

# Power Splitter/Combiner

SBTC-2-10-7550+

2 Way-0° 50/75Ω

5 to 1000 MHz

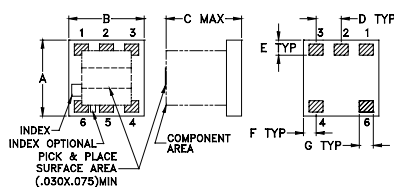
## Maximum Ratings

|                             |                |
|-----------------------------|----------------|
| Operating Temperature       | -40°C to 85°C  |
| Storage Temperature         | -55°C to 100°C |
| Power Input (as a splitter) | 0.5W max.      |
| Internal Dissipation        | 0.125W max.    |

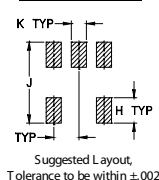
## Pin Connections

|          |             |
|----------|-------------|
| SUM PORT | 6 (75 ohms) |
| PORT 1   | 3 (50 ohms) |
| PORT 2   | 4 (50 ohms) |
| GROUND   | 1,2         |
| NOT USED | 5           |

## Outline Drawing



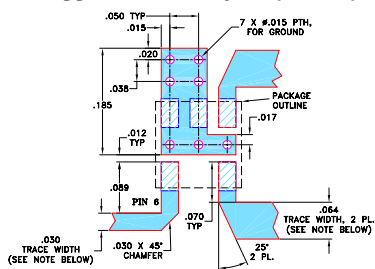
PCB Land Pattern



## Outline Dimensions (inch/mm)

| A    | B    | C    | D    | E    | F     |
|------|------|------|------|------|-------|
| .150 | .150 | .150 | .050 | .030 | .025  |
| 3.81 | 3.81 | 3.81 | 1.27 | 0.76 | 0.64  |
| G    | H    | J    | K    |      | wt    |
| .028 | .050 | .160 | .030 |      | grams |
| 0.71 | 1.27 | 4.06 | 0.76 |      | 0.10  |

## Demo Board MCL P/N: TB-147 Suggested PCB Layout (PL-092)



NOTE: TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS 0.030" ± 0.002". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

- DENOTES PCB COPPER LAYOUT
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## Features

- 75 ohm input, 50 ohm output
- very good isolation, 24 dB typ.
- excellent amplitude unbalance, 0.15 dB typ.
- very good phase unbalance, 1 deg. typ.
- temperature stable base
- small size, 0.15"x0.15"x0.15"
- low cost
- aqueous washable
- protected by US patent 6,963,255

## Applications

- impedance matching
- balanced amplifiers

## Electrical Specifications

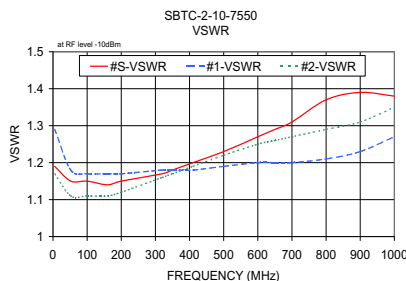
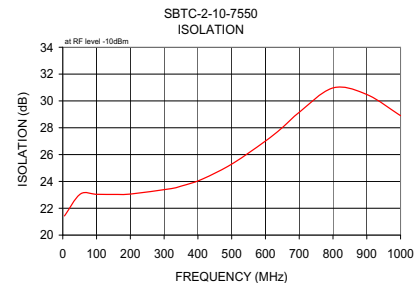
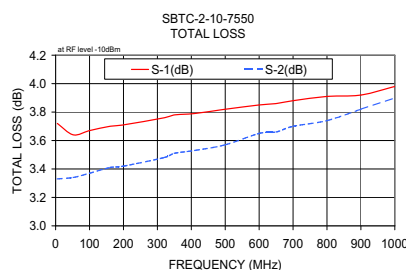
| FREQ. RANGE (MHz) | ISOLATION (dB) |           |           | INSERTION LOSS (dB) ABOVE 3.0 dB |           |           | PHASE UNBALANCE (Degrees) |      |      | AMPLITUDE UNBALANCE (dB) |      |      |
|-------------------|----------------|-----------|-----------|----------------------------------|-----------|-----------|---------------------------|------|------|--------------------------|------|------|
|                   | L              | M         | U         | L                                | M         | U         | L                         | M    | U    | L                        | M    | U    |
| $f_L$ - $f_U$     | Typ. Min.      | Typ. Min. | Typ. Min. | Typ. Max.                        | Typ. Max. | Typ. Max. | Max.                      | Max. | Max. | Max.                     | Max. | Max. |
| 5-1000            | 23             | 13        | 24        | 20                               | 26        | 20        | 0.5                       | 1.3  | 0.6  | 1.1                      | 0.7  | 1.5  |

