

High Frequency Ceramic Solutions

Impedance Matched Balun + Harmonic Filter compatible with: Realtek RTL8188EU and
RTL8192EU and ST BlueNRG chipsets

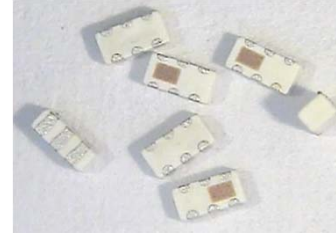
P/N 2450BM14A0023

Detail Specification: 2/27/2015

Page 1 of 5

General Specifications

Part Number	2450BM14A0023		
Frequency (MHz)	2400 - 2500		
Unbalanced Impedance	50 Ω		
Balanced Differential Impedance	Conjugate match compatible to RTL8188EU, RTL8192EU and ST BlueNRG chipsets		
Insertion Loss (dB)	1.2 max.		
Return Loss (dB)	9.5 min.		
Phase Difference (degree)	180° \pm 10	Operating Temperature Range	-40 ~ +85°C
Amplitude Difference	2.0 max.	Storage Temperature Range	-40 ~ +85°C
Attenuation (dB)	30 min.@4800~5000MHz	Recommended Storage Conditions for Unused product on T&R	+5 ~ +35 °C, Humidity 45~75%RH, 18 months.
Qty/Reel (pcs)	4,000		
Power Capacity	2W max (CW)	Storage Period	18 months max.



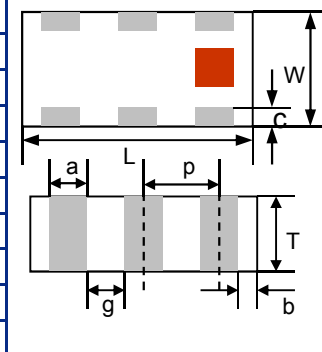
You can download measured s-parameters of this component at: www.johansontechnology.com/chipset-ipc

Part Number Explanation

P/N Suffix	Packaging Style	Bulk	Suffix = S	E.g.. 2450BM14A0023S
		T & R	Suffix = T	E.g.. 2450BM14A0023T
	Termination Style	100% Tin	Suffix = None	E.g.. 2450BM14A0023(T or S)

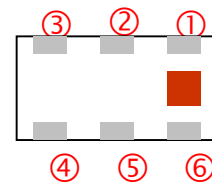
Mechanical Dimensions

	Inches	Millimeter
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+0.004/-0.006	0.2+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	No	Function
1	GND	4	Balanced Port
2	GND	5	DC feed + RF GND
3	Balanced Port	6	Unbalanced Port



Note: Use a 10pF capacitor in shunt when using DC-Feed

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 1.0

2015 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

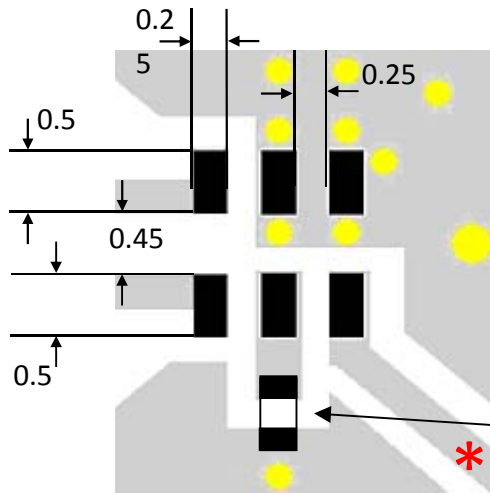
Impedance Matched Balun + Harmonic Filter compatible with: Realtek RTL8188EU and
RTL8192EU and ST BlueNRG chipsets

