

Surface Mount

Power Splitter/Combiner

WP4N+

4 Way-0° 50Ω 1215 to 1900 MHz

Maximum Ratings

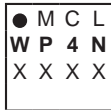
| | |
|-----------------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -65°C to 150°C |
| Power Input (as a splitter) | 1.5W max. |
| Internal Dissipation | 0.375W max. |

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

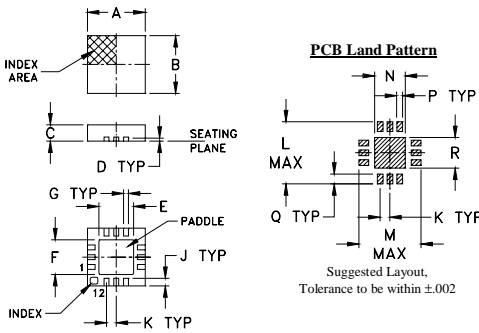
Pad Connections

| | |
|----------|------------------------|
| SUM PORT | 2 |
| PORT 1 | 12 |
| PORT 2 | 10 |
| PORT 3 | 6 |
| PORT 4 | 4 |
| GROUND | 1,3,5,7,8,9,11, paddle |

Product Marking



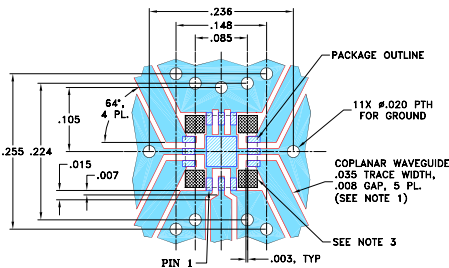
Outline Drawing



Outline Dimensions (inch/mm)

| | | | | | | | | |
|------|------|------|------|------|------|------|-------|------|
| A | B | C | D | E | F | G | H | J |
| .118 | .118 | .035 | .008 | .057 | .057 | .009 | --- | .016 |
| 3.00 | 3.00 | 0.89 | 0.20 | 1.45 | 1.45 | 0.23 | --- | 0.41 |
| K | L | M | N | P | Q | R | wt | |
| .020 | .127 | .127 | .049 | .010 | .020 | .049 | grams | |
| 0.51 | 3.23 | 3.23 | 1.24 | 0.25 | 0.51 | 1.24 | 0.02 | |

Demo Board MCL P/N: TB-395+ Suggested PCB Layout (PL-259)



NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
 - BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
 - SIGNAL TRACES ARE NOT ALLOWED INSIDE HATCHED AREAS (APPROX. .030" X .030") AT 4 PLACES AS SHOWN.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 - DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

- excellent isolation, 23 dB typ.
- excellent phase unbalance 1.5 deg. typ.
- excellent amplitude unbalance, 0.15 dB typ.
- small size, .118" x .118" x .035"
- high ESD level
- aqueous washable

Applications

- GPS
- WCDMA
- PCS

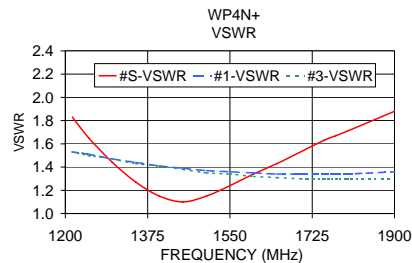
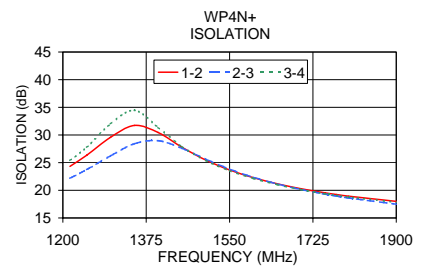
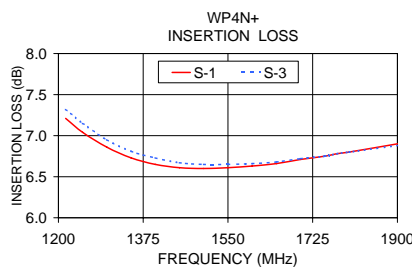
Electrical Specifications

| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS* (dB) ABOVE 6.0 dB | | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) | VSWR (:1) Typ. | |
|-------------------|----------------|------|-----------------------------------|------|---------------------------|--------------------------|----------------|---------------|
| | Typ. | Min. | Typ. | Max. | | | Port S | Ports 1,2,3,4 |
| 1215-1900 | 23 | 14 | 0.7 | 1.9 | 5 | 0.5 | 1.5 | 1.4 |

* Includes fixture loss, 0.15 dB typ.

