

# Ceramic Balun RF Transformer

50Ω 600 to 1200 MHz

## TCN2-122+



Generic photo used for illustration purposes only  
CASE STYLE: FV1206-1

### Maximum Ratings

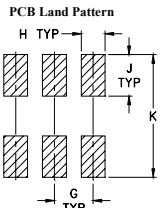
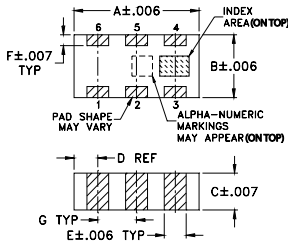
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Input RF Power	3W

### 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

### Outline Drawing

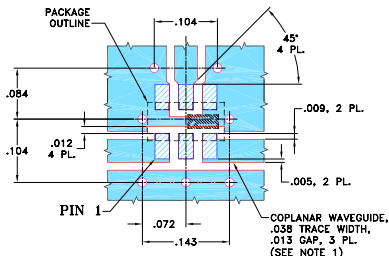


Suggested Layout, Tolerance to be within ±0.02

### 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:

- 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.
- 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

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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)

### Features

- wideband, 600 to 1200 MHz
- low phase unbalance, 4 deg. typ. and amplitude unbalance, 0.3 dB typ.
- miniature size, 0.12"x.06"x.037"
- LTCC construction
- low cost
- aqueous washable

### Applications

- GSM
- WCDMA
- ISM

### Electrical Specifications (T<sub>AMB</sub>=25°C)

Ω RATIO (Secondary/Primary)	FREQUENCY (MHz)	INSERTION* LOSS (dB)	PHASE UNBALANCE† (Deg.) Typ.	AMPLITUDE UNBALANCE (dB) Typ.
2	600-1200	1.0	4	0.3

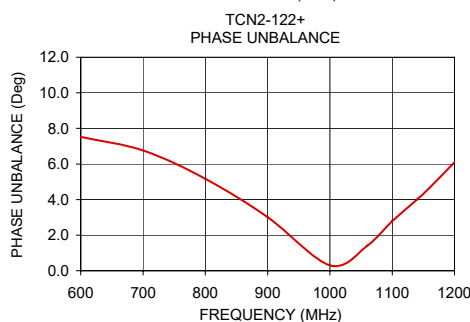
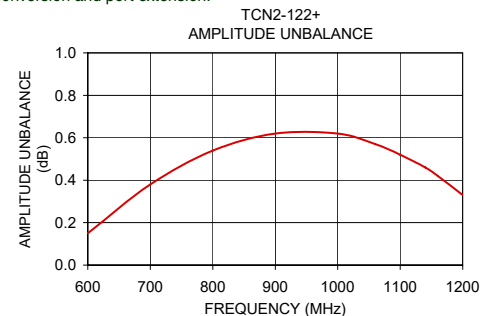
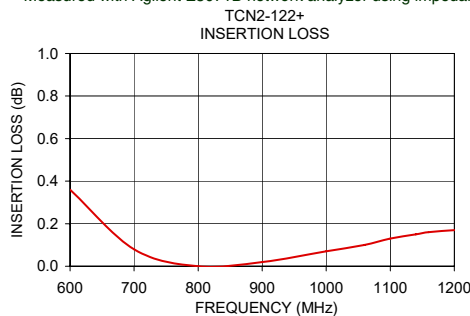
\* Insertion Loss is referenced to mid-band loss, 0.7 dB. Reference Demo Board TB-417+

† Relative to 180°

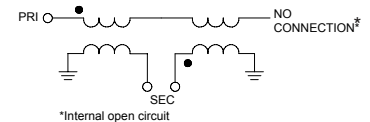
### Typical Performance Data at 25°C\*\*

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
600.00	0.36	11.90	0.15	7.52
700.00	0.08	17.72	0.38	6.76
800.00	0.00	27.57	0.54	5.17
900.00	0.02	27.76	0.62	3.01
1000.00	0.07	21.96	0.62	0.30
1060.00	0.10	20.45	0.57	1.40
1100.00	0.13	19.81	0.52	2.79
1140.00	0.15	19.40	0.46	4.01
1160.00	0.16	19.32	0.42	4.66
1200.00	0.17	19.29	0.33	6.10

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



### configuration J



\*Internal open circuit

