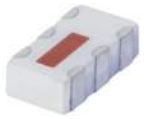
*Ceramic Balun*

# RF Transformer

## TCN1-152-75+

75Ω 950 to 1450 MHz



*Generic photo used for illustration purposes only*

CASE STYLE: FV1206-1

**+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, 3000 |

### Maximum Ratings

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

*** Derate linearly to 2.5W at 100°C
Permanent damage may occur if any of these limits are exceeded.

### Pad Connections

| | |
|---|---|
| PRIMARY DOT (Unbalanced Port) | 5 |
| PRIMARY (GND) | 4,6 |
| SECONDARY DOT (Balanced) | 3 |
| SECONDARY (Balanced) | 1 |
| NO CONNECTION | 2 |

*Pads 1,3,4,6 are DC-connected internally*

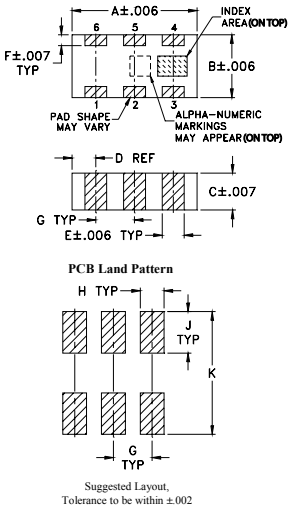
### Features

- wideband, 950 to 1450 MHz
- low phase unbalance, 3 deg. typ.
- miniature size, 0.12"x.06"x.037"
- LTCC construction
- low cost
- aqueous washable

### Applications

- Cable TV

### Outline Drawing



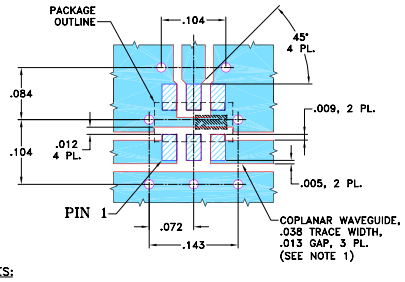

Suggested Layout,
Tolerance to be within ±.002

### Outline Dimensions (inch / 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 |

### *Demo Board MCL P/N: TB-417+*
### *Suggested PCB Layout (PL-265)*




NOTES:

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015", 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

### Electrical Specifications ($T_{AMB}$=25°C)

| Ω RATIO | FREQUENCY (MHz) | INSERTION* LOSS (dB) | PHASE UNBALANCE† (Deg.) Typ. | AMPLITUDE UNBALANCE (dB) Typ. |
|---|---|---|---|---|
| 1 | 950-1450 | 1.0 | 3 | 1.0 |

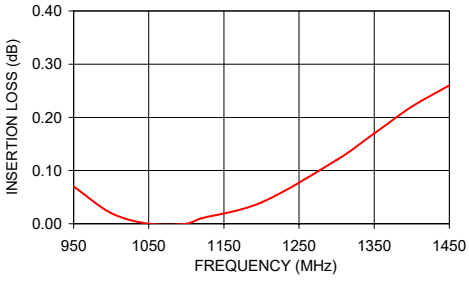
* Insertion Loss is referenced to mid-band loss, 0.8 dB. Reference Demo Board TB-417+
† Relative to 180°

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

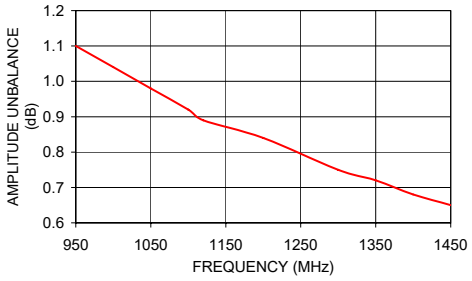
| FREQUENCY (MHz) | INSERTION LOSS (dB) | INPUT R. LOSS (dB) | AMPLITUDE UNBALANCE (dB) | PHASE UNBALANCE (Deg.) |
|---|---|---|---|---|
| 950.00 | 0.07 | 16.40 | 1.10 | 6.63 |
| 1000.00 | 0.02 | 19.14 | 1.04 | 6.10 |
| 1050.00 | 0.00 | 21.78 | 0.98 | 5.32 |
| 1100.00 | 0.00 | 22.90 | 0.92 | 4.67 |
| 1120.00 | 0.01 | 22.65 | 0.89 | 4.33 |
| 1200.00 | 0.04 | 19.87 | 0.84 | 2.91 |
| 1300.00 | 0.12 | 16.67 | 0.75 | 1.10 |
| 1350.00 | 0.17 | 15.40 | 0.72 | 0.24 |
| 1400.00 | 0.22 | 14.44 | 0.68 | 0.79 |
| 1450.00 | 0.26 | 13.59 | 0.65 | 1.66 |

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

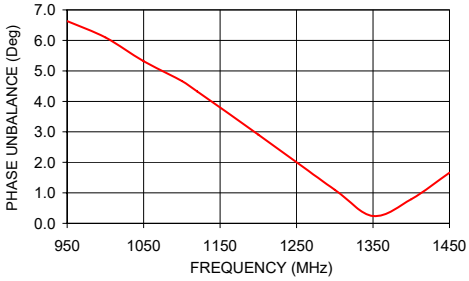
TCN1-152-75+
INSERTION LOSS



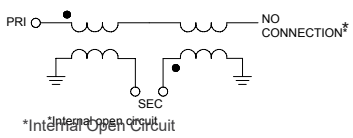

TCN1-152-75+
AMPLITUDE UNBALANCE




TCN1-152-75+
PHASE UNBALANCE




**configuration J**




*Internal open circuit

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