



SURFACE MOUNT

Power Splitter/Combiner

TCP-2-10-75+

Mini-Circuits

75Ω 2 Way-0° 5 to 1000 MHz

FEATURES

- Low insertion, 0.3 dB typ.
- Excellent amplitude unbalance, 0.2 dB typ.
- very good phase unbalance, 1.0 deg. typ.
- External resistor & capacitor required
- Aqueous washable
- Leads for excellent solderability
- Low cost



Generic photo used for illustration purposes only

CASE STYLE: DB714

+RoHS Compliant

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

APPLICATIONS

- CATV
- Cellular

ELECTRICAL SPECIFICATIONS AT 25°C

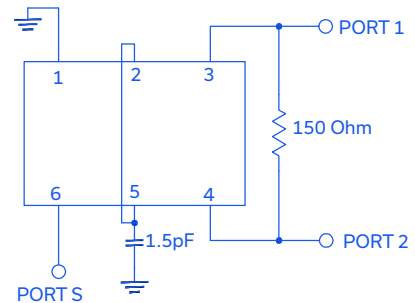
| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|------------------------------|-----------------|------|------|------|--------|
| Frequency Range | | 5 | | 1000 | MHz |
| Insertion Loss, above 3.0 dB | 5 - 50 | — | 0.3 | 1.4 | dB |
| | 50 - 500 | — | 0.3 | 0.9 | |
| | 500 - 1000 | — | 0.6 | 1.3 | |
| Isolation | 5 - 50 | 14 | 24 | — | dB |
| | 50 - 500 | 19 | 29 | — | |
| | 500 - 1000 | 16 | 30 | — | |
| Phase Unbalance | 5 - 50 | — | — | 6.0 | Degree |
| | 50 - 500 | — | — | 4.0 | |
| | 500 - 1000 | — | — | 3.0 | |
| Amplitude Unbalance | 5 - 50 | — | — | 1.2 | dB |
| | 50 - 500 | — | — | 0.6 | |
| | 500 - 1000 | — | — | 0.5 | |

MAXIMUM RATINGS

| Parameter | Ratings |
|------------------------------|----------------|
| Operating temperature | -40°C to 85°C |
| Storage temperature | -55°C to 100°C |
| RF Power Input (as splitter) | 0.5 W max. |

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

FUNCTIONAL SCHEMATIC



REV. K
ECO-012587
TCP-2-10-75+
DY/TD/CP/AM
220322





SURFACE MOUNT

Power Splitter/Combiner TCP-2-10-75+

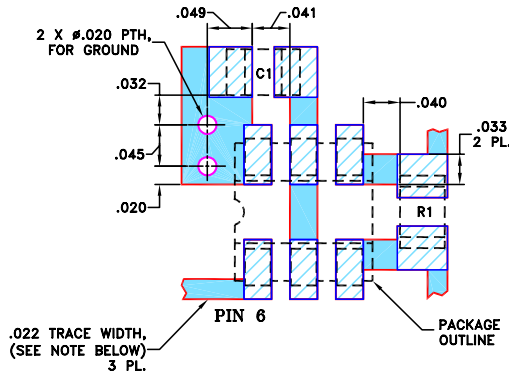
Mini-Circuits

PIN CONNECTIONS

| | |
|----------------------|---------------|
| SUM PORT | 6 |
| PORT 1 | 3 |
| PORT 2 | 4 |
| GROUND | 1 |
| CONNECT | 2,5 |
| EXT. RESISTOR 150Ω | 3,4 |
| EXT. CAPACITOR 1.5pF | 2 OR 5 TO GND |

PRODUCT MARKING: N/A

DEMO BOARD MCL P/N: TB-124
SUGGESTED PCB LAYOUT (PL-002)

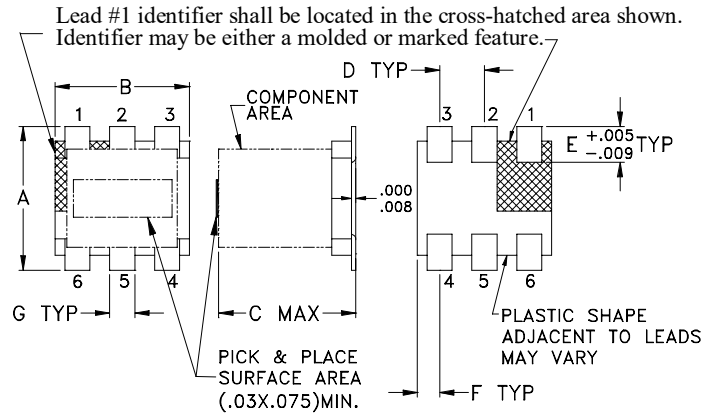


RESISTOR R1: 150 Ohm, 0805 SIZE
CAPACITOR C1: 1.5 pF, 0805 SIZE

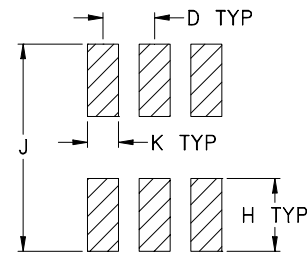
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

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 SOLDER MASK

OUTLINE DRAWING



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

OUTLINE DIMENSIONS (Inches/mm)

| | | | | | |
|------|------|------|------|------|-------|
| A | B | C | D | E | F |
| .160 | .150 | .160 | .050 | .040 | .025 |
| 4.06 | 3.81 | 4.06 | 1.27 | 1.02 | 0.64 |
| G | H | J | K | | wt |
| .028 | .065 | .190 | .030 | | grams |
| 0.71 | 1.65 | 4.83 | 0.76 | | 0.15 |

