

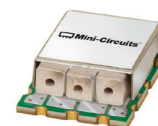
Surface Mount Bandpass Filter

CBP-1538J+

50Ω 1518 to 1559 MHz

The Big Deal

- Good Insertion Loss
- Low VSWR
- Miniature shielded package



Generic photo used for illustration purposes only
CASE STYLE: MQ1770

Product Overview

CBP-1538J+ is a ceramic coaxial resonator based bandpass filter in a shielded package fabricated using SMT technology. This filter has narrow passband and offers low insertion loss , low VSWR and high power handling for use in satellite communication.

Key Features

| Feature | Advantages |
|---------------------|--|
| High Quality | The CBP-1538J+ filter incorporates High-Q ceramic resonators that enables low insertion loss. |
| Low VSWR | This filter maintains typical VSWR over passband frequency range making this filter easier to integrate between other components. |
| Rugged construction | The CBP-1538J+ has been qualified over wide range of thermal, mechanical and environmental conditions including withstanding the stress of extensive solder reflow cycles. |

Notes

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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

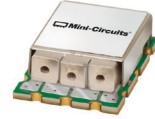


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Features

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- Low VSWR
- Miniature shielded package

Applications

- Satellite communication
- Test and measurement

Electrical Specifications at 25°C

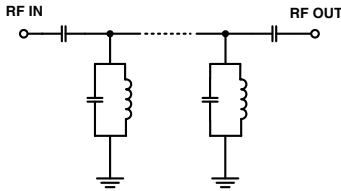
| Parameter | | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|------------------|------------------|-------|-----------------|------|------|------|------|
| Pass Band | Center Frequency | — | — | — | 1538 | — | MHz |
| | Insertion Loss | F1-F2 | 1518-1559 | — | 1.1 | 1.7 | dB |
| | VSWR | F1-F2 | 1518-1559 | — | 1.6 | 2.32 | :1 |
| Stop Band, Lower | Insertion Loss | DC-F3 | DC-1390 | 20 | 27.4 | — | dB |
| | VSWR | DC-F3 | DC-1390 | — | 20 | — | :1 |
| Stop Band, Upper | Insertion Loss | F4-F5 | 1750-3000 | 20 | 25.9 | — | dB |
| | VSWR | F4-F5 | 1750-3000 | — | 20 | — | :1 |

Maximum Ratings

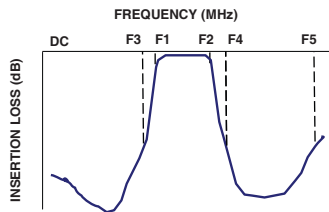
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input | 8 W |

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

Functional Schematic



Typical Frequency Response

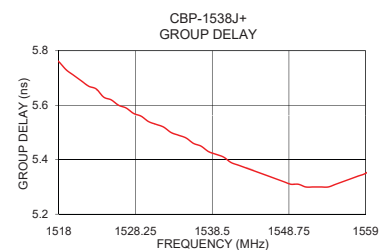
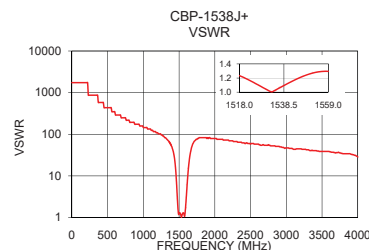
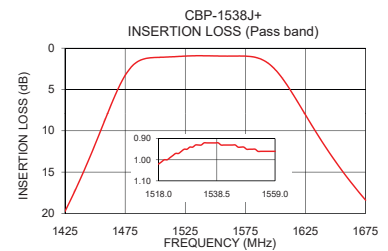
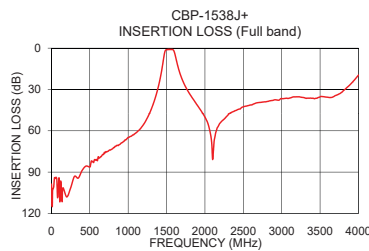


Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|-----------|-----------------|--------------------|
| 1 | 98.71 | 1737.18 | 1518 | 5.76 |
| 100 | 94.35 | 1737.18 | 1520 | 5.71 |
| 800 | 72.86 | 217.15 | 1522 | 5.67 |
| 1150 | 59.03 | 115.81 | 1524 | 5.63 |
| 1384 | 30.08 | 57.91 | 1526 | 5.60 |
| 1390 | 28.64 | 54.29 | 1528 | 5.57 |
| 1421 | 20.88 | 36.97 | 1530 | 5.54 |
| 1475 | 3.30 | 3.08 | 1534 | 5.49 |
| 1500 | 1.13 | 1.23 | 1538 | 5.43 |
| 1518 | 1.02 | 1.23 | 1540 | 5.41 |
| 1538 | 0.92 | 1.09 | 1542 | 5.38 |
| 1559 | 0.96 | 1.29 | 1544 | 5.36 |
| 1605 | 3.50 | 3.92 | 1546 | 5.34 |
| 1686 | 20.14 | 54.98 | 1548 | 5.32 |
| 1750 | 28.30 | 75.53 | 1550 | 5.31 |
| 1770 | 30.34 | 78.97 | 1552 | 5.30 |
| 1800 | 33.12 | 82.73 | 1554 | 5.30 |
| 2500 | 42.61 | 57.91 | 1556 | 5.32 |
| 3000 | 36.56 | 46.96 | 1558 | 5.34 |
| 4000 | 19.60 | 28.49 | 1559 | 5.35 |

+RoHS Compliant

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



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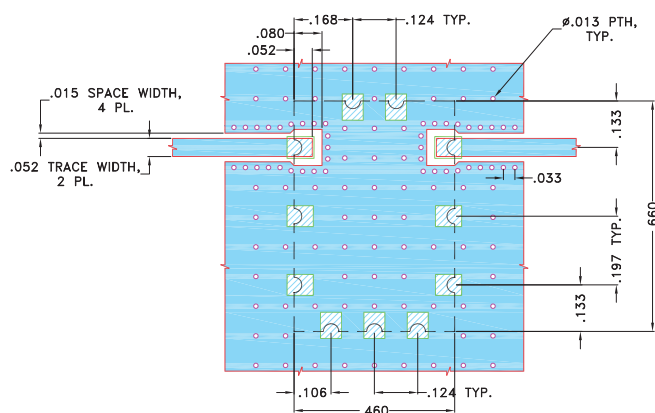
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Pad Connections

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

Demo Board MCL P/N: TB-692+
Suggested PCB Layout (PL-375)



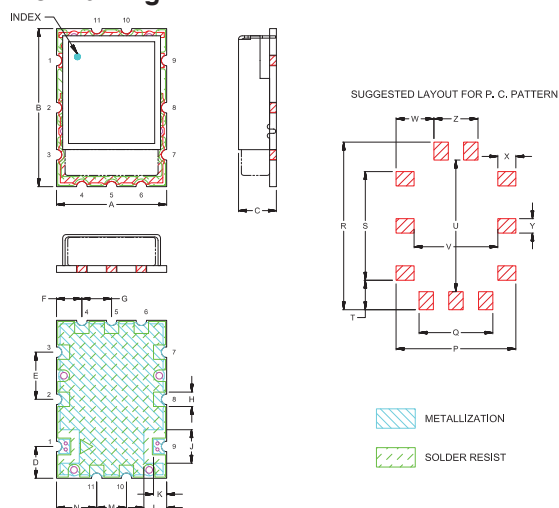
NOTES:

1. TRACE WIDTH IS SHOWN FOR ROGERS (R04350B) WITH DIELECTRIC THICKNESS .030"±.002". COPPER: 1/2 OZ. EACH SIDE.
FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. 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



Outline Dimensions ($\frac{\text{inch}}{\text{mm}}$)

| A | B | C | D | E | F | G | H | J | K | L | M | N |
|-------|-------|-------|-------|------|-------|------|------|------|------|------|----------|------|
| .460 | .660 | .175 | .133 | .197 | .106 | .124 | .060 | .140 | .055 | .091 | .124 | .168 |
| 11.68 | 16.76 | 4.45 | 3.38 | 5.00 | 2.69 | 3.15 | 1.52 | 3.56 | 1.40 | 2.45 | 3.15 | 4.27 |
| P | Q | R | S | T | U | V | W | X | Y | Z | WT.GRAMS | |
| .500 | .308 | .700 | .454 | .123 | .550 | .350 | .158 | .075 | .060 | .184 | 1.8 | |
| 12.70 | 7.82 | 17.78 | 11.53 | 3.12 | 13.97 | 8.89 | 4.01 | 1.91 | 1.52 | 4.67 | | |

Note: Please refer to case style drawing for details.

Notes

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