

# Surface Mount Bandpass Filter

## CBP-1748C+

50Ω      1710 to 1785 MHz

### The Big Deal

- Narrow bandwidth
- Excellent Rejection
- High power handling
- Miniature shielded package



Generic photo used for illustration purposes only  
CASE STYLE: MP1766

### Product Overview

CBP-1748C+ is a ceramic-coaxial-resonator based bandpass filter in a shielded package fabricated using SMT technology. This filter offers outstanding close in rejection, low insertion loss and high power handling for use in wireless networks and space applications

### Key Features

| Feature             | Advantages   |
|---------------------|--|
| High Selectivity    | The CBP-1748C+ filter incorporates High-Q ceramic resonators that enables sharp rejection near passband.   |
| Low Passband VSWR   | This filter maintains typical VSWR over passband frequency range making this filter easier to integrate into receiver and transmitter RF chains with less concerns for in band frequency ripple. |
| Rugged construction | The CBP-1748C+ has been qualified over wide range of thermal, mechanical and environmental conditions including withstanding the stress of extensive solder reflow cycles.                       |

#### Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



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### Features

- Narrow bandwidth
- Excellent rejection
- High selectivity
- High power handling
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### Applications

- Wireless 3G networks
- Space operation and space research
- CDMA

### Electrical Specifications at 25°C

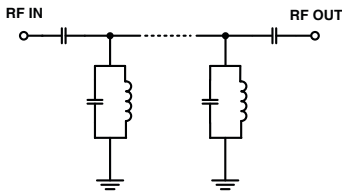
| Parameter        | F#               | Frequency (MHz) | Min.      | Typ. | Max. | Unit |    |
|------------------|------------------|-----------------|-----------|------|------|------|----|
| Pass Band        | Center Frequency | —               | —         | 1748 | —    | MHz  |    |
|                  | Insertion Loss   | F1-F2           | 1710-1785 | —    | 1.10 | 3.00 | dB |
|                  | VSWR             | F1-F2           | 1710-1785 | —    | 1.67 | 2.32 | :1 |
| Stop Band, Lower | Insertion Loss   | DC-F3           | DC-1580   | 20   | 28   | —    | dB |
|                  | VSWR             | DC-F3           | DC-1580   | —    | 20   | —    | :1 |
| Stop Band, Upper | Insertion Loss   | F4-F5           | 1960-4000 | 20   | 26   | —    | dB |
|                  | VSWR             | F4-F5           | 1960-4000 | —    | 20   | —    | :1 |

### Maximum Ratings

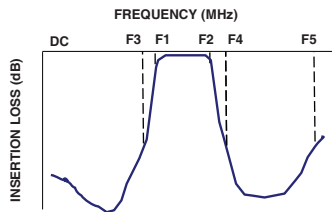
|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |
| RF Power Input        | 10W            |

Permanent damage may occur if any of these limits are exceeded.

### Functional Schematic



### Typical Frequency Response

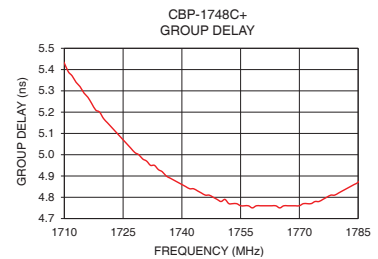
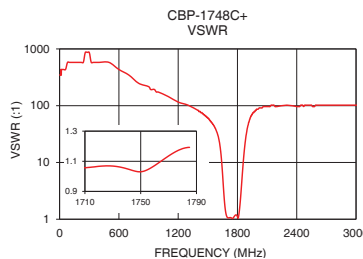
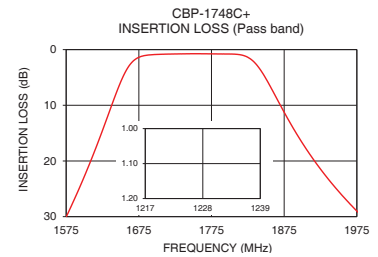
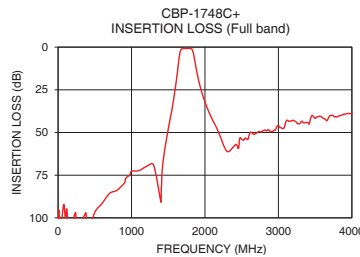


### Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|-----------|-----------------|--------------------|
| 1               | 97.92               | 347.44    | 1710            | 5.43               |
| 800             | 83.89               | 248.17    | 1714            | 5.32               |
| 1500            | 48.02               | 59.91     | 1718            | 5.21               |
| 1574            | 30.34               | 40.41     | 1722            | 5.13               |
| 1580            | 28.66               | 38.61     | 1726            | 5.05               |
| 1606            | 20.88               | 28.49     | 1730            | 4.98               |
| 1636            | 10.58               | 12.44     | 1734            | 4.93               |
| 1660            | 3.22                | 3.22      | 1738            | 4.88               |
| 1680            | 1.16                | 1.36      | 1742            | 4.84               |
| 1710            | 0.82                | 1.06      | 1748            | 4.80               |
| 1748            | 0.74                | 1.03      | 1750            | 4.78               |
| 1785            | 0.78                | 1.19      | 1754            | 4.77               |
| 1823            | 1.25                | 1.62      | 1758            | 4.75               |
| 1840            | 3.21                | 3.73      | 1762            | 4.76               |
| 1870            | 10.05               | 16.72     | 1766            | 4.76               |
| 1920            | 20.58               | 54.29     | 1770            | 4.76               |
| 1960            | 26.93               | 75.53     | 1774            | 4.78               |
| 1984            | 30.15               | 82.73     | 1778            | 4.81               |
| 2400            | 57.76               | 96.51     | 1782            | 4.84               |
| 4000            | 38.80               | 51.10     | 1785            | 4.87               |

### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications



### Notes

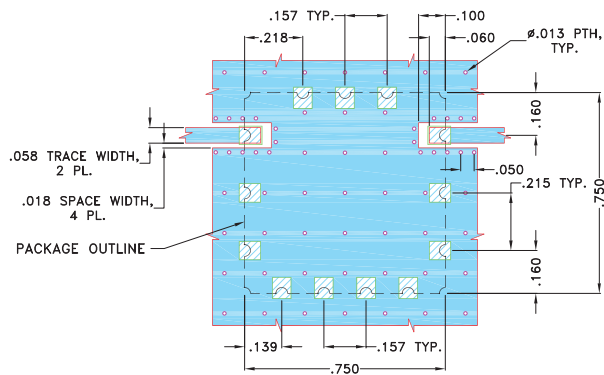
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## Pad Connections

|        |                          |
|--------|--------------------------|
| INPUT  | 1                        |
| OUTPUT | 10                       |
| GROUND | 2,3,4,5,6,7,8,9,11,12,13 |

**Demo Board MCL P/N: TB-684+**  
**Suggested PCB Layout (PL-373)**

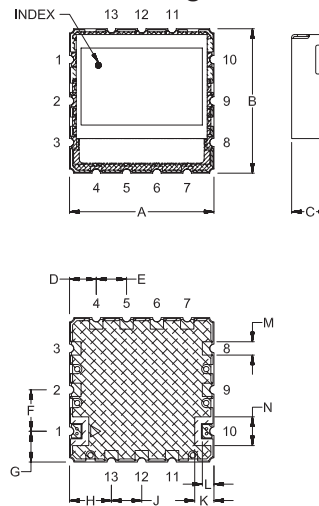


### NOTES:

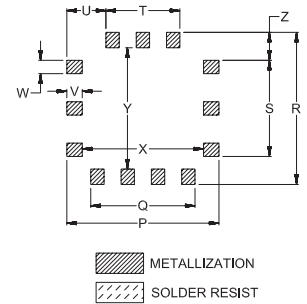
- TRACE WIDTH IS SHOWN FOR OAK (OAK-602) WITH DIELECTRIC THICKNESS .022"±.0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

## Outline Drawing



## PCB Land Pattern



## Outline Dimensions (inch mm)

| A     | B     | C     | D     | E    | F    | G    | H    | J     | K     | L    | M     | N    |
|-------|-------|-------|-------|------|------|------|------|-------|-------|------|-------|------|
| .750  | .750  | .210  | .139  | .157 | .215 | .160 | .218 | .157  | .100  | .060 | .069  | .149 |
| 19.05 | 19.05 | 5.33  | 3.53  | 3.99 | 5.46 | 4.06 | 5.54 | 3.99  | 2.54  | 1.52 | 1.75  | 3.78 |
| P     | Q     | R     | S     | T    | U    | V    | W    | X     | Y     | Z    | wt.   |      |
| .790  | .541  | .790  | .499  | .384 | .203 | .080 | .069 | .630  | .630  | .145 | grams |      |
| 20.07 | 13.74 | 20.07 | 12.67 | 9.75 | 5.16 | 2.03 | 1.75 | 16.00 | 16.00 | 3.68 | 4.6   |      |

Note: Please refer to case style drawing for details.

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