



CERAMIC BALUN

RF Transformer

NCS1-422+

50Ω 3300 to 4000 MHz 1:1 Ratio

FEATURES

- Wideband, 3300 to 4000 MHz
- Low phase unbalance, 4 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

- WIMAX
- Satellite
- Radar

+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 | | 1 | | | |
| Frequency Range | | 3300 | | 4000 | MHz |
| Insertion Loss ¹ | 3300 - 4000 | — | 1.0 | — | dB |
| Amplitude Unbalance | 3300 - 4000 | — | 0.4 | — | dB |
| Phase Unbalance ² | 3300 - 4000 | — | 4 | — | Degree |

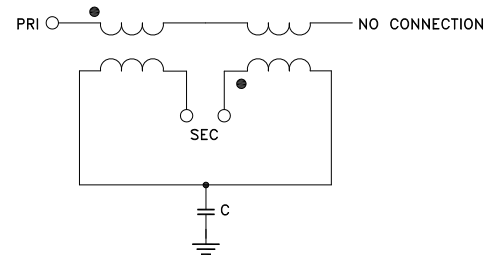
1. Insertion Loss is referenced to mid-band loss, 0.7 dB. Reference Demo Board TB-419+
 2. Relative to 180°

MAXIMUM RATINGS

| Parameter | Ratings |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power ³ | 3W at 25°C |

3. Derate linearly to 2W at 85°C
 Permanent damage may occur if any of these limits are exceeded.

CONFIGURATION R





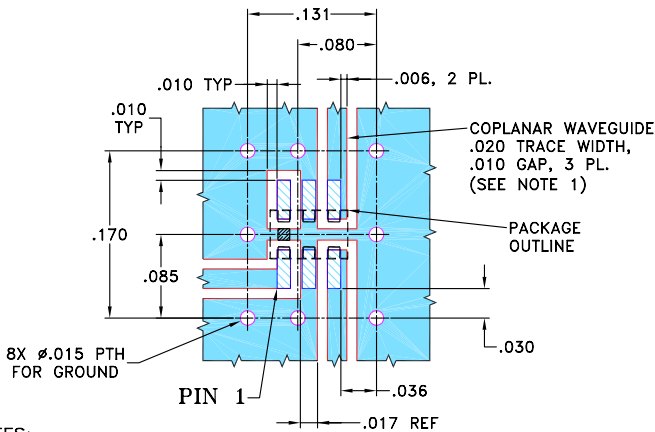
PAD CONNECTIONS

| | |
|-------------------------------|---|
| 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

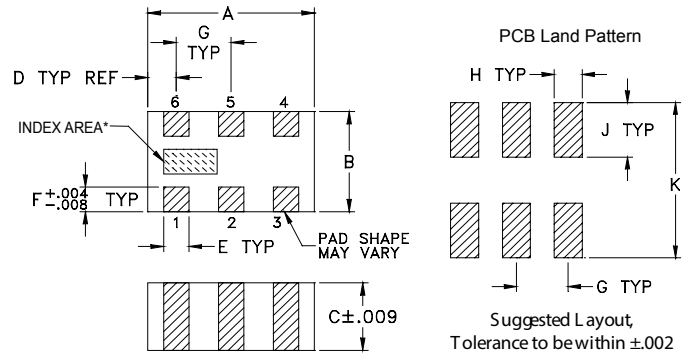
DEMO BOARD MCL P/N: TB-419+ SUGGESTED PCB LAYOUT (PL-264)



NOTES:

1. 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.
 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



*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 | |

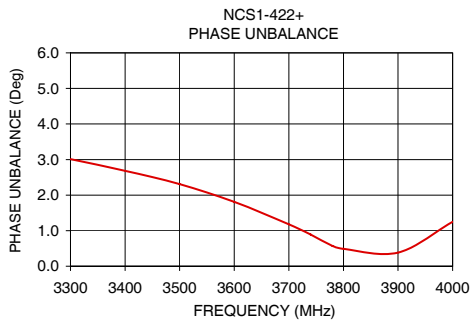
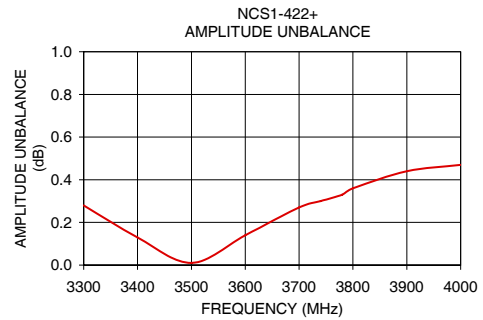
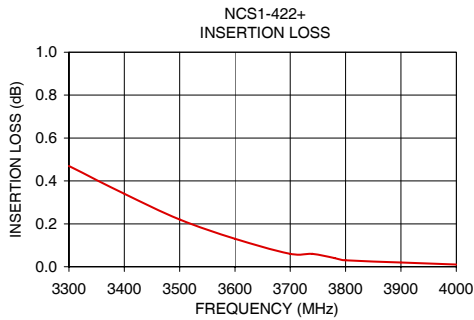
TAPE & REEL INFORMATION: F74



TYPICAL PERFORMANCE DATA³

| Frequency (MHz) | Insertion Loss (dB) | Input Return Loss (dB) | Amplitude Unbalance (dB) | Phase Unbalance (deg) |
|-----------------|---------------------|------------------------|--------------------------|-----------------------|
| 3300 | 0.47 | 10.35 | 0.28 | 3.01 |
| 3400 | 0.34 | 11.50 | 0.13 | 2.68 |
| 3500 | 0.22 | 12.83 | 0.01 | 2.31 |
| 3600 | 0.13 | 14.29 | 0.14 | 1.81 |
| 3700 | 0.06 | 15.99 | 0.27 | 1.18 |
| 3740 | 0.06 | 16.64 | 0.30 | 0.89 |
| 3780 | 0.04 | 17.52 | 0.33 | 0.57 |
| 3800 | 0.03 | 17.98 | 0.36 | 0.49 |
| 3900 | 0.02 | 20.37 | 0.44 | 0.38 |
| 4000 | 0.01 | 23.80 | 0.47 | 1.25 |

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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