



ULTRA-SMALL CERAMIC

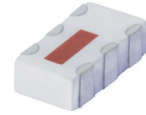
Power Splitter/Combiner

QCN-45+

2 Way-90° 50Ω 2500 to 4500 MHz

FEATURES

- Low insertion loss, 0.4 dB typ.
- Wide band, 2500-4500 MHz
- Wrap-around terminal for excellent solderability
- Ultra small, 0.12"X0.06"X0.035"
- Patent pending



Generic photo used for illustration purposes only

CASE STYLE: FV1206-1

+RoHS Compliant

The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Balanced amplifiers
- Modulators
- MMDS
- Defense communications

ELECTRICAL SPECIFICATIONS AT 25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|------------------------------|-----------------|------|------|------|--------|
| Frequency Range | | 2500 | | 4500 | MHz |
| Insertion Loss, above 3.0 dB | 2500-3500 | | 0.4 | 0.7 | dB |
| | 3500-4500 | | 0.5 | 0.8 | |
| Isolation | 2500-3500 | 16 | 22 | | dB |
| | 3500-4500 | 15 | 19 | | |
| Phase Unbalance | 2500-3500 | | 1 | 4 | Degree |
| | 3500-4500 | | 3 | 6 | |
| Amplitude Unbalance | 2500-3500 | | 0.5 | 1.7 | dB |
| | 3500-4500 | | 1.0 | 2.1 | |
| VSWR | 2500-3500 | | 1.2 | | (:1) |
| | 3500-4500 | | 1.2 | | |

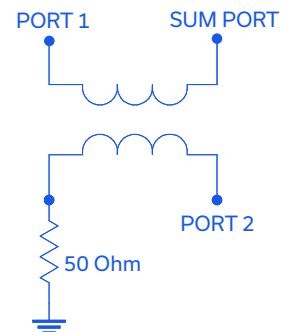
1. For applications requiring DC voltage to be applied to the RF ports, add suffix letter "D" to part no.
DC resistance to ground is 100 Mohms min.

MAXIMUM RATINGS

| Parameter | 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.

ELECTRICAL SCHEMATIC (NOTE 1)





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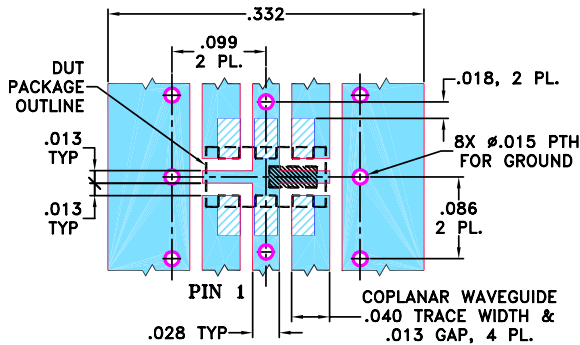
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PIN CONNECTIONS

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

PRODUCT MARKING: SA

DEMO BOARD MCL P/N: TB-405
SUGGESTED PCB LAYOUT (PL-250)

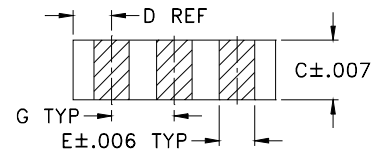
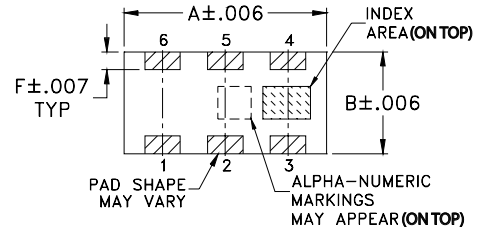


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $0.020" \pm 0.0015"$; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

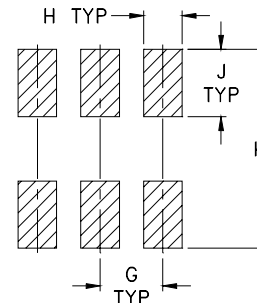
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

OUTLINE DRAWING



PCB Land Pattern



Suggested Layout,
Tolerance to be within ± 0.002

OUTLINE DIMENSIONS (Inches/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 |

TAPE & REEL INFORMATION: F75





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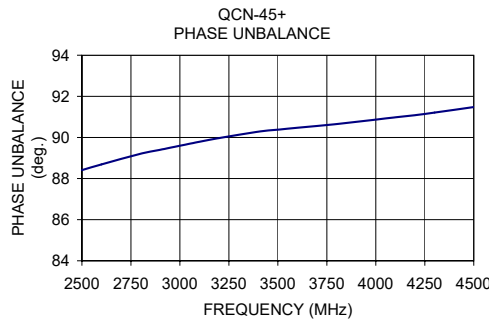
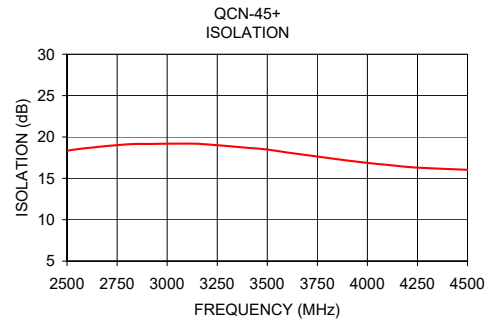
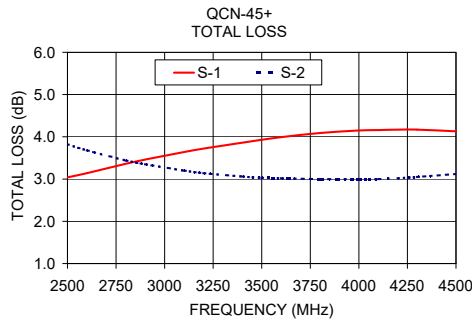
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TYPICAL PERFORMANCE DATA

| Frequency (MHz) | Total Loss ¹ (dB) | | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR (:1) | | |
|-----------------|------------------------------|------|--------------------------|----------------|------------------------|-----------|------|------|
| | S-1 | S-2 | | | | S | 1 | 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 + 3 dB splitter loss.



- 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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