Ceramic Balun

RF Transformer

NCS2-282+

50Ω 625 to 2815 MHz

The Big Deal

- Wideband, 625 - 2815 MHz
- Industry leading combination of size/performance

CASE STYLE: GE0805C-9

Product Overview

Mini-Circuits new RF Transformer, NCS2-282+ converts single ended, unbalanced RF signals, that propogate through systems, to balanced signals that are required for many semiconductor devices. The NCS series offers a low cost small size alternative for matching, A/D converters, System on Chips, and up/down converters. The outstanding phase and amplitude unbalance make this component a versatile building block for use in a variety of systems and sub-system designs. package with low inductance, excellent thermal efficiency, and high ESD rating.

Key Features

Feature	Advantages
Wideband, 625 to 2815 MHz	Supporting wideband, 625 to 2815 MHz make this RF Transformer applicable for use in higher level integrated components such as A/D converters and system on a chip.
Small Size	Offered in the EIA-0805 package size, the NCS2-282+ offers an industry leading combination of size and performance. The small footprint (2.0 mm x 1.25 mm) allows for reduced parasitics in systems with improved performance and simplified layout.

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RF Transformer

NCS2-282+

50Ω 625 to 2815 MHz 1:2 Ratio

Features

- wideband, 625 to 2815 MHz
- miniature size 0805 (2.0x1.25mm)
- LTCC construction
- low cost
- aqueous washable

Applications

- WCDMA
- PCS
- GPS
- cellular

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		625	—	2815	MHz
Insertion Loss[1]	625 - 2815	—	1	2	dB
Amplitude Unbalance	625 - 2815	—	0.8	1.8	dB
Phase Unbalance[2]	625 - 2815	—	6	15	Degree
Return Loss	625 - 2815	—	11		

1. Reference Demo Board TB-NCS2-282+
2. Relative to 180°

Maximum Ratings

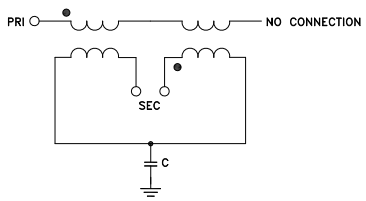
Parameter	Ratings
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power*	3W at 25°C

*Passband rating , derate linearly to 1W at 125°C ambient.
Permanent damage may occur if any of these limits are exceeded.

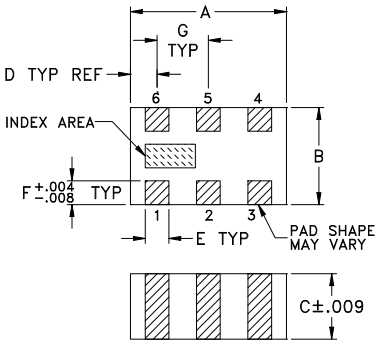
Pin Connections

Function	Pad Number
Unbalanced Port (IN)	1
GND or DC feed + RF GND	2
Balanced Port (OUT1)	3
Balanced Port (OUT2)	4
GND	5
NO CONNECTION	6

Configuration R



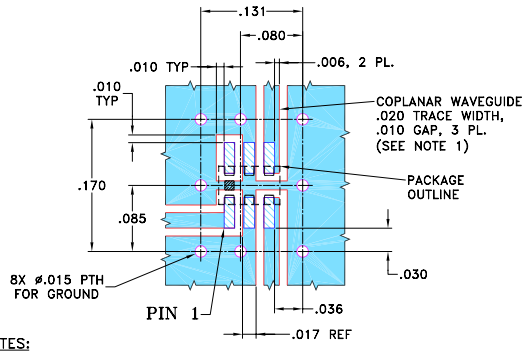
Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	wt
.079	.049	.033	.014	.012	.012	.026	grams
2.0	1.24	0.84	0.36	0.30	0.30	0.66	.008

Demo Board MCL P/N: TB-NCS2-282+
Suggested PCB Layout (PL-264)



NOTES:

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B 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.

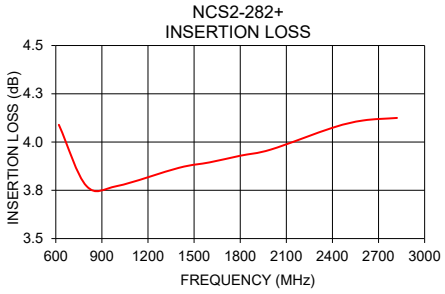
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

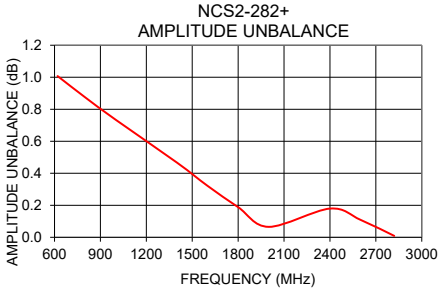
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

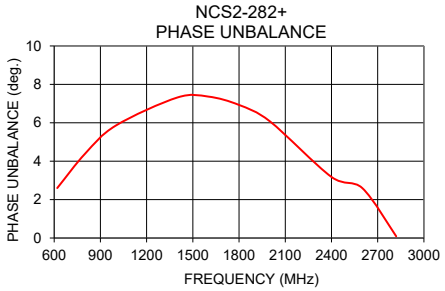
Typical Performance Data at 25°C[3]

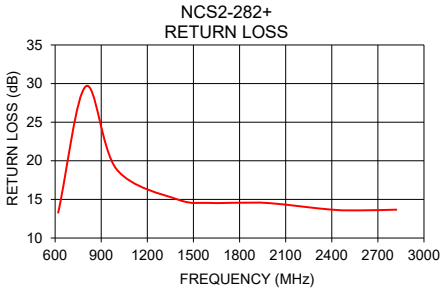
FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
620	4.09	13.29	1.01	2.60
625	3.93	13.53	0.77	3.95
800	3.77	29.64	0.87	4.39
1000	3.77	18.90	0.73	5.85
1400	3.87	14.97	0.47	7.32
1600	3.89	14.55	0.32	7.36
1800	3.93	14.57	0.19	6.93
2000	3.96	14.51	0.07	6.08
2400	4.07	13.67	0.18	3.18
2600	4.11	13.59	0.11	2.60
2815	4.05	15.13	0.47	0.35
2820	4.12	13.67	0.01	0.09

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









Additional 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