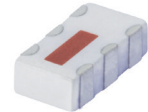


# Power Splitter/Combiner

**3 Way-0° 50Ω 950 to 1600 MHz**
**SCN-3-16+**


Generic photo used for illustration purposes only

CASE STYLE: FV1206-1

**+RoHS Compliant**

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

| Reel Size | Devices/Reel                      |
|-----------|-----------------------------------|
| 7"        | 20, 50, 100, 200, 500, 1000, 3000 |

## Maximum Ratings

Operating Temperature -55°C to 100°C

Storage Temperature -55°C to 100°C

Power Input (as a splitter) 15W\* max.

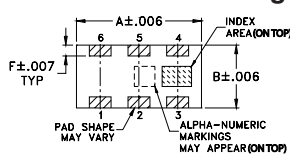
\* Derate linearly to 6W at 100°C ambient.

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

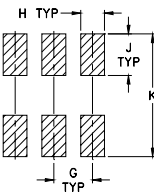
## Pin Connections

|               |                            |
|---------------|----------------------------|
| SUM PORT      | 2                          |
| PORT 1        | 6                          |
| PORT 2        | 5                          |
| PORT 3        | 4                          |
| GROUND        | 1,3                        |
| PORT 1-2, 2-3 | resistor external 124 ohms |
| PORT 1-3      | resistor external 127 ohms |

## Outline Drawing



PCB Land Pattern

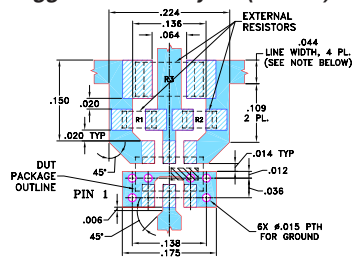


Suggested Layout, Tolerance to be within ±0.002

## Outline Dimensions (inch/mm)

| A    | B    | C    | D    | E    | F    |       |
|------|------|------|------|------|------|-------|
| .126 | .063 | .035 | .024 | .022 | .011 |       |
| 3.20 | 1.60 | 0.89 | 0.61 | 0.56 | 0.28 |       |
| G    | H    | J    | K    |      |      | wt    |
| .039 | .024 | .042 | .123 |      |      | grams |
| 0.99 | 0.61 | 1.07 | 3.12 |      |      | .020  |

## Demo Board MCL P/N: TB-303 Suggested PCB Layout (PL-171)



RESISTORS: R1-R2: 124 Ohm, 0603 SIZE; R3: 127 Ohm, 1206 SIZE.

 NOTE:  
 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS: .020 ± .0015; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
 2. RESISTOR LAND PATTERNS ARE SHOWN AS PER IPC-SM-782A.  
 3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

 DENOTES PCB COPPER LAYOUT  
 DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

## 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)

## Features

- isolation resistors, external
- low insertion loss, 0.6 dB typ.
- excellent amplitude unbalance, 0.2 dB typ.
- very good phase unbalance, 3 deg. typ.
- high isolation, 15 dB typ.
- excellent power handling, 15W as splitter
- small size, 0.12"x0.06"x0.035"
- ESD non-sensitive
- temperature stable LTCC technology
- wrap around, terminations for excellent solderability
- low cost

## Applications

- DSS
- WLAN
- satellite communication
- line of sight communications
- GSM, GPS
- ISM applications
- defense applications

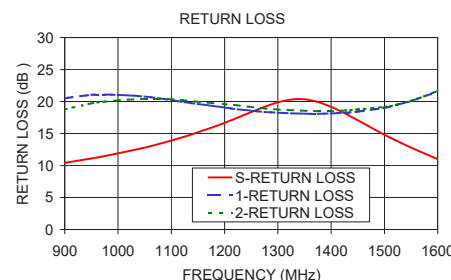
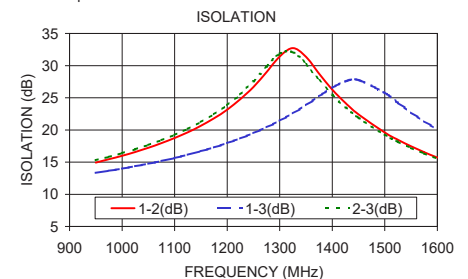
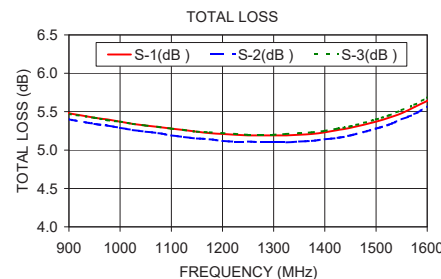
## Electrical Specifications

