*Surface Mount*

# Power Splitter/Combiner

## BP4U+

4 Way-0° 50Ω 2100 to 2500 MHz



*Generic photo used for illustration purposes only*

CASE STYLE: XX211

**+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" | 20, 50, 100, 200, 500, 1000 |
| 13" | 2000 |

### Maximum Ratings

| | |
|---|---|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -65°C to 150°C |
| Power Input (as a splitter) | 1.5W max. |
| Internal Dissipation | 0.375W max. |

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

### Pin Connections

| | |
|---|---|
| SUM PORT | 2 |
| PORT 1 | 1 |
| PORT 2 | 8 |
| PORT 3 | 5 |
| PORT 4 | 4 |
| GROUND | 3,6,7 |

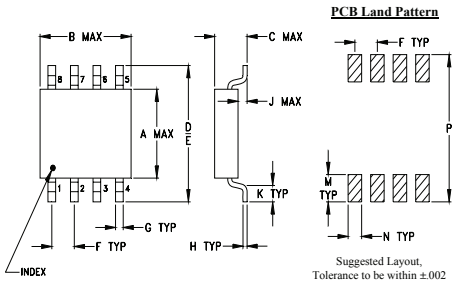
### Features

- low insertion loss, 0.7 dB typ
- excellent isolation, 23 dB typ.
- excellent VSWR, 1.15:1 typ.
- umplitude unbalance, 0.6 dB typ.
- aqueous washable
- excellent power handling, 1.5W

### Applications

- bluetooth
- IEEE 802.11b, g

### Outline Drawing

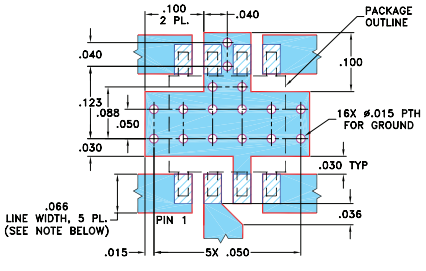



### Outline Dimensions (inch / mm)

| A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|
| .163 | .210 | .077 | .250 | .220 | .050 | .017 |
| 4.14 | 5.33 | 1.96 | 6.35 | 5.59 | 1.27 | 0.43 |

| H | J | K | M | N | P | wt |
|---|---|---|---|---|---|---|
| .009 | .025 | .030 | .050 | .030 | .270 | grams |
| 0.23 | 0.64 | 0.76 | 1.27 | 0.76 | 6.86 | 0.10 |

### Demo Board MCL P/N: TB-231
### Suggested PCB Layout (PL-113)




NOTES: 1.TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002", 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

### Electrical Specifications

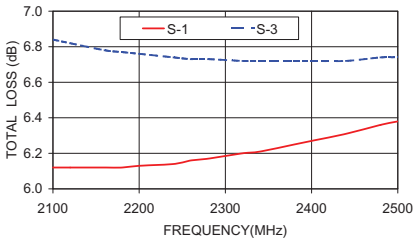
| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS (dB) ABOVE 6 dB | | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) | VSWR (:1) Typ. | |
|---|---|---|---|---|---|---|---|---|
| $f_L$-$f_U$ | Typ. | Min. | Typ. | Max. | Max. | Max. | Ports S | Ports 1,2,3,4 |
| 2100-2500 | 23 | 17 | 0.7 | 1.2 | 20 | 1.1 | 1.15 | 1.15 |

