

# RF Transformer

## NCS1.5-232+

50Ω 400 to 2300 MHz 1:1.5 Ratio



CASE STYLE: GE0805C-9

### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Input RF Power*	2W at 25°C

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

### Pad Connections

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

### Features

- wideband, 400 to 2300 MHz
- low phase unbalance, 5 deg. and amplitude unbalance, 0.9 dB typ.
- miniature size 0805 (2.0x1.25mm)
- LTCC construction
- low cost
- aqueous washable

### Applications

- WCDMA
- PCS
- GPS
- ISM
- UHF
- WLAN
- WCDMA
- LTE
- Cellular

**+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: 7" Devices/Reel: 20, 50, 100, 200, 500, 1000, 4000

### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (secondary/primary)			1.5		
Frequency Range		400	—	2300	MHz
Insertion Loss*	400 - 2300	—	1.2	1.6	dB
Amplitude Unbalance	400 - 2300 1650 - 1950	—	0.8 0.5	1.5 1.0	dB
Phase Unbalance†	400 - 2300 1650 - 1950	—	8 3	12 8	Degree

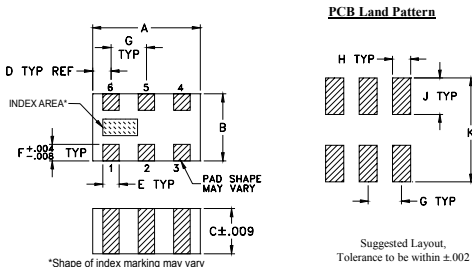
\* Reference Demo Board TB-626+  
† Relative to 180°

### Typical Performance Data at 25°C\*\*

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
400	1.03	11.76	0.53	7.45
500	0.75	15.77	0.65	8.20
600	0.66	18.11	0.78	8.64
1000	0.65	18.24	0.86	8.08
1200	0.68	18.23	0.76	6.96
1650	0.78	18.84	0.31	2.53
1950	0.90	17.26	0.09	2.35
2100	0.98	15.94	0.25	5.50
2200	1.05	15.14	0.35	7.81
2300	1.12	14.44	0.43	10.26

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

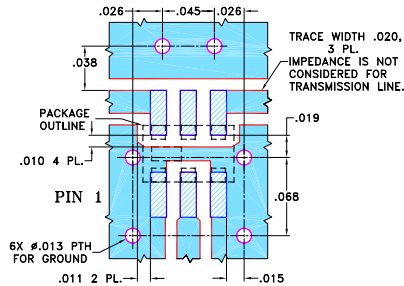
### Outline Drawing



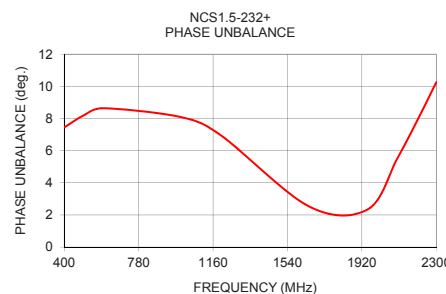
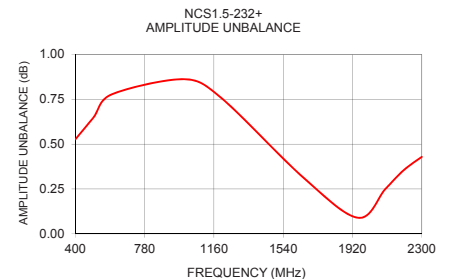
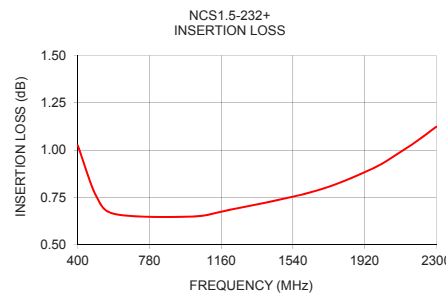
### Outline Dimensions (inch/mm)

	A	B	C	D	E	F	
	.079	.049	.037	.014	.012	.012	
	2.0	1.24	0.94	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

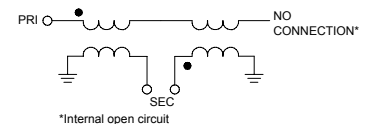
### Demo Board MCL P/N: TB-626+ Suggested PCB Layout (PL-348)



- 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



### configuration J



### 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-Circuits' applicable established test performance criteria and measurement instructions.
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