

High Frequency Ceramic Solutions

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

Detail Specification: 4/15/2015

Page 1 of 4

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 and nRF51422-QFAx 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.



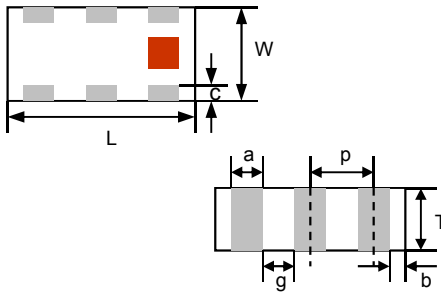
Return Loss (dB)	15 typ. 9.5 min.
Amplitude Difference	150 \pm 15deg
Reel Quantity	4,000 pcs
Operating Temperature	-40 to +105°C
Storage Temperature	-40 to +85°C
Recommended Storage Conditions for unused product on T&R	+5 to +35°C, Humidity: 45-75%RH, 18 mos. Max
Power Capacity	1W max.(CW)

Part Number Explanation

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



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

Johanson Technology, Inc. reserves the right to make design changes without notice.

All sales are subject to Johanson Technology, Inc. terms and conditions.



www.johansontechnology.com

4001 Calle Tecate • Camarillo, CA 93012, USA • TEL +1.805.389.1166

Ver 2.1

2015 Johanson Technology, Inc. All Rights Reserved

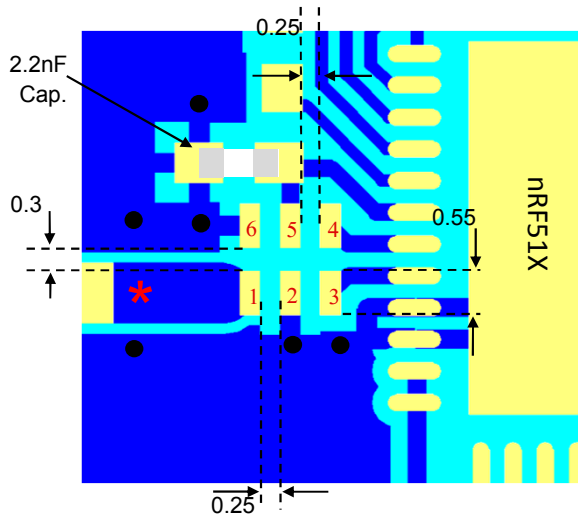
High Frequency Ceramic Solutions

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

Detail Specification: 4/15/2015

Page 2 of 4

Mounting Considerations

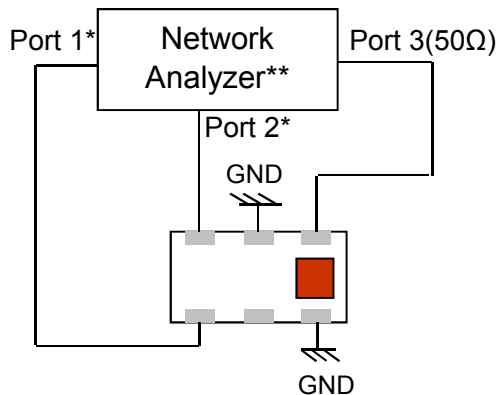


- Land
- Via Through

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

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

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

Johanson Technology, Inc. reserves the right to make design changes without notice.
 All sales are subject to Johanson Technology, Inc. terms and conditions.



