

Surface Mount Bandpass Filter

CBP-1280F+

50Ω 1160 to 1400 MHz



Generic photo used for illustration purposes only
CASE STYLE: KV1710

The Big Deal

- High Q
- Good selectivity
- Low VSWR
- Small shielded package

Product Overview

CBP-1280F+ is a coaxial-ceramic-resonator based bandpass filter in a shielded package fabricated using SMT technology. This filter has low insertion loss with high rejection and low VSWR for use in L-band application, Aviation / Aeronautical, defence systems and radio astronomy.

Key Features

| Feature | Advantages |
|---------------------|--|
| High Q | The CBP-1280F+ filter incorporates High-Q ceramic resonators that enables low insertion loss. |
| Good selectivity | This filter designed with six pole. So this providing good selectivity in the stopband performance. |
| Low VSWR | This filter maintains typical VSWR over a passband frequency range. |
| Rugged construction | The CBP-1280F+ 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



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Features

- High Q
- Good selectivity
- Low VSWR
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Applications

- L-band application
- Aviation/Aeronautical
- Defence systems
- Radio astronomy

Electrical Specifications at 25°C

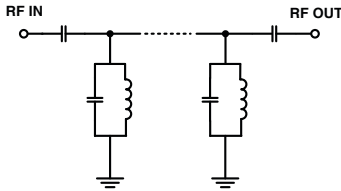
| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit | |
|------------------|------------------|-----------------|-----------|------|------|------|----|
| Pass Band | Center Frequency | - | - | 1280 | - | MHz | |
| | Insertion Loss | F1-F2 | 1160-1400 | - | 1.0 | 2.0 | dB |
| | VSWR | F1-F2 | 1160-1400 | - | 1.5 | 1.9 | :1 |
| Stop Band, Lower | Insertion Loss | DC-F3 | DC-1000 | 20 | 30 | - | dB |
| | VSWR | DC-F3 | DC-1000 | - | 20 | - | :1 |
| Stop Band, Upper | Insertion Loss | F4-F5 | 1570-2100 | 20 | 30 | - | dB |
| | VSWR | F4-F5 | 1570-2100 | - | 20 | - | :1 |

Maximum Ratings

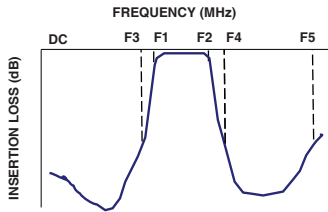
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input | 1 W max. |

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

Functional Schematic



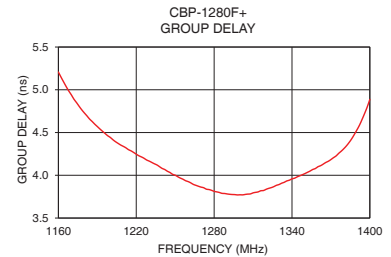
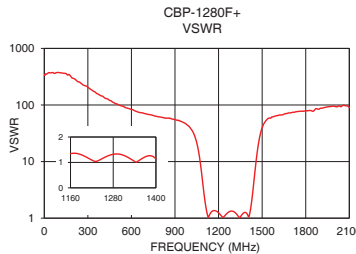
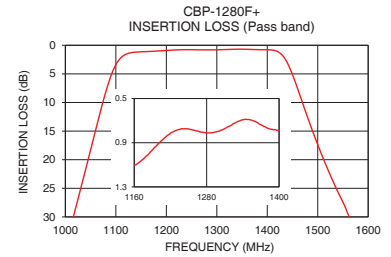
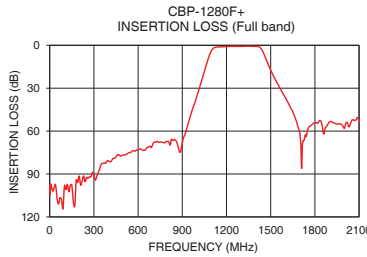
Typical Frequency Response



Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|-----------|-----------------|--------------------|
| 1 | 96.75 | 340.69 | 1160 | 5.21 |
| 100 | 98.16 | 374.91 | 1170 | 4.94 |
| 500 | 76.83 | 104.83 | 1180 | 4.73 |
| 1000 | 35.23 | 40.81 | 1190 | 4.57 |
| 1015 | 30.23 | 36.27 | 1200 | 4.44 |
| 1045 | 20.00 | 23.79 | 1210 | 4.34 |
| 1055 | 16.53 | 18.82 | 1220 | 4.25 |
| 1080 | 8.16 | 7.28 | 1230 | 4.17 |
| 1100 | 3.39 | 2.66 | 1240 | 4.08 |
| 1160 | 1.11 | 1.34 | 1250 | 4.00 |
| 1280 | 0.81 | 1.32 | 1260 | 3.93 |
| 1400 | 0.79 | 1.14 | 1270 | 3.86 |
| 1440 | 3.12 | 3.72 | 1280 | 3.81 |
| 1480 | 12.62 | 24.83 | 1290 | 3.78 |
| 1510 | 19.60 | 45.76 | 1300 | 3.77 |
| 1560 | 29.53 | 58.87 | 1320 | 3.84 |
| 1570 | 31.31 | 61.35 | 1340 | 3.96 |
| 1500 | 17.38 | 39.61 | 1360 | 4.10 |
| 2000 | 58.12 | 94.37 | 1380 | 4.31 |
| 2100 | 52.14 | 90.80 | 1400 | 4.89 |

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



Notes

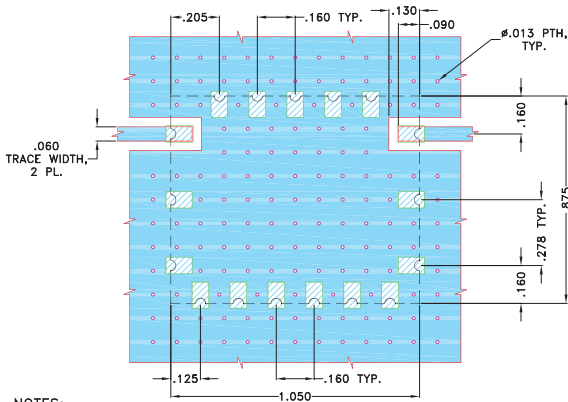
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Pad Connections

| | |
|--------|--------------------------------------|
| INPUT | 1 |
| OUTPUT | 12 |
| GROUND | 2,3,4,5,6,7,8,9,10,11,13,14,15,16,17 |