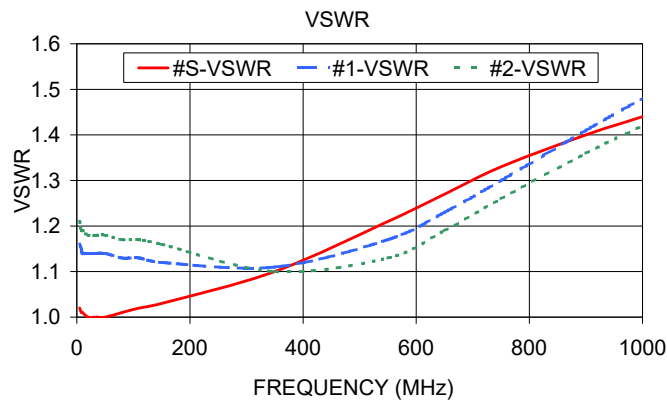
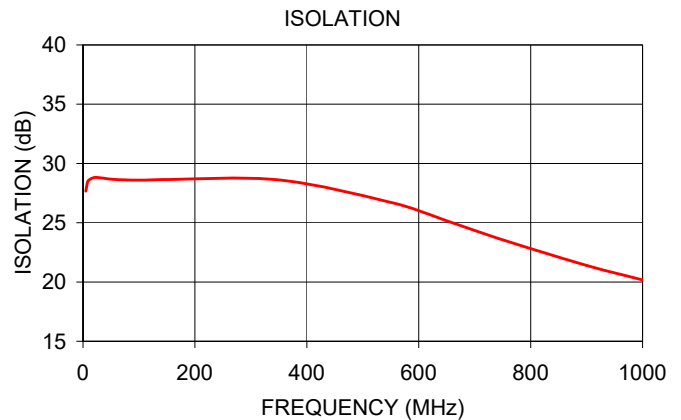
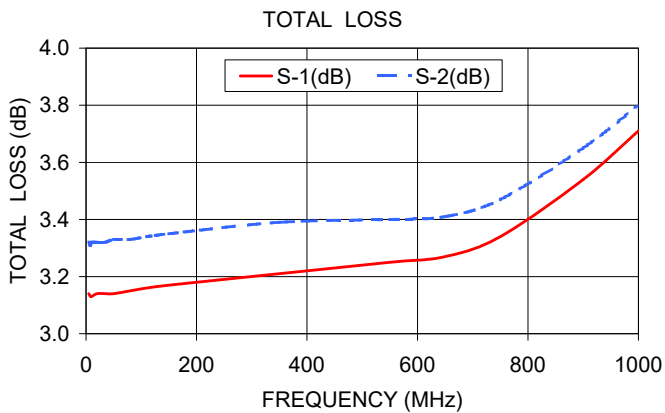
TAPE & REEL INFORMATION: F47



TYPICAL PERFORMANCE DATA AT 25°C

| Frequency (MHz) | Total Loss ¹ (dB) | | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR (:1) | | |
|-----------------|------------------------------|------|--------------------------|----------------|------------------------|-----------|------|------|
| | S-1 | S-2 | | | | S | 1 | 2 |
| 5.00 | 3.14 | 3.32 | 0.19 | 27.67 | 0.39 | 1.02 | 1.16 | 1.21 |
| 8.00 | 3.13 | 3.31 | 0.18 | 28.39 | 0.22 | 1.01 | 1.15 | 1.19 |
| 10.00 | 3.13 | 3.32 | 0.18 | 28.59 | 0.14 | 1.01 | 1.14 | 1.19 |
| 20.00 | 3.14 | 3.32 | 0.18 | 28.82 | 0.06 | 1.00 | 1.14 | 1.18 |
| 35.00 | 3.14 | 3.32 | 0.19 | 28.77 | 0.04 | 1.00 | 1.14 | 1.18 |
| 50.00 | 3.14 | 3.33 | 0.18 | 28.68 | 0.01 | 1.00 | 1.14 | 1.18 |
| 80.00 | 3.15 | 3.33 | 0.18 | 28.61 | 0.08 | 1.01 | 1.13 | 1.17 |
| 110.00 | 3.16 | 3.34 | 0.18 | 28.60 | 0.16 | 1.02 | 1.13 | 1.17 |
| 150.00 | 3.17 | 3.35 | 0.18 | 28.65 | 0.12 | 1.03 | 1.12 | 1.16 |
| 350.00 | 3.21 | 3.39 | 0.18 | 28.62 | 0.20 | 1.10 | 1.11 | 1.10 |
| 550.00 | 3.25 | 3.40 | 0.15 | 26.72 | 0.34 | 1.21 | 1.17 | 1.13 |
| 650.00 | 3.27 | 3.41 | 0.14 | 25.16 | 0.31 | 1.27 | 1.23 | 1.19 |
| 750.00 | 3.34 | 3.47 | 0.13 | 23.56 | 0.39 | 1.33 | 1.30 | 1.26 |
| 900.00 | 3.54 | 3.65 | 0.11 | 21.40 | 0.55 | 1.40 | 1.41 | 1.36 |
| 1000.00 | 3.71 | 3.80 | 0.09 | 20.18 | 0.68 | 1.44 | 1.48 | 1.42 |

