

# High Frequency Ceramic Solutions

## 2450 MHz EIA 0603 RF Balun

P/N 2450BL14C100

Detail Specification: 2/7/2018

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### General Specifications

Part Number	2450BL14C100	Reel Quantity	4,000 pcs
Frequency (MHz)	2400 ~ 2500	Power Capacity	1W max. (CW)
Unbalanced Impedance (single ended)	50 Ω		
Balanced Differential Impedance	100 Ω		
Insertion Loss	1.2 dB max.		
Return Loss	9.5 dB min.		
Phase Difference	180 ± 10 deg.		
Amplitude Difference	1.5 dB max.		
Operating Temperature	-40 to +125°C		
Storage Temperature Range	-40 to +85°C		



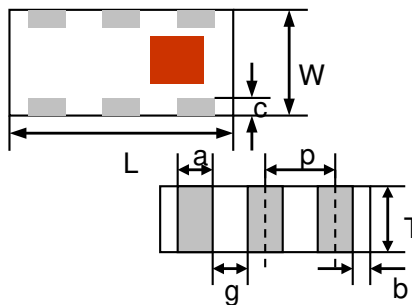
You can download measured s-parameters of this component at: <https://www.johansontechnology.com/rfbaluns>

### Part Number Explanation

P/N Suffix	Packaging Style	Bulk	Suffix = S	Eg. 2450BL14C100S
		T & R	Suffix = T	Eg. 2450BL14C100T
	Termination Style	100% Tin	Suffix = None	Eg. 2450BL14C100(T or S)

### Mechanical Dimensions

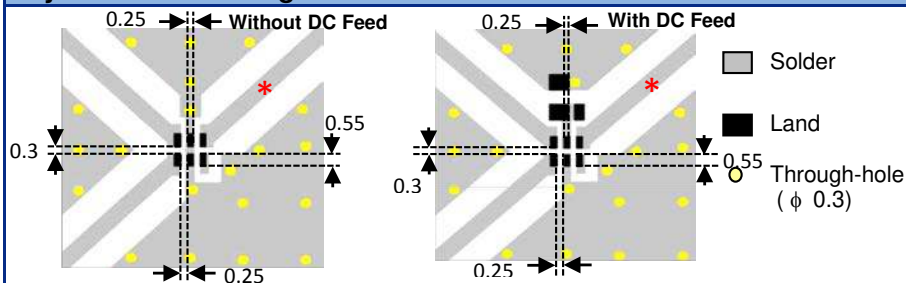
	In	mm
L	0.063 ± 0.004	1.60 ± 0.10
W	0.031 ± 0.004	0.80 ± 0.10
T	0.024 ± 0.004	0.60 ± 0.10
a	0.008 ± 0.004	0.20 ± 0.10
b	0.008 +0.004/0.008	0.20 +0.1/-0.15
c	0.006 ± 0.004	0.15 ± 0.10
g	0.012 ± 0.004	0.30 ± 0.10
p	0.020 ± 0.004	0.50 ± 0.10



### Terminal Configuration

1	Unbalanced Port
2	GND, or DC Bias + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

### Layout and Mounting Considerations



\* RF trace geometry must be designed with a 50ohm characteristic impedance

Need help with the balun's layout? Want the layout file? Send us a message at: [www.johansontechnology.com/component/techquestion](http://www.johansontechnology.com/component/techquestion)

Mount these devices with red mark facing up. Line width should be designed to provide proper impedance matching characteristics.

Units: mm

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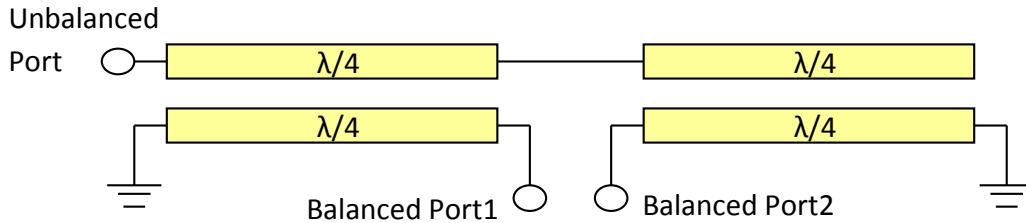
2450 MHz EIA 0603 RF Balun

P/N 2450BL14C100

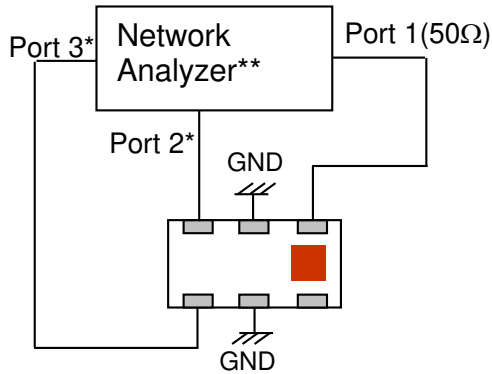
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## Equivalent Circuit