Demo Board MCL P/N: TB-693+
Suggested PCB Layout (PL-378)

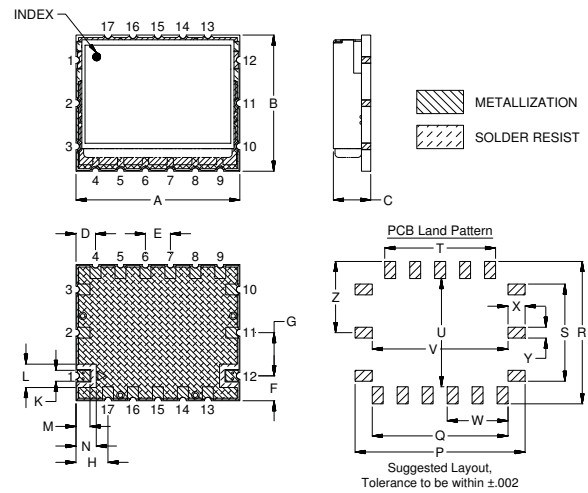


NOTES:

- 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



Outline Dimensions (inch / mm)

| | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|------|------|------|-------|-------|------|
| A | B | C | D | E | F | G | H | J | K | L | M | N |
| 1.050 | .875 | .239 | .125 | .160 | .160 | .278 | .205 | .160 | .070 | .150 | .090 | .130 |
| 26.67 | 22.23 | 6.07 | 3.18 | 4.06 | 4.06 | 7.06 | 5.21 | 4.06 | 1.78 | 3.81 | 2.29 | 3.30 |
| P | Q | R | S | T | U | V | W | X | Y | Z | Wt. | |
| 1.090 | .870 | .915 | .625 | .710 | .695 | .870 | .390 | .110 | .070 | .458 | grams | |
| 27.69 | 22.10 | 23.24 | 15.88 | 18.03 | 17.65 | 22.10 | 9.91 | 2.79 | 1.78 | 11.63 | 8.5 | |

Note: Please refer to case style drawing for details

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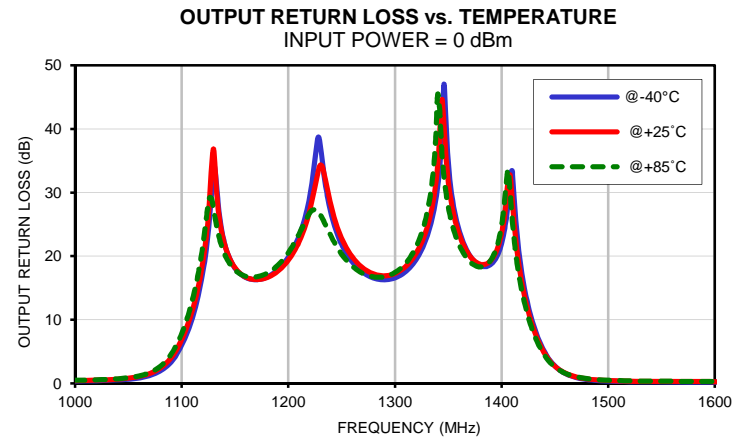
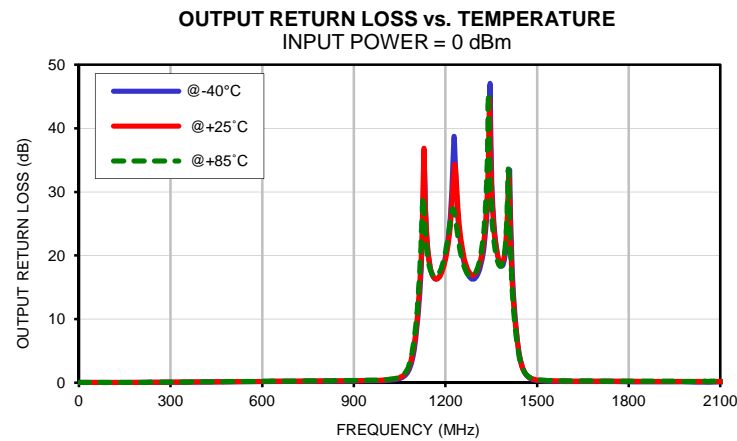
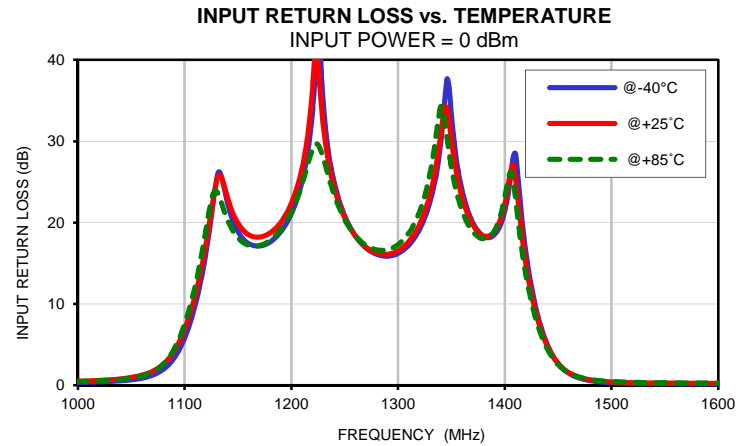
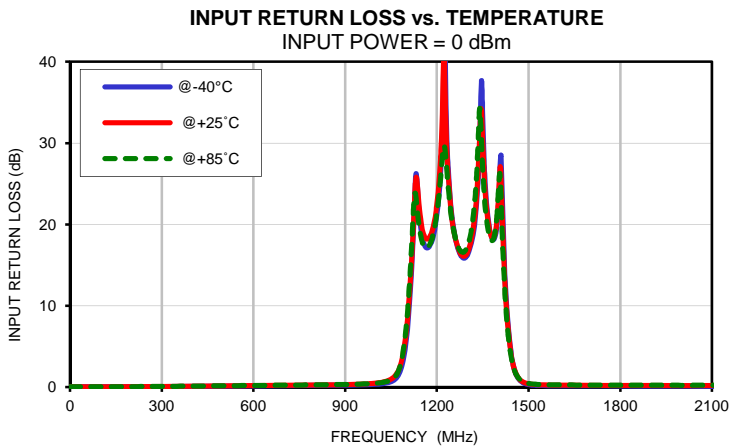
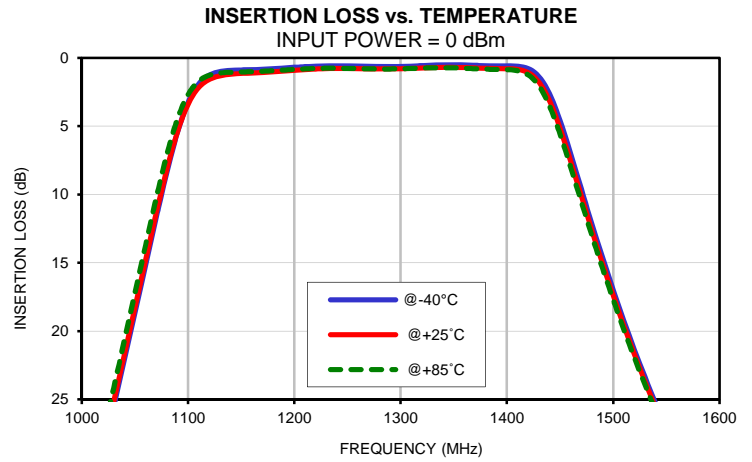
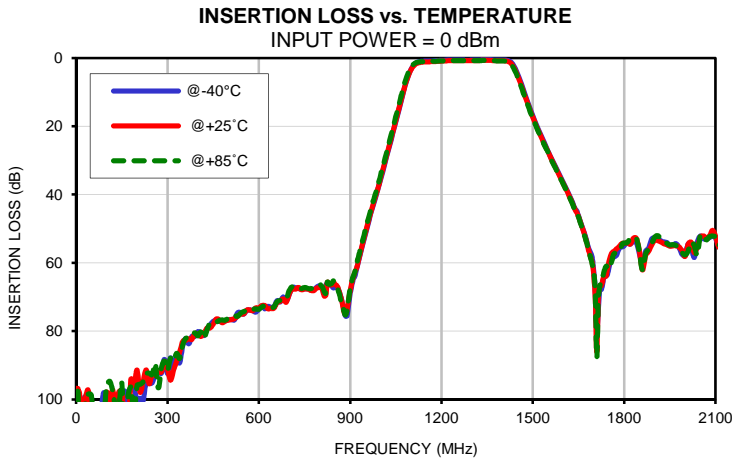
Typical Performance Data