| FREQ. RANGE (MHz) | ISOLATION (dB) |      | INSERTION LOSS (dB) ABOVE 4.8 dB |      | PHASE UNBALANCE (Degrees) |      | AMPLITUDE UNBALANCE (dB) |      | RETURN LOSS (dB) |             |
|-------------------|----------------|------|----------------------------------|------|---------------------------|------|--------------------------|------|------------------|-------------|
| $f_c - f_u$       | Typ.           | Min. | Typ.                             | Max. | Typ.                      | Max. | Typ.                     | Max. | INPUT Typ.       | OUTPUT Typ. |
| 950-1600          | 15             | 11   | 0.6                              | 1.2  | 3.0                       | 5.0  | 0.2                      | 0.5  | 14               | 20          |
| 1200-1400         | 20             | 14   | 0.3                              | 0.8  | 2.0                       | 5.0  | 0.2                      | 0.4  | 17               | 19          |

## Typical Performance Data

| Freq. (MHz) | Total Loss <sup>1</sup> (dB) |      |      | Amp. Unbal. (dB) | Isolation (dB) |       |       | Phase Unbal. (deg.) | Return Loss (dB) |       |       |
|-------------|------------------------------|------|------|------------------|----------------|-------|-------|---------------------|------------------|-------|-------|
|             | S-1                          | S-2  | S-3  |                  | 1-2            | 1-3   | 2-3   |                     | S                | 1     | 2     |
| 950.00      | 5.42                         | 5.34 | 5.42 | 0.08             | 14.93          | 13.32 | 15.30 | 1.94                | 11.10            | 21.04 | 19.70 |
| 1000.00     | 5.37                         | 5.29 | 5.37 | 0.08             | 15.99          | 13.99 | 16.38 | 2.02                | 11.91            | 21.04 | 20.18 |
| 1050.00     | 5.32                         | 5.24 | 5.32 | 0.08             | 17.23          | 14.75 | 17.66 | 2.12                | 12.81            | 20.79 | 20.41 |
| 1100.00     | 5.28                         | 5.19 | 5.28 | 0.09             | 18.74          | 15.64 | 19.23 | 2.21                | 13.90            | 20.24 | 20.37 |
| 1150.00     | 5.24                         | 5.15 | 5.24 | 0.09             | 20.65          | 16.70 | 21.23 | 2.32                | 15.20            | 19.62 | 19.96 |
| 1200.00     | 5.21                         | 5.12 | 5.22 | 0.09             | 23.15          | 17.95 | 23.86 | 2.42                | 16.68            | 19.07 | 19.59 |
| 1250.00     | 5.19                         | 5.11 | 5.20 | 0.10             | 26.68          | 19.50 | 27.55 | 2.53                | 18.37            | 18.56 | 19.14 |
| 1300.00     | 5.19                         | 5.10 | 5.20 | 0.10             | 31.40          | 21.43 | 31.87 | 2.61                | 19.89            | 18.26 | 18.75 |
| 1350.00     | 5.20                         | 5.11 | 5.22 | 0.11             | 31.35          | 23.85 | 30.21 | 2.66                | 20.36            | 18.11 | 18.57 |
| 1400.00     | 5.23                         | 5.14 | 5.25 | 0.11             | 26.27          | 26.57 | 25.45 | 2.77                | 19.18            | 18.14 | 18.49 |
| 1450.00     | 5.29                         | 5.19 | 5.31 | 0.11             | 22.42          | 27.77 | 21.90 | 2.89                | 17.07            | 18.44 | 18.78 |
| 1500.00     | 5.37                         | 5.28 | 5.40 | 0.12             | 19.61          | 25.76 | 19.26 | 2.91                | 14.81            | 19.03 | 19.18 |
| 1550.00     | 5.48                         | 5.40 | 5.52 | 0.12             | 17.45          | 22.72 | 17.20 | 2.94                | 12.80            | 20.12 | 20.07 |
| 1600.00     | 5.64                         | 5.56 | 5.68 | 0.12             | 15.72          | 20.10 | 15.54 | 2.99                | 11.01            | 21.67 | 21.69 |

1. Total Loss = Insertion Loss + 4.8dB splitter loss.



## electrical schematic

