



## CERAMIC BALUN

# RF Transformer

# NCS2-232+

Mini-Circuits

50Ω 900 to 2300 MHz 1:2 Ratio

### FEATURES

- Wideband, 900 to 2300 MHz
- Low phase unbalance, 8 deg. and amplitude unbalance, 0.6 dB typ.
- Miniature size 0805, 0.079"x0.049"x0.033"
- LTCC construction
- Low cost
- Aqueous washable



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-9

### APPLICATIONS

- GPS
- WCDMA
- PCS
- Cellular

#### +RoHS Compliant

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

### ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio (Secondary/Primary)			2		
Frequency Range		900		2300	MHz
Insertion Loss <sup>1</sup>	950 - 2150	—	1.2	1.6	dB
	900 - 2300	—	1.4	—	
Amplitude Unbalance	950 - 2150	—	0.6	1.0	dB
	900 - 2300	—	0.9	—	
Phase Unbalance <sup>2</sup>	950 - 2150	—	5	10	Degree
	900 - 2300	—	8	—	

1. Insertion Loss is referenced to mid-band loss, 0.6 dB.

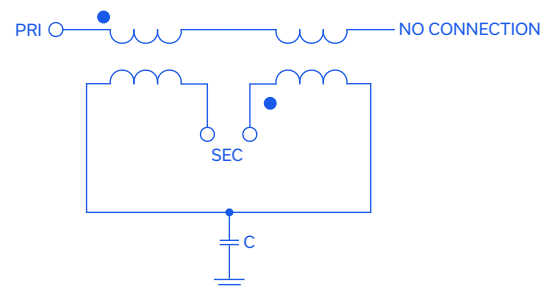
2. Relative to 180°

### MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power <sup>3</sup>	2W at 25°C

3. Passband rating, derate linearly to 1W at 100°C ambient. Permanent damage may occur if any of these limits are exceeded.

### CONFIGURATION R



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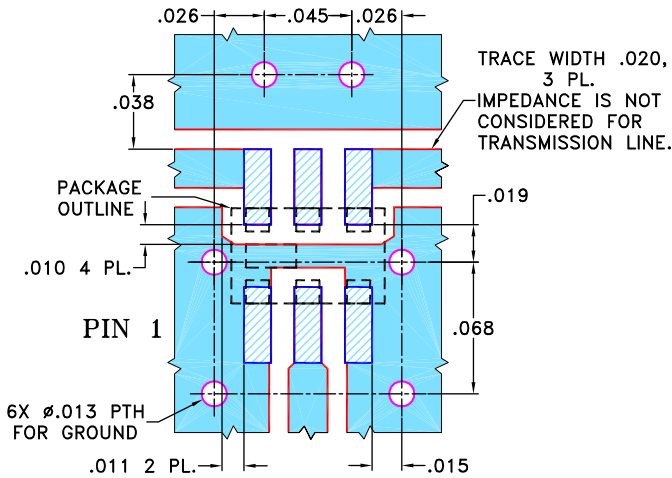


### PAD CONNECTIONS

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

PRODUCT MARKING: N/A

### DEMO BOARD MCL P/N: TB-626+ SUGGESTED PCB LAYOUT (PL-348)

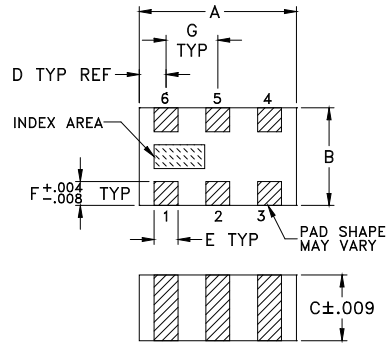


**NOTES:**

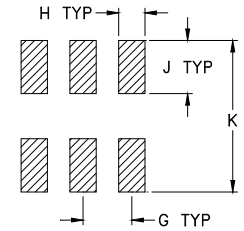
1. TRACE WIDTH IS SHOWN FOR REFERENCE ONLY.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### OUTLINE DRAWING



### PCB Land Pattern



### OUTLINE DIMENSIONS (Inches/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	

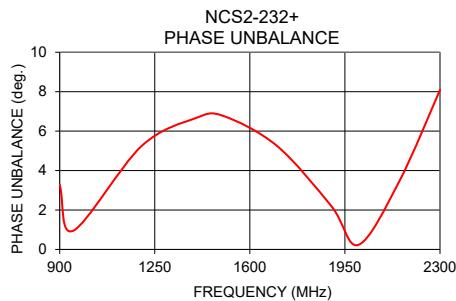
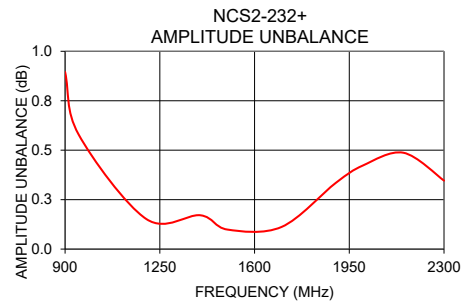
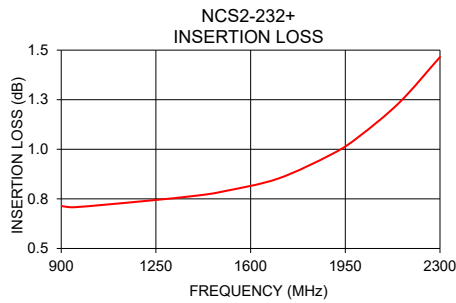
### TAPE & REEL INFORMATION: F74



### TYPICAL PERFORMANCE DATA<sup>3</sup>

Frequency (MHz)	Insertion Loss (dB)	Input Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg)
900	0.71	18.37	0.90	3.27
950	0.71	18.27	0.58	0.95
1200	0.74	19.61	0.15	5.23
1400	0.77	24.26	0.17	6.66
1500	0.79	28.76	0.10	6.78
1700	0.85	23.85	0.11	5.25
1900	0.98	17.16	0.33	2.20
2000	1.06	15.09	0.42	0.23
2150	1.24	12.82	0.49	3.45
2300	1.47	11.21	0.35	8.09

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



- 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)

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