



(CERAMIC RESONATOR) SURFACE MOUNT

Bandpass Filter

CBP2-1125CC+

Mini-Circuits

50Ω

1085 to 1165 MHz

KEY FEATURES

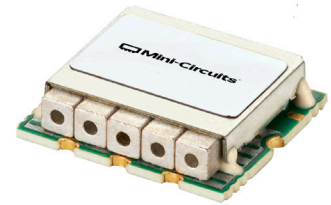
- Good Insertion Loss, 1.7 dB Typ.
- High Rejection, 75 dB Typ.
- Low-Profile Shielded Package

APPLICATIONS

- Test and Measurements
- Wireless Communication
- Industrial, Scientific, and Medical (ISM) Applications

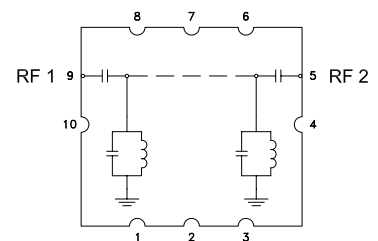
PRODUCT OVERVIEW

All our coaxial-ceramic resonator filters are built with rugged construction, qualified to withstand multiple demanding reflow cycles. Excellent repeatability across units is achieved through precise tuning and process control.



Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



ELECTRICAL SPECIFICATIONS^{1,2,3} AT +25°C

| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Units |
|-----------------|------------------|-----------------|-------------|------|------|-------|
| Passband | Center Frequency | — | — | 1125 | — | MHz |
| | Insertion Loss | F1-F2 | 1085 - 1165 | 1.7 | 2.5 | dB |
| | Return Loss | F1-F2 | 1085 - 1165 | 10 | 15 | dB |
| Stopband, Lower | Rejection | DC-F3 | DC - 700 | 65 | 75 | dB |
| | | F3-F4 | 700 - 1010 | 20 | 30 | dB |
| Stopband, Upper | Rejection | F5-F6 | 1245 - 1400 | 20 | 30 | dB |
| | | F6-F7 | 1400 - 2100 | 50 | 58 | dB |

1. Tested in Evaluation Board P/N TB-CBP2-1125CC+.

2. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.

3. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.

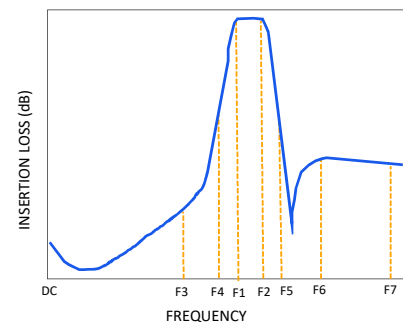
ABSOLUTE MAXIMUM RATINGS⁴

| Parameter | Ratings |
|--------------------------|-----------------|
| Operating Temperature | -40°C to +85°C |
| Storage Temperature | -55°C to +100°C |
| Input Power ⁵ | 8 W at 25°C |

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

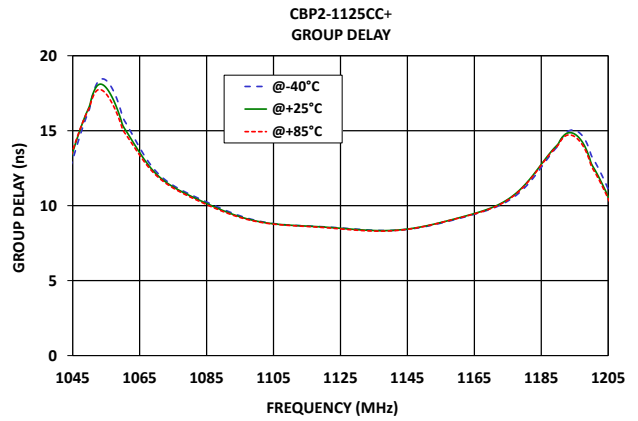
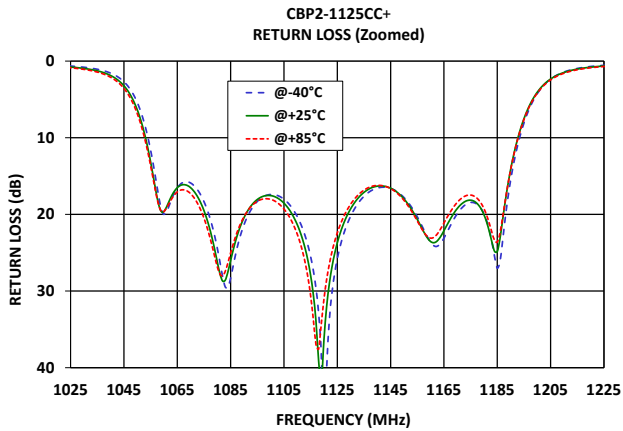
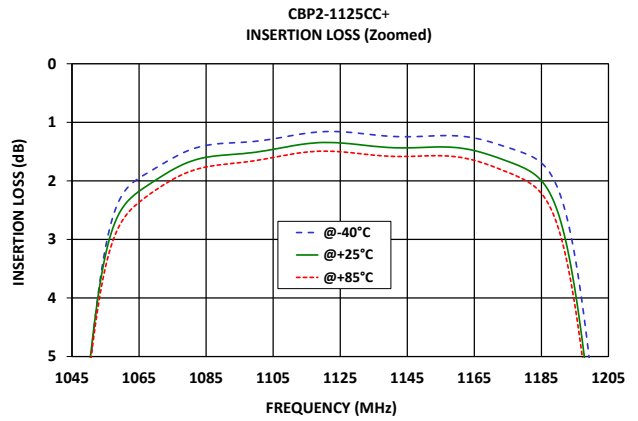
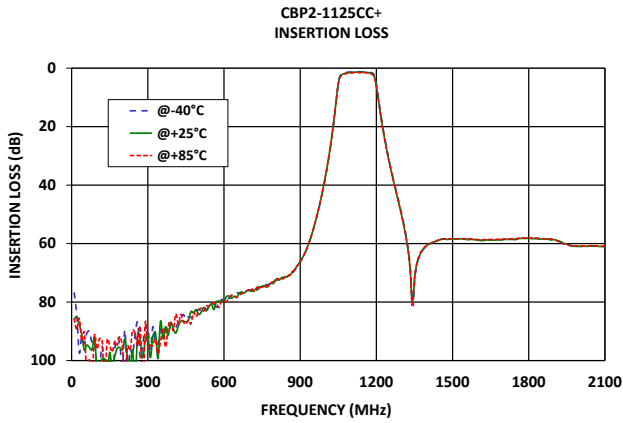
5. Power rating applies only to signals within the passband. Power rating above +25°C operating temperature decreases linearly to 2 W at +85°C.