| 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 |
| 1 | 103.64 | 96.75 | 110.84 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 10 | 104.72 | 97.77 | 104.07 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 50 | 104.40 | 107.30 | 98.84 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 | 0.04 |
| 100 | 101.62 | 98.16 | 96.16 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 |
| 500 | 76.66 | 76.83 | 76.22 | 0.12 | 0.15 | 0.16 | 0.14 | 0.17 | 0.18 |
| 750 | 67.65 | 67.64 | 67.22 | 0.20 | 0.24 | 0.26 | 0.23 | 0.27 | 0.29 |
| 900 | 68.92 | 68.20 | 67.55 | 0.25 | 0.31 | 0.33 | 0.26 | 0.31 | 0.34 |
| 950 | 51.64 | 51.18 | 50.35 | 0.28 | 0.37 | 0.38 | 0.29 | 0.35 | 0.38 |
| 1000 | 35.59 | 35.23 | 34.32 | 0.35 | 0.49 | 0.47 | 0.35 | 0.43 | 0.47 |
| 1010 | 32.27 | 31.90 | 30.96 | 0.38 | 0.54 | 0.51 | 0.37 | 0.46 | 0.51 |
| 1015 | 30.61 | 30.23 | 29.28 | 0.40 | 0.57 | 0.54 | 0.39 | 0.48 | 0.53 |
| 1030 | 25.54 | 25.16 | 24.16 | 0.47 | 0.68 | 0.63 | 0.45 | 0.57 | 0.62 |
| 1040 | 22.12 | 21.73 | 20.70 | 0.54 | 0.80 | 0.73 | 0.53 | 0.66 | 0.72 |
| 1045 | 20.39 | 20.00 | 18.95 | 0.60 | 0.88 | 0.80 | 0.58 | 0.73 | 0.79 |
| 1050 | 18.65 | 18.27 | 17.19 | 0.67 | 0.97 | 0.88 | 0.65 | 0.81 | 0.88 |
| 1060 | 15.16 | 14.79 | 13.69 | 0.87 | 1.25 | 1.15 | 0.85 | 1.07 | 1.16 |
| 1070 | 11.69 | 11.37 | 10.25 | 1.24 | 1.72 | 1.64 | 1.23 | 1.53 | 1.68 |
| 1080 | 8.37 | 8.16 | 7.08 | 1.95 | 2.59 | 2.60 | 1.95 | 2.40 | 2.67 |
| 1090 | 5.46 | 5.41 | 4.46 | 3.32 | 4.16 | 4.41 | 3.36 | 4.02 | 4.56 |
| 1100 | 3.25 | 3.39 | 2.67 | 5.81 | 6.87 | 7.52 | 5.95 | 6.86 | 7.84 |
| 1140 | 0.91 | 1.20 | 1.05 | 22.53 | 23.17 | 20.41 | 22.16 | 21.97 | 20.44 |
| 1150 | 0.88 | 1.14 | 1.03 | 18.86 | 19.89 | 18.13 | 18.10 | 18.16 | 17.81 |
| 1160 | 0.86 | 1.11 | 1.00 | 17.42 | 18.50 | 17.23 | 16.65 | 16.71 | 16.84 |
| 1280 | 0.63 | 0.81 | 0.81 | 16.10 | 16.27 | 16.66 | 16.56 | 17.21 | 16.75 |
| 1400 | 0.58 | 0.79 | 0.86 | 21.39 | 22.23 | 23.07 | 22.03 | 23.61 | 24.87 |
| 1420 | 0.78 | 1.08 | 1.25 | 16.14 | 14.85 | 13.46 | 16.28 | 14.94 | 13.72 |
| 1430 | 1.36 | 1.76 | 2.04 | 9.07 | 8.52 | 7.79 | 9.10 | 8.53 | 7.88 |
| 1440 | 2.62 | 3.12 | 3.50 | 4.98 | 4.79 | 4.42 | 5.01 | 4.79 | 4.48 |
| 1450 | 4.59 | 5.14 | 5.59 | 2.69 | 2.68 | 2.53 | 2.71 | 2.69 | 2.57 |
