

# Ceramic Balun RF Transformer

50Ω 3200 to 6000 MHz 1:1 Ratio

## TCW1-6000+



Generic photo used for illustration purposes only

CASE STYLE: JC0603C

### +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, 3200 to 6000 MHz
- miniature size 0603 (1.6x0.8mm)
- LTCC construction
- low cost
- aqueous washable

### Applications

- WLAN
- A/D conversion
- WiFi
- transmitters and receivers
- cellular

### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio			1		
Frequency Range		3200		6000	MHz
Insertion Loss <sup>1</sup>	3200 - 6000		1.1	2.0	dB
Amplitude Unbalance	3200 - 6000		1.5	2.2	dB
Phase Unbalance <sup>2</sup>	3200 - 6000		10	13	Degree

1. Reference Demo Board TB-912+

2. Relative to 180°

### Maximum Ratings

Parameter	Ratings
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power <sup>3</sup>	0.5W

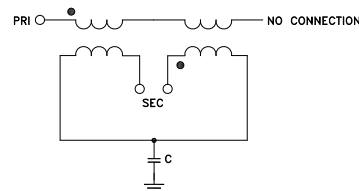
3. Passband rating

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

### Pad Connections

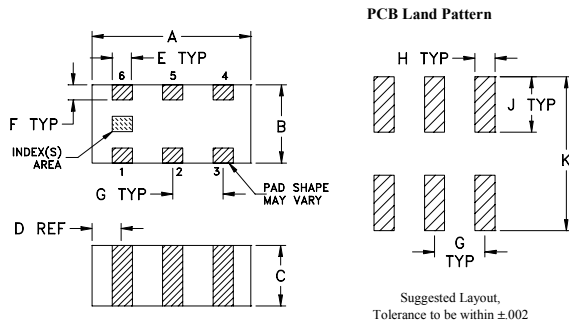
Function	Pin Number
PRIMARY DOT (Unbalanced Port)	1
GND or DC feed + RF	2
SECONDARY DOT (Balanced)	3
SECONDARY (Balanced)	4
NO CONNECTION	6
GND	5

### Configuration R



# TCW1-6000+

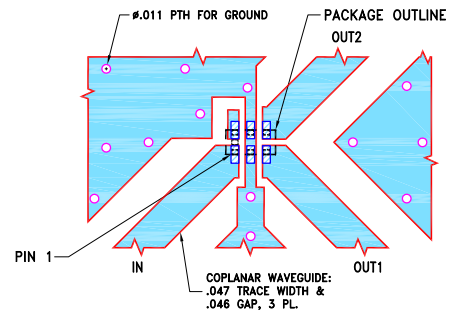
## Outline Drawing



## Outline Dimensions (inch)

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	

## Demo Board MCL P/N: TB-912+ Suggested PCB Layout (PL-574)



### NOTES:

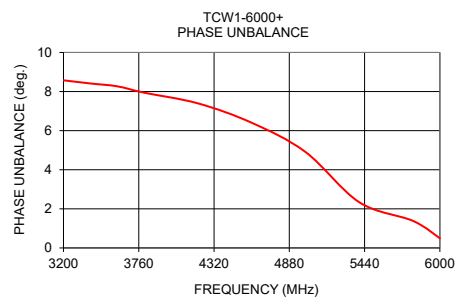
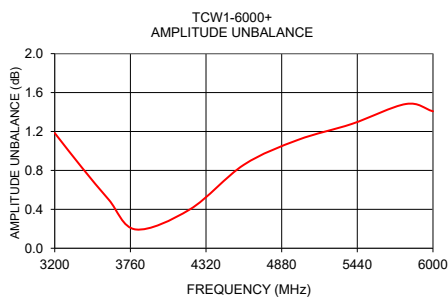
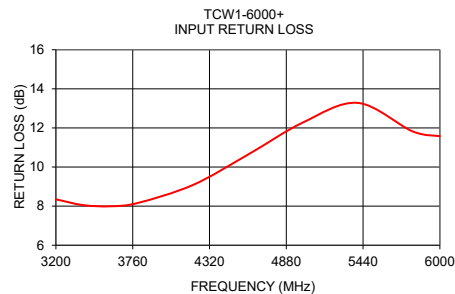
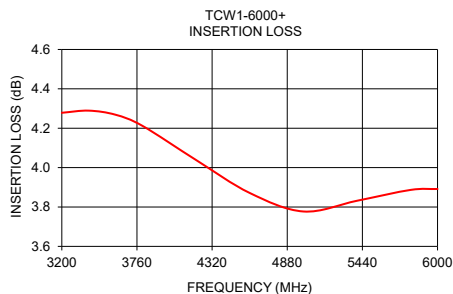
1. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS  $.020 \pm .0015$ . COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

## Typical Performance Data<sup>4</sup>

Frequency (MHz)	Insertion Loss (dB)	Input R. Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (Deg.)
3200.0	4.28	8.35	1.18	8.57
3400.0	4.29	8.05	0.83	8.41
3600.0	4.27	7.99	0.50	8.27
3800.0	4.21	8.17	0.19	7.94
4200.0	4.04	9.08	0.40	7.40
4600.0	3.87	10.63	0.86	6.40
5000.0	3.78	12.27	1.11	4.91
5400.0	3.83	13.28	1.28	2.34
5800.0	3.89	11.83	1.48	1.38
6000.0	3.89	11.58	1.41	0.49

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