

Ultra-Small Ceramic Power Splitter/Combiner

QCN-25+ QCN-25

2 Way-90° 50Ω 1350 to 2450 MHz



Maximum Ratings

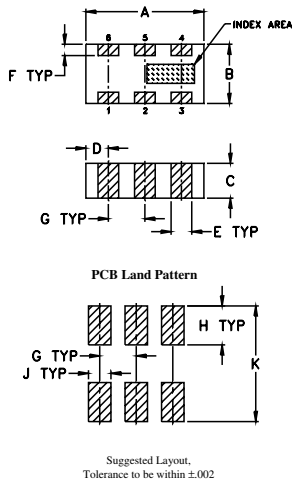
| | |
|-----------------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| Power Input (as a splitter) | 15W* max. |

* Derate linearly to 7W at 100°C ambient.

Pin Connections

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

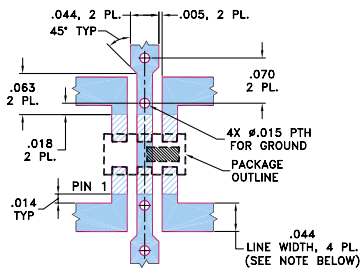
Outline Drawing



Outline Dimensions (inch/mm)

| | | | | | |
|------|------|------|------|-------|------|
| A | B | C | D | E | F |
| .126 | .063 | .037 | .024 | .022 | .012 |
| 3.20 | 1.60 | 0.94 | 0.61 | 0.56 | 0.30 |
| G | H | J | K | wt | |
| .039 | .042 | .024 | .123 | grams | |
| 0.99 | 1.07 | 0.61 | 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.

- 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, 25 dB typ.
- wrap-around terminal for excellent solderability
- ultra small, 0.12"X0.06"X0.035"
- patent pending

Applications

- GPS
- PCS/DCS
- UMTS
- balanced amplifiers
- modulators

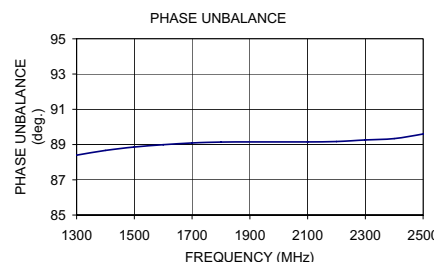
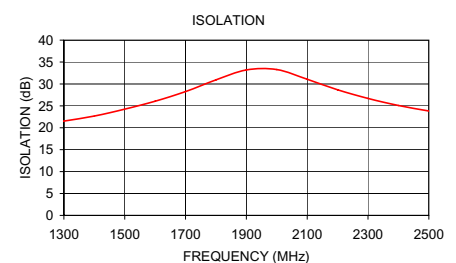
Splitter Electrical Specifications¹

| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS (dB) Avg. of Coupled Outputs less 3 dB | | PHASE UNBALANCE (Degrees) | | AMPLITUDE UNBALANCE (dB) | | VSWR (:1) |
|-------------------|----------------|------|---|------|---------------------------|------|--------------------------|------|-----------|
| | Typ. | Min. | Typ. | Max. | Typ. | Max. | Typ. | Max. | |
| 1350-2450 | | | | | | | | | |
| 1350-1950 | 25 | 18 | 0.4 | 0.7 | 1 | 5 | 0.5 | 1.1 | 1.2 |
| 1950-2200 | 25 | 20 | 0.4 | 0.7 | 1 | 4 | 0.5 | 1.0 | 1.15 |
| 2200-2450 | 25 | 18 | 0.6 | 0.9 | 1 | 4 | 0.5 | 1.1 | 1.2 |

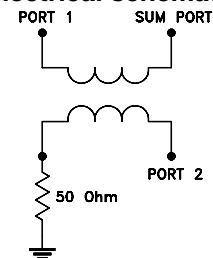
1. For applications requiring DC voltage to be applied to the RF ports, add suffix letter "D" to part no. DC resistance to ground is 100 Mohms min.

Typical Performance Data

| Frequency (MHz) | Insertion Loss (dB) | | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR S | VSWR 1 | VSWR 2 |
|-----------------|---------------------|------|--------------------------|----------------|------------------------|--------|--------|--------|
| | S-1 | S-2 | | | | | | |
| 1275.00 | 2.95 | 3.83 | 0.88 | 21.24 | 88.32 | 1.19 | 1.20 | 1.18 |
| 1300.00 | 3.00 | 3.77 | 0.77 | 21.52 | 88.40 | 1.18 | 1.19 | 1.17 |
| 1400.00 | 3.17 | 3.56 | 0.38 | 22.67 | 88.67 | 1.15 | 1.16 | 1.14 |
| 1500.00 | 3.33 | 3.39 | 0.06 | 24.25 | 88.86 | 1.13 | 1.13 | 1.11 |
| 1600.00 | 3.45 | 3.26 | 0.20 | 26.05 | 88.99 | 1.11 | 1.10 | 1.09 |
| 1700.00 | 3.56 | 3.17 | 0.38 | 28.25 | 89.09 | 1.09 | 1.07 | 1.07 |
| 1800.00 | 3.63 | 3.12 | 0.50 | 30.93 | 89.14 | 1.08 | 1.05 | 1.05 |
| 1900.00 | 3.67 | 3.11 | 0.56 | 33.19 | 89.15 | 1.08 | 1.04 | 1.06 |
| 2000.00 | 3.67 | 3.14 | 0.53 | 33.29 | 89.15 | 1.08 | 1.04 | 1.07 |
| 2100.00 | 3.64 | 3.21 | 0.43 | 31.07 | 89.15 | 1.09 | 1.05 | 1.08 |
| 2200.00 | 3.58 | 3.33 | 0.25 | 28.67 | 89.17 | 1.11 | 1.08 | 1.10 |
| 2300.00 | 3.48 | 3.49 | 0.00 | 26.70 | 89.26 | 1.13 | 1.11 | 1.12 |
| 2400.00 | 3.35 | 3.69 | 0.35 | 25.09 | 89.34 | 1.16 | 1.14 | 1.16 |
| 2500.00 | 3.19 | 3.96 | 0.78 | 23.82 | 89.60 | 1.19 | 1.17 | 1.19 |
| 2550.00 | 3.10 | 4.13 | 1.03 | 23.23 | 89.77 | 1.21 | 1.19 | 1.21 |



electrical schematic



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