## Measurement Diagram



Port 1: Unbalanced Port

Ports 2 and 3: Balanced Port

$$IL = S_{ds21}$$

$$RL = S_{ss11}$$

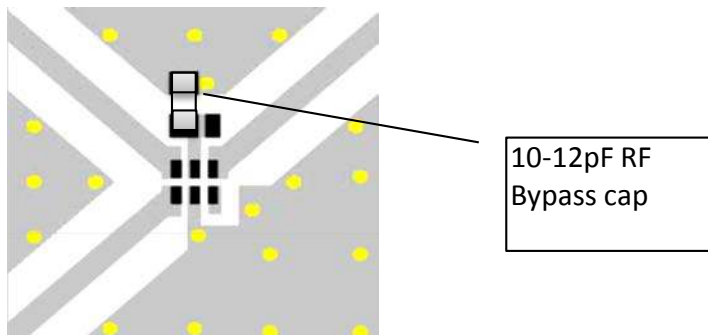
$$\text{Amp\_balance} = \text{dB}(S(2,1)/S(3,1))$$

$$\text{Phase\_balance} = \text{Phase}(S(2,1)/S(3,1))$$

\*Impedance for ports 2 and 3 = Balanced Impedance/2

\*\*E5071B from Agilent

## DC-Feed Recommended Capacitor



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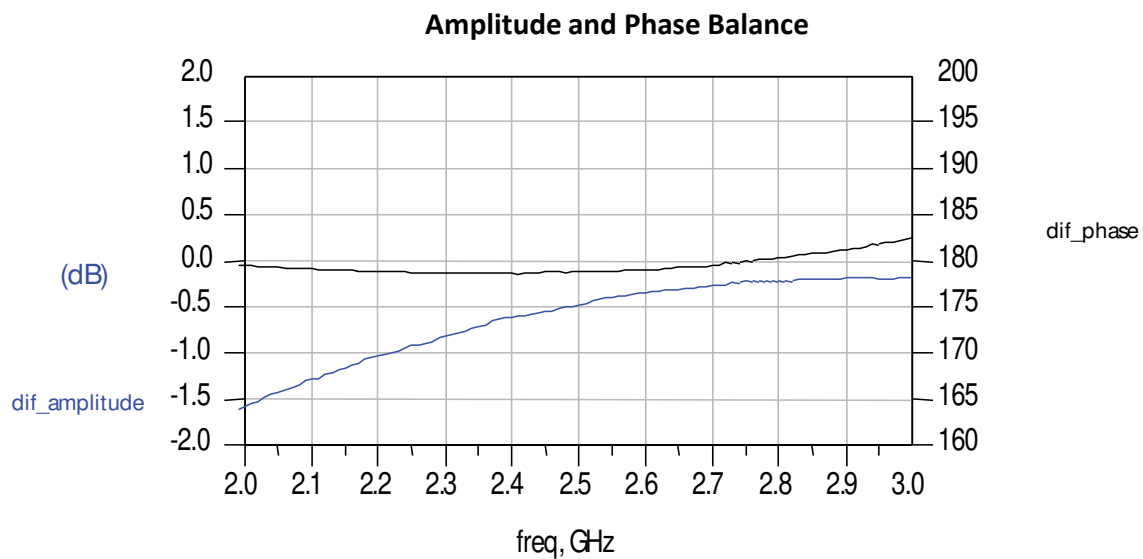
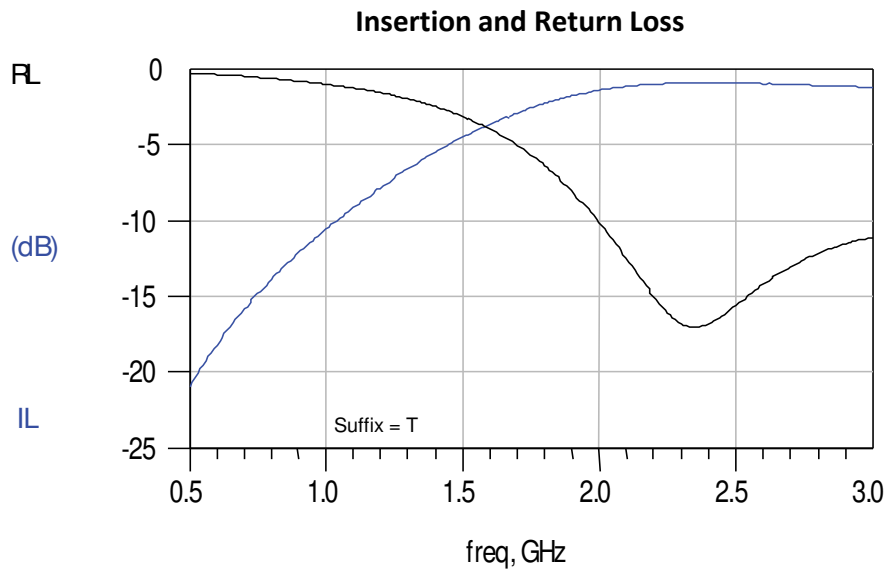
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## Typical Electrical Characteristics (T=25°C)



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## More Balun info at:

[www.johansontechnology.com/rfbaluns](http://www.johansontechnology.com/rfbaluns)

## Packaging information

[www.johansontechnology.com/ipcpackaging.html](http://www.johansontechnology.com/ipcpackaging.html)

## Soldering Information

[www.johansontechnology.com/ipcsoldering-profile](http://www.johansontechnology.com/ipcsoldering-profile)

## MSL Info

[www.johansontechnology.com/technical-notes/msl-rating.html](http://www.johansontechnology.com/technical-notes/msl-rating.html)

## Recommended Storage Condition and Max Shelf Life

[www.johansontechnology.com/ipcstorage-shelflife](http://www.johansontechnology.com/ipcstorage-shelflife)

## RoHS Compliance

[www.johansontechnology.com/technical-notes/rohs-compliance.html](http://www.johansontechnology.com/technical-notes/rohs-compliance.html)

## Antenna layout and tuning techniques

[www.johansontechnology.com/tuning](http://www.johansontechnology.com/tuning)

## Antenna layout review, tuning, and characterization services

[www.johansontechnology.com/ipcantennaservices](http://www.johansontechnology.com/ipcantennaservices)

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