

High Frequency Ceramic Solutions

2.45GHz Impedance Matched Balun + Band Pass Filter: Optimized for Nordic's Chipsets: nRF51822-QFAA, nRF51422-QFAA, nRF51822-QFAB, nRF51422-QFAB, nRF51822-QFAC, nRF51422-QFAC, nRF51802-QFAA P/N 2450BM14E0003

Detail Specification: 6/29/2016

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For the Full App Note and Layout Files, go to: www.johansontechnology.com/nordic

General Specifications

Part Number	2450BM14E0003
Frequency (MHz)	2400 - 2500
Unbalanced Impedance	50 Ω (single ended)
Differential Balanced Impedance	Impedance matched to Nordic Semi nRF51822-QFAx, nRF51422-QFAx, and nRF51802-QFAA chipsets
Average Insertion Loss when connected to the nRF51XX chipset (Active OP)	0.9dB Typ. @25C, 1.5dB max. (-40 to +85C), 2.0dB (+85 to +105C)
Insertion Loss when component measured by itself (passive insertion loss)	2.1dB typ. @25C, 2.5dB max. (-40 to +85C), 3.0dB (+85 to 105C)



Attenuation Differential mode (dB):	
800-928 MHz	15 typ. @25°C 10 min.
1200-1500 MHz	14 typ. @25°C 10 min.
4800-5000MHz	35 typ. @25°C 20 min.
7200-7500MHz	21 typ. @25°C 18 min.
Attenuation Common mode (dB):	
4800-5000MHz	44 typ. @25°C 20 min.

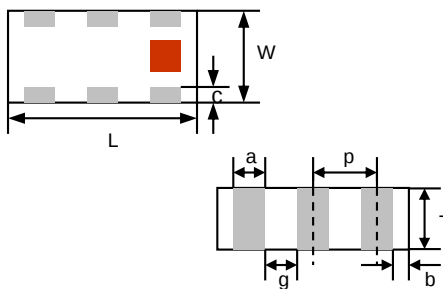
Return Loss (dB)	15 typ. 9.5 min.
Amplitude Difference	150 $\pm$ 15deg
Reel Quantity	4,000 pcs
Operating Temperature	-40 to +105°C
Storage Temperature	-40 to +85°C
Recommended Storage Conditions for unused product on T&R	+5 to +35°C, Humidity: 45-75%RH, 18 mos. Max
Power Capacity	1W max.(CW)

Part Number Explanation

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

Mechanical Dimensions

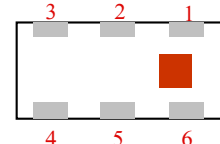
	In	mm
L	0.063 $\pm$ 0.004	1.60 $\pm$ 0.10
W	0.031 $\pm$ 0.004	0.80 $\pm$ 0.10
T	0.024 $\pm$ 0.004	0.60 $\pm$ 0.10
a	0.008 $\pm$ 0.004	0.20 $\pm$ 0.10
b	0.008 $\pm$ 0.004/-0.006	0.20 $\pm$ 0.1/-0.15
c	0.006 $\pm$ 0.004	0.15 $\pm$ 0.10
g	0.012 $\pm$ 0.004	0.30 $\pm$ 0.10
p	0.020 $\pm$ 0.002	0.50 $\pm$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



You can download layout files, schematics, output power measured results (App Note AN020), and s-parameters at: <http://johansontechnology.com/nordic>

Terminal Configuration

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



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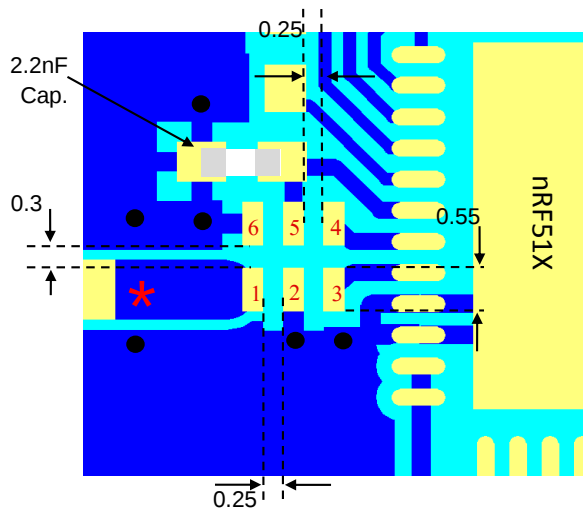
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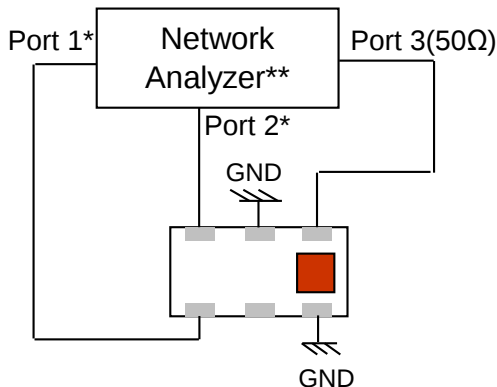
Mounting Considerations