P/N 2450BM14A0023

Detail Specification: 2/27/2015

Page 2 of 5

Mounting Considerations for Balun-Filter solder pads



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

■ Solder Resist

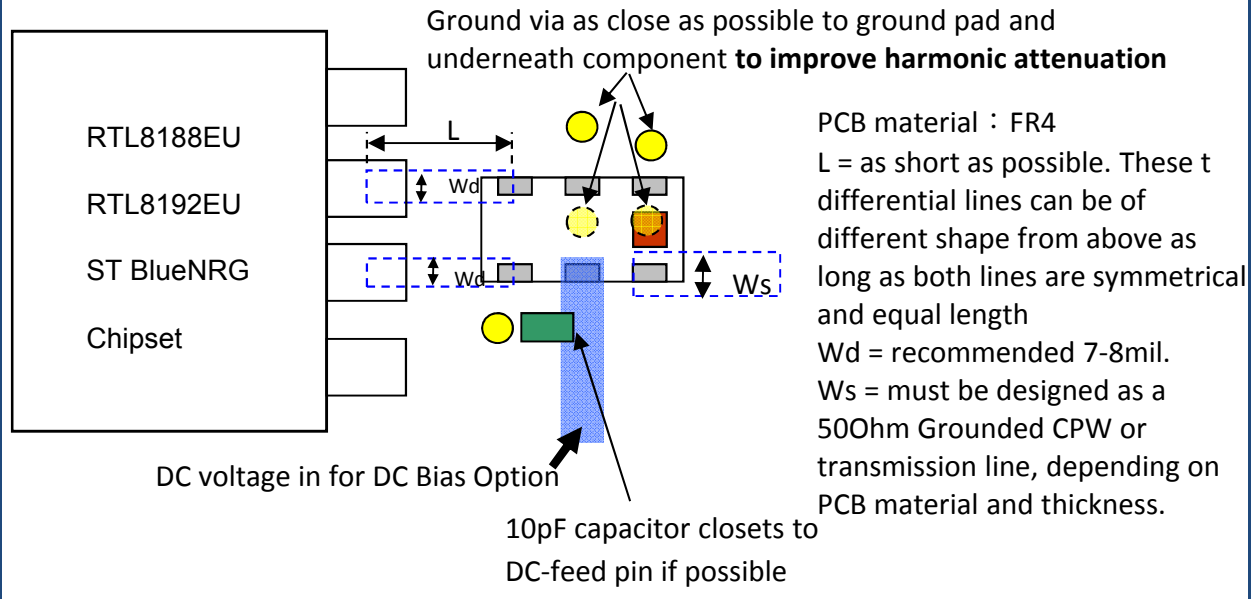
■ Land

● Through-hole (ϕ 0.3/0.2)

* 10pF capacitor

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

Recommended PCB Layout



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 1.0

2015 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

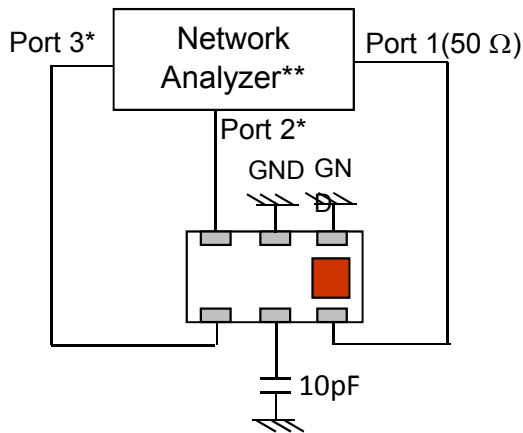
Impedance Matched Balun + Harmonic Filter compatible with: Realtek RTL8188EU and
RTL8192EU and ST BlueNRG chipsets

