

# High Frequency Ceramic Solutions

## 2.45GHz Impedance Matched Balun + Band Pass Filter: Optimized for Nordic's Chipset nRF51822 and nRF51422

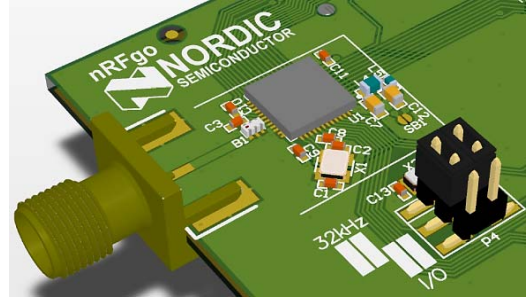
P/N 2450BM14E0003

Detail Specification: 4/22/2014

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### General Specifications

Part Number	2450BM14E0003
Frequency (MHz)	2400 - 2500
Unbalanced Impedance	50 $\Omega$ (single ended)
Differential Balanced Impedance	Impedance matched to Nordic nRF51XX Chipset Family
Average Insertion Loss when connected to the nRF51XX chipset (Active OP)	0.9dB Typ@25C 1.5dB max. (-45 to +85C)
Insertion Loss when component measured by itself (passive insertion loss)	2.1dB typ. @25C 2.5dB max. (-45 to +85C)



<b>Attenuation Differential mode (dB):</b>		<b>Return Loss (dB)</b>	15 typ. 9.5 min.
800-928 MHz	15 typ.@25°C 10 min.	<b>Amplitude Difference</b>	150 $\pm$ 15deg
1200-1500 MHz	14 typ.@25°C 10 min.	<b>Reel Quantity</b>	4,000 pcs
4800~5000MHz	35 typ.@25°C 20 min.	<b>Operating Temperature</b>	-40 to +85°C
7200~7500MHz	21 typ.@25°C 18 min.	<b>Recommended Storage Conditions for unused T&amp;R product</b>	+5 to +35°C, Humidity: 45-75%RH, 18 mos. Max
<b>Attenuation Common mode (dB):</b>		<b>Power Capacity</b>	1W max.(CW)
4800~5000MHz	44 typ.@25°C 20 min.		

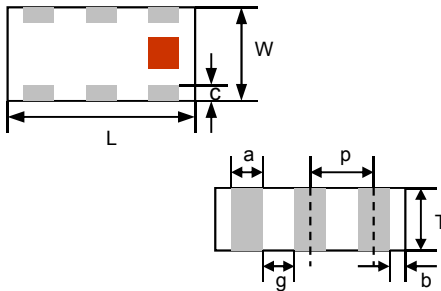
You can download measured s-parameters of this component at: <http://johansontechnology.com/nordic>

### Part Number Explanation

P/N Suffix	Packaging Style	Bulk	Suffix = S	Eg. 2450BM14E0003S
		T & R	Suffix = T	Eg. 2450BM14E0003T
	Termination Style	100% Tin	Suffix = None	Eg. 2450BM14E0003(T or S)

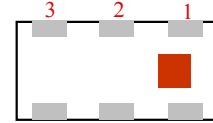
### Mechanical Dimensions

	In	mm
L	0.063 $\pm$ 0.004	1.60 $\pm$ 0.10
W	0.031 $\pm$ 0.004	0.80 $\pm$ 0.10
T	0.024 $\pm$ 0.004	0.60 $\pm$ 0.10
a	0.008 $\pm$ 0.004	0.20 $\pm$ 0.10
b	0.008 +.004/-.006	0.20 +0.1/-0.15
c	0.006 $\pm$ 0.004	0.15 $\pm$ 0.10
g	0.012 $\pm$ 0.004	0.30 $\pm$ 0.10
p	0.020 $\pm$ 0.002	0.50 $\pm$ 0.05



### Terminal Configuration

No.	Function
1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	DC Feed
6	GND



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

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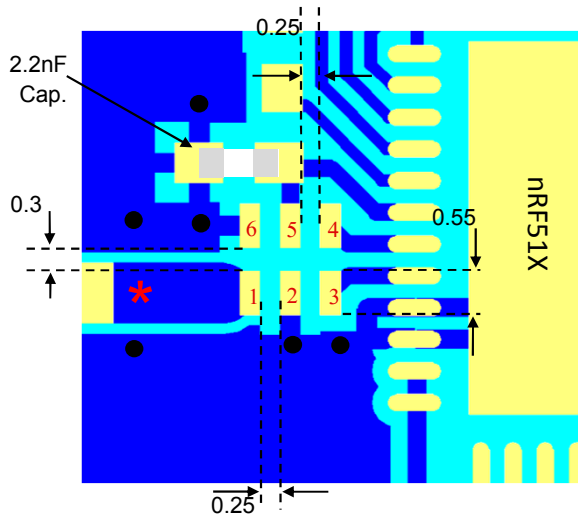
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### Mounting Considerations



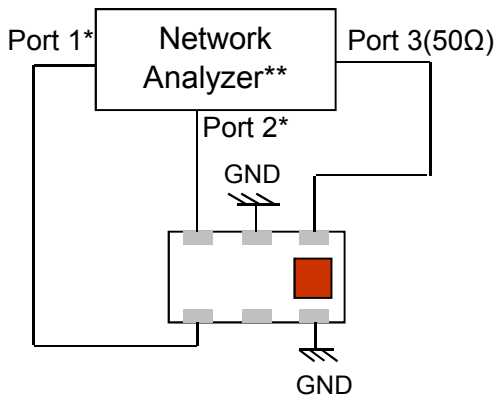
Land

Via Through

\*Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

Do you need the layout/gerber files of the above? Go to: [www.johansontechnology.com/nordic](http://www.johansontechnology.com/nordic) or send us a message at: <http://www.johansontechnology.com/component/techquestion/?Itemid=407>

