > 100 to < 500.                | 100 ± 15              | > 5GΩ |
| ≥ 500                          | 500 ± 50              |       |

Recommended mounting styles - A & B (see page 54).  
Maximum panel thickness 3.8 mm.

## Characteristics

| Case Type | Part Number | Cap. (pF)<br>- 20% + 80% | Rated Voltage V d.c. |       | Current d.c. (A) | Minimum No Load Insertion Loss (dB) |         |       |        |
|-----------|-------------|--------------------------|----------------------|-------|------------------|-------------------------------------|---------|-------|--------|
|           |             |                          | 85°C                 | 125°C |                  | 10 MHz                              | 100 MHz | 1 GHz | 10 GHz |
|           | TCT101A     | 1500                     | 500                  | 300   | 10               | 5                                   | 20      | 40    | 40     |
|           | TCT101B     | 1500                     | 500                  | 300   | —                | —                                   | —       | —     | —      |
|           | TCT150A     | 1500                     | 200                  | 100   | 10               | 5                                   | 20      | 40    | 40     |
|           | TCT152G     | 100                      | 200                  | 100   | 10               | —                                   | 7       | 20    | 20     |
|           | TCT152E     | 500                      | 200                  | 100   | 10               | 2                                   | 15      | 28    | 28     |
|           | TCT152C     | 1000                     | 200                  | 100   | 10               | 4                                   | 18      | 35    | 35     |
|           | TCT152K     | 4000                     | 200                  | 100   | 10               | 10                                  | 30      | 40    | 40     |
| TCT152I   | 5000        | 200                      | 100                  | 10    | 12               | 30                                  | 40      | 40    |        |
|           | TCT150B     | 1500                     | 200                  | 100   | —                | —                                   | —       | —     | —      |
|           | TCT152H     | 100                      | 200                  | 100   | —                | —                                   | —       | —     | —      |
|           | TCT152F     | 500                      | 200                  | 100   | —                | —                                   | —       | —     | —      |
|           | TCT152D     | 1000                     | 200                  | 100   | —                | —                                   | —       | —     | —      |
|           | TCT152L     | 4000                     | 200                  | 100   | —                | —                                   | —       | —     | —      |
| TCT152J   | 5000        | 200                      | 100                  | —     | —                | —                                   | —       | —     |        |

Other values of capacitance are available on request.

Miniature Threaded Pi Circuit Filters

TPT

### Ordering Information

e.g. **TPT270A**

Blank - Unified thread  
M - Metric thread

Blank - No special conditioning  
Bu - Standard burn in  
Bx - Burn in to Cust. req.

Blank - Tin finish  
G - Gold  
S - Silver

Blank - Wavy washer and nut  
T - Toothed washer and nut  
N - No hardware

**Environmental Classification** 55/125/56

For Test Conditions see page 59

|                               |           |
|-------------------------------|-----------|
| Tangent of loss angle (Tan δ) | 0.04 max. |
|-------------------------------|-----------|

### Case Dimensions

All dimensions in mm. Limits unless otherwise stated:  
One decimal place ± 0.2; two decimal places ± 0.05.

Plain wire only of minimum stated length on longer lead variants.

For plain wire (no head or forming) on short lead length style, replace first digit 0 by 5, e.g. TPT089A — TPT589A.

### Circuit Diagram

### Insulation Resistance

| Rated Voltage at 85°C (V d.c.) | Test Voltage (V d.c.) | I.R.  |
|--------------------------------|-----------------------|-------|
| < 100                          | 10 ± 1                | > 5GΩ |
| ≥ 100 to < 500                 | 100 ± 15              |       |
| ≥ 500                          | 500 ± 50              |       |

| Part No.    | Mounting Style | Max. panel thickness (mm) |
|-------------|----------------|---------------------------|
| TPT_89_     | A or B         | 2.2                       |
| TPT_50A & D | A or B         | 3.8                       |
| TPT_50B & C | A only         | N/A                       |
| TPT_70_     | A or B         | 3.8                       |
| TPT_01_     | A or B         | 3.8                       |
| TPT080_     | A or A         | 4.8                       |
| TPT_02_     | A or B         | 4.8                       |
| TPT_21_     | A or B         | 3.8                       |
| TPT114C     | A only         | N/A                       |