TYPICAL FREQUENCY RESPONSE AT +25°C





TYPICAL PERFORMANCE GRAPHS





Bandpass Filter

FUNCTIONAL DIAGRAM

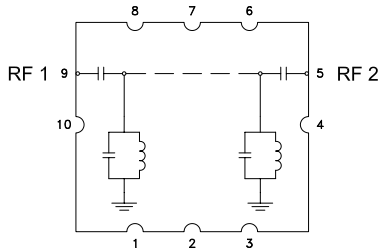


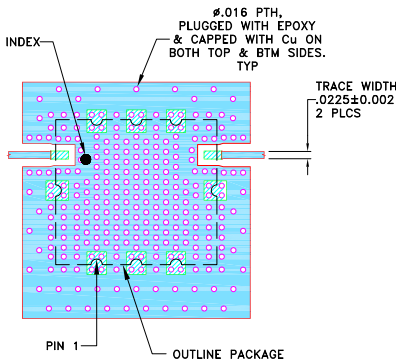
Figure 1. CBP2-1125CC+ Functional Diagram

PAD DESCRIPTION

| Function | Pad Number | Description |
|------------------|--------------|--|
| RF1 ² | 9 | Connects to RF Input Port |
| RF2 ² | 5 | Connects to RF Output Port |
| GROUND | 1-4, 6-8, 10 | Connects to Ground on PCB, (See drawing PL-794) |
| NC | - | No connection, not used internally. See drawing PL-794 for connection to PCB |

SUGGESTED PCB LAYOUT (PL-794)

SUGGESTED MOUNTING CONFIGURATION FOR CASE STYLE BAH3507

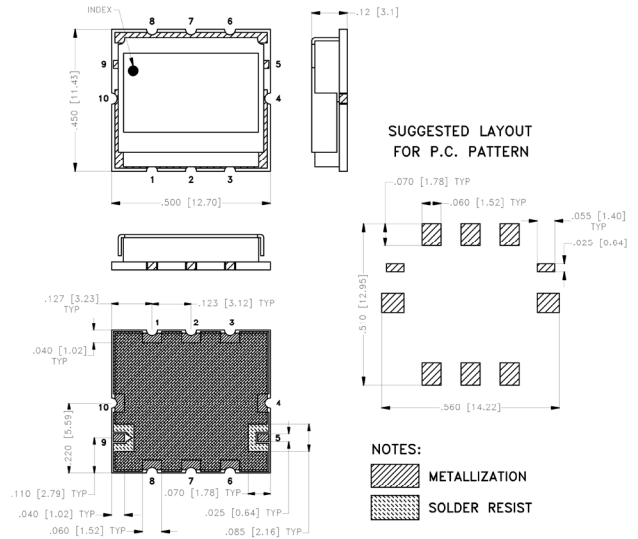


NOTES:

- TRACE WIDTH ARE SHOWN FOR ROGERS (R04350B) WITH DIELECTRIC THICKNESS .010±.001 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 PATTERN WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 - DENOTES PCB COPPER PATTERN FREE OF SOLDERMASK

Figure 2. Suggested PCB Layout PL-794

CASE STYLE DRAWING



Weight: 1 gram

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015

PRODUCT MARKING*: CBP2-1125CC

*Marking may contain other features or characters for internal lot control.



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Bandpass Filter

CBP2-1125CC+

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50Ω

1085 to 1165 MHz

ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD.

[CLICK HERE](#)

| | |
|---------------------------------|---|
| Performance Data and Graphs | Data |
| | Graphs S-Parameter (S2P Files) Data Set (.zip file) De-embedded to device pads |
| Case Style | BAH3507 Lead Finish: Electroless Nickel Immersion Gold |
| RoHS Status | Compliant |
| Tape and Reel | TR-F014 |
| Suggested Layout for PCB Design | PL-794 |
| Evaluation Board | TB-CBP2-1125CC+ |
| | Gerber File |
| Environmental Rating | ENV54 |

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-Circuits' 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/terms/viewterm.html