*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 or send us a message to review your layout at: www.johansontechnology.com/component/ask-a-question

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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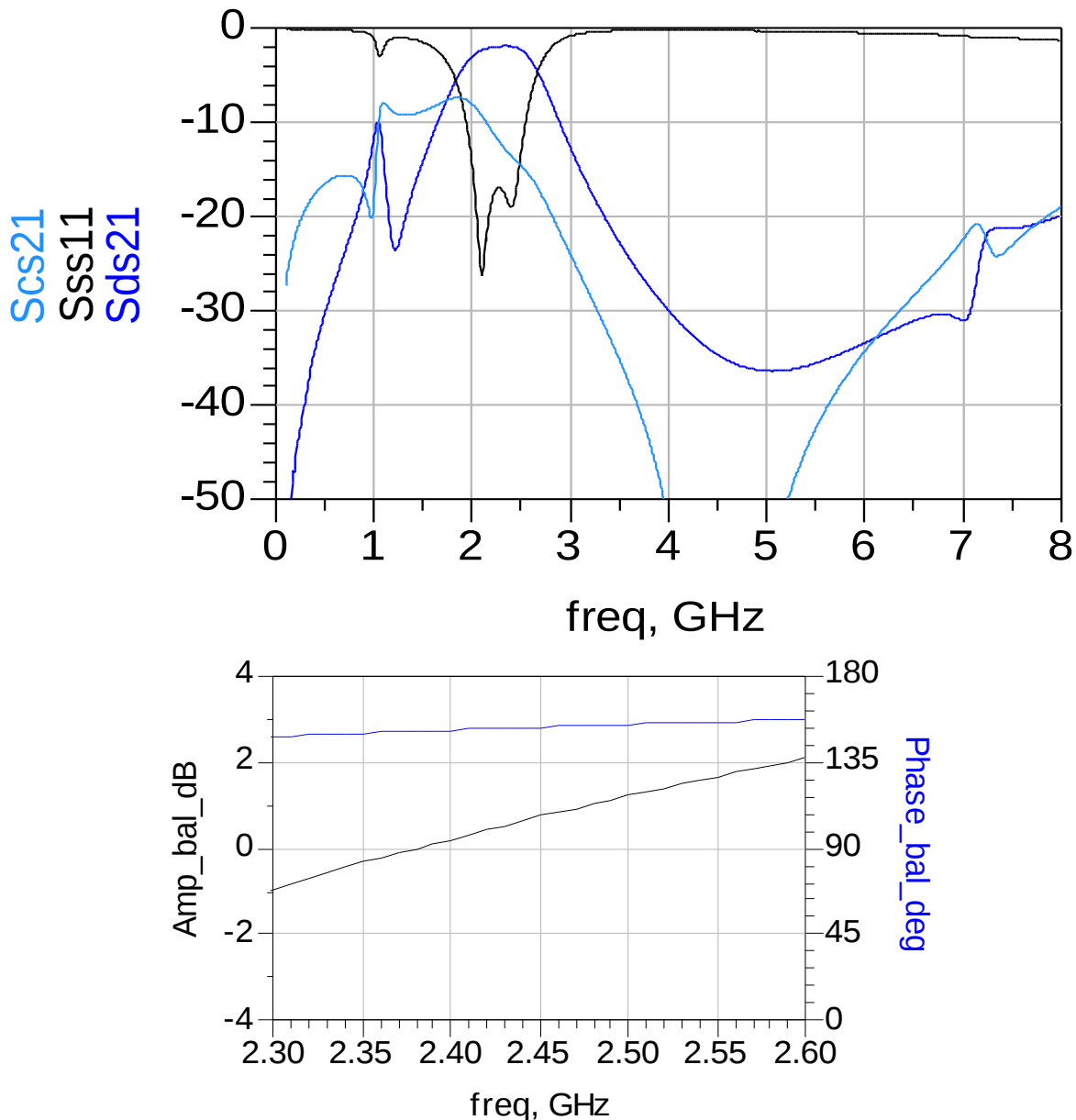
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Typical Electrical Characteristics (T=25°C)



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Application Notes, Layout Files, and more

www.johansontechnology.com/nordic

Packaging information

<http://www.johansontechnology.com/tape-reel-packaging>

Soldering Information

www.johansontechnology.com/ipcsoldering-profile

MSL Info

<http://www.johansontechnology.com/msl-rating>

Recommended Storage Condition and Max Shelf Life

<http://www.johansontechnology.com/recommended-storage-conditions>

RoHS Compliance

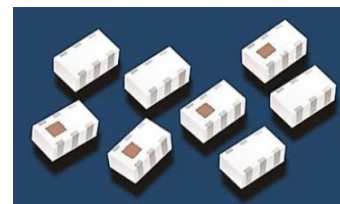
<http://www.johansontechnology.com/rohs-compliance>

Antenna layout and tuning techniques

www.johansontechnology.com/tuning

Antenna layout review, tuning, and characterization services

<http://www.johansontechnology.com/ipc-antenna-services>



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