| 1480 | 12.15 | 12.62 | 13.01 | 0.57 | 0.68 | 0.71 | 0.60 | 0.70 | 0.74 |
| 1500 | 16.98 | 17.38 | 17.69 | 0.31 | 0.41 | 0.46 | 0.34 | 0.44 | 0.48 |
| 1510 | 19.23 | 19.60 | 19.87 | 0.26 | 0.36 | 0.40 | 0.29 | 0.38 | 0.42 |
| 1520 | 21.36 | 21.70 | 21.95 | 0.22 | 0.31 | 0.36 | 0.26 | 0.35 | 0.39 |
| 1550 | 27.30 | 27.43 | 27.63 | 0.20 | 0.27 | 0.31 | 0.23 | 0.29 | 0.33 |
| 1560 | 29.26 | 29.53 | 29.76 | 0.18 | 0.26 | 0.30 | 0.22 | 0.30 | 0.33 |
| 1570 | 31.03 | 31.31 | 31.52 | 0.18 | 0.25 | 0.29 | 0.21 | 0.28 | 0.32 |
| 1580 | 32.83 | 33.14 | 33.30 | 0.18 | 0.25 | 0.28 | 0.21 | 0.28 | 0.31 |
| 1600 | 36.48 | 36.80 | 36.96 | 0.17 | 0.24 | 0.27 | 0.20 | 0.27 | 0.30 |
| 1620 | 40.25 | 40.53 | 40.72 | 0.17 | 0.24 | 0.27 | 0.20 | 0.26 | 0.29 |
| 1640 | 44.45 | 44.70 | 44.98 | 0.17 | 0.23 | 0.27 | 0.20 | 0.26 | 0.28 |
| 1660 | 48.89 | 49.09 | 49.38 | 0.16 | 0.23 | 0.26 | 0.19 | 0.25 | 0.28 |
| 1680 | 54.70 | 55.11 | 55.22 | 0.16 | 0.22 | 0.25 | 0.18 | 0.24 | 0.27 |
| 1700 | 62.42 | 63.65 | 62.63 | 0.16 | 0.22 | 0.25 | 0.18 | 0.24 | 0.27 |
| 1720 | 67.59 | 66.66 | 66.88 | 0.15 | 0.22 | 0.25 | 0.18 | 0.23 | 0.27 |
| 1740 | 63.83 | 63.94 | 61.06 | 0.16 | 0.22 | 0.25 | 0.17 | 0.23 | 0.26 |
| 1760 | 58.75 | 57.04 | 59.13 | 0.15 | 0.21 | 0.24 | 0.17 | 0.22 | 0.26 |
| 1780 | 56.54 | 55.50 | 56.73 | 0.15 | 0.21 | 0.24 | 0.17 | 0.22 | 0.25 |
| 1800 | 54.95 | 54.35 | 54.21 | 0.14 | 0.21 | 0.24 | 0.17 | 0.22 | 0.26 |
| 1820 | 54.50 | 54.50 | 52.90 | 0.14 | 0.21 | 0.24 | 0.16 | 0.22 | 0.25 |
| 1840 | 54.13 | 52.85 | 52.86 | 0.14 | 0.21 | 0.24 | 0.16 | 0.22 | 0.25 |
| 1860 | 60.12 | 62.11 | 62.05 | 0.14 | 0.21 | 0.24 | 0.15 | 0.21 | 0.25 |
| 1880 | 55.74 | 56.68 | 55.97 | 0.13 | 0.20 | 0.23 | 0.15 | 0.20 | 0.23 |
| 1900 | 52.67 | 53.43 | 52.53 | 0.13 | 0.20 | 0.23 | 0.14 | 0.20 | 0.23 |
| 1920 | 53.53 | 53.85 | 52.99 | 0.13 | 0.20 | 0.23 | 0.14 | 0.20 | 0.23 |
| 1940 | 54.04 | 54.71 | 54.28 | 0.13 | 0.20 | 0.23 | 0.13 | 0.19 | 0.22 |
| 1960 | 54.77 | 55.03 | 54.65 | 0.12 | 0.19 | 0.23 | 0.12 | 0.19 | 0.22 |
| 2000 | 57.76 | 58.12 | 57.68 | 0.11 | 0.18 | 0.22 | 0.12 | 0.18 | 0.21 |
| 2020 | 55.21 | 53.99 | 54.00 | 0.11 | 0.18 | 0.22 | 0.12 | 0.19 | 0.22 |
| 2040 | 53.94 | 55.31 | 57.74 | 0.12 | 0.18 | 0.23 | 0.12 | 0.19 | 0.22 |
| 2100 | 52.76 | 52.14 | 52.46 | 0.10 | 0.19 | 0.23 | 0.13 | 0.19 | 0.24 |

