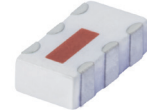


Ultra-Small Ceramic Power Splitter/Combiner

QCN-45+

2 Way-90° 50Ω 2500 to 4500 MHz



Generic photo used for illustration purposes only
CASE STYLE: FV1206-1

Maximum Ratings

| | |
|-----------------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| Power Input (as a splitter) | 15W* max. |

* Derate linearly to 7W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

Pin Connections

| | |
|----------------------|-----|
| SUM PORT | 1 |
| PORT 1 (0°) | 4 |
| PORT 2 (+90°) | 6 |
| GROUND | 2,5 |
| 50 OHM TERM EXTERNAL | 3 |

Product Marking: SA

Features

- wide band, 2500-4500 MHz
- low insertion loss, 0.4 dB typ.
- wrap-around terminal for excellent solderability
- ultra small, 0.12"X0.06"X0.035"
- patent pending

Applications

- balanced amplifiers
- modulators
- MMDS
- defense communications

+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, 3000 |

Electrical Specifications

| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS (dB) Avg. of Coupled Outputs ABOVE 3 dB | | PHASE UNBALANCE (Degrees) | | AMPLITUDE UNBALANCE (dB) | | VSWR (:1) |
|-------------------|----------------|------|--|------|---------------------------|------|--------------------------|------|-----------|
| | Typ. | Min. | Typ. | Max. | Typ. | Max. | Typ. | Max. | |
| 2500-4500 | | | | | | | | | |
| 2500-3500 | 22 | 16 | 0.4 | 0.7 | 1 | 4 | 0.5 | 1.7 | 1.2 |
| 3500-4500 | 19 | 15 | 0.5 | 0.8 | 3 | 6 | 1.0 | 2.1 | 1.2 |

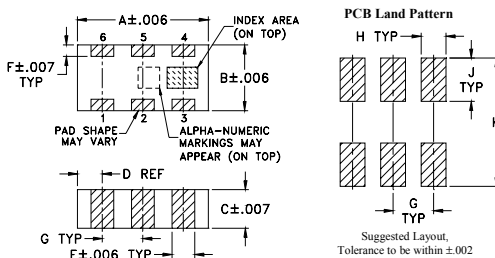
1. For applications requiring DC voltage to be applied to the RF ports, add suffix letter "D" to part no.
DC resistance to ground is 100 Mohms min.

Typical Performance Data

| Frequency (MHz) | Total Loss ¹ (dB) | | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR S | VSWR 1 | VSWR 2 |
|-----------------|------------------------------|------|--------------------------|----------------|------------------------|--------|--------|--------|
| | S-1 | S-2 | | | | | | |
| 2500.00 | 3.04 | 3.82 | 0.78 | 18.35 | 88.41 | 1.20 | 1.21 | 1.26 |
| 2600.00 | 3.14 | 3.68 | 0.54 | 18.66 | 88.69 | 1.19 | 1.18 | 1.24 |
| 2800.00 | 3.36 | 3.44 | 0.09 | 19.11 | 89.21 | 1.18 | 1.13 | 1.20 |
| 2900.00 | 3.46 | 3.35 | 0.11 | 19.15 | 89.40 | 1.19 | 1.11 | 1.18 |
| 3100.00 | 3.64 | 3.20 | 0.44 | 19.20 | 89.79 | 1.22 | 1.08 | 1.17 |
| 3200.00 | 3.72 | 3.14 | 0.57 | 19.10 | 89.97 | 1.22 | 1.08 | 1.16 |
| 3400.00 | 3.86 | 3.06 | 0.80 | 18.69 | 90.28 | 1.25 | 1.08 | 1.12 |
| 3500.00 | 3.93 | 3.03 | 0.90 | 18.48 | 90.38 | 1.27 | 1.09 | 1.11 |
| 3600.00 | 3.99 | 3.02 | 0.97 | 18.13 | 90.47 | 1.29 | 1.10 | 1.12 |
| 3800.00 | 4.09 | 3.00 | 1.09 | 17.47 | 90.65 | 1.32 | 1.11 | 1.12 |
| 4000.00 | 4.15 | 3.00 | 1.15 | 16.86 | 90.87 | 1.33 | 1.12 | 1.12 |
| 4100.00 | 4.16 | 3.00 | 1.16 | 16.63 | 90.98 | 1.34 | 1.12 | 1.13 |
| 4200.00 | 4.17 | 3.02 | 1.15 | 16.38 | 91.08 | 1.35 | 1.12 | 1.13 |
| 4300.00 | 4.17 | 3.05 | 1.13 | 16.23 | 91.21 | 1.35 | 1.13 | 1.14 |
| 4500.00 | 4.13 | 3.12 | 1.01 | 16.03 | 91.48 | 1.36 | 1.13 | 1.13 |

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

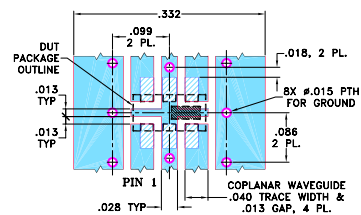
Outline Drawing



Outline Dimensions (inch/mm)

| | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|-------|
| A | B | C | D | E | F | G | H | J | K | wt |
| .126 | .063 | .035 | .024 | .022 | .011 | .039 | .024 | .042 | .123 | grams |
| 3.20 | 1.60 | 0.89 | 0.61 | 0.56 | 0.28 | 0.99 | 0.61 | 1.07 | 3.12 | .020 |

Demo Board MCL P/N: TB-405 Suggested PCB Layout (PL-250)

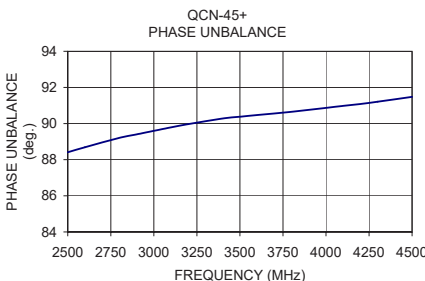
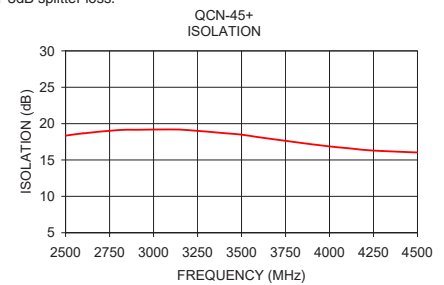
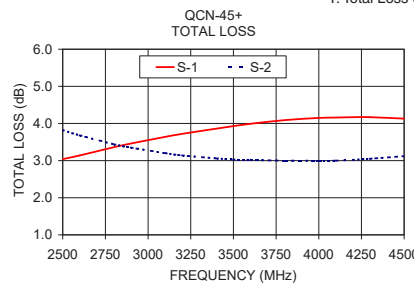


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Notes

- 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.
- 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



electrical schematic (Note 1)

