



**THE DATASHEET OF  
ADP-2-20+**



# Power Splitter/Combiner

## ADP-2-20+

2 Way-0° 50Ω 20 to 2000 MHz



Generic photo used for illustration purposes only

CASE STYLE: CD542

**+RoHS Compliant**

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

|                                          |                           |
|------------------------------------------|---------------------------|
| Available Tape and Reel at no extra cost |                           |
| Reel Size                                | Devices/Reel              |
| 7"                                       | 10, 20, 50, 100, 200, 500 |
| 13"                                      | 1000                      |

### Maximum Ratings

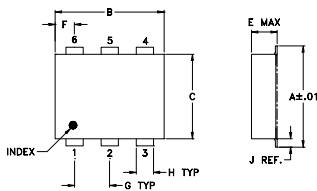
|                             |                |
|-----------------------------|----------------|
| Operating Temperature       | -40°C to 85°C  |
| Storage Temperature         | -55°C to 100°C |
| Power Input (as a splitter) | 1W max.        |
| Internal Dissipation        | 0.125W max.    |

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

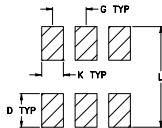
### Pin Connections

|          |     |
|----------|-----|
| SUM PORT | 1   |
| PORT 1   | 3   |
| PORT 2   | 4   |
| GROUND   | 6   |
| NOT USED | 2,5 |

### Outline Drawing



#### PCB Land Pattern

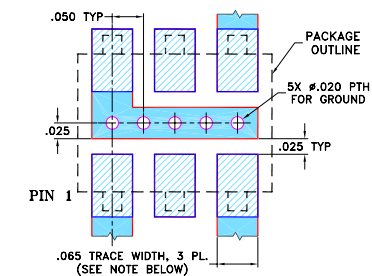


Suggested Layout, Tolerance to be within ±.002

### Outline Dimensions (inch/mm)

|      |      |      |      |      |      |      |       |  |
|------|------|------|------|------|------|------|-------|--|
| A    | B    | C    | D    | E    | F    | G    |       |  |
| .272 | .310 | .220 | .100 | .112 | .055 | .100 |       |  |
| 6.91 | 7.87 | 5.59 | 2.54 | 2.84 | 1.40 | 2.54 |       |  |
| H    | J    | K    | L    |      |      |      | wt    |  |
| .030 | .026 | .065 | .300 |      |      |      | grams |  |
| 0.76 | 0.66 | 1.65 | 7.62 |      |      |      | 0.20  |  |

### Demo Board MCL P/N: TB-48+ Suggested PCB Layout (PL-035)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 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

### 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-Circuit's 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-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

### Features

- low insertion loss, 0.7 dB typ.
- excellent insertion loss flatness, 0.4 dB peak to peak
- excellent amplitude unbalance, 0.1 dB typ.
- good phase unbalance, 1.1 deg. typ.
- aqueous washable
- protected under U.S. Patent 6,133,525