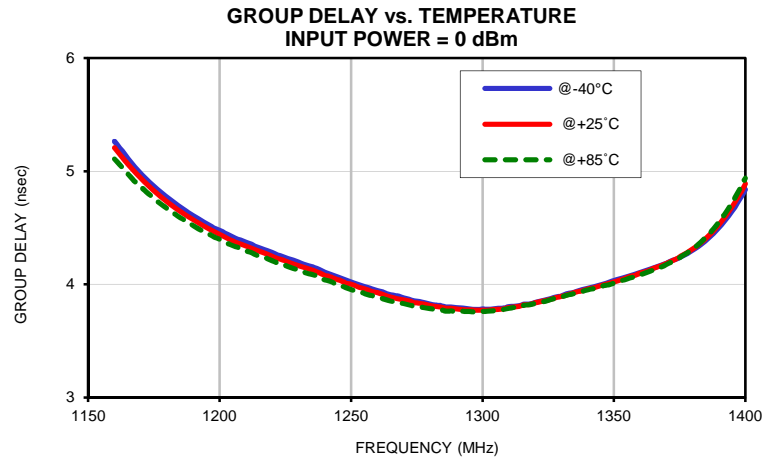
Typical Performance Data

| FREQ. (MHz) | GROUP DELAY | | |
|--------------------|-------------|--------|--------|
| | (nsec) | | |
| | @-40°C | @+25°C | @+85°C |
| 1160 | 5.26 | 5.21 | 5.11 |
| 1164 | 5.15 | 5.09 | 5.00 |
| 1168 | 5.03 | 4.99 | 4.90 |
| 1172 | 4.93 | 4.89 | 4.82 |
| 1176 | 4.85 | 4.81 | 4.74 |
| 1180 | 4.77 | 4.73 | 4.67 |
| 1184 | 4.70 | 4.66 | 4.60 |
| 1188 | 4.63 | 4.60 | 4.55 |
| 1192 | 4.58 | 4.54 | 4.49 |
| 1196 | 4.52 | 4.49 | 4.44 |
| 1200 | 4.48 | 4.44 | 4.40 |
| 1204 | 4.43 | 4.39 | 4.35 |
| 1208 | 4.39 | 4.35 | 4.32 |
| 1212 | 4.36 | 4.32 | 4.28 |
| 1216 | 4.32 | 4.29 | 4.24 |
| 1220 | 4.28 | 4.25 | 4.21 |
| 1224 | 4.25 | 4.21 | 4.18 |
| 1228 | 4.21 | 4.18 | 4.14 |
| 1232 | 4.18 | 4.15 | 4.11 |
| 1236 | 4.15 | 4.12 | 4.08 |
| 1240 | 4.11 | 4.08 | 4.04 |
| 1244 | 4.07 | 4.05 | 4.00 |
| 1248 | 4.04 | 4.01 | 3.97 |
| 1252 | 4.00 | 3.98 | 3.94 |
| 1256 | 3.97 | 3.95 | 3.91 |
| 1260 | 3.95 | 3.93 | 3.89 |
| 1264 | 3.91 | 3.89 | 3.86 |
| 1268 | 3.90 | 3.87 | 3.84 |
| 1272 | 3.87 | 3.85 | 3.82 |
| 1276 | 3.85 | 3.83 | 3.80 |
| 1280 | 3.83 | 3.81 | 3.78 |
| 1284 | 3.81 | 3.80 | 3.78 |
| 1288 | 3.80 | 3.79 | 3.76 |
| 1292 | 3.79 | 3.78 | 3.76 |
| 1296 | 3.78 | 3.77 | 3.76 |
| 1300 | 3.78 | 3.77 | 3.76 |
| 1304 | 3.78 | 3.78 | 3.77 |
| 1308 | 3.79 | 3.78 | 3.78 |
| 1312 | 3.81 | 3.80 | 3.80 |
| 1316 | 3.82 | 3.82 | 3.81 |
| 1320 | 3.84 | 3.84 | 3.83 |
| 1324 | 3.86 | 3.86 | 3.85 |
| 1328 | 3.89 | 3.88 | 3.88 |
| 1332 | 3.92 | 3.91 | 3.90 |
| 1336 | 3.94 | 3.93 | 3.93 |
| 1340 | 3.96 | 3.96 | 3.95 |
| 1344 | 3.99 | 3.98 | 3.97 |
| 1348 | 4.02 | 4.01 | 4.00 |
| 1352 | 4.05 | 4.04 | 4.03 |
| 1356 | 4.08 | 4.07 | 4.05 |
| 1360 | 4.10 | 4.10 | 4.08 |
| 1364 | 4.14 | 4.13 | 4.12 |
| 1368 | 4.17 | 4.16 | 4.15 |
| 1372 | 4.21 | 4.21 | 4.20 |
| 1376 | 4.25 | 4.26 | 4.25 |
| 1380 | 4.30 | 4.31 | 4.31 |
| 1384 | 4.37 | 4.38 | 4.39 |
| 1388 | 4.45 | 4.48 | 4.49 |
| 1392 | 4.56 | 4.59 | 4.62 |
| 1400 | 4.84 | 4.89 | 4.94 |