1. Total Loss = Insertion Loss + 3dB splitter loss.



- 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

2 Way-0° Power Splitter/Combiner TCP-2-10-75+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = +25°C

| FREQ. (MHz) | TOTAL LOSS ¹ (dB) | | AMP. UNBAL. (dB) | PHASE UNBAL. (deg.) | ISOLATION (dB) | VSWR (:1) | | |
|----------------|---------------------------------|------|------------------------|---------------------------|-------------------|--------------|------|------|
| | S-1 | S-2 | | | | S | 1 | 2 |
| 5 | 3.37 | 3.15 | 0.22 | 0.50 | 26.42 | 1.04 | 1.24 | 1.18 |
| 10 | 3.35 | 3.14 | 0.21 | 0.28 | 28.02 | 1.02 | 1.21 | 1.16 |
| 25 | 3.36 | 3.15 | 0.21 | 0.06 | 28.75 | 1.00 | 1.19 | 1.14 |
| 50 | 3.37 | 3.17 | 0.20 | 0.01 | 28.66 | 1.02 | 1.19 | 1.14 |
| 75 | 3.39 | 3.19 | 0.20 | 0.04 | 28.57 | 1.03 | 1.19 | 1.14 |
| 100 | 3.40 | 3.19 | 0.21 | 0.05 | 28.62 | 1.04 | 1.19 | 1.14 |
| 150 | 3.42 | 3.21 | 0.21 | 0.12 | 28.73 | 1.07 | 1.18 | 1.15 |
| 200 | 3.43 | 3.23 | 0.20 | 0.16 | 28.96 | 1.09 | 1.18 | 1.16 |
| 250 | 3.44 | 3.25 | 0.19 | 0.21 | 29.24 | 1.11 | 1.18 | 1.18 |
| 300 | 3.46 | 3.28 | 0.18 | 0.28 | 29.33 | 1.13 | 1.18 | 1.19 |
| 350 | 3.47 | 3.30 | 0.17 | 0.32 | 29.37 | 1.15 | 1.18 | 1.20 |
| 400 | 3.48 | 3.33 | 0.15 | 0.36 | 29.31 | 1.16 | 1.18 | 1.22 |
| 425 | 3.50 | 3.34 | 0.16 | 0.33 | 28.92 | 1.17 | 1.18 | 1.22 |
| 450 | 3.50 | 3.36 | 0.14 | 0.37 | 29.00 | 1.18 | 1.18 | 1.23 |
| 475 | 3.52 | 3.36 | 0.16 | 0.37 | 28.55 | 1.18 | 1.18 | 1.23 |
| 500 | 3.52 | 3.39 | 0.13 | 0.37 | 28.66 | 1.18 | 1.18 | 1.24 |
| 525 | 3.53 | 3.39 | 0.14 | 0.44 | 28.05 | 1.18 | 1.17 | 1.24 |
| 550 | 3.54 | 3.41 | 0.13 | 0.37 | 28.09 | 1.19 | 1.17 | 1.24 |
| 575 | 3.55 | 3.42 | 0.13 | 0.48 | 27.49 | 1.19 | 1.17 | 1.24 |
| 600 | 3.56 | 3.44 | 0.12 | 0.36 | 27.24 | 1.18 | 1.17 | 1.25 |
| 650 | 3.58 | 3.47 | 0.11 | 0.32 | 26.43 | 1.18 | 1.17 | 1.25 |
| 700 | 3.60 | 3.50 | 0.10 | 0.35 | 25.47 | 1.18 | 1.16 | 1.25 |
| 750 | 3.62 | 3.53 | 0.10 | 0.38 | 24.36 | 1.17 | 1.16 | 1.24 |
| 800 | 3.64 | 3.56 | 0.08 | 0.40 | 23.25 | 1.16 | 1.16 | 1.24 |
| 850 | 3.66 | 3.59 | 0.07 | 0.39 | 22.13 | 1.16 | 1.15 | 1.24 |
| 900 | 3.68 | 3.62 | 0.06 | 0.31 | 21.16 | 1.16 | 1.15 | 1.23 |
| 925 | 3.71 | 3.64 | 0.06 | 0.08 | 20.88 | 1.16 | 1.15 | 1.23 |
| 950 | 3.71 | 3.65 | 0.06 | 0.20 | 20.46 | 1.16 | 1.15 | 1.22 |
| 975 | 3.74 | 3.68 | 0.06 | 0.02 | 19.96 | 1.16 | 1.16 | 1.22 |
| 1000 | 3.74 | 3.69 | 0.05 | 0.05 | 19.70 | 1.16 | 1.16 | 1.22 |
| 1025 | 3.77 | 3.70 | 0.07 | 0.21 | 19.35 | 1.17 | 1.16 | 1.22 |
| 1050 | 3.77 | 3.73 | 0.04 | 0.32 | 19.01 | 1.17 | 1.16 | 1.22 |
| 1075 | 3.80 | 3.75 | 0.05 | 0.46 | 18.90 | 1.18 | 1.17 | 1.22 |
| 1100 | 3.81 | 3.78 | 0.03 | 0.62 | 18.50 | 1.18 | 1.17 | 1.22 |
| 1150 | 3.86 | 3.84 | 0.02 | 0.99 | 18.15 | 1.20 | 1.18 | 1.23 |
| 1200 | 3.92 | 3.92 | 0.01 | 1.38 | 18.04 | 1.23 | 1.18 | 1.23 |
| 1250 | 3.99 | 4.01 | 0.02 | 1.86 | 18.14 | 1.26 | 1.19 | 1.25 |
| 1300 | 4.09 | 4.12 | 0.03 | 2.35 | 18.21 | 1.30 | 1.20 | 1.26 |
| 1350 | 4.22 | 4.26 | 0.04 | 2.80 | 18.15 | 1.35 | 1.20 | 1.28 |
| 1400 | 4.37 | 4.45 | 0.08 | 3.26 | 17.77 | 1.42 | 1.21 | 1.31 |
| 1450 | 4.56 | 4.68 | 0.12 | 3.72 | 16.81 | 1.51 | 1.21 | 1.34 |
| 1500 | 4.81 | 4.95 | 0.14 | 4.11 | 15.58 | 1.62 | 1.21 | 1.37 |
| 1600 | 5.42 | 5.61 | 0.18 | 4.81 | 12.94 | 1.89 | 1.20 | 1.44 |
| 1700 | 6.13 | 6.23 | 0.10 | 5.86 | 10.90 | 2.21 | 1.16 | 1.48 |