Surface Mount Bandpass Filter

CBP2-1125CC+

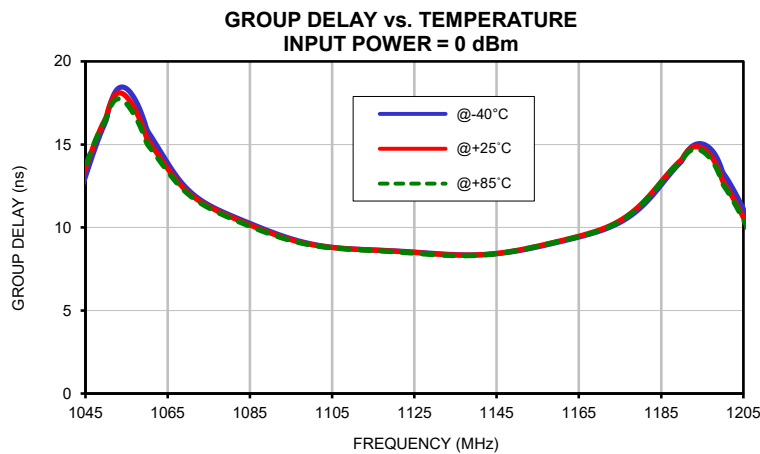
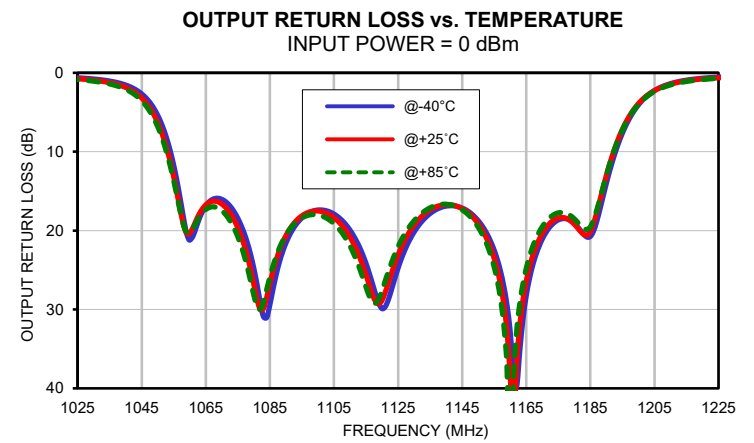
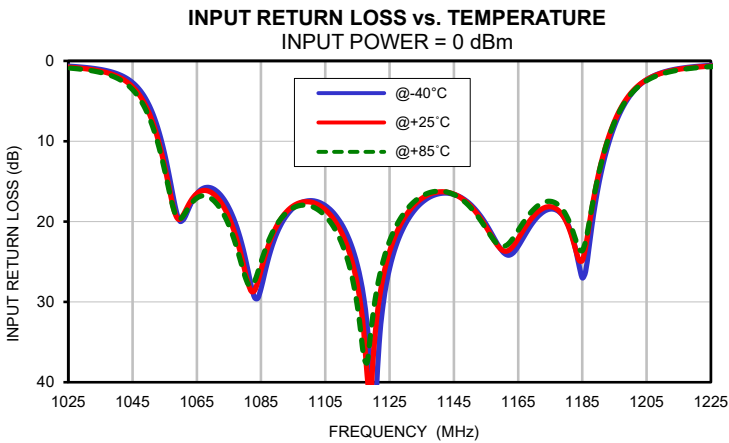
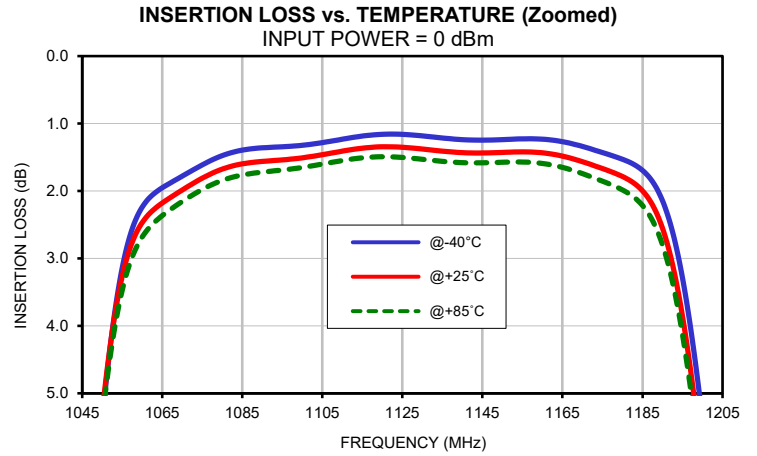
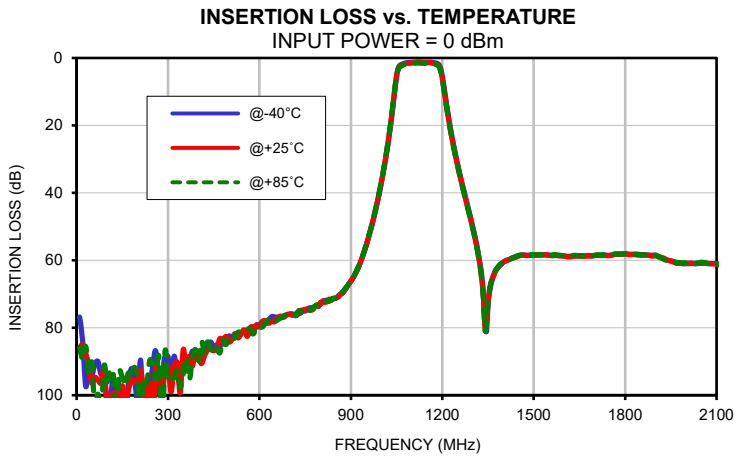
Typical Performance Data