Characteristics

| Case Type  | Part Number | Min Cap. (pF) | Rated Voltage (V d.c.) |       | Current d.c. (A) | Minimum No Load Insertion Loss (dB) |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|--|-------------|---------------|------------------------|-------|------------------|-------------------------------------|---------|-------|--------|---------|------|-----|------|------|-----|---------|------|-----|-----|----|---|----|----|----|
|  |             |               | 85°C                   | 125°C |                  | 10 MHz                              | 100 MHz | 1 GHz | 10 GHz |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
| <div style="display: flex; align-items: center;"> <table border="1" style="margin-right: 10px;"> <tr><td>± 0.75</td><td>089</td><td>090</td></tr> <tr><td>L1</td><td>7.4</td><td>29</td></tr> <tr><td>L2</td><td>24.1</td><td>31</td></tr> </table> </div>   | ± 0.75      | 089           | 090                    | L1    | 7.4              | 29                                  | L2      | 24.1  | 31     | TPT089A | 1500 | 350 | 210  | 10   | 5   | 40      | 60   | 60  |     |    |   |    |    |    |
|  | ± 0.75      | 089           | 090                    |       |                  |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | L1          | 7.4           | 29                     |       |                  |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | L2          | 24.1          | 31                     |       |                  |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | TPT189A     | 1500          | 350                    | 210   | 10               | 5                                   | 40      | 60    | 60     |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
| TPT089B  | 3000        | 200           | 120                    | 10    | 8                | 50                                  | 70      | 70    |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
| TPT189B  | 3000        | 200           | 120                    | 10    | 8                | 50                                  | 70      | 70    |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  |             |               |                        |       |                  |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
| <div style="display: flex; align-items: center;"> <table border="1" style="margin-right: 10px;"> <tr><td>± 0.75</td><td>050</td><td>150</td></tr> <tr><td>L1</td><td>7.9</td><td>28</td></tr> <tr><td>L2</td><td>22.6</td><td>32</td></tr> </table> </div>   | ± 0.75      | 050           | 150                    | L1    | 7.9              | 28                                  | L2      | 22.6  | 32     | TPT050A | 1500 | 350 | 210  | 10   | 5   | 45      | 65   | 60  |     |    |   |    |    |    |
|  | ± 0.75      | 050           | 150                    |       |                  |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | L1          | 7.9           | 28                     |       |                  |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | L2          | 22.6          | 32                     |       |                  |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | TPT150A     | 1500          | 350                    | 210   | 10               | 5                                   | 45      | 65    | 60     |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
| TPT050D  | 4000        | 200           | 120                    | 10    | 10               | 50                                  | 65      | 70    |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
| TPT150D  | 4000        | 200           | 120                    | 10    | 10               | 50                                  | 65      | 70    |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  |             |               |                        |       |                  |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
| <div style="display: flex; align-items: center;"> <table border="1" style="margin-right: 10px;"> <tr><td>± 0.4</td><td>050</td><td>150</td><td>250</td><td>350</td></tr> <tr><td>L1</td><td>4.1</td><td>10.5</td><td>27.0</td><td>7.5</td></tr> <tr><td>L2</td><td>6.0</td><td>11.5</td><td>29.0</td><td>8.5</td></tr> </table> </div> | ± 0.4       | 050           | 150                    | 250   | 350              | L1                                  | 4.1     | 10.5  | 27.0   | 7.5     | L2   | 6.0 | 11.5 | 29.0 | 8.5 | TPT050B | 1500 | 200 | 120 | 15 | 5 | 40 | 60 | 60 |
|  | ± 0.4       | 050           | 150                    | 250   | 350              |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | L1          | 4.1           | 10.5                   | 27.0  | 7.5              |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | L2          | 6.0           | 11.5                   | 29.0  | 8.5              |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | TPT150B     | 1500          | 200                    | 120   | 15               | 5                                   | 40      | 60    | 60     |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | TPT250B     | 1500          | 200                    | 120   | 15               | 5                                   | 40      | 60    | 60     |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | TPT350B     | 1500          | 200                    | 120   | 15               | 5                                   | 40      | 60    | 60     |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | TPT050C     | 500           | 350                    | 210   | 15               | —                                   | 15      | 55    | 60     |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  | TPT150C     | 500           | 350                    | 210   | 15               | —                                   | 15      | 55    | 60     |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
| TPT250C  | 500         | 350           | 210                    | 15    | —                | 15                                  | 55      | 60    |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
| TPT350C  | 500         | 350           | 210                    | 15    | —                | 15                                  | 55      | 60    |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |
|  |             |               |                        |       |                  |                                     |         |       |        |         |      |     |      |      |     |         |      |     |     |    |   |    |    |    |