### Typical Performance Data

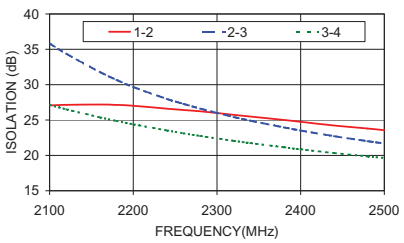
| Freq. (MHz) | Total Loss[1] (dB) | | | | Amp. Unbal. (dB) | Isolation (dB) | | | Phase Unbal. (deg.) | VSWR S | VSWR 1 | VSWR 2 | VSWR 3 | VSWR 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S-1 | S-2 | S-3 | S-4 | | 1-2 | 2-3 | 3-4 | | | | | | |
| 2100.00 | 6.12 | 6.78 | 6.84 | 6.82 | 0.72 | 27.06 | 35.82 | 27.14 | 8.09 | 1.16 | 1.13 | 1.24 | 1.23 | 1.30 |
| 2120.00 | 6.12 | 6.76 | 6.82 | 6.80 | 0.70 | 27.15 | 34.37 | 26.51 | 8.47 | 1.13 | 1.12 | 1.23 | 1.22 | 1.29 |
| 2160.00 | 6.12 | 6.73 | 6.78 | 6.78 | 0.66 | 27.19 | 31.79 | 25.38 | 9.15 | 1.08 | 1.11 | 1.21 | 1.19 | 1.27 |
| 2180.00 | 6.12 | 6.72 | 6.77 | 6.78 | 0.65 | 27.14 | 30.68 | 24.87 | 9.52 | 1.07 | 1.11 | 1.21 | 1.19 | 1.27 |
| 2200.00 | 6.13 | 6.70 | 6.76 | 6.77 | 0.64 | 27.02 | 29.67 | 24.40 | 9.88 | 1.07 | 1.10 | 1.20 | 1.18 | 1.26 |
| 2240.00 | 6.14 | 6.69 | 6.74 | 6.76 | 0.62 | 26.61 | 27.99 | 23.53 | 10.62 | 1.09 | 1.10 | 1.18 | 1.16 | 1.24 |
| 2260.00 | 6.16 | 6.68 | 6.73 | 6.76 | 0.61 | 26.42 | 27.29 | 23.12 | 11.00 | 1.11 | 1.09 | 1.18 | 1.16 | 1.24 |
| 2280.00 | 6.17 | 6.67 | 6.73 | 6.76 | 0.60 | 26.23 | 26.62 | 22.75 | 11.37 | 1.13 | 1.09 | 1.17 | 1.15 | 1.23 |
| 2320.00 | 6.20 | 6.67 | 6.72 | 6.77 | 0.57 | 25.74 | 25.43 | 22.06 | 12.10 | 1.18 | 1.09 | 1.15 | 1.14 | 1.22 |
| 2340.00 | 6.21 | 6.67 | 6.72 | 6.77 | 0.56 | 25.49 | 24.91 | 21.74 | 12.46 | 1.20 | 1.08 | 1.15 | 1.13 | 1.21 |
| 2380.00 | 6.25 | 6.67 | 6.72 | 6.78 | 0.54 | 25.01 | 23.96 | 21.14 | 13.17 | 1.26 | 1.08 | 1.13 | 1.11 | 1.20 |
| 2400.00 | 6.27 | 6.67 | 6.72 | 6.79 | 0.53 | 24.75 | 23.51 | 20.86 | 13.53 | 1.28 | 1.07 | 1.13 | 1.11 | 1.20 |
| 2440.00 | 6.31 | 6.68 | 6.72 | 6.82 | 0.51 | 24.23 | 22.72 | 20.34 | 14.30 | 1.34 | 1.08 | 1.12 | 1.10 | 1.19 |
| 2480.00 | 6.36 | 6.70 | 6.74 | 6.84 | 0.48 | 23.80 | 22.02 | 19.86 | 15.02 | 1.39 | 1.07 | 1.11 | 1.08 | 1.17 |
| 2500.00 | 6.38 | 6.70 | 6.74 | 6.85 | 0.47 | 23.57 | 21.69 | 19.64 | 15.39 | 1.42 | 1.07 | 1.10 | 1.08 | 1.17 |

1. Total Loss = Insertion Loss + 6dB splitter loss.

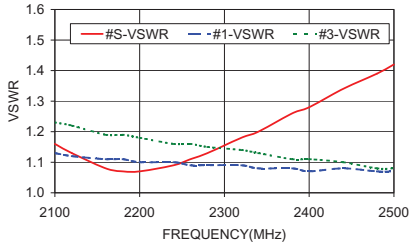
BP4U+
TOTAL LOSS



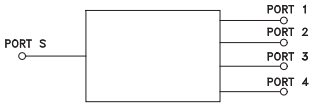

BP4U+
ISOLATION




BP4U+
VSWR




### electrical schematic




**ESD Rating**
Human Body Model (HBM): Class 1A (250 v to <500 v) in accordance with ANSI/ESD STM 5.1 - 2001
Machine Model (MM): Class M1 (< 100 v) in accordance with ANSI/ESD STM 5.2 - 1999 (pass 50V)

**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.
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