L = low range [ $f_L$  to  $10 f_L$ ]M = mid range [ $10 f_L$  to  $f_U/2$ ]U = upper range [ $f_U/2$  to  $f_U$ ]

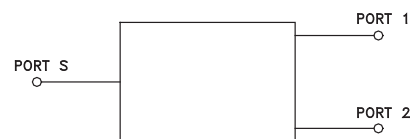
## Typical Performance Data

| Frequency (MHz) | Total Loss <sup>1</sup> |          | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR S | VSWR 1 | VSWR 2 |
|-----------------|-------------------------|----------|--------------------------|----------------|------------------------|--------|--------|--------|
|                 | (dB) S-1                | (dB) S-2 |                          |                |                        |        |        |        |
| 5.00            | 3.72                    | 3.33     | 0.39                     | 21.43          | 1.97                   | 1.19   | 1.29   | 1.17   |
| 52.00           | 3.64                    | 3.34     | 0.29                     | 23.06          | 0.18                   | 1.15   | 1.18   | 1.11   |
| 100.00          | 3.67                    | 3.37     | 0.30                     | 23.04          | 0.08                   | 1.15   | 1.17   | 1.11   |
| 160.00          | 3.70                    | 3.41     | 0.29                     | 23.03          | 0.35                   | 1.14   | 1.17   | 1.11   |
| 200.00          | 3.71                    | 3.42     | 0.28                     | 23.06          | 0.43                   | 1.15   | 1.17   | 1.12   |
| 320.00          | 3.76                    | 3.48     | 0.28                     | 23.46          | 0.73                   | 1.17   | 1.18   | 1.16   |
| 350.00          | 3.78                    | 3.51     | 0.27                     | 23.65          | 0.72                   | 1.18   | 1.18   | 1.17   |
| 410.00          | 3.79                    | 3.53     | 0.26                     | 24.14          | 0.91                   | 1.20   | 1.18   | 1.19   |
| 500.00          | 3.82                    | 3.57     | 0.25                     | 25.29          | 1.00                   | 1.23   | 1.19   | 1.22   |
| 600.00          | 3.85                    | 3.65     | 0.20                     | 27.01          | 1.12                   | 1.27   | 1.20   | 1.25   |
| 650.00          | 3.86                    | 3.66     | 0.20                     | 28.01          | 1.15                   | 1.29   | 1.20   | 1.26   |
| 700.00          | 3.88                    | 3.70     | 0.18                     | 29.15          | 1.15                   | 1.31   | 1.20   | 1.27   |
| 800.00          | 3.91                    | 3.74     | 0.17                     | 30.97          | 1.23                   | 1.37   | 1.21   | 1.29   |
| 900.00          | 3.92                    | 3.82     | 0.11                     | 30.48          | 1.25                   | 1.39   | 1.23   | 1.31   |
| 1000.00         | 3.98                    | 3.90     | 0.07                     | 28.90          | 1.23                   | 1.38   | 1.27   | 1.35   |

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



## electrical schematic



For detailed performance specs  
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