### Solo-Component Characterization Scheme



Port 3: Unbalanced Port

Ports 1 and 2: Balanced Port

$IL = S_{ds21}$ ,  $Att_{DM} = S_{ds21}$ ,  $Att_{CM} = S_{cs21}$

$RL = S_{ss11}$

$Amp_{balance} = dB(S(1,3)/S(2,3))$

$Phase_{balance} = Phase(S(1,3)/S(2,3))$

\*Impedance for ports 1 and 2

= Conjugate to Balanced Impedance/2

\*\*E5071B from Agilent

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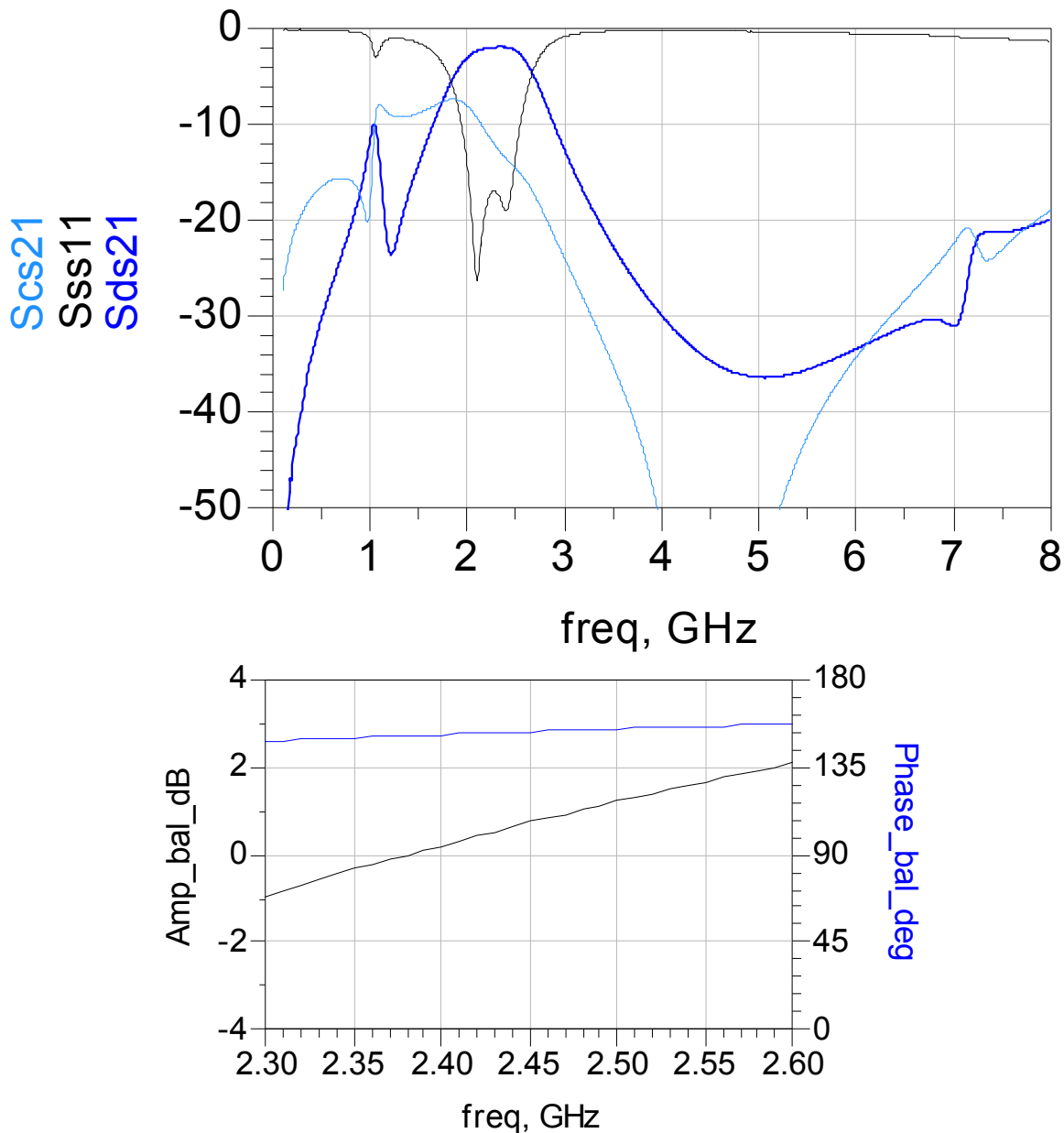
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## Typical Electrical Characteristics (T=25°C)



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## Application Notes, Layout Files, and more

<http://johansontechnology.com/nordic>

## 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

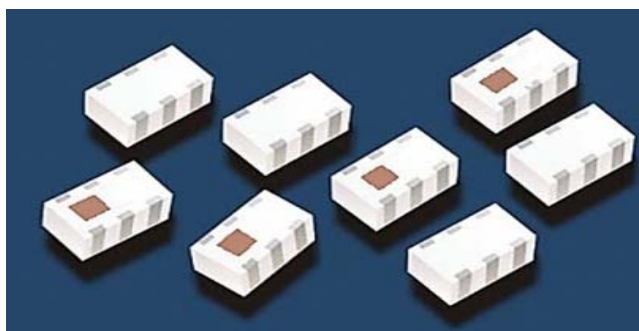
[www.johansontechnology.com/technical-notes/rohs-compliance.html](http://www.johansontechnology.com/technical-notes/rohs-compliance.html)

## 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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