¹ Total Loss = Insertion Loss+ 3dB Splitter Loss

2 Way-0° Power Splitter/Combiner TCP-2-10-75+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = -40°C

| FREQ. (MHz) | TOTAL LOSS ¹ (dB) | | AMP. UNBAL. (dB) | PHASE UNBAL. (deg.) | ISOLATION (dB) | VSWR (:1) | | |
|----------------|---------------------------------|------|------------------------|---------------------------|-------------------|--------------|------|------|
| | S-1 | S-2 | | | | S | 1 | 2 |
| 5 | 3.39 | 3.17 | 0.22 | 1.72 | 22.93 | 1.06 | 1.34 | 1.24 |
| 10 | 3.30 | 3.15 | 0.16 | 1.06 | 26.38 | 1.03 | 1.23 | 1.17 |
| 25 | 3.26 | 3.13 | 0.13 | 0.35 | 30.14 | 1.02 | 1.16 | 1.11 |
| 50 | 3.26 | 3.14 | 0.12 | 0.20 | 31.29 | 1.05 | 1.14 | 1.09 |
| 75 | 3.27 | 3.15 | 0.12 | 0.18 | 31.42 | 1.05 | 1.13 | 1.08 |
| 100 | 3.28 | 3.15 | 0.13 | 0.20 | 31.47 | 1.03 | 1.13 | 1.10 |
| 150 | 3.29 | 3.16 | 0.13 | 0.22 | 31.59 | 1.06 | 1.12 | 1.12 |
| 200 | 3.30 | 3.17 | 0.13 | 0.30 | 31.64 | 1.06 | 1.13 | 1.11 |
| 250 | 3.31 | 3.19 | 0.12 | 0.36 | 31.66 | 1.08 | 1.14 | 1.15 |
| 300 | 3.32 | 3.21 | 0.11 | 0.41 | 31.39 | 1.11 | 1.15 | 1.17 |
| 350 | 3.33 | 3.22 | 0.11 | 0.51 | 30.95 | 1.13 | 1.17 | 1.19 |
| 400 | 3.34 | 3.24 | 0.10 | 0.59 | 30.50 | 1.16 | 1.18 | 1.21 |
| 425 | 3.35 | 3.25 | 0.10 | 0.68 | 29.91 | 1.17 | 1.19 | 1.22 |
| 450 | 3.35 | 3.27 | 0.08 | 0.71 | 29.77 | 1.18 | 1.19 | 1.23 |
| 475 | 3.37 | 3.27 | 0.10 | 0.76 | 29.12 | 1.19 | 1.20 | 1.25 |
| 500 | 3.36 | 3.30 | 0.06 | 0.84 | 29.14 | 1.20 | 1.20 | 1.25 |
| 525 | 3.37 | 3.29 | 0.08 | 0.83 | 28.26 | 1.20 | 1.20 | 1.25 |
| 550 | 3.38 | 3.31 | 0.07 | 0.96 | 28.23 | 1.21 | 1.20 | 1.26 |
| 575 | 3.39 | 3.32 | 0.07 | 0.92 | 27.43 | 1.21 | 1.20 | 1.27 |
| 600 | 3.39 | 3.34 | 0.05 | 1.12 | 27.09 | 1.22 | 1.21 | 1.28 |
| 650 | 3.41 | 3.36 | 0.05 | 1.25 | 26.02 | 1.22 | 1.21 | 1.27 |
| 700 | 3.43 | 3.39 | 0.04 | 1.30 | 24.87 | 1.22 | 1.20 | 1.28 |
| 750 | 3.44 | 3.42 | 0.02 | 1.41 | 23.59 | 1.22 | 1.20 | 1.27 |
| 800 | 3.45 | 3.44 | 0.01 | 1.45 | 22.42 | 1.21 | 1.19 | 1.24 |
| 850 | 3.46 | 3.46 | 0.00 | 1.58 | 21.19 | 1.20 | 1.18 | 1.24 |
| 900 | 3.47 | 3.50 | 0.03 | 1.71 | 20.21 | 1.18 | 1.17 | 1.22 |
| 925 | 3.49 | 3.51 | 0.02 | 2.06 | 19.94 | 1.17 | 1.17 | 1.21 |
| 950 | 3.49 | 3.53 | 0.04 | 2.02 | 19.51 | 1.16 | 1.16 | 1.20 |
| 975 | 3.51 | 3.54 | 0.02 | 2.27 | 19.03 | 1.15 | 1.16 | 1.19 |
| 1000 | 3.52 | 3.55 | 0.03 | 2.34 | 18.79 | 1.14 | 1.15 | 1.18 |
| 1025 | 3.54 | 3.56 | 0.02 | 2.56 | 18.44 | 1.13 | 1.15 | 1.17 |
| 1050 | 3.55 | 3.59 | 0.04 | 2.77 | 18.18 | 1.13 | 1.14 | 1.16 |
| 1075 | 3.57 | 3.61 | 0.04 | 2.91 | 18.06 | 1.12 | 1.14 | 1.16 |
| 1100 | 3.58 | 3.63 | 0.05 | 3.16 | 17.74 | 1.12 | 1.14 | 1.16 |
| 1150 | 3.63 | 3.71 | 0.08 | 3.63 | 17.46 | 1.11 | 1.14 | 1.17 |
| 1200 | 3.68 | 3.79 | 0.12 | 4.18 | 17.44 | 1.12 | 1.15 | 1.20 |
| 1250 | 3.73 | 3.86 | 0.13 | 4.76 | 17.71 | 1.14 | 1.15 | 1.25 |
| 1300 | 3.82 | 3.95 | 0.13 | 5.31 | 17.94 | 1.21 | 1.16 | 1.27 |
| 1350 | 3.92 | 4.07 | 0.15 | 5.94 | 18.06 | 1.32 | 1.18 | 1.35 |
| 1400 | 4.06 | 4.25 | 0.19 | 6.56 | 17.81 | 1.44 | 1.21 | 1.42 |
| 1450 | 4.22 | 4.55 | 0.33 | 7.15 | 16.93 | 1.56 | 1.23 | 1.49 |
| 1500 | 4.45 | 4.76 | 0.31 | 7.69 | 15.63 | 1.76 | 1.25 | 1.60 |
| 1600 | 5.07 | 5.35 | 0.27 | 8.42 | 12.83 | 2.13 | 1.27 | 1.64 |
| 1700 | 5.78 | 6.00 | 0.22 | 9.62 | 10.62 | 2.37 | 1.23 | 1.60 |