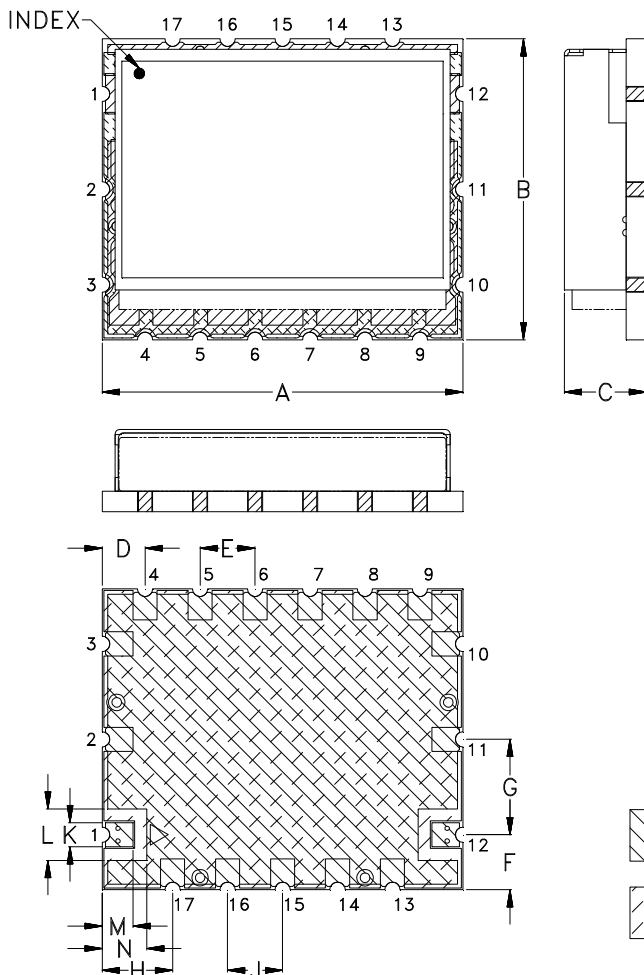
Typical Performance Curves



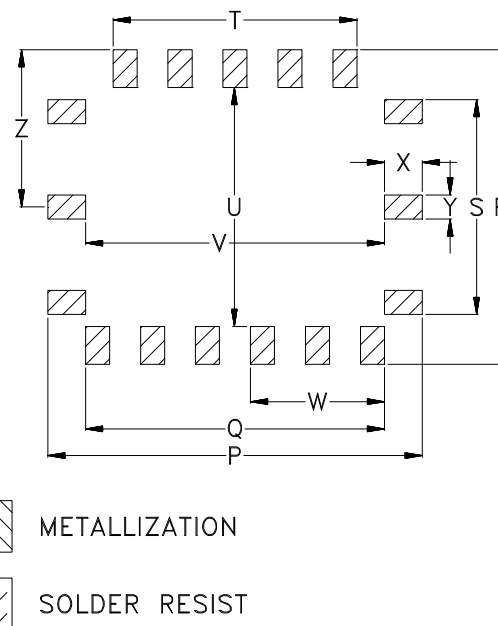
Typical Performance Curves



Outline Dimensions



SUGGESTED PCB LAND PATTERN



| CASE# | A | B | C | D | E | F | G | H | J | K | L | M | N |
|--------|------------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| KV1710 | 1.050 (26.67) | .875 (22.23) | .239 (6.07) | .125 (3.18) | .160 (4.06) | .160 (4.06) | .278 (7.06) | .205 (5.21) | .160 (4.06) | .070 (1.78) | .150 (3.81) | .090 (2.29) | .130 (3.30) |

| CASE# | P | Q | R | S | T | U | V | W | X | Y | Z | WT, GRAMS |
|--------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|-----------------|-----------|
| KV1710 | 1.090 (27.69) | .870 (22.10) | .915 (23.24) | .625 (15.88) | .710 (18.03) | .695 (17.65) | .870 (22.10) | .390 (9.91) | .110 (2.79) | .070 (1.78) | .458 (11.63) | 8.5 |

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

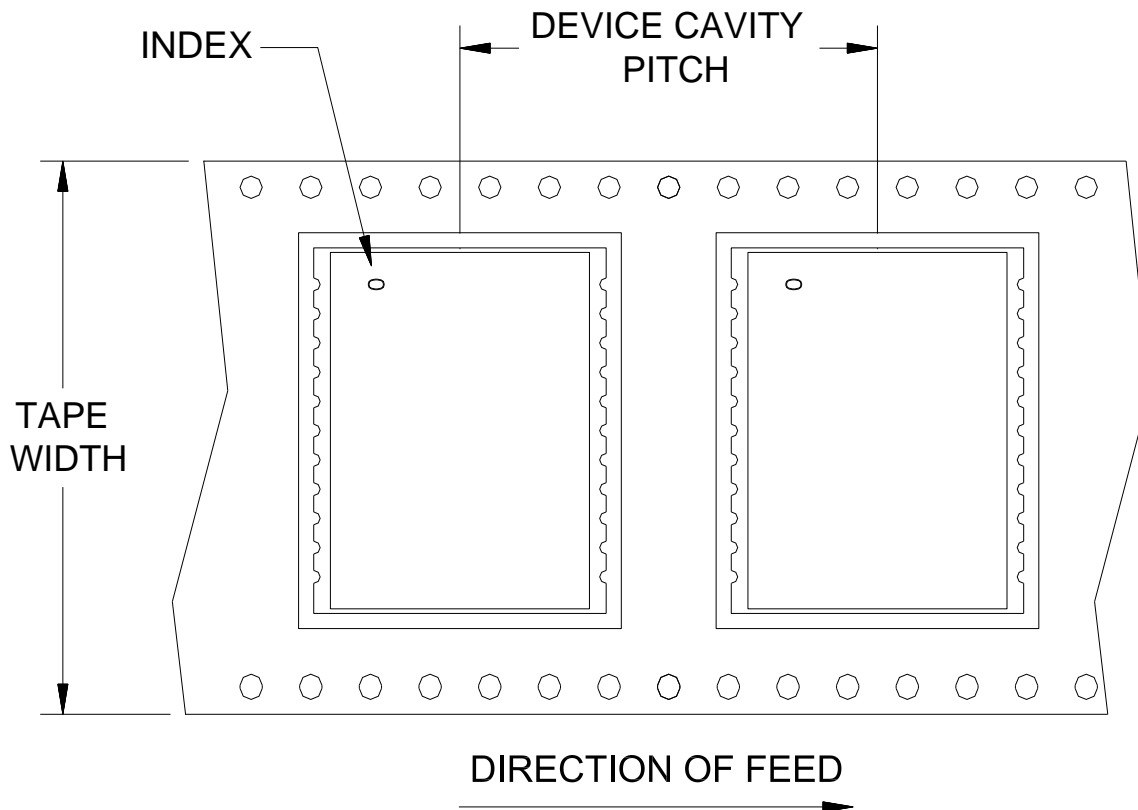
Notes:

1. Case material: Nickel-Silver alloy.
2. Base: Printed wiring laminate.
3. 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.