Typical Performance Data

| Freq. (MHz) | Insertion Loss (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 | | | | | | |
| 1215.00 | 7.21 | 7.37 | 7.32 | 7.18 | 0.19 | 24.33 | 22.18 | 25.40 | 1.09 | 1.83 | 1.53 | 1.52 | 1.53 | 1.52 |
| 1250.00 | 7.04 | 7.19 | 7.15 | 7.01 | 0.19 | 26.34 | 23.75 | 27.78 | 0.95 | 1.65 | 1.51 | 1.50 | 1.50 | 1.49 |
| 1300.00 | 6.86 | 7.00 | 6.95 | 6.81 | 0.18 | 29.57 | 26.22 | 32.00 | 0.76 | 1.44 | 1.47 | 1.46 | 1.47 | 1.45 |
| 1350.00 | 6.73 | 6.86 | 6.81 | 6.68 | 0.18 | 31.73 | 28.42 | 34.47 | 0.59 | 1.27 | 1.44 | 1.43 | 1.43 | 1.42 |
| 1400.00 | 6.65 | 6.77 | 6.73 | 6.59 | 0.17 | 30.45 | 28.98 | 31.37 | 0.68 | 1.15 | 1.41 | 1.40 | 1.41 | 1.39 |
| 1450.00 | 6.61 | 6.71 | 6.67 | 6.54 | 0.17 | 27.78 | 27.60 | 27.91 | 0.87 | 1.10 | 1.39 | 1.37 | 1.38 | 1.37 |
| 1500.00 | 6.60 | 6.69 | 6.65 | 6.52 | 0.17 | 25.47 | 25.64 | 25.39 | 1.09 | 1.15 | 1.37 | 1.35 | 1.35 | 1.35 |
| 1550.00 | 6.61 | 6.69 | 6.65 | 6.53 | 0.16 | 23.68 | 23.85 | 23.54 | 1.28 | 1.24 | 1.36 | 1.33 | 1.34 | 1.33 |
| 1600.00 | 6.63 | 6.70 | 6.66 | 6.55 | 0.15 | 22.29 | 22.37 | 22.13 | 1.46 | 1.34 | 1.35 | 1.31 | 1.32 | 1.33 |
| 1650.00 | 6.66 | 6.73 | 6.68 | 6.58 | 0.15 | 21.18 | 21.16 | 21.02 | 1.65 | 1.43 | 1.34 | 1.30 | 1.31 | 1.32 |
| 1700.00 | 6.71 | 6.76 | 6.72 | 6.62 | 0.14 | 20.28 | 20.16 | 20.13 | 1.84 | 1.53 | 1.34 | 1.29 | 1.30 | 1.32 |
| 1750.00 | 6.75 | 6.80 | 6.75 | 6.67 | 0.13 | 19.55 | 19.33 | 19.39 | 2.00 | 1.63 | 1.34 | 1.28 | 1.30 | 1.32 |
| 1775.00 | 6.78 | 6.82 | 6.78 | 6.69 | 0.13 | 19.23 | 18.96 | 19.08 | 2.11 | 1.67 | 1.34 | 1.28 | 1.30 | 1.32 |
| 1800.00 | 6.80 | 6.85 | 6.80 | 6.72 | 0.13 | 18.94 | 18.62 | 18.79 | 2.21 | 1.71 | 1.34 | 1.28 | 1.30 | 1.32 |
| 1900.00 | 6.90 | 6.94 | 6.88 | 6.83 | 0.11 | 18.00 | 17.49 | 17.85 | 2.61 | 1.88 | 1.36 | 1.28 | 1.30 | 1.33 |



electrical schematic



ESD Rating

Human Body Model (HBM): Class 1A (250v to < 500v) in accordance with ANSI/ESD STM 5.1 - 2001
Machine Model (MM): Class M2 (100V to < 250V) in accordance with ANSI/ESD STM 5.2 - 1999

Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs & shipping online see web site

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IF/RF MICROWAVE COMPONENTS

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Rev. A
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