



CERAMIC BALUN

RF Transformer

NCS2-222-3+

Mini-Circuits

50Ω 1275 to 2200 MHz 1:2 Ratio

FEATURES

- Wideband, 1275 to 2200 MHz
- Low phase unbalance, 5 deg. and amplitude unbalance, 0.4 dB typ.
- Miniature size, 0.079"x0.049"x0.033"
- LTCC construction
- Low cost
- Aqueous washable



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-1

APPLICATIONS

- GPS
- WCDMA
- PCS

+RoHS Compliant

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

ELECTRICAL SPECIFICATIONS AT 25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Units |
|-------------------------------------|-----------------|------|------|------|--------|
| Impedance Ratio (Secondary/Primary) | | | 2 | | |
| Frequency Range | | 1275 | | 2200 | MHz |
| Insertion Loss ¹ | 1275 - 2200 | — | 1.0 | — | dB |
| Amplitude Unbalance | 1275 - 2200 | — | 0.4 | — | dB |
| Phase Unbalance ² | 1275 - 2200 | — | 5 | — | Degree |

1. Insertion Loss is referenced to mid-band loss, 0.6 dB.

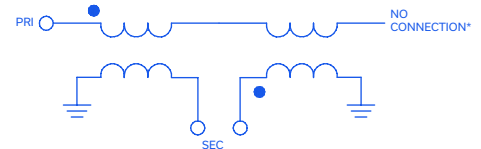
2. Relative to 180°

MAXIMUM RATINGS

| Parameter | Ratings |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 3W |

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

CONFIGURATION J



*Internal open circuit

Mini-Circuits

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REV. A
ECO-010141
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MCL NY
211026

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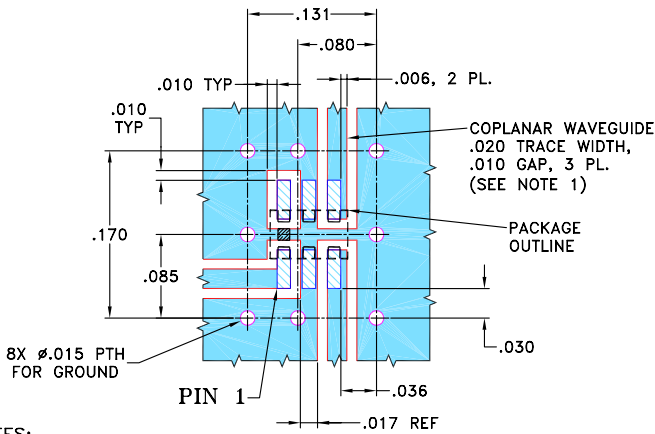
PAD CONNECTIONS

| | |
|-------------------------------|---|
| PRIMARY DOT (Unbalanced Port) | 1 |
| PRIMARY (GND) | 2 |
| SECONDARY DOT (Balanced) | 4 |
| SECONDARY (Balanced) | 3 |
| NO CONNECTION | 6 |
| NOT USED (GND Externally) | 5 |

Pads 2,3,4 are DC-connected internally

PRODUCT MARKING: N/A

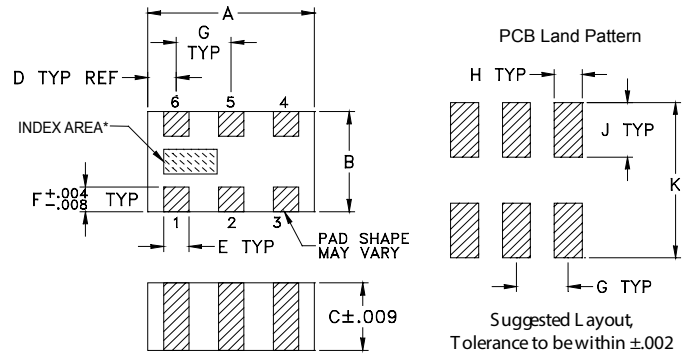
DEMO BOARD MCL P/N: TB-419+ SUGGESTED PCB LAYOUT (PL-264)



NOTES:

- COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS $.010'' \pm .001''$. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
 - 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



*Shape of index marking may vary

OUTLINE DIMENSIONS (Inches/mm)

| | | | | | |
|------|------|------|------|------|-------|
| A | B | C | D | E | F |
| .079 | .049 | .033 | .014 | .012 | .012 |
| 2.01 | 1.24 | 0.84 | 0.36 | 0.30 | 0.30 |
| G | H | J | K | | wt |
| .026 | .014 | .039 | .110 | | grams |
| 0.66 | 0.36 | 1.00 | 2.80 | | .008 |

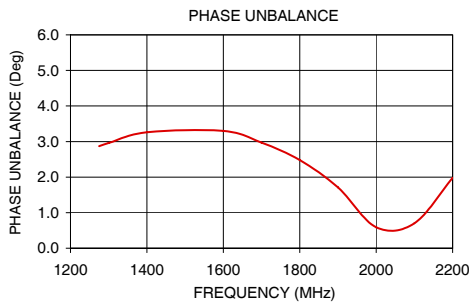
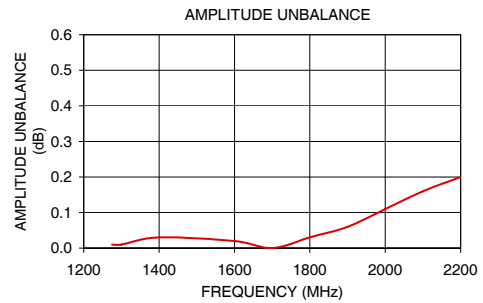
TAPE & REEL INFORMATION: F74



TYPICAL PERFORMANCE DATA³

| Frequency (MHz) | Insertion Loss (dB) | Input Return Loss (dB) | Amplitude Unbalance (dB) | Phase Unbalance (deg) |
|-----------------|---------------------|------------------------|--------------------------|-----------------------|
| 1275 | 0.29 | 13.01 | 0.01 | 2.87 |
| 1300 | 0.23 | 14.10 | 0.01 | 2.96 |
| 1400 | 0.06 | 20.32 | 0.03 | 3.26 |
| 1600 | 0.00 | 23.50 | 0.02 | 3.30 |
| 1700 | 0.05 | 18.13 | 0.00 | 2.97 |
| 1800 | 0.11 | 15.42 | 0.03 | 2.48 |
| 1900 | 0.18 | 13.83 | 0.06 | 1.71 |
| 2000 | 0.24 | 12.80 | 0.11 | 0.59 |
| 2100 | 0.29 | 12.18 | 0.16 | 0.70 |
| 2200 | 0.33 | 11.83 | 0.20 | 1.98 |

3. Measured with Agilent E5071B network analyzer using impedance conversion and port extension.



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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