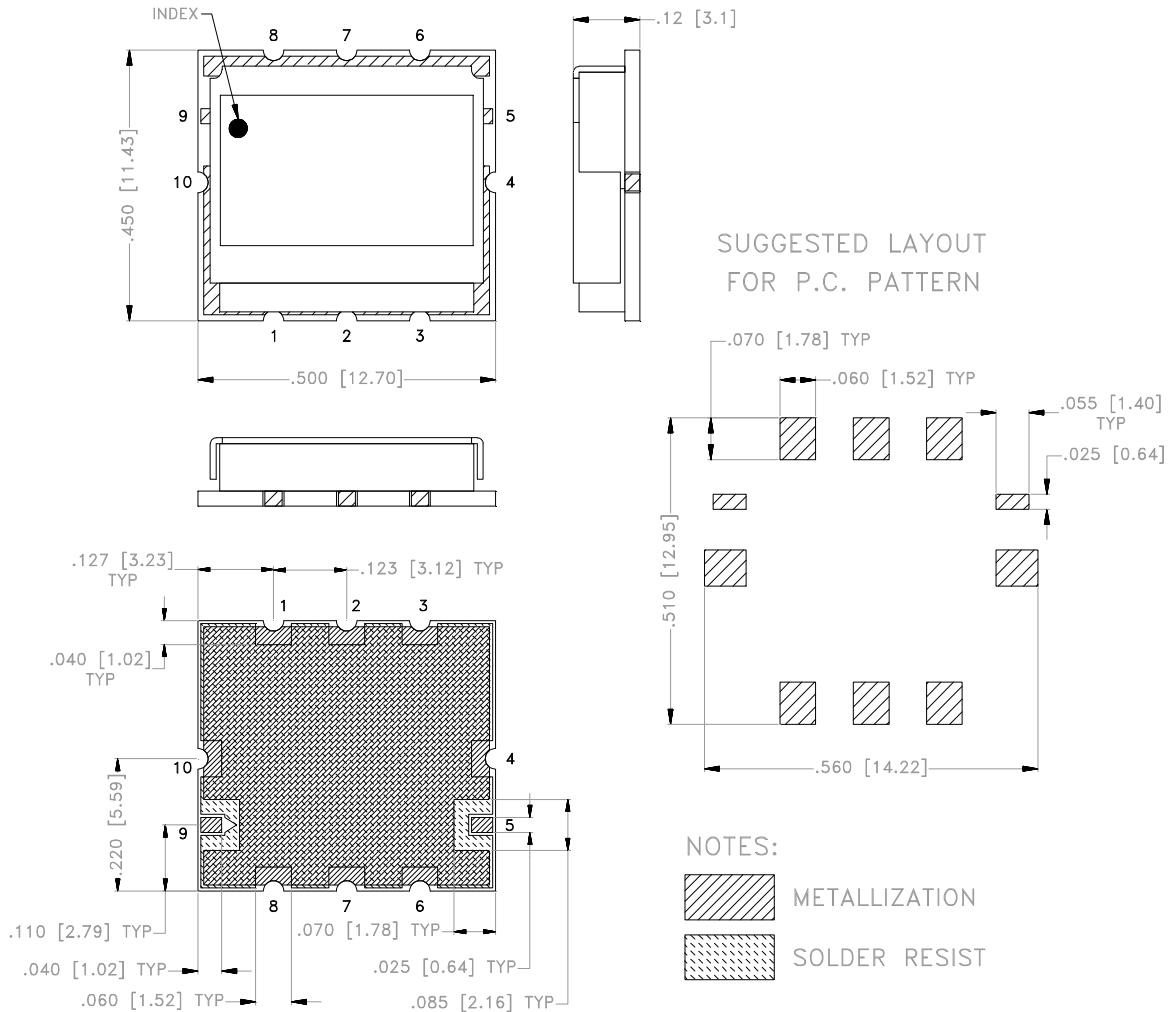
| FREQ. (MHz) | INSERTION LOSS | | | INPUT RETURN LOSS | | | OUTPUT RETURN LOSS | | |
|----------------|----------------|--------|--------|-------------------|--------|--------|--------------------|--------|--------|
| | (dB) | | | (dB) | | | (dB) | | |
| | @-40°C | @+25°C | @+85°C | @-40°C | @+25°C | @+85°C | @-40°C | @+25°C | @+85°C |
| 10 | 76.83 | 85.93 | 85.76 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 20 | 84.08 | 85.02 | 89.39 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 30 | 97.34 | 87.57 | 85.56 | 0.04 | 0.04 | 0.04 | 0.03 | 0.04 | 0.03 |
| 40 | 91.84 | 91.18 | 93.29 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 |
| 50 | 94.14 | 96.46 | 90.33 | 0.03 | 0.03 | 0.04 | 0.03 | 0.03 | 0.03 |
| 60 | 90.64 | 94.70 | 104.57 | 0.03 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 |
| 70 | 89.97 | 95.52 | 99.71 | 0.02 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 |
| 80 | 93.87 | 96.37 | 107.15 | 0.02 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 |
| 90 | 93.67 | 92.15 | 91.32 | 0.02 | 0.02 | 0.03 | 0.01 | 0.02 | 0.02 |
| 100 | 101.80 | 102.59 | 96.09 | 0.02 | 0.02 | 0.03 | 0.01 | 0.02 | 0.02 |
| 150 | 101.65 | 97.19 | 94.81 | 0.01 | 0.02 | 0.02 | 0.00 | 0.01 | 0.02 |
| 200 | 101.86 | 96.33 | 95.30 | 0.00 | 0.02 | 0.03 | 0.00 | 0.01 | 0.02 |
| 250 | 91.10 | 107.47 | 90.91 | 0.01 | 0.03 | 0.04 | 0.00 | 0.02 | 0.03 |
| 300 | 88.59 | 91.37 | 95.71 | 0.01 | 0.03 | 0.04 | 0.00 | 0.02 | 0.03 |
| 350 | 89.33 | 86.45 | 93.47 | 0.01 | 0.03 | 0.04 | 0.01 | 0.03 | 0.04 |
| 400 | 88.97 | 89.00 | 89.83 | 0.02 | 0.04 | 0.05 | 0.01 | 0.03 | 0.04 |
| 450 | 85.88 | 86.80 | 87.56 | 0.02 | 0.05 | 0.06 | 0.02 | 0.04 | 0.05 |
| 500 | 82.43 | 84.24 | 83.11 | 0.03 | 0.06 | 0.07 | 0.03 | 0.06 | 0.07 |
| 550 | 81.16 | 80.63 | 80.50 | 0.04 | 0.07 | 0.08 | 0.03 | 0.07 | 0.08 |
| 600 | 79.37 | 79.70 | 79.79 | 0.04 | 0.07 | 0.09 | 0.04 | 0.08 | 0.09 |
| 650 | 76.78 | 78.24 | 78.46 | 0.05 | 0.08 | 0.10 | 0.05 | 0.09 | 0.10 |
| 700 | 75.87 | 76.07 | 75.76 | 0.06 | 0.10 | 0.12 | 0.06 | 0.10 | 0.11 |
| 800 | 73.10 | 72.50 | 72.77 | 0.10 | 0.14 | 0.16 | 0.10 | 0.14 | 0.16 |
| 1010 | 32.08 | 31.80 | 31.62 | 0.43 | 0.51 | 0.58 | 0.41 | 0.50 | 0.56 |
| 1013 | 30.49 | 30.20 | 30.01 | 0.46 | 0.55 | 0.61 | 0.44 | 0.53 | 0.60 |
| 1029 | 20.85 | 20.47 | 20.28 | 0.77 | 0.91 | 1.03 | 0.74 | 0.89 | 1.01 |
| 1035 | 16.61 | 16.21 | 16.03 | 1.06 | 1.27 | 1.43 | 1.04 | 1.24 | 1.41 |
