

MMIC Surface Mount Power Splitter/Combiner

WP4A+

4 Way-0° 50Ω 5100 to 6500 MHz



Generic photo used for illustration purposes only
CASE STYLE: DQ1225

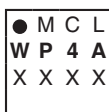
Maximum Ratings

| | |
|---|----------------|
| 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. | |

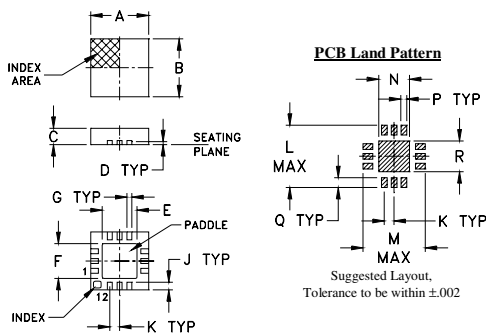
Pad Connections

| | |
|----------|------------------------|
| 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



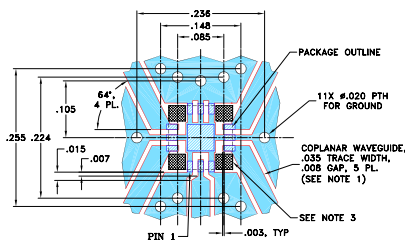
Outline Drawing



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

Notes

- 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.
- 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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Features

- excellent isolation, 25 dB typ.
- good phase unbalance, 3 deg. typ.
- good amplitude unbalance, 0.15 dB typ.
- small size, .118" x .118" x .035"
- high ESD level
- aqueous washable

Applications

- WLAN
- WIMAX
- ISM
- radar
- satellite up-link

Electrical Specifications

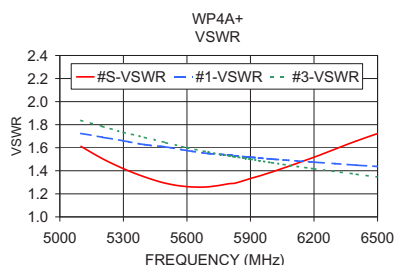
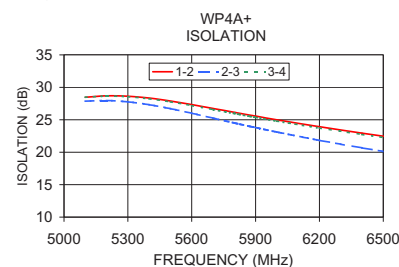
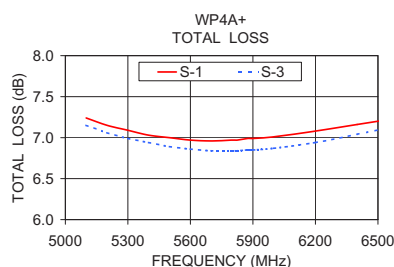
| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS* (dB) ABOVE 6.0 dB | | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) | VSWR (:1) Typ. | |
|--------------------------------|----------------|------|-----------------------------------|------|---------------------------|--------------------------|----------------|---------------|
| | Typ. | Min. | Typ. | Max. | | | Port S | Ports 1,2,3,4 |
| f _L -f _U | | | | | Max. | Max. | | |
| 5100-6500 | 25 | 15 | 0.9 | 2.0 | 8 | 0.5 | 1.5 | 1.6 |

* Includes fixture loss, 0.3 dB typ.

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 | | | | | | |
| 5100.00 | 7.24 | 7.16 | 7.15 | 7.22 | 0.09 | 28.47 | 27.87 | 28.48 | 4.01 | 1.61 | 1.72 | 1.81 | 1.84 | 1.75 |
| 5200.00 | 7.15 | 7.08 | 7.06 | 7.13 | 0.09 | 28.69 | 27.96 | 28.64 | 3.84 | 1.51 | 1.69 | 1.76 | 1.78 | 1.72 |
| 5300.00 | 7.09 | 7.00 | 6.99 | 7.07 | 0.09 | 28.63 | 27.76 | 28.55 | 3.65 | 1.42 | 1.66 | 1.71 | 1.73 | 1.69 |
| 5400.00 | 7.03 | 6.94 | 6.94 | 7.02 | 0.09 | 28.35 | 27.32 | 28.23 | 3.40 | 1.35 | 1.63 | 1.67 | 1.69 | 1.66 |
| 5500.00 | 7.00 | 6.90 | 6.89 | 6.98 | 0.10 | 27.89 | 26.71 | 27.76 | 3.17 | 1.29 | 1.61 | 1.63 | 1.64 | 1.63 |
| 5600.00 | 6.97 | 6.88 | 6.86 | 6.95 | 0.11 | 27.34 | 26.01 | 27.19 | 2.96 | 1.26 | 1.58 | 1.59 | 1.60 | 1.60 |
| 5700.00 | 6.96 | 6.87 | 6.84 | 6.94 | 0.12 | 26.75 | 25.25 | 26.57 | 2.71 | 1.26 | 1.55 | 1.55 | 1.56 | 1.58 |
| 5800.00 | 6.97 | 6.87 | 6.84 | 6.96 | 0.13 | 26.16 | 24.51 | 25.97 | 2.53 | 1.29 | 1.54 | 1.52 | 1.53 | 1.57 |
| 5825.00 | 6.97 | 6.87 | 6.84 | 6.95 | 0.13 | 26.00 | 24.33 | 25.81 | 2.42 | 1.29 | 1.53 | 1.52 | 1.52 | 1.56 |
| 5875.00 | 6.99 | 6.89 | 6.85 | 6.97 | 0.14 | 25.71 | 23.97 | 25.51 | 2.35 | 1.32 | 1.52 | 1.50 | 1.51 | 1.55 |
| 5900.00 | 6.99 | 6.90 | 6.85 | 6.97 | 0.14 | 25.57 | 23.80 | 25.37 | 2.33 | 1.33 | 1.52 | 1.50 | 1.50 | 1.55 |
| 6000.00 | 7.01 | 6.93 | 6.87 | 6.99 | 0.15 | 24.99 | 23.11 | 24.79 | 2.18 | 1.39 | 1.50 | 1.47 | 1.47 | 1.52 |
| 6200.00 | 7.08 | 7.01 | 6.94 | 7.06 | 0.14 | 23.93 | 21.83 | 23.73 | 1.85 | 1.52 | 1.47 | 1.42 | 1.42 | 1.50 |
| 6400.00 | 7.16 | 7.11 | 7.04 | 7.14 | 0.12 | 22.94 | 20.67 | 22.74 | 1.52 | 1.66 | 1.45 | 1.38 | 1.37 | 1.47 |
| 6600.00 | 7.24 | 7.20 | 7.15 | 7.21 | 0.09 | 22.00 | 19.59 | 21.82 | 1.05 | 1.79 | 1.43 | 1.34 | 1.32 | 1.43 |

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



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



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