¹ Total Loss = Insertion Loss+ 3dB Splitter Loss



2 Way-0° Power Splitter/Combiner TCP-2-10-75+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = +85°C

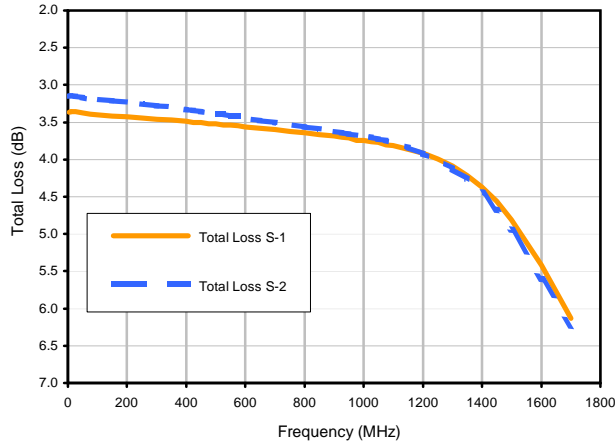
| FREQ. (MHz) | TOTAL LOSS ¹ (dB) | | AMP. UNBAL. (dB) | PHASE UNBAL. (deg.) | ISOLATION (dB) | VSWR (:1) | | |
|----------------|---------------------------------|------|------------------------|---------------------------|-------------------|--------------|------|------|
| | S-1 | S-2 | | | | S | 1 | 2 |
| 5 | 3.46 | 3.18 | 0.28 | 0.47 | 25.24 | 1.04 | 1.28 | 1.20 |
| 10 | 3.44 | 3.18 | 0.26 | 0.26 | 26.14 | 1.03 | 1.25 | 1.18 |
| 25 | 3.45 | 3.20 | 0.25 | 0.07 | 26.33 | 1.02 | 1.24 | 1.18 |
| 50 | 3.47 | 3.22 | 0.25 | 0.03 | 26.20 | 1.03 | 1.24 | 1.20 |
| 75 | 3.49 | 3.24 | 0.25 | 0.01 | 26.19 | 1.05 | 1.24 | 1.20 |
| 100 | 3.50 | 3.25 | 0.25 | 0.03 | 26.32 | 1.06 | 1.24 | 1.19 |
| 150 | 3.52 | 3.27 | 0.25 | 0.02 | 26.50 | 1.07 | 1.23 | 1.18 |
| 200 | 3.53 | 3.30 | 0.23 | 0.08 | 26.82 | 1.11 | 1.22 | 1.20 |
| 250 | 3.55 | 3.33 | 0.22 | 0.16 | 27.21 | 1.13 | 1.21 | 1.20 |
| 300 | 3.56 | 3.36 | 0.20 | 0.23 | 27.38 | 1.14 | 1.20 | 1.20 |
| 350 | 3.58 | 3.39 | 0.19 | 0.28 | 27.56 | 1.16 | 1.19 | 1.21 |
| 400 | 3.59 | 3.42 | 0.17 | 0.34 | 27.69 | 1.16 | 1.17 | 1.21 |
| 425 | 3.61 | 3.43 | 0.18 | 0.32 | 27.48 | 1.16 | 1.17 | 1.21 |
| 450 | 3.61 | 3.45 | 0.16 | 0.36 | 27.64 | 1.16 | 1.16 | 1.21 |
| 475 | 3.63 | 3.46 | 0.17 | 0.37 | 27.41 | 1.16 | 1.16 | 1.22 |
| 500 | 3.63 | 3.49 | 0.14 | 0.36 | 27.57 | 1.16 | 1.16 | 1.22 |
| 525 | 3.65 | 3.50 | 0.15 | 0.43 | 27.28 | 1.16 | 1.15 | 1.22 |
| 550 | 3.66 | 3.52 | 0.14 | 0.37 | 27.39 | 1.15 | 1.15 | 1.22 |
| 575 | 3.67 | 3.53 | 0.14 | 0.46 | 27.09 | 1.15 | 1.15 | 1.22 |
| 600 | 3.68 | 3.56 | 0.12 | 0.37 | 26.91 | 1.15 | 1.14 | 1.22 |
| 650 | 3.70 | 3.59 | 0.11 | 0.34 | 26.46 | 1.14 | 1.14 | 1.22 |
| 700 | 3.73 | 3.62 | 0.11 | 0.38 | 25.79 | 1.14 | 1.14 | 1.23 |
| 750 | 3.75 | 3.66 | 0.09 | 0.41 | 24.89 | 1.14 | 1.14 | 1.23 |
| 800 | 3.77 | 3.70 | 0.07 | 0.44 | 23.92 | 1.14 | 1.14 | 1.23 |
| 850 | 3.80 | 3.74 | 0.06 | 0.45 | 22.88 | 1.14 | 1.14 | 1.23 |
| 900 | 3.83 | 3.78 | 0.05 | 0.40 | 21.94 | 1.15 | 1.14 | 1.24 |
| 925 | 3.85 | 3.80 | 0.04 | 0.17 | 21.69 | 1.15 | 1.14 | 1.24 |
| 950 | 3.86 | 3.83 | 0.03 | 0.32 | 21.29 | 1.16 | 1.15 | 1.24 |
| 975 | 3.89 | 3.85 | 0.03 | 0.08 | 20.73 | 1.16 | 1.15 | 1.24 |
| 1000 | 3.90 | 3.87 | 0.03 | 0.08 | 20.49 | 1.17 | 1.16 | 1.24 |
| 1025 | 3.92 | 3.89 | 0.03 | 0.09 | 20.11 | 1.18 | 1.16 | 1.25 |
| 1050 | 3.93 | 3.93 | 0.00 | 0.19 | 19.76 | 1.19 | 1.16 | 1.25 |
| 1075 | 3.96 | 3.95 | 0.01 | 0.30 | 19.67 | 1.20 | 1.17 | 1.25 |
| 1100 | 3.98 | 3.98 | 0.00 | 0.44 | 19.22 | 1.21 | 1.17 | 1.25 |
| 1150 | 4.04 | 4.06 | 0.02 | 0.76 | 18.85 | 1.24 | 1.18 | 1.25 |
| 1200 | 4.10 | 4.15 | 0.06 | 1.15 | 18.71 | 1.26 | 1.19 | 1.25 |
| 1250 | 4.17 | 4.26 | 0.09 | 1.59 | 18.82 | 1.29 | 1.19 | 1.25 |
| 1300 | 4.28 | 4.39 | 0.11 | 1.94 | 18.90 | 1.31 | 1.19 | 1.25 |
| 1350 | 4.42 | 4.53 | 0.12 | 2.40 | 18.85 | 1.34 | 1.19 | 1.25 |
| 1400 | 4.56 | 4.72 | 0.16 | 2.85 | 18.52 | 1.38 | 1.18 | 1.26 |
| 1450 | 4.75 | 4.96 | 0.21 | 3.31 | 17.62 | 1.44 | 1.17 | 1.28 |
| 1500 | 4.98 | 5.23 | 0.25 | 3.68 | 16.42 | 1.51 | 1.16 | 1.30 |
| 1600 | 5.57 | 5.87 | 0.30 | 4.38 | 13.80 | 1.74 | 1.14 | 1.39 |
| 1700 | 6.23 | 6.50 | 0.27 | 5.33 | 11.73 | 2.11 | 1.12 | 1.48 |