| 1040 | 12.80 | 12.41 | 12.28 | 1.57 | 1.88 | 2.11 | 1.55 | 1.85 | 2.08 |
| 1045 | 8.89 | 8.57 | 8.54 | 2.69 | 3.22 | 3.57 | 2.67 | 3.19 | 3.54 |
| 1055 | 3.14 | 3.26 | 3.47 | 11.61 | 13.14 | 13.62 | 11.74 | 13.23 | 13.70 |
| 1085 | 1.39 | 1.60 | 1.76 | 28.32 | 26.03 | 25.03 | 29.40 | 26.73 | 25.88 |
| 1100 | 1.32 | 1.51 | 1.65 | 17.40 | 17.55 | 18.04 | 17.39 | 17.51 | 18.01 |
| 1105 | 1.28 | 1.46 | 1.60 | 18.01 | 18.53 | 19.30 | 17.91 | 18.37 | 19.12 |
| 1100 | 1.32 | 1.51 | 1.65 | 17.40 | 17.55 | 18.04 | 17.39 | 17.51 | 18.01 |
| 1115 | 1.19 | 1.37 | 1.51 | 25.49 | 27.95 | 30.59 | 24.16 | 25.62 | 27.16 |
| 1120 | 1.16 | 1.34 | 1.49 | 50.03 | 36.37 | 31.06 | 29.90 | 28.84 | 27.59 |
| 1125 | 1.16 | 1.35 | 1.50 | 25.81 | 23.73 | 22.42 | 24.76 | 23.09 | 22.05 |
| 1130 | 1.18 | 1.38 | 1.53 | 20.24 | 19.28 | 18.68 | 20.19 | 19.30 | 18.76 |
| 1135 | 1.21 | 1.41 | 1.56 | 17.65 | 17.13 | 16.84 | 17.83 | 17.36 | 17.11 |
| 1140 | 1.24 | 1.43 | 1.58 | 16.57 | 16.32 | 16.22 | 16.90 | 16.71 | 16.66 |
| 1145 | 1.25 | 1.44 | 1.58 | 16.61 | 16.58 | 16.63 | 17.15 | 17.21 | 17.37 |
| 1150 | 1.24 | 1.43 | 1.57 | 17.80 | 17.98 | 18.16 | 18.74 | 19.13 | 19.56 |
| 1160 | 1.23 | 1.43 | 1.59 | 23.64 | 23.54 | 23.10 | 32.81 | 38.54 | 55.09 |
| 1165 | 1.27 | 1.48 | 1.65 | 23.09 | 22.13 | 21.12 | 28.25 | 26.40 | 24.79 |
| 1200 | 5.40 | 6.09 | 6.37 | 4.24 | 4.05 | 4.18 | 4.06 | 3.90 | 4.01 |
| 1220 | 17.19 | 17.82 | 18.00 | 0.70 | 0.79 | 0.87 | 0.68 | 0.77 | 0.84 |
| 1245 | 29.31 | 29.81 | 29.90 | 0.31 | 0.39 | 0.44 | 0.31 | 0.39 | 0.43 |
| 1400 | 60.56 | 60.54 | 60.46 | 0.17 | 0.22 | 0.25 | 0.17 | 0.22 | 0.25 |
| 1500 | 58.44 | 58.52 | 58.36 | 0.16 | 0.22 | 0.24 | 0.17 | 0.22 | 0.24 |
| 1550 | 58.47 | 58.51 | 58.32 | 0.17 | 0.22 | 0.25 | 0.16 | 0.22 | 0.24 |
| 1600 | 58.70 | 58.75 | 58.64 | 0.17 | 0.23 | 0.25 | 0.17 | 0.23 | 0.25 |
| 1650 | 58.61 | 58.81 | 58.64 | 0.18 | 0.23 | 0.26 | 0.18 | 0.23 | 0.26 |
| 1700 | 58.59 | 58.55 | 58.50 | 0.19 | 0.24 | 0.27 | 0.17 | 0.23 | 0.26 |
| 1750 | 58.56 | 58.55 | 58.43 | 0.18 | 0.24 | 0.28 | 0.18 | 0.23 | 0.26 |
| 1800 | 57.99 | 58.07 | 58.07 | 0.18 | 0.24 | 0.28 | 0.17 | 0.23 | 0.26 |
| 1850 | 58.31 | 58.50 | 58.32 | 0.18 | 0.25 | 0.28 | 0.17 | 0.23 | 0.26 |
| 1900 | 58.44 | 58.60 | 58.60 | 0.19 | 0.26 | 0.29 | 0.18 | 0.24 | 0.27 |
| 2000 | 60.98 | 60.92 | 60.73 | 0.18 | 0.26 | 0.30 | 0.17 | 0.24 | 0.28 |
| 2050 | 60.86 | 60.79 | 60.56 | 0.18 | 0.26 | 0.30 | 0.17 | 0.24 | 0.28 |
| 2100 | 61.08 | 61.17 | 60.91 | 0.18 | 0.26 | 0.30 | 0.16 | 0.24 | 0.28 |