Tape & Reel Packaging TR-F97

DEVICE ORIENTATION IN T&R



| Tape Width, mm | Device Cavity Pitch, mm | Reel Size, inches | Devices per Reel | |
|----------------|-------------------------|-------------------|-------------------------------------|-----|
| 44 | 32 | 13 | Small quantity standards (see note) | 20 |
| | | | | 50 |
| | | | | 100 |
| | | | Standard | 200 |

Note: Please consult individual model data sheet to determine device per reel availability.

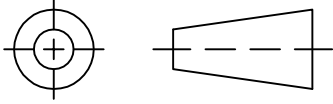
Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf



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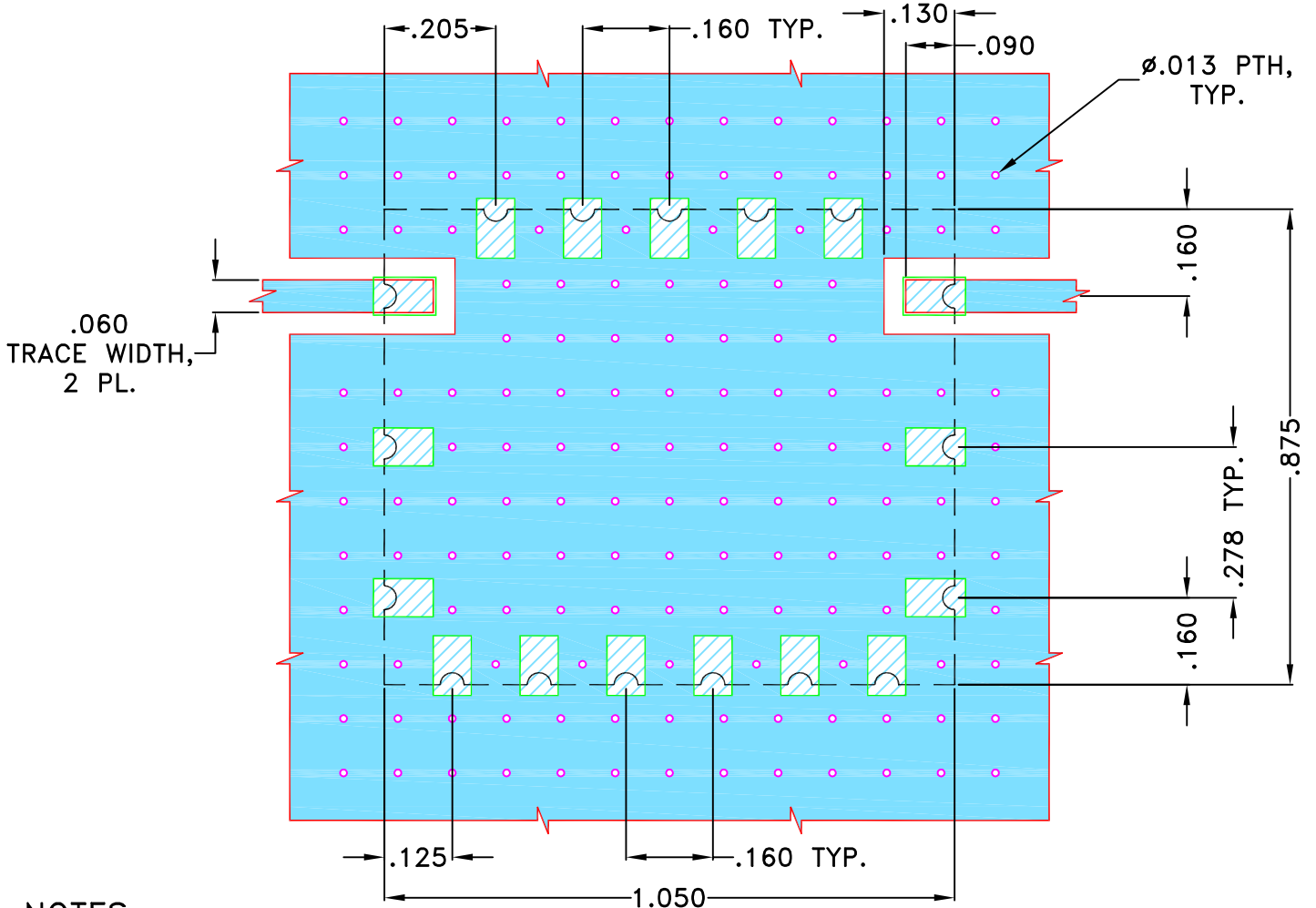
THIRD ANGLE PROJECTION



REVISIONS

| REV OR | ECN No. | DESCRIPTION | DATE | DR | AUTH |
|--------|---------|-------------|--------|-----|------|
| | M138032 | NEW RELEASE | JUL 12 | DDR | KG |
| | | | | | |
| | | | | | |

SUGGESTED MOUNTING CONFIGURATION FOR KV1710 CASE STYLE "17FL01" PIN CODE



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

| UNLESS OTHERWISE SPECIFIED | INITIALS | DATE |
|----------------------------|--------------|-----------|
| DIMENSIONS ARE IN INCHES | DRAWN: DDR | 17 JUL 12 |
| TOLERANCES ON: | CHECKED: DDR | 17 JUL 12 |
| 2 PL DECIMALS ± | APPROVED: GM | 17 JUL 12 |
| 3 PL DECIMALS ± .005" | | |
| ANGLES ± | | |
| FRACTIONS ± | | |



