

# Ceramic Balun RF Transformer

50Ω      700 to 1000 MHz      1:4 Ratio

## NCS4-102+



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-1

### +RoHS Compliant

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



Available Tape and Reel  
at no extra cost

| Reel Size | Devices/Reel                      |
|-----------|-----------------------------------|
| 7"        | 20, 50, 100, 200, 500, 1000, 4000 |

## Features

- wideband, 700 to 1000 MHz
- low phase unbalance, 5 deg and amplitude unbalance, 0.5 dB typ.
- miniature size, 0.079"x0.049"x0.033"
- LTCC construction
- low cost
- aqueous washable

## Applications

- LTE
- radar
- cellular

## Electrical Specifications<sup>1</sup> at 25°C

| Parameter                                 | Frequency (MHz) | Min. | Typ. | Max. | Unit   |
|---|-----------------|------|------|------|--------|
| Impedance Ratio (Secondary/Primary)       |                 |      | 4    |      |        |
| Frequency Range                           |                 | 700  |      | 1000 | MHz    |
| Insertion Loss                            | 700 - 1000      | —    | 0.9  | 1.3  | dB     |
| Amplitude Unbalance                       | 700 - 1000      | —    | 0.5  | —    | dB     |
| Phase Unbalance at Secondary <sup>2</sup> | 700 - 1000      | —    | 5    | —    | Degree |

1. Measured on Demo board TB-628+

2. Relative to 180°

## Maximum Ratings

| Parameter             | Ratings        |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |
| RF Power              | 2W             |

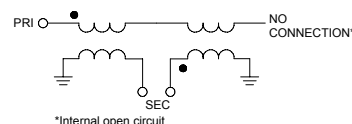
Permanent damage may occur if any of these limits are exceeded.

## Pad Connections

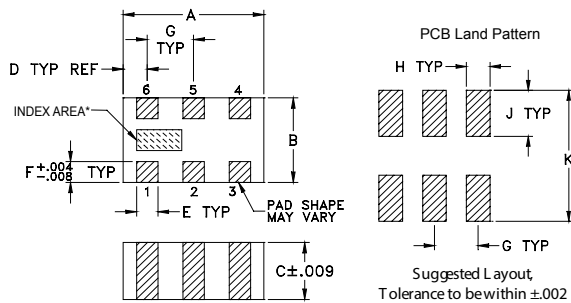
| Function                      | Pad Number |
|-------------------------------|------------|
| PRIMARY DOT (Unbalanced Port) | 1          |
| PRIMARY (GND)                 | 2          |
| SECONDARY DOT (Balanced)      | 4          |
| SECONDARY (Balanced)          | 6          |
| NO CONNECTION (ISOLATE)       | 3          |
| GND Externally                | 5          |

Pads 2,4,5 are DC connected internally.

## Configuration J



## Outline Drawing

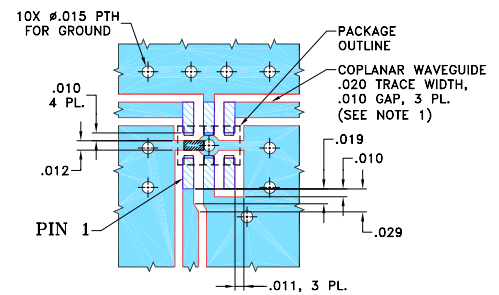


\*Shape of index marking may vary

## Outline Dimensions (inch 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  |      |

## Demo Board MCL P/N: TB-628+ Suggested PCB Layout (PL-354)

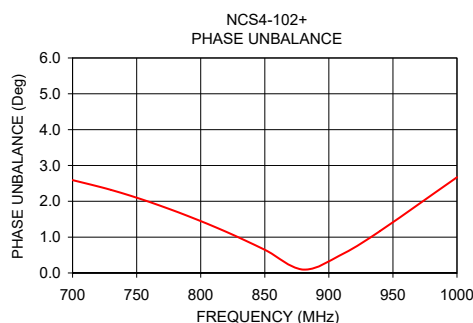
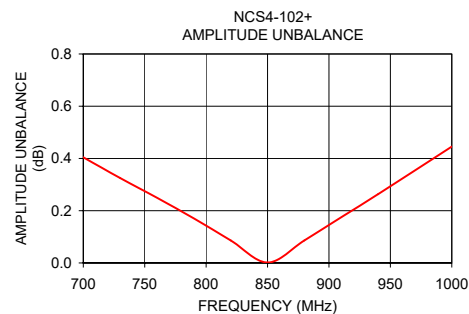
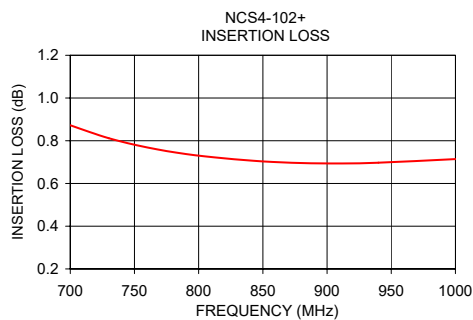


### NOTES:

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.

## Typical Performance Data at 25°C

| FREQUENCY (MHz) | INSERTION LOSS (dB) | INPUT R. LOSS (dB) | AMPLITUDE UNBALANCE (dB) | PHASE UNBALANCE (Deg.) |
|-----------------|---------------------|--------------------|--------------------------|------------------------|
| 700.00          | 0.87                | 13.12              | 0.40                     | 2.59                   |
| 730.00          | 0.81                | 14.07              | 0.33                     | 2.32                   |
| 760.00          | 0.77                | 14.86              | 0.25                     | 1.98                   |
| 790.00          | 0.74                | 15.48              | 0.17                     | 1.59                   |
| 820.00          | 0.72                | 15.91              | 0.09                     | 1.15                   |
| 850.00          | 0.70                | 16.14              | 0.00                     | 0.65                   |
| 880.00          | 0.70                | 16.15              | 0.09                     | 0.09                   |
| 910.00          | 0.69                | 16.01              | 0.17                     | 0.52                   |
| 940.00          | 0.70                | 15.76              | 0.26                     | 1.17                   |
| 1000.00         | 0.71                | 15.04              | 0.45                     | 2.67                   |



### Additional 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-Circuits' applicable established test performance criteria and measurement instructions.  
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