Typical Performance Data

| FREQ. (MHz) | GROUP DELAY | | |
|--------------------|-------------|--------|--------|
| | (nsec) | | |
| | @-40°C | @+25°C | @+85°C |
| 1085 | 10.24 | 10.15 | 10.07 |
| 1090 | 9.75 | 9.66 | 9.60 |
| 1095 | 9.32 | 9.26 | 9.21 |
| 1100 | 9.00 | 8.97 | 8.94 |
| 1105 | 8.81 | 8.79 | 8.77 |
| 1107 | 8.76 | 8.75 | 8.73 |
| 1109 | 8.72 | 8.71 | 8.69 |
| 1110 | 8.70 | 8.70 | 8.68 |
| 1115 | 8.64 | 8.64 | 8.61 |
| 1120 | 8.59 | 8.57 | 8.54 |
| 1125 | 8.52 | 8.49 | 8.45 |
| 1126 | 8.50 | 8.47 | 8.43 |
| 1127 | 8.48 | 8.46 | 8.41 |
| 1128 | 8.46 | 8.44 | 8.39 |
| 1129 | 8.45 | 8.42 | 8.38 |
| 1130 | 8.43 | 8.40 | 8.36 |
| 1135 | 8.36 | 8.34 | 8.31 |
| 1136 | 8.35 | 8.34 | 8.30 |
| 1137 | 8.35 | 8.33 | 8.30 |
| 1138 | 8.34 | 8.34 | 8.30 |
| 1139 | 8.34 | 8.34 | 8.31 |
| 1140 | 8.35 | 8.35 | 8.32 |
| 1141 | 8.35 | 8.36 | 8.33 |
| 1142 | 8.36 | 8.37 | 8.35 |
| 1143 | 8.38 | 8.39 | 8.37 |
| 1144 | 8.40 | 8.41 | 8.39 |
| 1145 | 8.42 | 8.44 | 8.42 |
| 1146 | 8.45 | 8.47 | 8.45 |
| 1147 | 8.48 | 8.50 | 8.49 |
| 1150 | 8.59 | 8.62 | 8.61 |
| 1151 | 8.63 | 8.67 | 8.66 |
| 1152 | 8.68 | 8.72 | 8.71 |
| 1153 | 8.73 | 8.77 | 8.76 |
| 1154 | 8.78 | 8.82 | 8.81 |
| 1155 | 8.83 | 8.88 | 8.87 |
| 1160 | 9.12 | 9.17 | 9.15 |
| 1161 | 9.18 | 9.23 | 9.21 |
| 1162 | 9.24 | 9.29 | 9.27 |
| 1163 | 9.30 | 9.35 | 9.33 |
| 1165 | 9.42 | 9.48 | 9.45 |

Typical Performance Curves





Dimensions are in inches [mm]. Tolerances: 2 Pl \pm .03; 3 Pl \pm .015

Notes:

1. Case material: Nickel-Silver alloy.
2. Base: Printed wiring laminate.
3. Unit Weight: 1 gram
4. Termination finish:
For RoHS Case Styles: 2-5 μ inch (.05-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
All models, (+) suffix.



