

Ultra-Small Ceramic Power Splitter/Combiner

QCN-34

2 Way-90° 50Ω 2500 to 3400 MHz



CASE STYLE: FV1206-1

Maximum Ratings

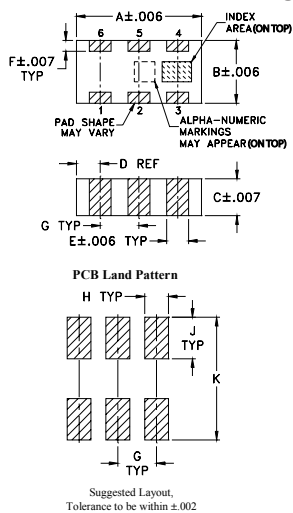
| | |
|-----------------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| Power Input (as a splitter) | 15W* max. |

* 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 |

Outline Drawing

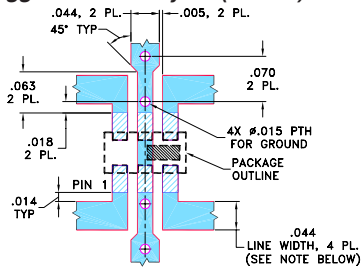


Outline Dimensions (inch/mm)

| A | B | C | D | E | F |
|------|------|------|------|------|------|
| .126 | .063 | .035 | .024 | .022 | .011 |
| 3.20 | 1.60 | 0.89 | 0.61 | 0.56 | 0.28 |

| G | H | J | K | wt |
|------|------|------|------|-------|
| .039 | .024 | .042 | .123 | grams |
| 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 R04350B 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

Features

- low insertion loss, 0.4 dB typ.
- high isolation, 30 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

Electrical Specifications

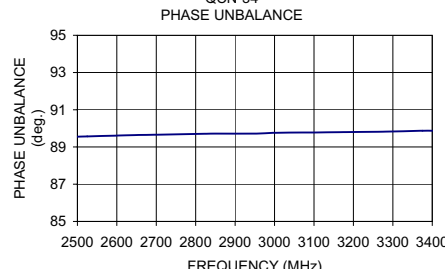
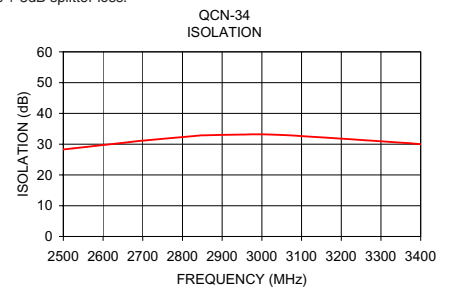
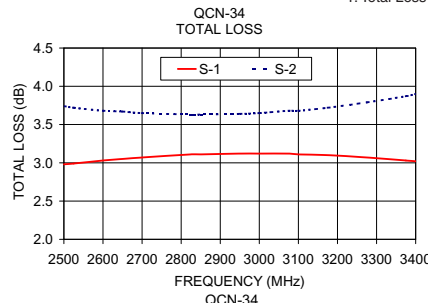
| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS (dB) Avg. of Coupled Outputs ABOVE 3 dB | | PHASE UNBALANCE (Degrees) | | AMPLITUDE UNBALANCE (dB) | | VSWR (:1) |
|-------------------|----------------|------|--|------|---------------------------|------|--------------------------|------|-----------|
| | Typ. | Min. | Typ. | Max. | Typ. | Max. | Typ. | Max. | |
| 2500-3400 | | | | | | | | | |
| 2500-2800 | 32 | 23 | 0.4 | 0.6 | 1 | 3 | 0.4 | 0.9 | 1.15 |
| 2800-3400 | 26 | 20 | 0.5 | 0.7 | 1 | 4 | 0.5 | 1.2 | 1.15 |

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.

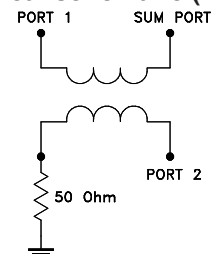
Typical Performance Data

| 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 | 2.98 | 3.74 | 0.76 | 28.30 | 89.55 | 1.07 | 1.08 | 1.07 |
| 2525.00 | 2.99 | 3.72 | 0.73 | 28.62 | 89.57 | 1.07 | 1.08 | 1.07 |
| 2600.00 | 3.03 | 3.68 | 0.65 | 29.72 | 89.61 | 1.06 | 1.07 | 1.05 |
| 2650.00 | 3.05 | 3.67 | 0.61 | 30.42 | 89.64 | 1.05 | 1.06 | 1.04 |
| 2700.00 | 3.07 | 3.65 | 0.58 | 31.14 | 89.66 | 1.04 | 1.06 | 1.03 |
| 2825.00 | 3.11 | 3.63 | 0.52 | 32.59 | 89.71 | 1.03 | 1.05 | 1.02 |
| 2850.00 | 3.11 | 3.63 | 0.52 | 32.87 | 89.72 | 1.03 | 1.05 | 1.02 |
| 2950.00 | 3.12 | 3.64 | 0.52 | 33.11 | 89.72 | 1.02 | 1.04 | 1.03 |
| 3000.00 | 3.12 | 3.65 | 0.53 | 33.20 | 89.76 | 1.02 | 1.04 | 1.03 |
| 3075.00 | 3.12 | 3.68 | 0.56 | 32.83 | 89.78 | 1.02 | 1.03 | 1.04 |
| 3100.00 | 3.11 | 3.68 | 0.57 | 32.62 | 89.78 | 1.02 | 1.03 | 1.05 |
| 3175.00 | 3.10 | 3.72 | 0.62 | 32.01 | 89.80 | 1.03 | 1.02 | 1.05 |
| 3275.00 | 3.07 | 3.79 | 0.72 | 31.16 | 89.82 | 1.04 | 1.02 | 1.06 |
| 3375.00 | 3.03 | 3.87 | 0.84 | 30.26 | 89.87 | 1.05 | 1.01 | 1.07 |
| 3400.00 | 3.02 | 3.90 | 0.88 | 29.99 | 89.87 | 1.05 | 1.01 | 1.08 |

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



electrical schematic (Note 1)



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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