www.johansontechnology.com

4001 Calle Tecate • Camarillo, CA 93012, USA • TEL +1.805.389.1166

Ver 2.1

2015 Johanson Technology, Inc. All Rights Reserved

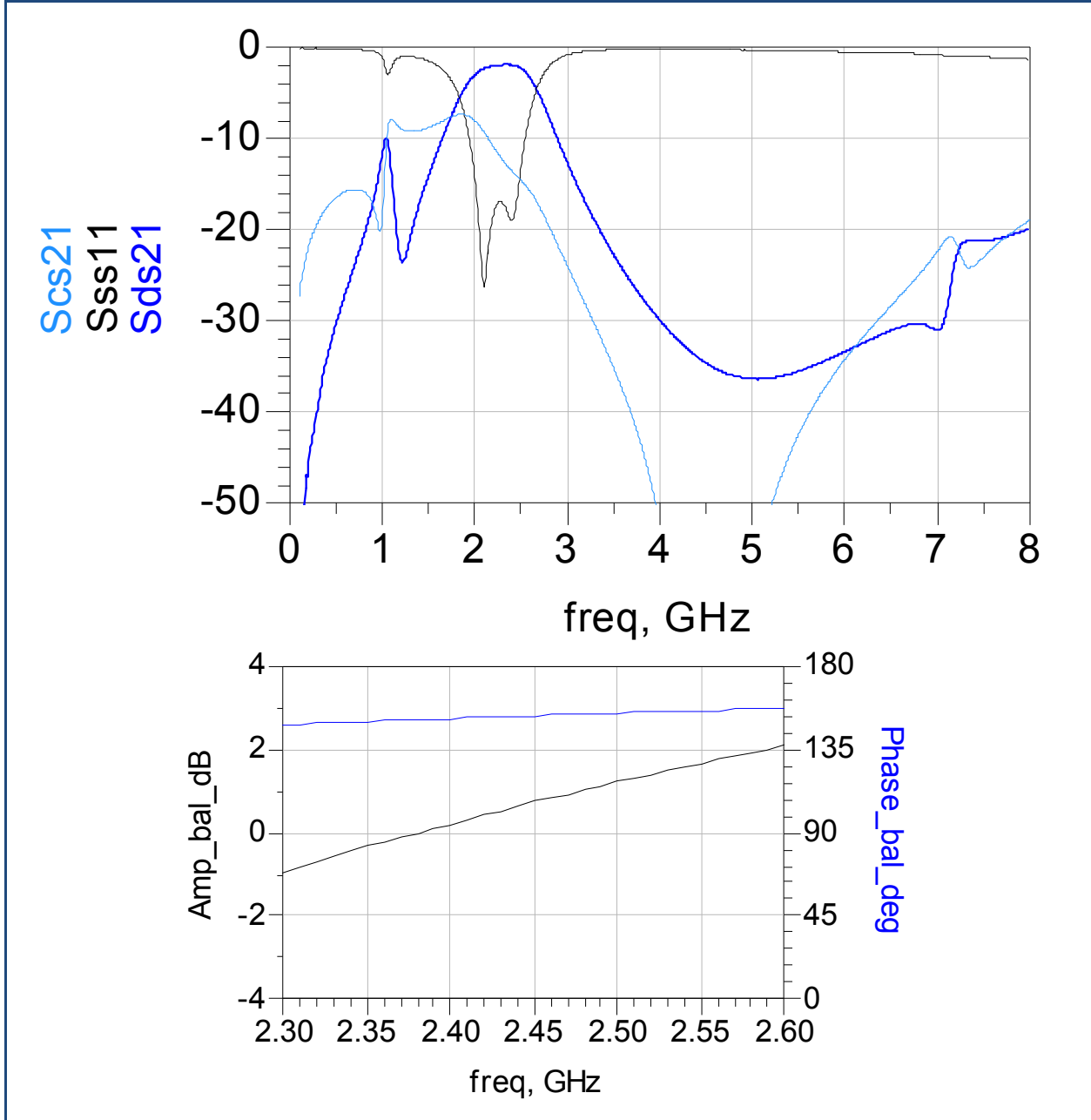
High Frequency Ceramic Solutions

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

Detail Specification: 4/15/2015

Page 3 of 4

Typical Electrical Characteristics (T=25°C)



Johanson Technology, Inc. reserves the right to make design changes without notice.

All sales are subject to Johanson Technology, Inc. terms and conditions.



www.johansontech.com

4001 Calle Tecate • Camarillo, CA 93012, USA • TEL +1.805.389.1166

Ver 2.1 © 2015 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

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

Detail Specification: 4/15/2015

Page 4 of 4

Application Notes, Layout Files, and more

www.johansontechnology.com/nordic

Packaging information

www.johansontechnology.com/ipcpackaging.html

Soldering Information

www.johansontechnology.com/ipcsoldering-profile

MSL Info

www.johansontechnology.com/technical-notes/msl-rating.html

Recommended Storage Condition and Max Shelf Life

www.johansontechnology.com/ipcstorage-shelflife

RoHS Compliance

www.johansontechnology.com/technical-notes/rohs-compliance.html

Antenna layout and tuning techniques

www.johansontechnology.com/tuning

Antenna layout review, tuning, and characterization services

www.johansontechnology.com/ipcantennaservices



Johanson Technology, Inc. reserves the right to make design changes without notice.

All sales are subject to Johanson Technology, Inc. terms and conditions.



www.johansontechnology.com

4001 Calle Tecate • Camarillo, CA 93012, USA • TEL +1.805.389.1166

Ver 2.1

2015 Johanson Technology, Inc. All Rights Reserved