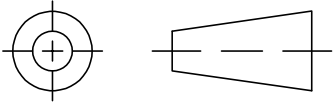
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

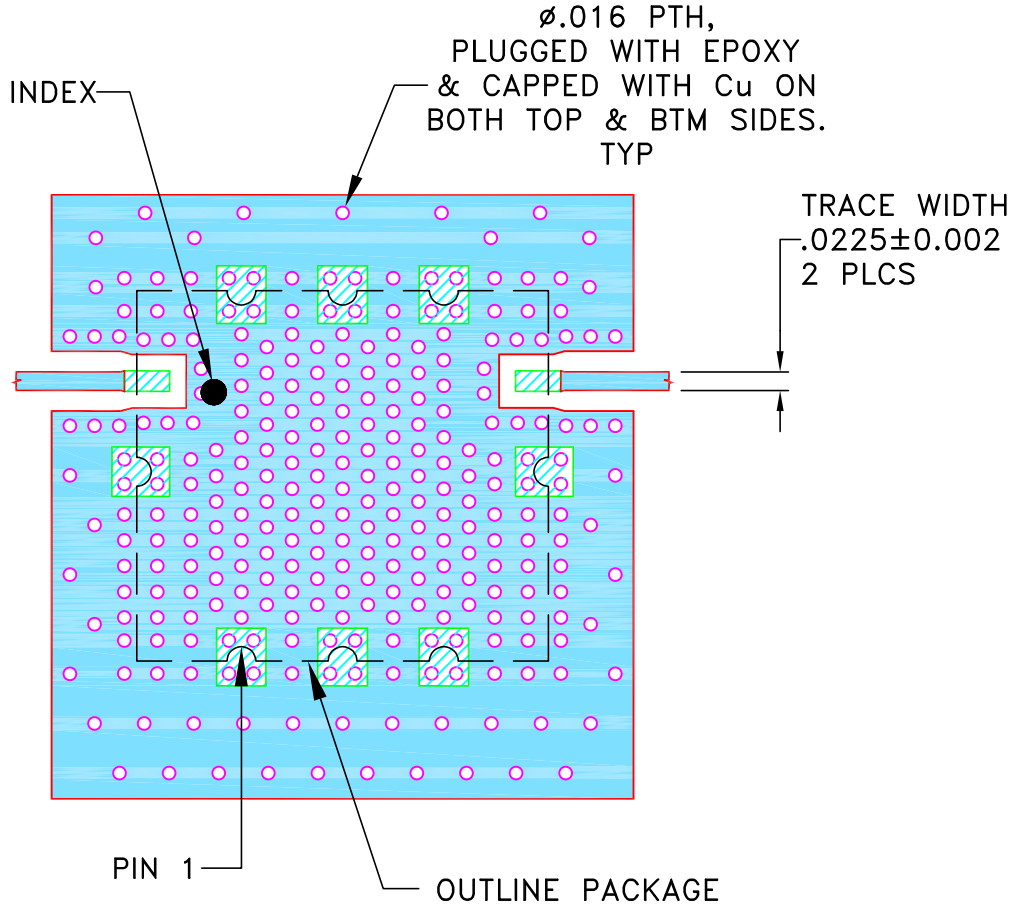
THIRD ANGLE PROJECTION



REVISIONS

| REV | ECN No. | DESCRIPTION | DATE | DR | AUTH |
|-----|------------|-------------|--------|----|------|
| OR | NPO-004638 | NEW RELEASE | SEP 24 | SS | VR |
| | | | | | |
| | | | | | |

SUGGESTED MOUNTING CONFIGURATION
FOR CASE STYLE BAH3507



NOTES:

- TRACE WIDTH ARE SHOWN FOR ROGERS (R04350B) WITH DIELECTRIC THICKNESS $.010 \pm .001$ 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 PATTERN WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES PCB COPPER PATTERN FREE OF SOLDERMASK

| UNLESS OTHERWISE SPECIFIED | INITIALS | DATE |
|----------------------------|--------------|-----------|
| DIMENSIONS ARE IN INCHES | DRAWN SS | 09 SEP 24 |
| TOLERANCES ON: | CHECKED LK | 09 SEP 24 |
| 2 PL DECIMALS ± | APPROVED KSK | 09 SEP 24 |
| 3 PL DECIMALS ± .005 | | |
| ANGLES ± | | |
| FRACTIONS ± | | |