| Case Type  |               | Part Number     | Min Cap. (pF) | Rated Voltage (V d.c.) |           | Current d.c. (A) | Minimum No Load Insertion Loss (dB) |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|--|---------------|-----------------|---------------|------------------------|-----------|------------------|-------------------------------------|---------|-------|---------|------|-----|-----|------|-----|---------|------|------|-----|----|----|----|----|----|
|  |               |                 |               | 85°C                   | 125°C     |                  | 10 MHz                              | 100 MHz | 1 GHz | 10 GHz  |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| <p>* INCREASED 0.7 FOR M6 THREADS</p> <p>Thread 12-32 UNEF 2A/M6 x 0.75<br/>M6 x 0.8 075A &amp; 070EM only</p> <table border="1"> <tr><td>± 0.75</td><td>070</td><td>270</td></tr> <tr><td>L1</td><td>8.7</td><td>30</td></tr> <tr><td>L2</td><td>23.4</td><td>34</td></tr> </table>   | ± 0.75        | 070             | 270           | L1                     | 8.7       | 30               | L2                                  | 23.4    | 34    | TPT070A | 1500 | 500 | 300 | 10   | 5   | 45      | 70   | 70   |     |    |    |    |    |    |
|  | ± 0.75        | 070             | 270           |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | L1            | 8.7             | 30            |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | L2            | 23.4            | 34            |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT070C       | 1500            | 500           | 300                    | 10        | 5                | 45                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT270A       | 1500            | 500           | 300                    | 10        | 5                | 45                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT270C       | 1500            | 500           | 300                    | 10        | 5                | 45                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT075A       | 1500            | 350           | 200                    | 10        | 5                | 45                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT070B       | 5000            | 300           | 180                    | 10        | 20               | 65                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT070D       | 5000            | 300           | 180                    | 10        | 20               | 65                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT270B       | 5000            | 300           | 180                    | 10        | 20               | 65                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT270D       | 5000            | 300           | 180                    | 10        | 20               | 65                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT070EM      | 680             | 350           | 200                    | 10        | —                | —                                   | 45      | 45    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| <p>Thread 12-28 UNF 2A<br/>M6 x 0.75</p> <table border="1"> <tr><td>± 0.75</td><td>001</td><td>101</td></tr> <tr><td>L1</td><td>9.1</td><td>30</td></tr> <tr><td>L2</td><td>11.5</td><td>33</td></tr> </table>   | ± 0.75        | 001             | 101           | L1                     | 9.1       | 30               | L2                                  | 11.5    | 33    | TPT001A | 1500 | 500 | 300 | 10   | 5   | 45      | 70   | 70   |     |    |    |    |    |    |
|  | ± 0.75        | 001             | 101           |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | L1            | 9.1             | 30            |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | L2            | 11.5            | 33            |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT001B       | 1500            | 500           | 300                    | 10        | 5                | 45                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT101A       | 1500            | 500           | 300                    | 10        | 5                | 45                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| TPT101B  | 1500          | 500             | 300           | 10                     | 5         | 45               | 70                                  | 70      |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| TPT001C  | 5500          | 300             | 180           | 10                     | 20        | 68               | 70                                  | 70      |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| TPT101C  | 5500          | 300             | 180           | 10                     | 20        | 68               | 70                                  | 70      |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| <p>Thread 3/8-32 UNEF 2A/M10 x 1.25</p>  | TPT080A       | 1500            | 2500          | —                      | 25        | 5                | 50                                  | 50      | 50    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT080B       | 3000            | 1000          | —                      | 25        | 8                | 60                                  | 65      | 65    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| <table border="1"> <tr><th>Part no.