Ceramic Balun

RF Transformer

NCS1-23+

50Ω 1300 to 2000 MHz 1:1 Ratio

Generic photo used for illustration purposes only

CASE STYLE: GE0805C-1

+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

Features

- wideband, 1300 to 2000 MHz
- low phase unbalance, 2 deg. and amplitude unbalance, 0.3 dB typ.
- miniature size, 0.079"x0.049"x0.033"
- LTCC construction
- low cost
- aqueous washable

Applications

- WCDMA
- PCS
- GPS

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio			1		
Frequency Range		1300	—	2000	MHz
Insertion Loss[1]	1300-2000	—	1.0	—	dB
Amplitude Unbalance	1300-2000	—	0.3	—	dB
Phase Unbalance[2]	1300-2000	—	2	—	Degree

1. Insertion Loss is referenced to mid-band loss, 0.7 dB. Reference Demo Board TB-419+
2. Relative to 180°

Maximum Ratings

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

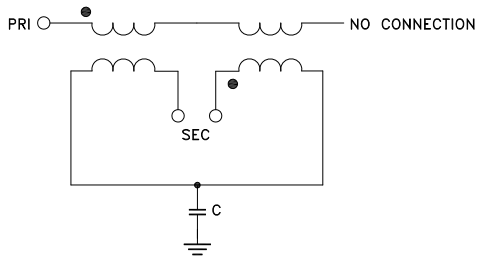
Permanent damage may occur if any of these limits are exceeded.

Pad Connections

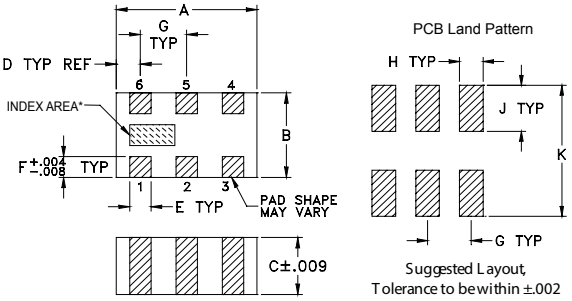
Function	Pad Number
PRIMARY DOT (Unbalanced Port)	1
PRIMARY (GND)	2
SECONDARY DOT (Balanced)	4
SECONDARY (Balanced)	3
NO CONNECTION	6
NOT USED (GND Extremally)	5

Pads 2,3,4 are DC-connected internally

Configuration R



Outline Drawing



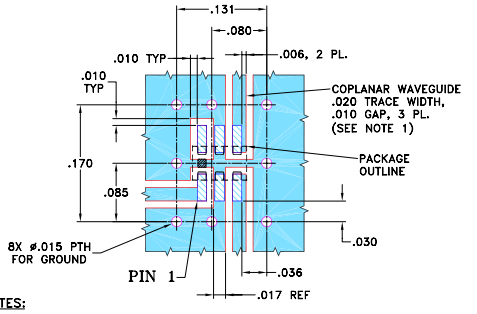
*Shape of index marking may vary

Outline Dimensions (inch / 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

Demo Board MCL P/N: TB-419+
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).

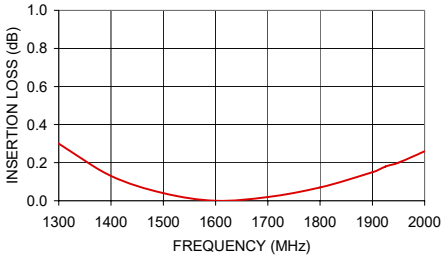
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Typical Performance Data at 25°C[3]

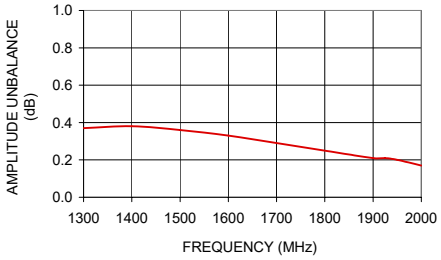
FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
1300.00	0.30	11.79	0.37	1.97
1400.00	0.13	14.68	0.38	1.99
1500.00	0.04	17.97	0.36	1.92
1600.00	0.00	20.16	0.33	1.75
1700.00	0.02	19.06	0.29	1.47
1800.00	0.07	16.51	0.25	1.10
1900.00	0.15	14.30	0.21	0.55
1925.00	0.18	13.75	0.21	0.40
1950.00	0.20	13.29	0.20	0.15
2000.00	0.26	12.51	0.17	0.29

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

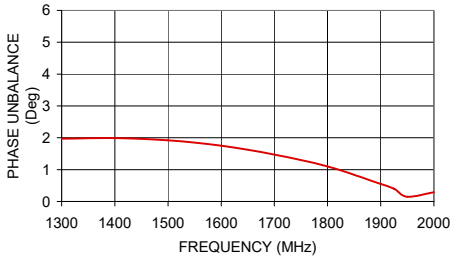
NCS1-23+
INSERTION LOSS



NCS1-23+
AMPLITUDE UNBALANCE



NCS1-23+
PHASE UNBALANCE



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.
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