P/N 2450BM14A0023

Detail Specification: 2/27/2015

Page 3 of 5

Component Characterization Diagram



Port 1: Unbalanced Port

Ports 2 and 3: Balanced Port

$$IL = S_{ds21}$$

$$RL = S_{ss11} \text{ and } S_{dd22}$$

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

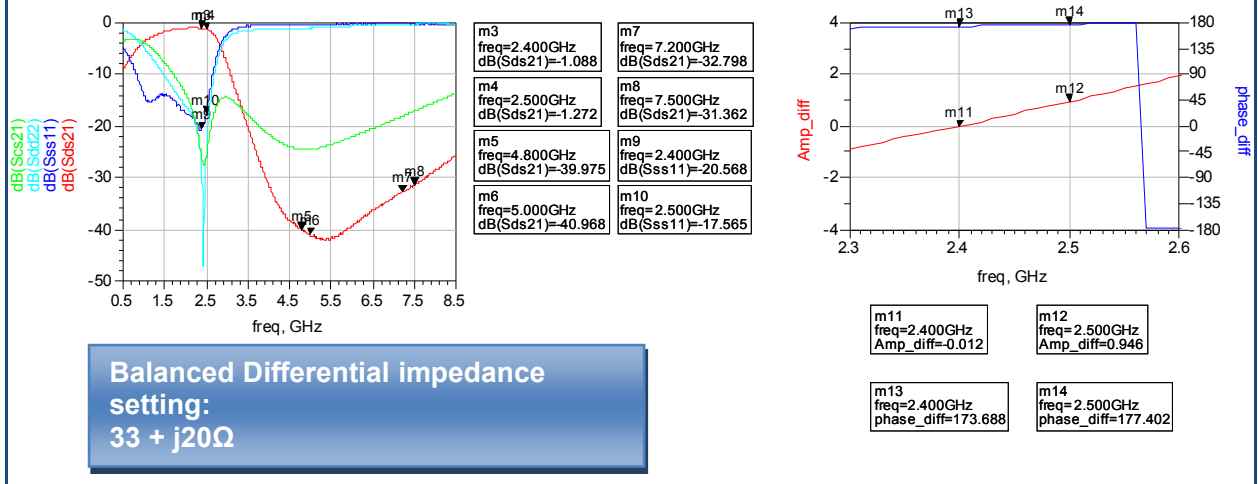
$$\text{Phase_balance} = \text{Phase}(S(2,1)/S(3,1))$$

*Impedance for ports 2 and 3

= Conjugate to Balanced Impedance/2

** E5071B from Agilent

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 1.0 2015 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

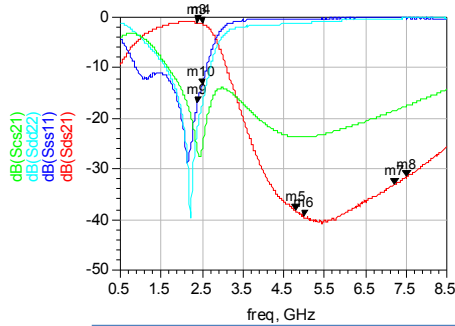
Impedance Matched Balun + Harmonic Filter compatible with: Realtek RTL8188EU and
RTL8192EU and ST BlueNRG chipsets

P/N 2450BM14A0023

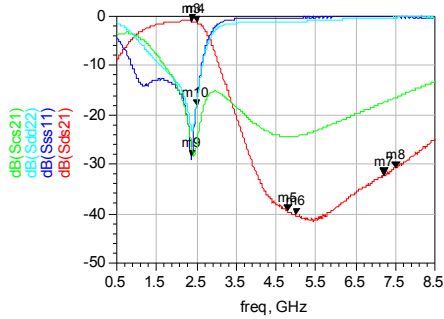
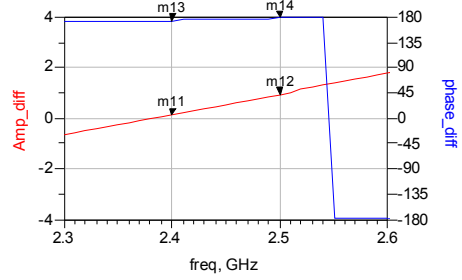
Detail Specification: 2/27/2015

Page 4 of 5

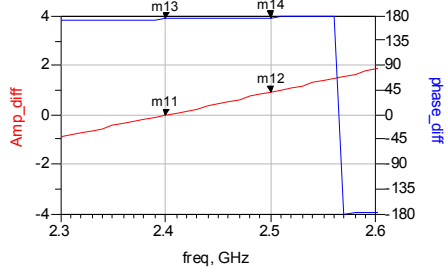
Typical Electrical Characteristics (T=25°C)



Balanced Differential impedance
setting:
 $31.4 + j26.6\Omega$



Balanced Differential impedance
setting:
 $28.8 + j18.5\Omega$



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 1.0 2015 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

Impedance Matched Balun + Harmonic Filter compatible with: Realtek RTL8188EU and
RTL8192EU and ST BlueNRG chipsets

P/N 2450BM14A0023

Detail Specification: 2/27/2015

Page 5 of 5

Application Notes, Layout Files, and more

www.johansontechnology.com/chipset-ipc

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 1.0

2015 Johanson Technology, Inc. All Rights Reserved



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.