

## RF Transformer

50Ω 2250 to 2725 MHz

NCS3-272+



CASE STYLE: GE0805C-9

## Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -40°C to 85°C  |
| Storage Temperature                                             | -55°C to 100°C |
| Input RF Power***                                               | 3W             |
| *** Derate linearly to 2W at 85°C                               |                |
| Permanent damage may occur if any of these limits are exceeded. |                |

## 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

## Features

- wideband, 2250 to 2725 MHz
- low phase unbalance, 3 deg. and amplitude unbalance, 0.4 dB typ.
- miniature size, 0.079"x0.049"x0.033"
- LTCC construction
- low cost
- aqueous washable

## Applications

- WLAN
- WIMAX/WIBRO
- MMDS
- radar

Electrical Specifications ( $T_{AMB}=25^{\circ}\text{C}$ )

| $\Omega$<br>RATIO<br>(Secondary/Primary) | FREQUENCY<br>(MHz) | INSERTION*<br>LOSS<br>(dB) | PHASE<br>UNBALANCE AT<br>SECONDARY†<br>(Deg.)<br>Typ. | AMPLITUDE<br>UNBALANCE<br>(dB)<br>Typ. |
|------------------------------------------|--------------------|----------------------------|-------------------------------------------------------|----------------------------------------|
| 3                                        | 2250-2725          | 1.0                        | 3                                                     | 0.4                                    |

\* Insertion Loss is referenced to mid-band loss, 0.6 dB. Reference Demo Board TB-419+

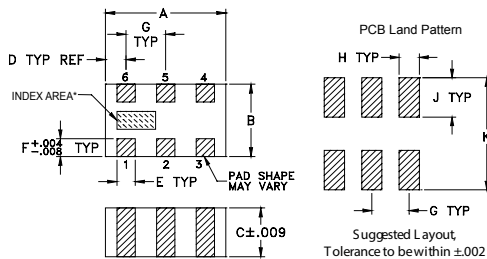
† Relative to 180°

## Typical Performance Data at 25°C\*\*

| FREQUENCY<br>(MHz) | INSERTION<br>LOSS<br>(dB) | INPUT<br>R. LOSS<br>(dB) | AMPLITUDE<br>UNBALANCE<br>(dB) | PHASE<br>UNBALANCE<br>(Deg.) |
|--------------------|---------------------------|--------------------------|--------------------------------|------------------------------|
| 2250.00            | 0.19                      | 14.44                    | 0.06                           | 0.41                         |
| 2300.00            | 0.10                      | 17.15                    | 0.02                           | 0.17                         |
| 2350.00            | 0.03                      | 20.87                    | 0.04                           | 0.15                         |
| 2400.00            | 0.00                      | 26.39                    | 0.10                           | 0.40                         |
| 2500.00            | 0.00                      | 25.73                    | 0.20                           | 1.26                         |
| 2550.00            | 0.02                      | 21.19                    | 0.24                           | 1.90                         |
| 2600.00            | 0.06                      | 18.34                    | 0.29                           | 2.26                         |
| 2650.00            | 0.10                      | 16.31                    | 0.35                           | 3.04                         |
| 2700.00            | 0.15                      | 14.79                    | 0.36                           | 3.51                         |
| 2725.00            | 0.18                      | 14.18                    | 0.40                           | 3.91                         |

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

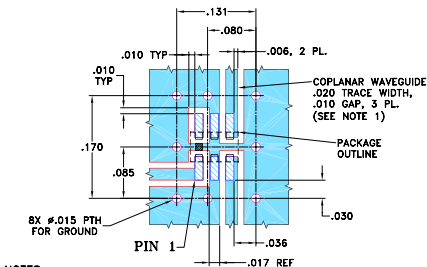
## Outline Drawing



\*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-419+  
Suggested PCB Layout (PL-264)

## NOTES:

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B 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

## Notes

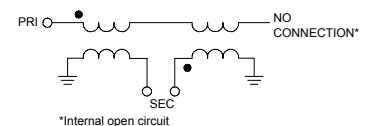
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits 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-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

REV. C  
M172731  
NCS3-272+  
ED 12817/34B24  
RS/AM  
190219

## configuration J



\*Internal open circuit