



# CERAMIC BALUN

# RF Transformer

# TCW2-282+

50Ω 700 to 2800 MHz 1:2 Ratio

## FEATURES

- Wideband, 700 to 2800 MHz
- Miniature size 0603 (1.6x0.8mm)
- LTCC construction
- Low cost
- Aqueous washable



Generic photo used for illustration purposes only

CASE STYLE: JC0603C

### +RoHS Compliant

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

## APPLICATIONS

- WLAN
- A/D conversion
- WiFi
- Transmitters and receivers
- Cellular

## ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (Secondary/Primary)		2			
Frequency Range		700	—	2800	MHz
Avg. Insertion Loss <sup>1</sup>	700 - 2800	—	1.2	2.0	dB
Amplitude Unbalance	700 - 2800	—	1	2	dB
Phase Unbalance <sup>2</sup>	700 - 2800	—	13	16	Degree

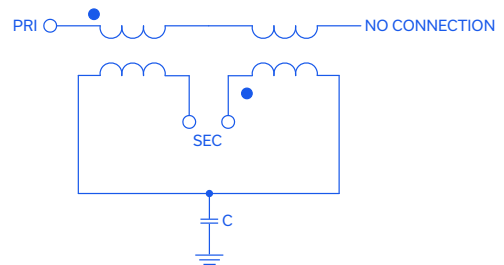
1. Reference demo board TB-828+.
2. Relative to 180°

## MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	0.5W

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

## CONFIGURATION R





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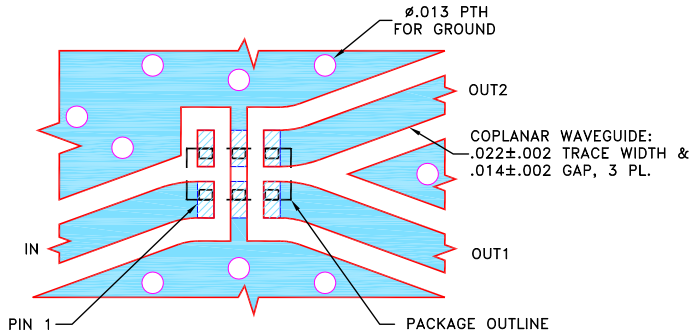
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### PAD CONNECTIONS

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

PRODUCT MARKING: N/A

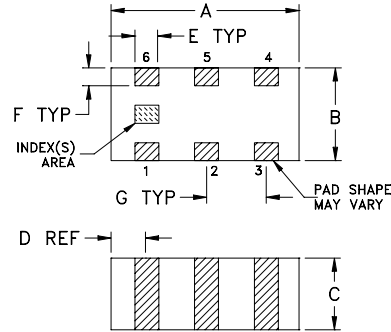
DEMO BOARD MCL P/N: TB-828+  
SUGGESTED PCB LAYOUT (PL-513)



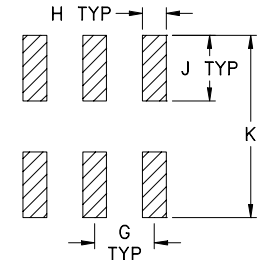
- TRACE WIDTH AND GAP PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010"±.001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

### OUTLINE DRAWING



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

### OUTLINE DIMENSIONS (Inches/mm)

A	B	C	D	E	F
.063	.031	.024	.012	.008	.006
1.60	0.79	0.61	0.30	0.20	0.15
G	H	J	K	wt	
.020	.010	.022	.053	grams	
0.51	0.25	0.56	1.35	0.005	

### TAPE & REEL INFORMATION: F114





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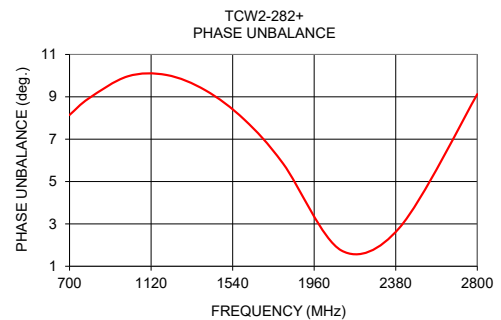
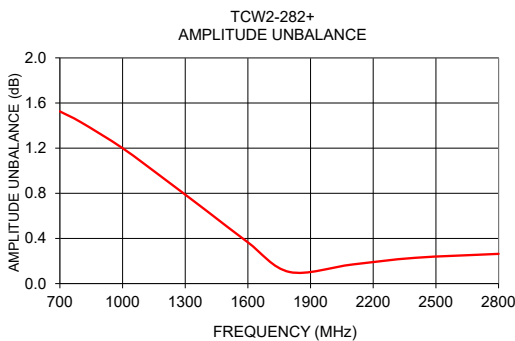
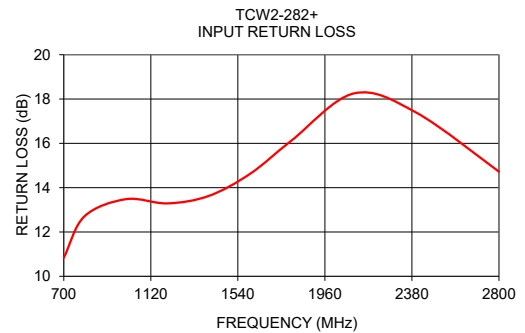
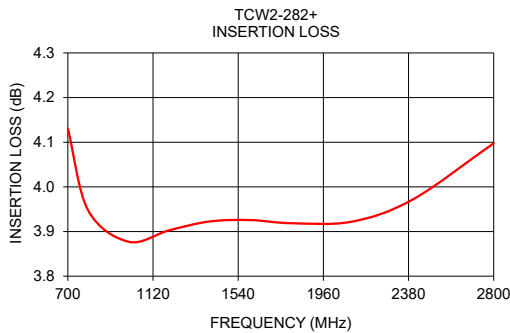


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### TYPICAL PERFORMANCE DATA<sup>3</sup>

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg)
700.0	4.13	10.83	1.53	8.14
800.0	3.95	12.71	1.43	8.93
1000.0	3.88	13.48	1.20	9.97
1200.0	3.90	13.29	0.93	10.03
1400.0	3.92	13.63	0.65	9.31
1600.0	3.93	14.63	0.37	7.93
1800.0	3.92	16.13	0.10	5.85
2100.0	3.92	18.25	0.17	1.75
2400.0	3.97	17.39	0.23	2.83
2800.0	4.10	14.72	0.26	9.13

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.
  - 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/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)