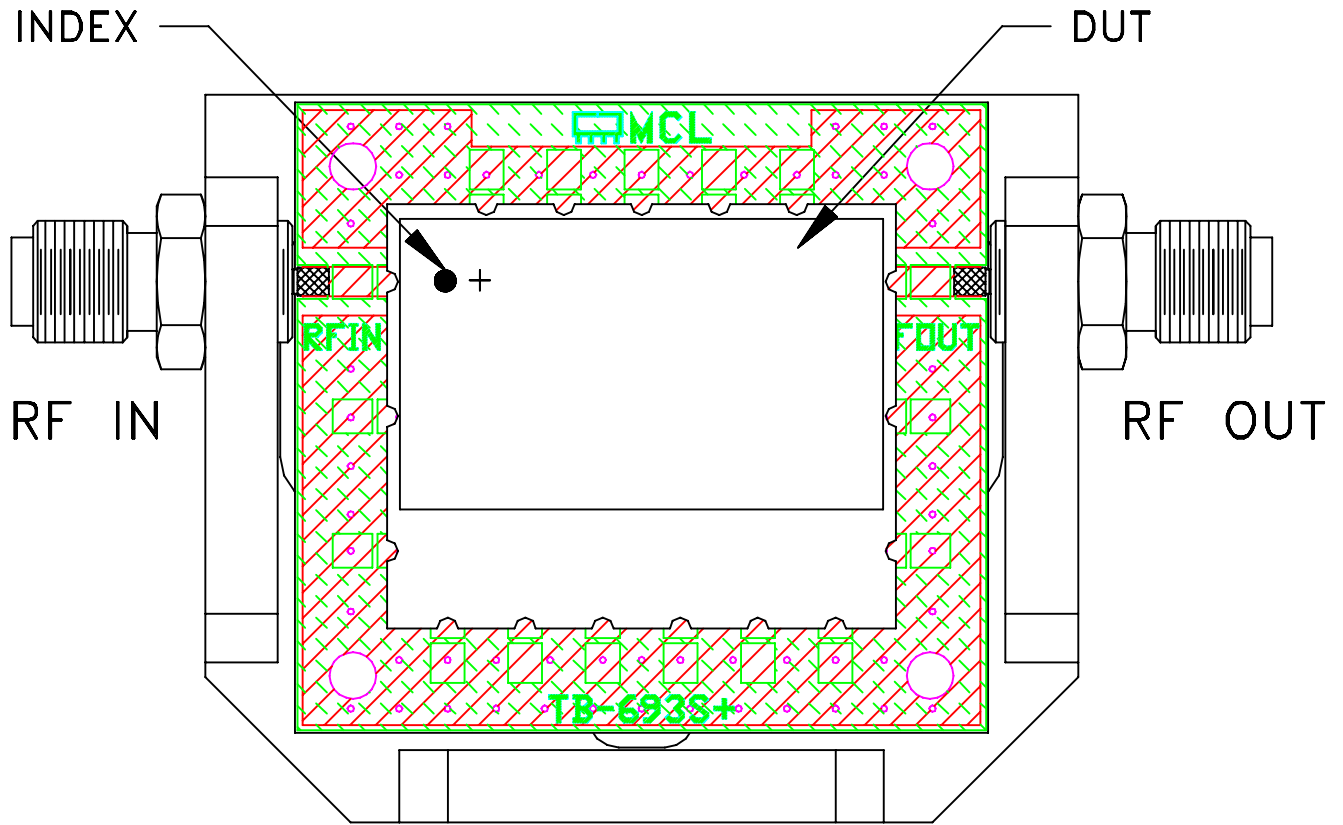
Mini-Circuits® 13 Neptune Avenue
Brooklyn NY 11235

**PL, 17FL01, KV1710, CSBP,
TB-693+, 50 Ohm**

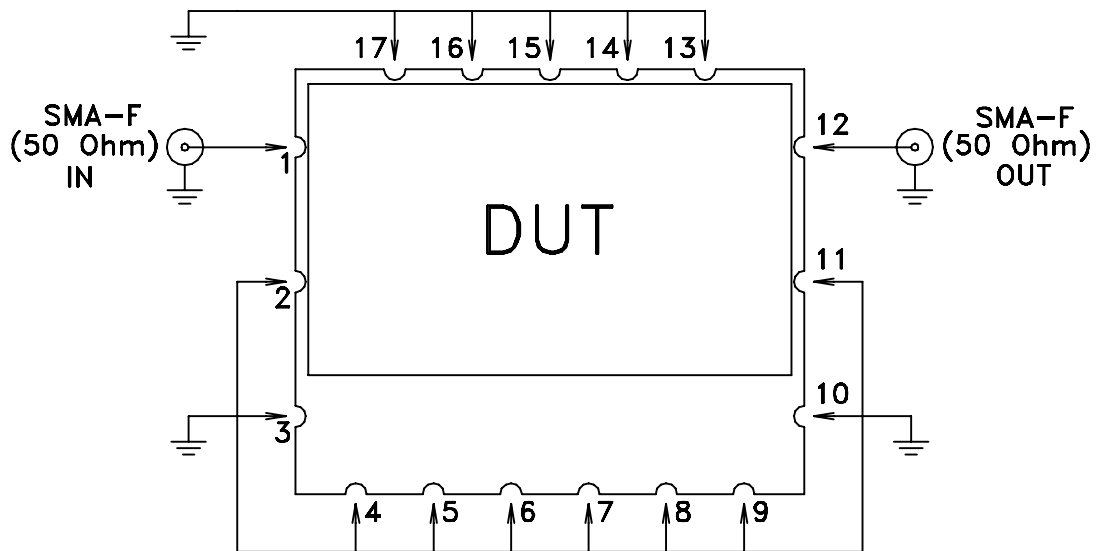
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| | | | |
|-------------------------|----------------------------|---------------------------------|-------------------|
| SIZE A | CODE IDENT 15542 | DRAWING NO: 98-PL-378 | REV: OR |
| FILE: 98PL378 | SCALE: 3:1 | SHEET: 1 OF 1 | |

Evaluation Board and Circuit




TB-693+



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: OAK-602 OR Equivalent
Dielectric Constant= $2.50 \pm .04$, Thickness=.022 inch.

 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 |