### Applications

- instrumentation
- PCS/cellular
- GPS

### Electrical Specifications

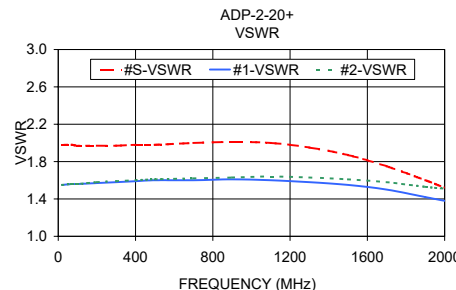
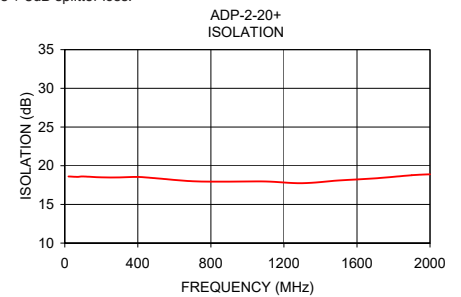
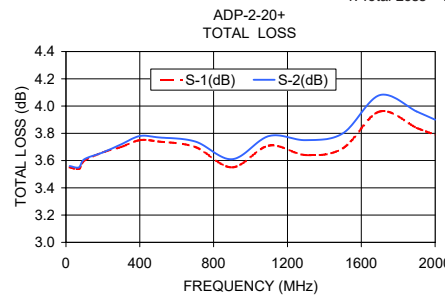
| FREQ. RANGE (MHz)              | ISOLATION (dB) |          |          | INSERTION LOSS (dB) ABOVE 3.0 dB |           |           | PHASE UNBALANCE (Degrees) |      |      | AMPLITUDE UNBALANCE (dB) |      |      |     |     |     |     |     |     |
|--------------------------------|----------------|----------|----------|----------------------------------|-----------|-----------|---------------------------|------|------|--------------------------|------|------|-----|-----|-----|-----|-----|-----|
|                                | L              | M        | U        | L                                | M         | U         | L                         | M    | U    | L                        | M    | U    |     |     |     |     |     |     |
| f <sub>c</sub> -f <sub>u</sub> | Typ. Min       | Typ. Min | Typ. Min | Typ. Max.                        | Typ. Max. | Typ. Max. | Max.                      | Max. | Max. | Max.                     | Max. | Max. |     |     |     |     |     |     |
| 20-2000                        | 18             | 15       | 18       | 15                               | 18        | 15        | 0.5                       | 0.8  | 0.7  | 1.0                      | 0.8  | 1.5  | 2.0 | 3.0 | 5.0 | 0.2 | 0.3 | 0.7 |

L = 20-200 MHz M = 200-1000 MHz U = 1000-2000 MHz

### Typical Performance Data

| Frequency (MHz) | Total Loss <sup>1</sup> (dB) |      | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR S | VSWR 1 | VSWR 2 |
|-----------------|------------------------------|------|--------------------------|----------------|------------------------|--------|--------|--------|
|                 | S-1                          | S-2  |                          |                |                        |        |        |        |
| 20.00           | 3.55                         | 3.56 | 0.00                     | 18.61          | 0.00                   | 1.98   | 1.55   | 1.55   |
| 70.00           | 3.54                         | 3.55 | 0.01                     | 18.56          | 0.18                   | 1.98   | 1.56   | 1.56   |
| 100.00          | 3.60                         | 3.61 | 0.01                     | 18.61          | 0.19                   | 1.97   | 1.56   | 1.56   |
| 200.00          | 3.66                         | 3.66 | 0.00                     | 18.50          | 0.45                   | 1.97   | 1.57   | 1.58   |
| 300.00          | 3.70                         | 3.72 | 0.02                     | 18.49          | 0.59                   | 1.97   | 1.58   | 1.59   |
| 400.00          | 3.75                         | 3.78 | 0.02                     | 18.55          | 0.68                   | 1.98   | 1.59   | 1.60   |
| 500.00          | 3.74                         | 3.77 | 0.03                     | 18.38          | 0.88                   | 1.98   | 1.60   | 1.61   |
| 700.00          | 3.70                         | 3.74 | 0.03                     | 17.99          | 1.04                   | 2.00   | 1.60   | 1.62   |
| 900.00          | 3.55                         | 3.61 | 0.06                     | 17.94          | 1.35                   | 2.01   | 1.61   | 1.63   |
| 1100.00         | 3.71                         | 3.78 | 0.06                     | 17.96          | 1.43                   | 2.00   | 1.60   | 1.64   |
| 1300.00         | 3.64                         | 3.75 | 0.11                     | 17.74          | 1.43                   | 1.95   | 1.58   | 1.63   |
| 1500.00         | 3.69                         | 3.80 | 0.11                     | 18.09          | 1.32                   | 1.87   | 1.55   | 1.61   |
| 1700.00         | 3.96                         | 4.08 | 0.12                     | 18.37          | 1.26                   | 1.75   | 1.50   | 1.58   |
| 1900.00         | 3.84                         | 3.96 | 0.12                     | 18.77          | 1.05                   | 1.60   | 1.42   | 1.53   |
| 2000.00         | 3.79                         | 3.90 | 0.11                     | 18.89          | 0.78                   | 1.52   | 1.38   | 1.51   |

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



### electrical schematic



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