Mini-Circuits[®] 13 Neptune Avenue
Brooklyn NY 11235

PL DWG, BAH3507, TB-1265

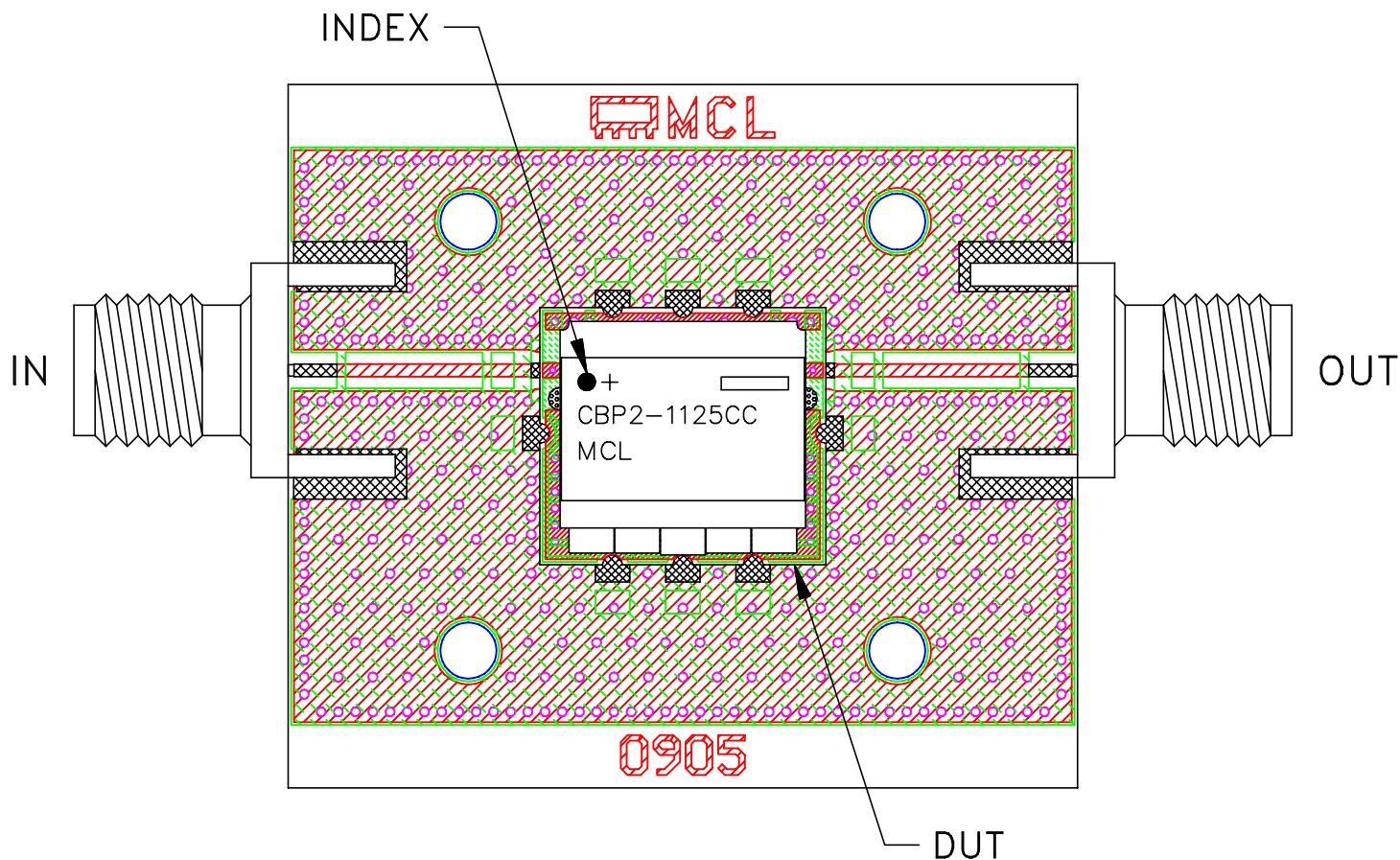
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ASHEETA1.DWG REV:A DATE:01/12/95

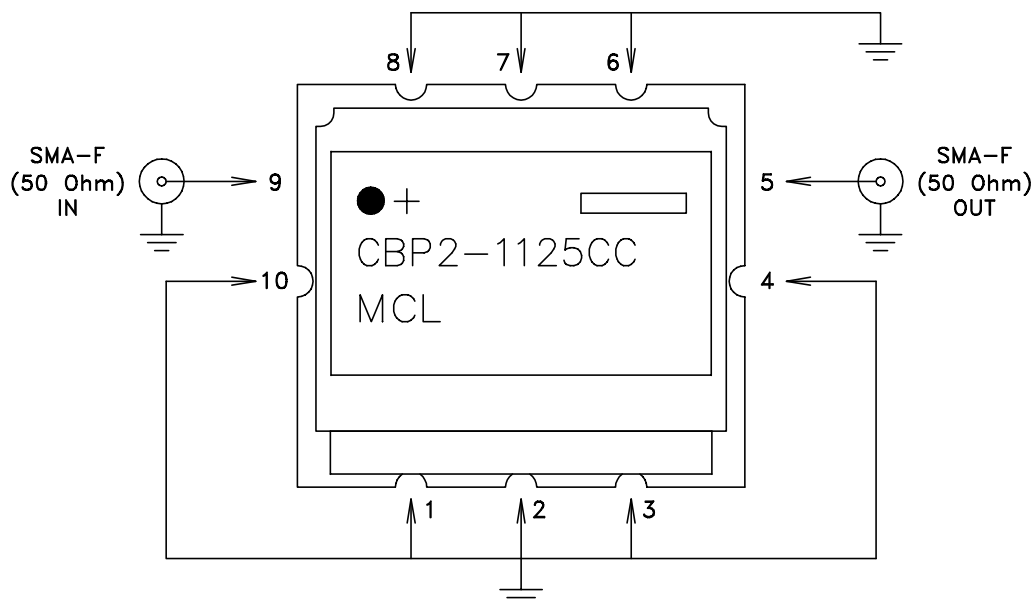
| | | | |
|-----------------|---------------------|--------------------------|------------|
| SIZE A | CODE IDENT 15542 | DRAWING NO: 98-PL-794 | REV: OR |
| FILE: 98-PL-794 | SCALE: 3.5:1 | SHEET: 1 OF 1 | |

Evaluation Board and Circuit

TB-CBP2-1125CC+




Schematic diagram



Notes:

1. PCB Material: ROGERS (R04350B) OR Equivalent, Dielectric Constant=3.48
Thickness=.010 inch
2. 50 Ohm SMA Female Connector.

 Mini-Circuits®

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|----------------------------|---|---|
| Operating Temperature | -40° to 85°C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C Ambient Environment | Individual Model Data Sheet |
| Humidity | 90 to 95% RH, 96 hours, 40°C | MIL-STD-202, Method 103B, Condition B, Except 50°C |
| Thermal Shock | -55° to 100°C, 100 cycles | MIL-STD-202, Method 107, Condition A-3, except +100°C |
| Solder Reflow Heat | Sn-Pb Eutectic Process: 225°C peak Pb-Free Process, 245°C peak | J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1 |
| Solderability | 10X Magnification | J-STD-002, Para 4.2.5, Test S, 95% Coverage |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 4 times in each of three axes (total 12) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock | 50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes | MIL-STD-202, Method 213, Condition A |