¹ Total Loss = Insertion Loss+ 3dB Splitter Loss

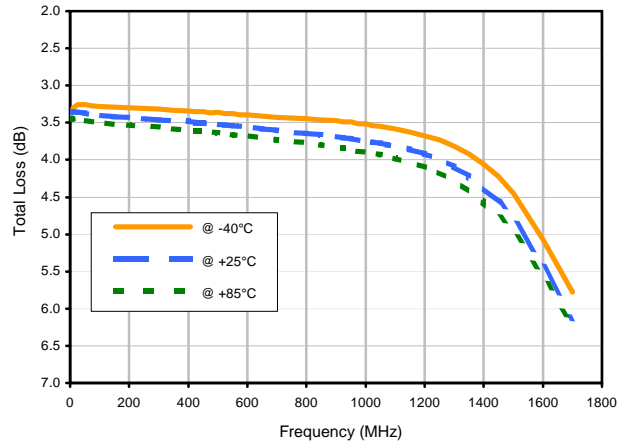


Typical Performance Curves

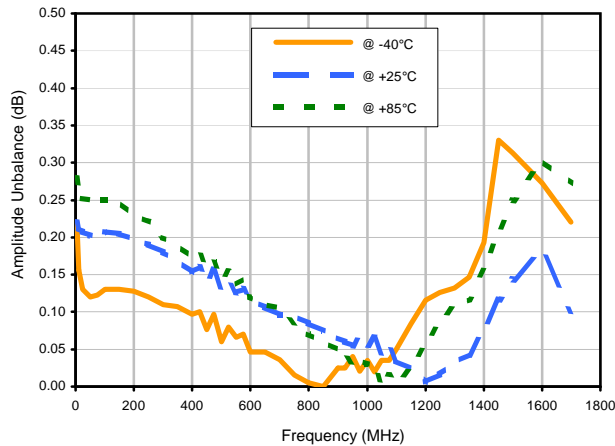
Total Loss



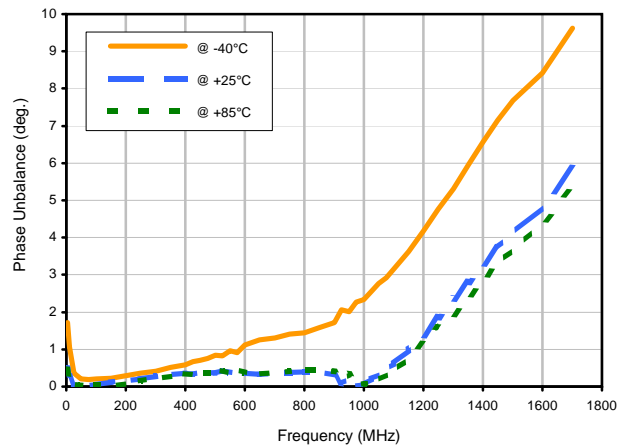
Total Loss S-1 vs. TEMPERATURE



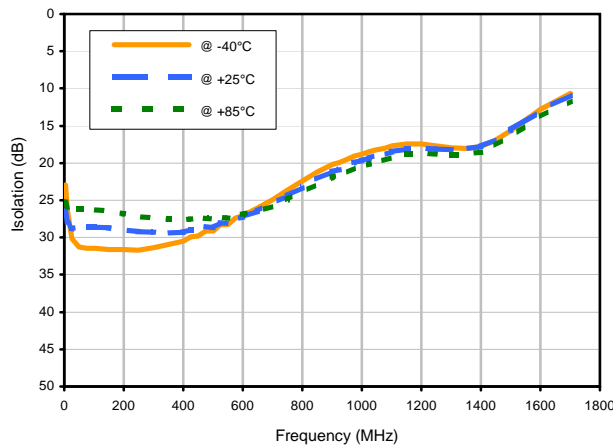
Amplitude Unbalance vs. TEMPERATURE



Phase Unbalance vs. TEMPERATURE

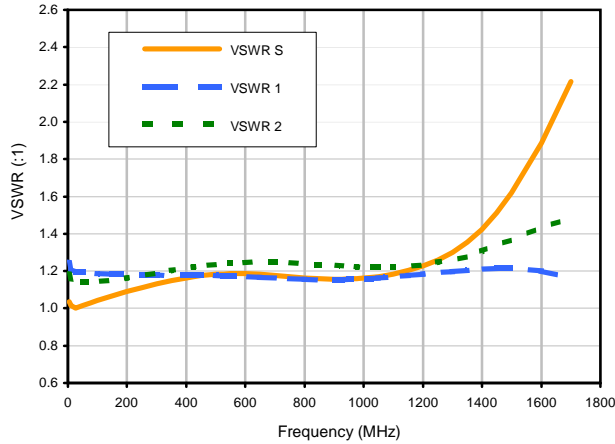


Isolation 1-2 vs. TEMPERATURE

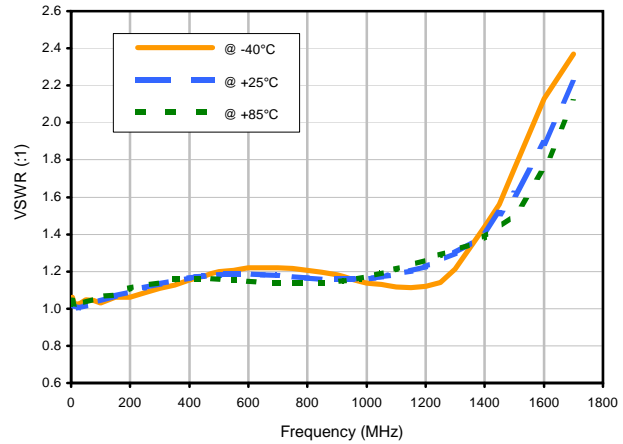


Typical Performance Curves

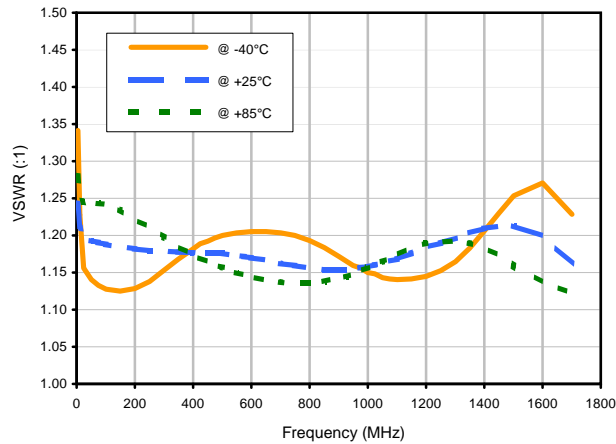
VSWR



VSWR SUM vs. TEMPERATURE

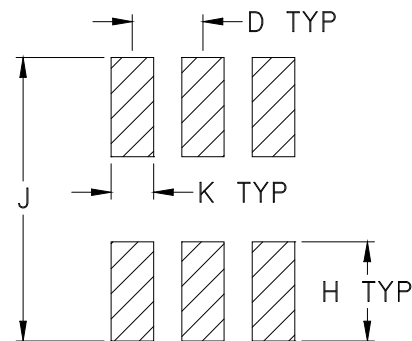
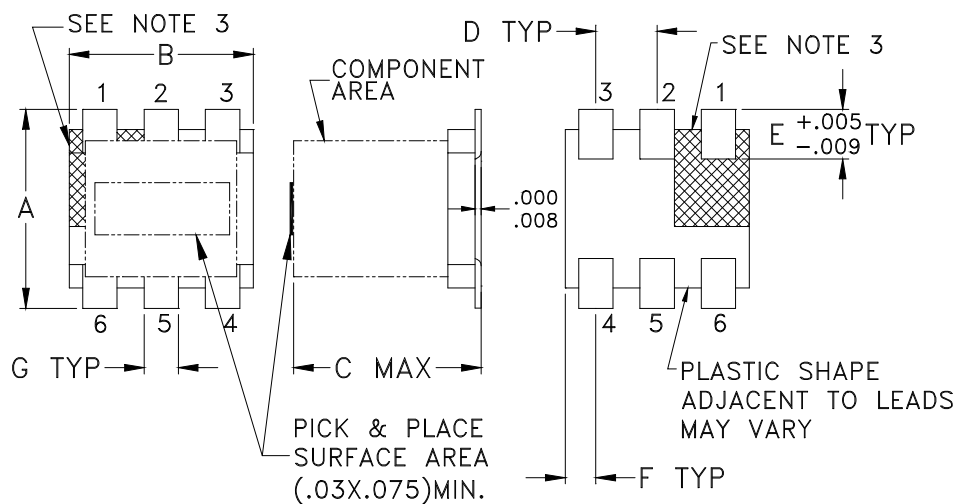


