

Ultra-Small Ceramic Power Splitter/Combiner

2 Way-90° 50Ω 330 to 580 MHz

QCN-5+
QCN-5



CASE STYLE: FV1206-1
PRICE: \$3.95 ea. QTY (20)

+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 7" Devices/Reel 20, 50, 100, 200, 500, 1000, 3000

Maximum Ratings

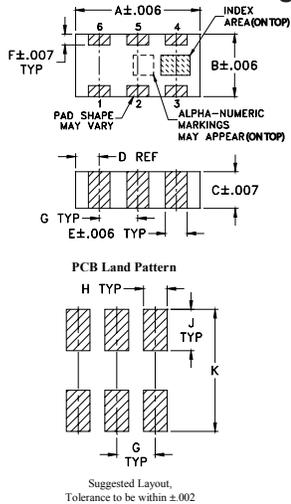
| | |
|-----------------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| Power Input (as a splitter) | 15W* max. |

* 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 |

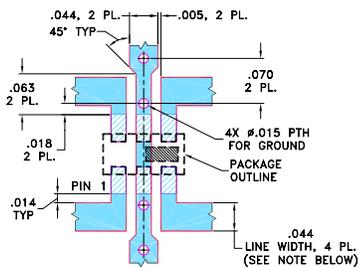
Outline Drawing



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-255+ Suggested PCB Layout (PL-131)



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

Features

- low insertion loss, 0.4 dB typ.
- high isolation, 22 dB typ.
- wrap-around terminal for excellent solderability
- ultra small, 0.12"X0.06"X0.035"

Applications

- balanced amplifiers
- modulators
- VHF
- defense communication

Electrical Specifications

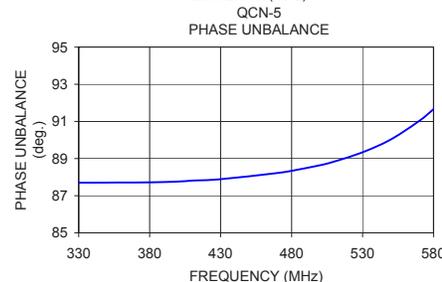
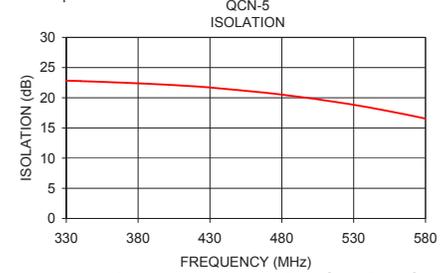
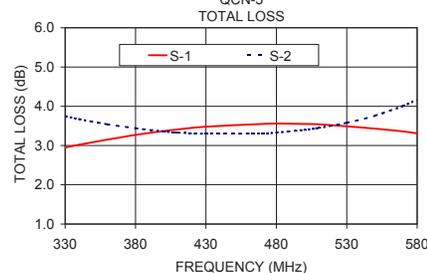
| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS (dB) Avg. of Coupled Outputs ABOVE 3 dB | | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) | | VSWR (:1) | |
|-------------------|----------------|------|--|------|---------------------------|--------------------------|------|-----------|-----|
| | Typ. | Min. | Typ. | Max. | Typ. Max. | Typ. | Max. | Typ. | |
| $f_L - f_U$ | | | | | | | | | |
| 330-580 | | | | | | | | | |
| 330-400 | 20 | 18 | 0.40 | 0.6 | 2.5 | 5 | 0.6 | 1.1 | 1.2 |
| 400-525 | 20 | 15 | 0.55 | 0.8 | 2.5 | 4 | 0.5 | 0.9 | 1.3 |
| 525-580 | 16 | 12 | 0.90 | 1.3 | 3.0 | 6 | 1.4 | 1.8 | 1.5 |

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.

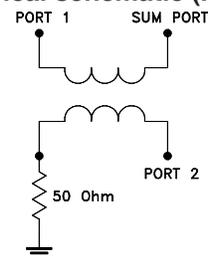
Typical Performance Data

| Frequency (MHz) | Total Loss ¹ (dB) | | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR S | VSWR 1 | VSWR 2 |
|-----------------|------------------------------|------|--------------------------|----------------|------------------------|--------|--------|--------|
| | S-1 | S-2 | | | | | | |
| 330.00 | 2.95 | 3.75 | 0.81 | 22.84 | 87.70 | 1.15 | 1.20 | 1.13 |
| 340.00 | 3.02 | 3.67 | 0.66 | 22.76 | 87.70 | 1.15 | 1.20 | 1.14 |
| 360.00 | 3.15 | 3.54 | 0.39 | 22.58 | 87.71 | 1.15 | 1.20 | 1.14 |
| 380.00 | 3.27 | 3.44 | 0.17 | 22.39 | 87.72 | 1.15 | 1.21 | 1.15 |
| 400.00 | 3.37 | 3.36 | 0.01 | 22.16 | 87.76 | 1.15 | 1.22 | 1.16 |
| 410.00 | 3.41 | 3.33 | 0.08 | 22.02 | 87.81 | 1.15 | 1.22 | 1.17 |
| 430.00 | 3.48 | 3.30 | 0.18 | 21.70 | 87.89 | 1.16 | 1.23 | 1.19 |
| 470.00 | 3.55 | 3.31 | 0.24 | 20.79 | 88.22 | 1.17 | 1.26 | 1.23 |
| 480.00 | 3.56 | 3.33 | 0.22 | 20.51 | 88.34 | 1.18 | 1.27 | 1.24 |
| 500.00 | 3.55 | 3.40 | 0.15 | 19.91 | 88.64 | 1.20 | 1.30 | 1.28 |
| 510.00 | 3.54 | 3.45 | 0.08 | 19.57 | 88.84 | 1.21 | 1.31 | 1.30 |
| 530.00 | 3.49 | 3.58 | 0.09 | 18.83 | 89.34 | 1.23 | 1.34 | 1.34 |
| 550.00 | 3.43 | 3.76 | 0.33 | 17.98 | 90.03 | 1.26 | 1.39 | 1.39 |
| 570.00 | 3.36 | 4.01 | 0.66 | 17.04 | 91.03 | 1.31 | 1.44 | 1.46 |
| 580.00 | 3.31 | 4.17 | 0.85 | 16.55 | 91.66 | 1.33 | 1.48 | 1.50 |

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



electrical schematic (Note 1)



For detailed performance specs & shopping online see web site

Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED
The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits 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-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp.

REV. N
M148717
QCN-5
AD/RS/CP/AM
141021