

Surface Mount Power Splitter/Combiner

QBA-24W+ QBA-24W

2 Way-90° 50Ω 1700 to 2400 MHz



CASE STYLE: SM33

Maximum Ratings

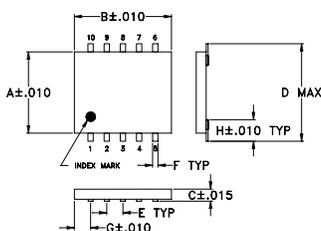
| | |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |

Permanent damage may occur if any of these limits are exceeded.

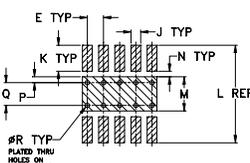
Pin Connections

| | |
|----------------------|-------------|
| SUM PORT | 1 |
| PORT 1 (+90°) | 10 |
| PORT 2 (0°) | 6 |
| GROUND | 2,3,4,7,8,9 |
| 50 OHM TERM EXTERNAL | 5 |

Outline Drawing



PCB Land Pattern

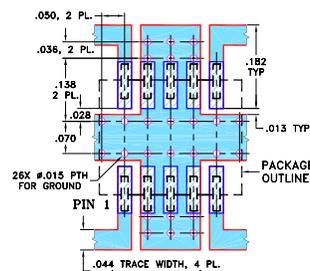


Suggested Layout,
Tolerance to be within ±.002
ADJACENT GROUND PINS SHALL BE CONNECTED
TO EACH OTHER AND TO GROUND PAD

Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G | H | |
|------|------|------|------|------|------|------|------|-------|
| .250 | .300 | .050 | .310 | .050 | .015 | .050 | .066 | |
| 6.35 | 7.62 | 1.27 | 7.87 | 1.27 | 0.38 | 1.27 | 1.68 | |
| J | K | L | M | N | P | Q | R | wt |
| .030 | .095 | .330 | .100 | .020 | .015 | .070 | .014 | grams |
| 0.76 | 2.41 | 8.38 | 2.54 | 0.51 | 0.38 | 1.78 | 0.36 | 0.2 |

Demo Board MCL P/N: TB-115+ Suggested PCB Layout (PL-004)



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4550B WITH DIELECTRIC THICKNESS .020 ± .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

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.
C. 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

Features

- insertion loss, 0.5 dB typ.
- high power capability, 20W
- good isolation, 21 dB typ.
- ceramic body, good for heat dissipation
- solder plated leads for excellent solderability
- aqueous washable
- protected by U.S. Patent 5,534,830

Applications

- PCS
- instrumentation
- DCS/GSM
- DECT/PHS

Electrical Specifications

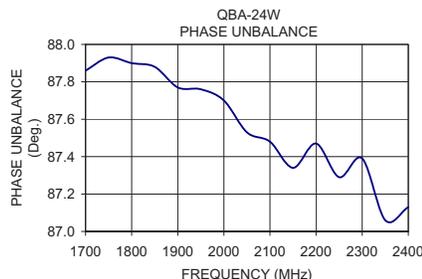
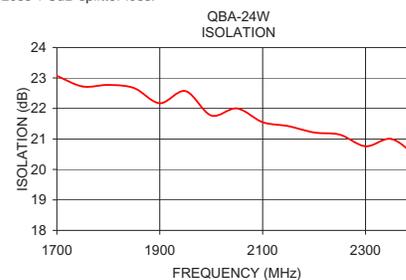
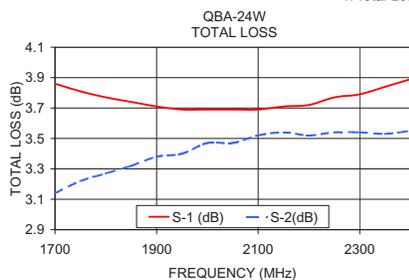
| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS ¹ (dB) Avg. of Coupled Outputs ABOVE 3 dB | | | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) | INPUT POWER ² (W) |
|-------------------|--------------------------------|-----------|--|-----------|----------|---------------------------|--------------------------|------------------------------|
| | f _L -f _U | Typ. Min. | \bar{X} | \bar{X} | σ | | | |
| 1700-2400 | 21 | 15 | 0.49 | 0.71 | 0.02 | 6.0 | 1.2 | 20 |

1. Includes test fixture losses.
2. Derate linearly to 4W at 100°C
Thermal compound may be applied to decrease body temperature. See application note AN-10-007

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 | | | | | | |
| 1700.00 | 3.86 | 3.14 | 0.72 | 23.07 | 87.86 | 1.19 | 1.24 | 1.20 |
| 1750.00 | 3.81 | 3.22 | 0.59 | 22.72 | 87.93 | 1.19 | 1.24 | 1.21 |
| 1800.00 | 3.77 | 3.27 | 0.50 | 22.77 | 87.90 | 1.19 | 1.24 | 1.21 |
| 1850.00 | 3.74 | 3.32 | 0.43 | 22.67 | 87.88 | 1.19 | 1.23 | 1.21 |
| 1900.00 | 3.71 | 3.38 | 0.32 | 22.17 | 87.77 | 1.19 | 1.23 | 1.21 |
| 1950.00 | 3.69 | 3.40 | 0.29 | 22.57 | 87.76 | 1.19 | 1.23 | 1.22 |
| 2000.00 | 3.69 | 3.47 | 0.22 | 21.77 | 87.70 | 1.19 | 1.22 | 1.22 |
| 2050.00 | 3.69 | 3.47 | 0.23 | 22.00 | 87.53 | 1.20 | 1.22 | 1.22 |
| 2100.00 | 3.69 | 3.52 | 0.17 | 21.55 | 87.48 | 1.19 | 1.22 | 1.21 |
| 2150.00 | 3.71 | 3.54 | 0.18 | 21.42 | 87.34 | 1.19 | 1.21 | 1.21 |
| 2200.00 | 3.72 | 3.52 | 0.20 | 21.21 | 87.47 | 1.19 | 1.21 | 1.21 |
| 2250.00 | 3.77 | 3.54 | 0.22 | 21.14 | 87.29 | 1.19 | 1.21 | 1.20 |
| 2300.00 | 3.79 | 3.54 | 0.24 | 20.76 | 87.39 | 1.19 | 1.20 | 1.20 |
| 2350.00 | 3.84 | 3.53 | 0.31 | 21.00 | 87.06 | 1.18 | 1.19 | 1.20 |
| 2400.00 | 3.89 | 3.55 | 0.34 | 20.42 | 87.13 | 1.19 | 1.20 | 1.20 |

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



electrical schematic