VSWR OUT1 vs. TEMPERATURE



Outline Dimensions

PCB Land Pattern



Suggested Layout,
Tolerance to be within ± 0.002

| CASE # | A | B | C | D | E | F | G | H | J | K | WT. GRAM |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|
| DB714 | .160 (4.06) | .150 (3.81) | .160 (4.06) | .050 (1.27) | .040 (1.02) | .025 (0.64) | .028 (0.71) | .065 (1.65) | .190 (4.83) | .030 (0.76) | .15 |

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .01$; 3Pl. $\pm .005$

Notes:

- Case material: Plastic.
- Termination finish:
For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.
- Lead #1 identifier shall be located in the cross-hatched area shown. Identifier may be either a molded or marked feature.



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

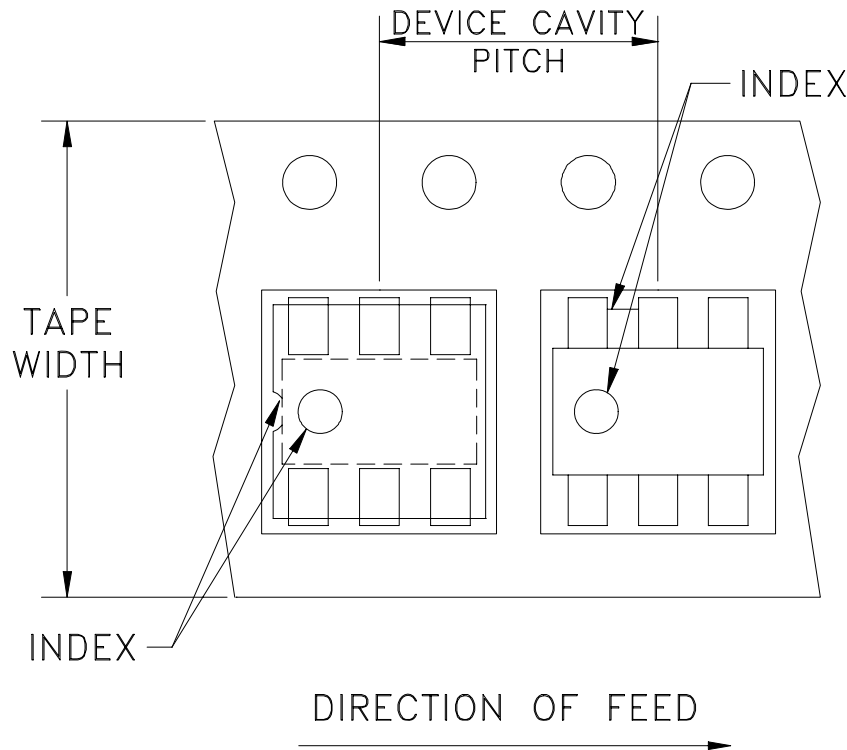


The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F47

DEVICE ORIENTATION IN T&R



| Tape Width, mm | Device Cavity Pitch, mm | Reel Size, inches | Devices per Reel see note |
|----------------|-------------------------|-------------------|---------------------------|
| 12 | 8 | 13 | 1000, 2000 |
| | | 7 | 20, 50, 100, 200, 500 |

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

Mini-Circuits[®]

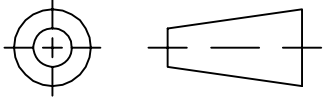
INTERNET <http://www.minicircuits.com>

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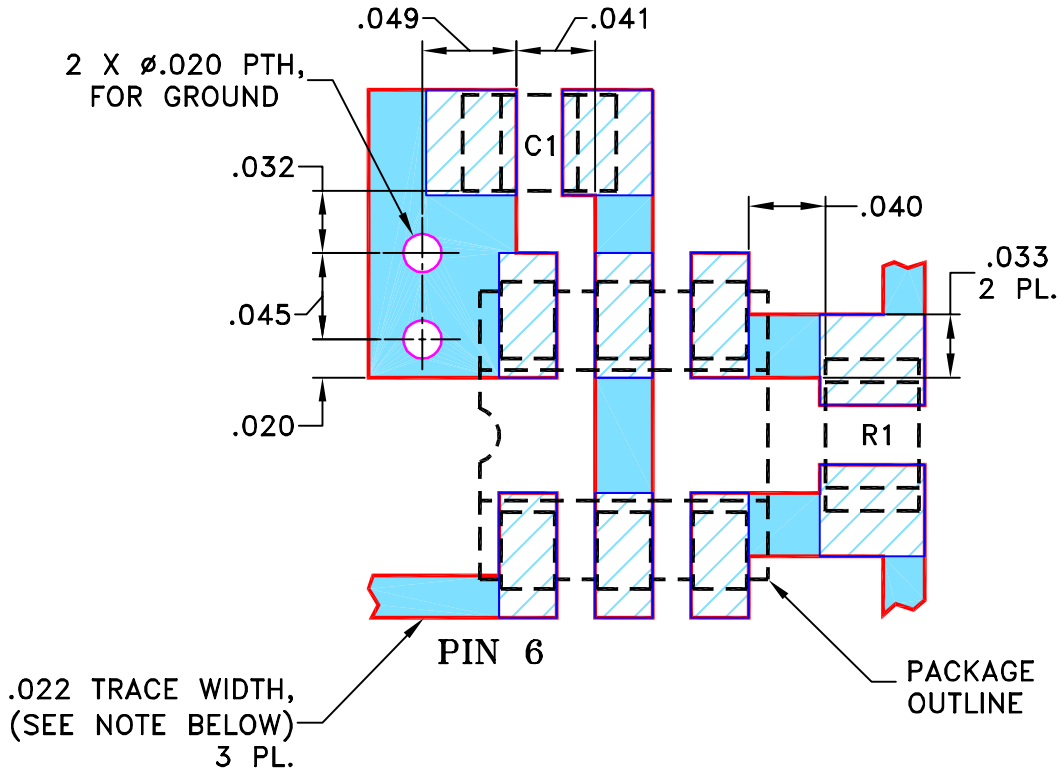
THIRD ANGLE PROJECTION