</th><th>Thread</th></tr> <tr><td>A &amp; C</td><td>5/16-32 UNEF 2A</td></tr> <tr><td>B &amp; D</td><td>5/16-24 UNF 2A</td></tr> </table> <p>M8 x 1.0</p> <p>Thread 5/16-32 UNEF 2A<br/>M8 x 1.0</p> <table border="1"> <tr><td>± 0.75</td><td>002</td><td>102*</td></tr> <tr><td>L1</td><td>14.3</td><td>32</td></tr> <tr><td>L2</td><td>19.0</td><td>37</td></tr> </table> <p>* No lead forming</p> | Part no.      | Thread          | A & C         | 5/16-32 UNEF 2A        | B & D     | 5/16-24 UNF 2A   | ± 0.75                              | 002     | 102*  | L1      | 14.3 | 32  | L2  | 19.0 | 37  | TPT002A | 2000 | 1000 | 600 | 25 | 5  | 50 | 65 | 65 |
|  | Part no.      | Thread          |               |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | A & C         | 5/16-32 UNEF 2A |               |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | B & D         | 5/16-24 UNF 2A  |               |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | ± 0.75        | 002             | 102*          |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | L1            | 14.3            | 32            |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | L2            | 19.0            | 37            |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT102A       | 2000            | 1000          | 600                    | 25        | 5                | 50                                  | 65      | 65    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT002B       | 3000            | 830           | 500                    | 25        | 8                | 55                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | TPT002C       | 3000            | 830           | 500                    | 25        | 8                | 55                                  | 70      | 70    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| TPT102B  | 3000          | 830             | 500           | 25                     | 8         | 55               | 70                                  | 70      |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| TPT102C  | 3000          | 830             | 500           | 25                     | 8         | 55               | 70                                  | 70      |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| TPT002D  | 4000          | 830             | 500           | 25                     | 15        | 55               | 70                                  | 70      |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| TPT102D  | 4000          | 830             | 500           | 25                     | 15        | 55               | 70                                  | 70      |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| <table border="1"> <tr><th>Thread</th><th>D</th></tr> <tr><td>12-32 UNEF 2A</td><td>6.35</td></tr> <tr><td>M6 x 0.75</td><td>7.00</td></tr> </table> <p>Thread 12-32 UNEF 2A<br/>M6 x 0.75</p> <table border="1"> <tr><td>± 0.75</td><td>021</td><td>121</td></tr> <tr><td>L1</td><td>11.1</td><td>33</td></tr> <tr><td>L2</td><td>17.5</td><td>36*</td></tr> </table> <p>* Not formed</p>   | Thread        | D               | 12-32 UNEF 2A | 6.35                   | M6 x 0.75 | 7.00             | ± 0.75                              | 021     | 121   | L1      | 11.1 | 33  | L2  | 17.5 | 36* | TPT021A | 4000 | 500  | 300 | 10 | 15 | 65 | 70 | 70 |
|  | Thread        | D               |               |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | 12-32 UNEF 2A | 6.35            |               |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
|  | M6 x 0.75     | 7.00            |               |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| ± 0.75   | 021           | 121             |               |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| L1   | 11.1          | 33              |               |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| L2   | 17.5          | 36*             |               |                        |           |                  |                                     |         |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| TPT121A  | 4000          | 500             | 300           | 10                     | 15        | 65               | 70                                  | 70      |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| TPT021B  | 6000          | 300             | 180           | 10                     | 20        | 68               | 70                                  | 70      |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| TPT121B  | 6000          | 300             | 180           | 10                     | 20        | 68               | 70                                  | 70      |       |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |
| <p>Thread M5 x 0.5</p>   | TPT114C       | 1750            | 350           | 210                    | 10        | 5                | 35                                  | 50      | 50    |         |      |     |     |      |     |         |      |      |     |    |    |    |    |    |