

RF Transformer

50Ω 1500 to 3100 MHz 1:2 Ratio

NCS2-33+



CASE STYLE: GE0805C-1

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Input RF Power***	3W

*** Derate linearly to 2W at 85°C
Permanent damage may occur if any of these limits are exceeded.

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
*Pad 6 must be open (See PL-264 below)

Features

- wideband, 1500 to 3100 MHz
- low phase unbalance, 5 deg. and amplitude unbalance, 0.6 dB typ.
- miniature size, 0.079"x0.049"x0.033"
- LTCC construction
- aqueous washable
- low cost

Applications

- WLAN
- WIMAX/WIBRO
- MMDS
- WCDMA

+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

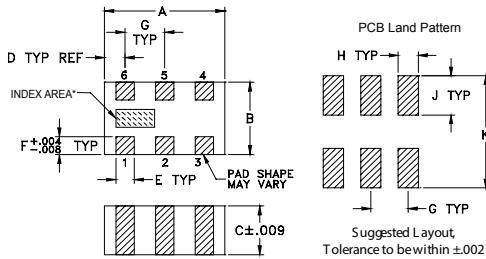
Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500, 1000, 4000

Electrical Specifications (T_{AMB}=25°C)

Ω RATIO (Secondary/Primary)	FREQUENCY (MHz)	INSERTION* LOSS (dB)	PHASE UNBALANCE AT SECONDARY† (Deg.) Typ.	AMPLITUDE UNBALANCE (dB) Typ.
2	1500-3100	1.0	5	0.6

* Insertion Loss is referenced to mid-band loss, 0.6 dB. Reference Demo Board TB-419+
† Relative to 180°

Outline Drawing

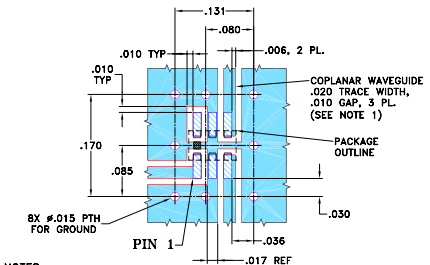


*Shape of index marking may vary

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:

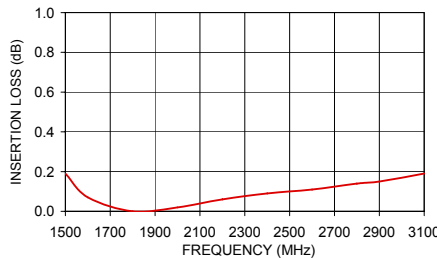
1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010" ± .001", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
 2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Typical Performance Data at 25°C**

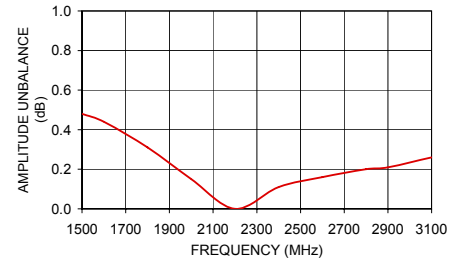
FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
1500.00	0.19	14.72	0.48	1.78
1600.00	0.07	18.96	0.44	1.43
1800.00	0.00	27.34	0.31	0.26
2000.00	0.02	21.43	0.15	1.58
2200.00	0.06	18.94	0.00	3.86
2400.00	0.09	18.46	0.11	6.06
2600.00	0.11	18.90	0.16	7.72
2800.00	0.14	19.62	0.20	8.61
2900.00	0.15	19.75	0.21	8.85
3100.00	0.19	19.44	0.26	9.20

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

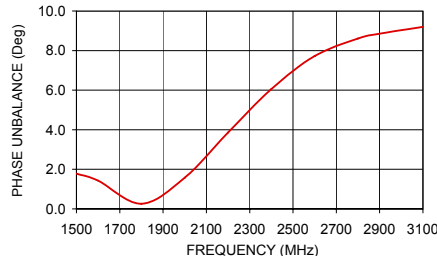
NCS2-33+
INSERTION LOSS



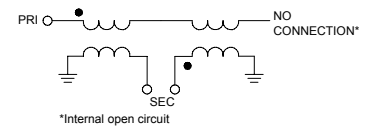
NCS2-33+
AMPLITUDE UNBALANCE



NCS2-33+
PHASE UNBALANCE



configuration J



*Internal open circuit

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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