



## CERAMIC BALUN

# RF Transformer

## NCS4-442+

Mini-Circuits

50Ω 3300 to 4200 MHz 1:4 Ratio

### FEATURES

- Wideband, 3300 to 4200 MHz
- Low phase unbalance, 5 deg and amplitude unbalance, 0.4 dB typ.
- Miniature size, 0.079"x0.049"x0.033"
- LTCC construction
- Low cost
- Aqueous washable



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-1

### +RoHS Compliant

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

### APPLICATIONS

- WIMAX
- Satellite Transmitters
- Line of sight links

### ELECTRICAL SPECIFICATIONS<sup>1</sup> AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio (Secondary/Primary)			4		
Frequency Range		3300		4200	MHz
Insertion Loss <sup>1</sup>	3300 - 4200	—	1.0	—	dB
Amplitude Unbalance	3300 - 4200	—	0.4	—	dB
Phase Unbalance <sup>2</sup>	3300 - 4200	—	5	—	Degree

1. Insertion Loss is referenced to mid-band loss, 0.9 dB. Reference Demo Board TB-419+

2. Relative to 180°

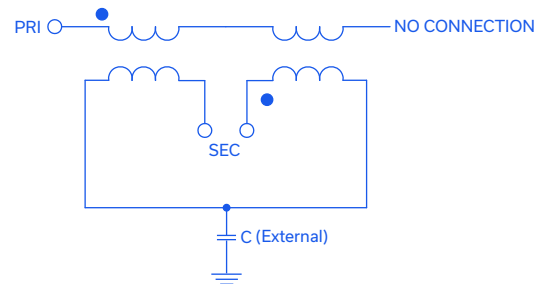
### ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power <sup>3</sup>	3W

3. Derate linearly to 2W at 85°C.

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

### CONFIGURATION R



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REV. F  
ECO-016216  
NCS4-442+  
SL/CP/AM  
221220

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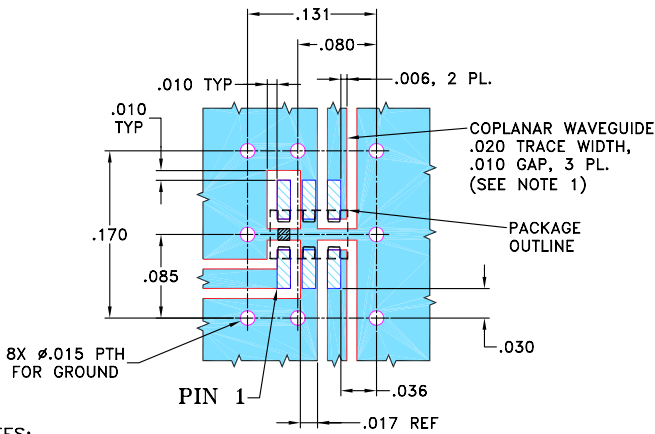
### PAD CONNECTIONS

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.

PRODUCT MARKING: N/A

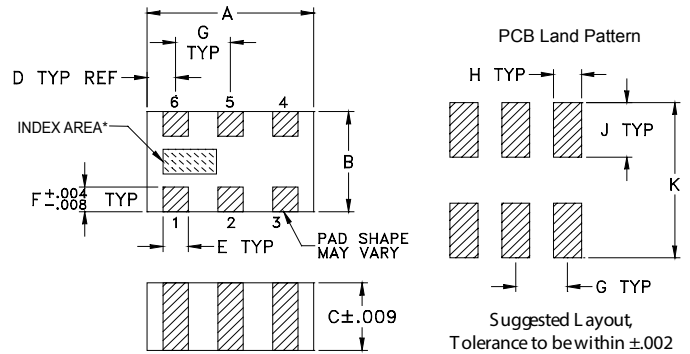
### DEMO BOARD MCL P/N: TB-419+ SUGGESTED PCB LAYOUT (PL-264)



**NOTES:**

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .010" ± .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

### OUTLINE DRAWING



\*Shape of index marking may vary

### OUTLINE DIMENSIONS (Inches/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

### TAPE & REEL INFORMATION: F74



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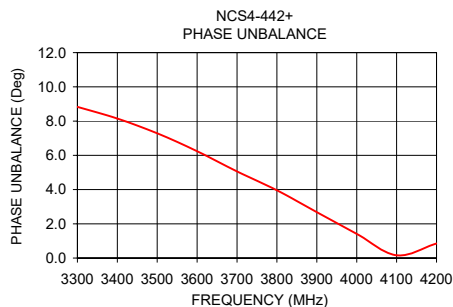
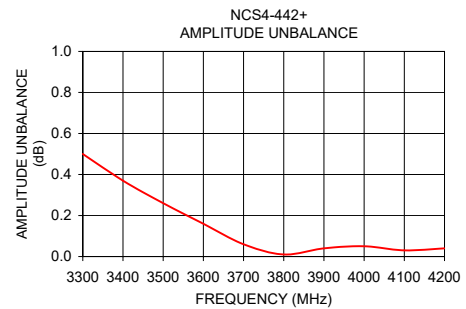
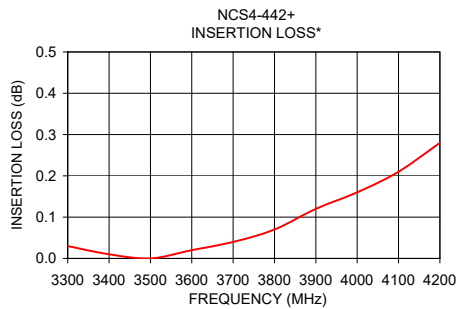
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### TYPICAL PERFORMANCE DATA<sup>3</sup>

Frequency (MHz)	Insertion Loss (dB)	Input Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg)
3300	0.03	22.45	0.50	8.83
3400	0.01	24.30	0.37	8.15
3500	0.00	25.05	0.26	7.29
3600	0.02	24.38	0.16	6.24
3700	0.04	22.74	0.06	5.06
3800	0.07	20.87	0.01	3.96
3900	0.12	18.96	0.04	2.68
4000	0.16	17.33	0.05	1.41
4100	0.21	15.88	0.03	0.16
4200	0.28	14.56	0.04	0.85

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.
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