

# Ceramic Balun RF Transformer

50Ω 390 to 590 MHz

1:2 Ratio

## NCS2-62+

### Features

- low phase unbalance, 5 deg. and amplitude unbalance, 0.5 dB typ.
- miniature size 0805 (2.0 x 1.25mm)
- LTCC construction
- low cost
- aqueous washable

### Applications

- VHF/UHF
- signal process
- instrumentation



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-9

**+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

### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (secondary/primary)			2		
Frequency Range		390	—	590	MHz
Insertion Loss <sup>1</sup>	460 - 470	—	0.6	1.0	dB
	390 - 590	—	0.8	—	
Amplitude Unbalance	460 - 470	—	0.5	1.0	dB
	390 - 590	—	0.8	—	
Phase Unbalance <sup>2</sup>	460 - 470	—	3	8	Degree
	390 - 590	—	5	—	

1. Reference Demo Board TB-755+

2. Relative to 180°

### Maximum Ratings

Parameter	Ratings
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power*	2W at 25°C

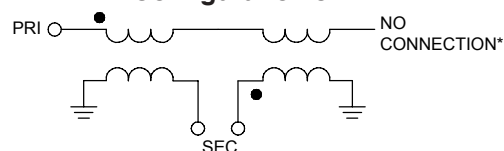
\*Passband rating, derate linearly to 1W at 100°C ambient.

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

### Pad Connections

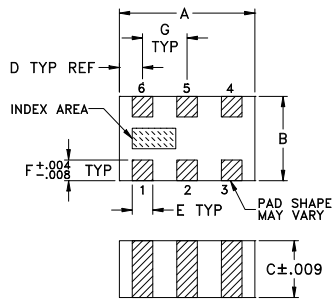
Function	Pad Number
PRIMARY DOT (Unbalanced Port)	4
PRIMARY (GND)	2,6
SECONDARY DOT (Balanced)	1
SECONDARY (Balanced)	3
NO CONNECTION	5

### Configuration J

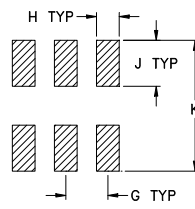


\*Internal open circuit

## Outline Drawing



## PCB Land Pattern

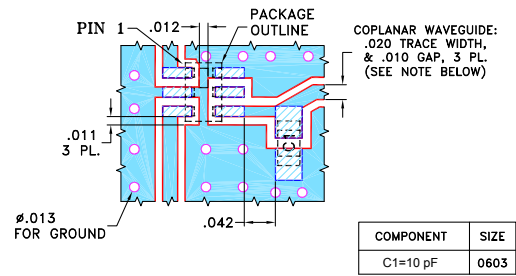


Suggested Layout, Tolerance to be within ±.002

## Outline Dimensions (inch/mm)

A	B	C	D	E	F	
.079	.049	.033	.014	.012	.012	
2.0	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-755+ Suggested PCB Layout (PL-438)



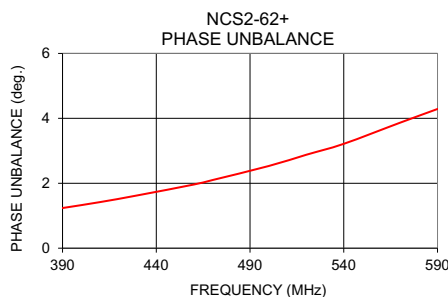
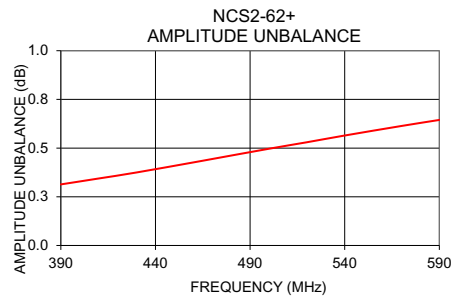
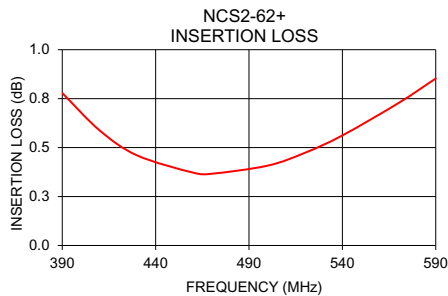
- NOTES:
1. COPLANAR WAVEGUIDE IS SHOWN FOR ROGERS R04350B WITH THICKNESS .010" ± .001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
  2. CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-755+.
  3. BOTTOM SIDE OF THE PCB IS 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<sup>3</sup>

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
390	0.78	10.62	0.31	1.24
410	0.59	12.87	0.34	1.42
430	0.46	15.47	0.37	1.63
460	0.37	18.26	0.43	1.96
470	0.37	17.45	0.46	2.10
500	0.41	15.45	0.50	2.53
520	0.47	13.50	0.53	2.88
540	0.56	11.90	0.56	3.22
570	0.73	10.04	0.61	3.87
590	0.85	9.09	0.64	4.29

3. Measured with Agilent E5071B network analyzer using port extension.



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