REVISIONS

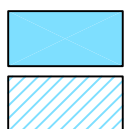
| REV | ECN No. | DESCRIPTION | DATE | DR | AUTH |
|-----|---------|------------------------------|----------|----|------|
| OR | M70611 | NEW RELEASE | 02/00 | IL | DB |
| A | M71500 | ADDED SOLDER MASK AMD LEGEND | 04/00 | IL | DB |
| B | M82377 | UPDATED DRAWING | 08/06/02 | GF | HY |
| C | M102713 | UPDATED NOTES | 02/15/06 | AV | HY |

SUGGESTED MOUNTING CONFIGURATION FOR DB714 CASE STYLE, "mt" PIN CONNECTION



RESISTOR R1: 150 Ohm, 0805 SIZE
 CAPACITOR C1: 1.5 pF, 0805 SIZE

- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.



SOLID BLUE DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 HATCHED BLUE DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

| UNLESS OTHERWISE SPECIFIED | INITIALS | DATE |
|----------------------------|----------|----------|
| DRAWN | IL | 02/24/00 |
| CHECKED | DY | 02/29/00 |
| APPROVED | DB | 02/29/00 |



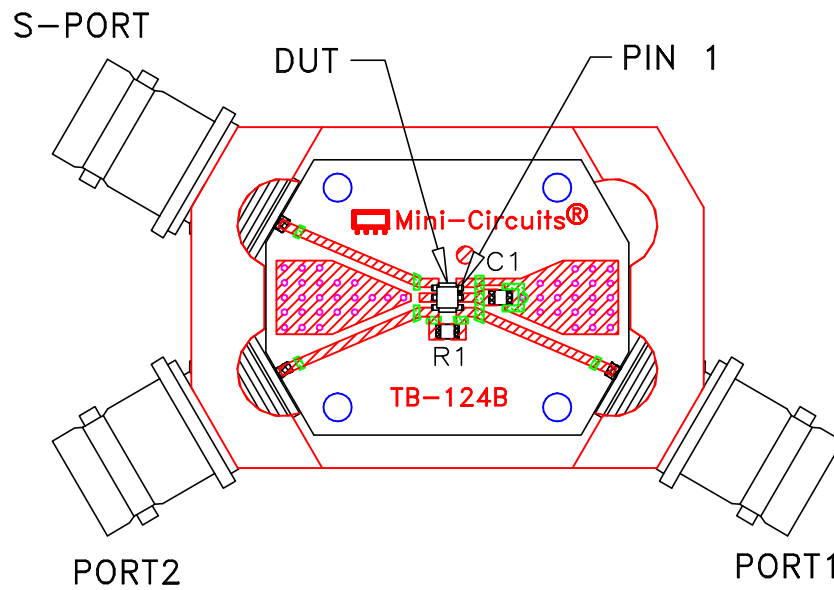
Mini-Circuits® 13 Neptune Avenue
 Brooklyn NY 11235

PL, mt, 75, DB714, TCP

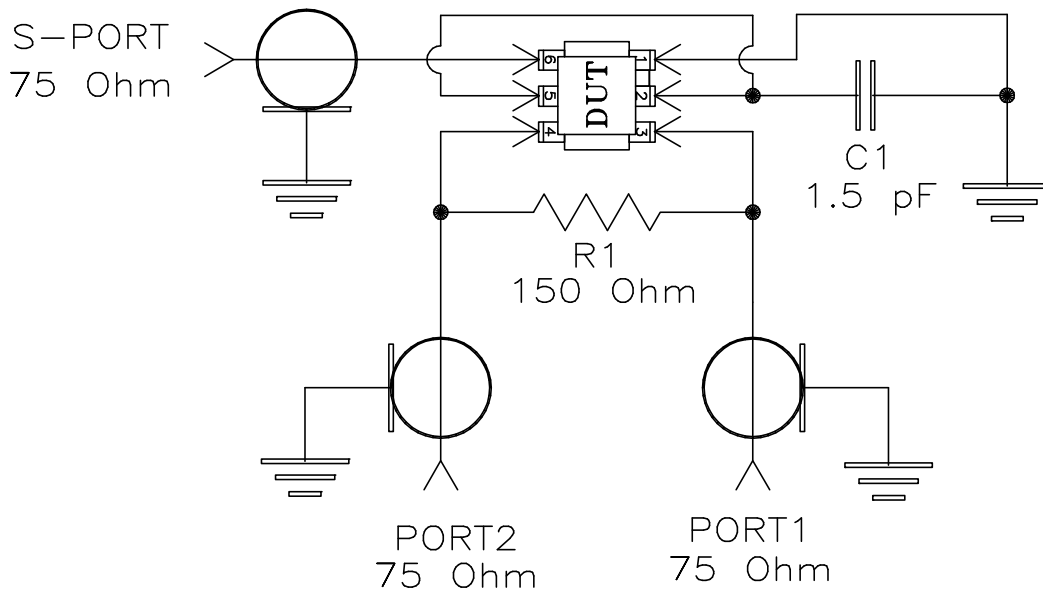
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| | | | |
|------------------|---------------------|--------------------------|-----------|
| SIZE A | CODE IDENT 15542 | DRAWING NO: 98-PL-002 | REV: C |
| FILE: 98PL002 | SCALE: 10:1 | SHEET: 1 OF 1 | |

Evaluation Board and Circuit



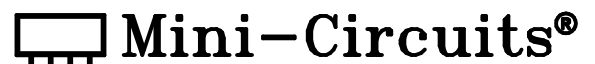
TB-124



Schematic Diagram

Notes:

1. 75 Ohm BNC Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.





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, 240 hours, 50°C | MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours |
| Thermal Shock | -55° to 100°C, 100 cycles | MIL-STD-202, Method 107, Condition A-3, except +100°C |
| Solder Reflow Heat | Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak | J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1 |
| Solderability | 10X Magnification | J-STD-002, 95% Coverage |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36) | 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 |
| Marking Resistance to Solvents | Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215 |