



THE DATASHEET OF
0850BM14E0016T



High Frequency Ceramic Solutions

Sub-GHz Impedance Matched Balun + LPF integrated Passive Component for Texas Instruments' CC1310, CC1312 Chipsets

P/N: 0850BM14E0016

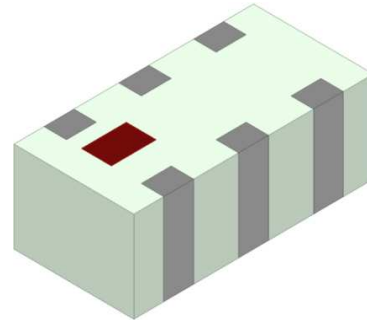
Detail Specification: 9/9/2021

Page 1 of 5

Do you need a small 900MHz antenna? Go to: <https://www.johansontechnology.com/antennas>

General Specifications

Part Number	0850BM14E0016	
Frequency (MHz)	770 - 860	860 - 928
Unbalanced Impedance (Ω)	50	
Balanced Impedance (Ω)	Impedance matched to Texas Instruments' CC1310, CC1312 chipsets	
Insertion Loss (dB)	1.3 typ. (1.6 max.)	1.8 typ. (2.2 max.)
Return Loss (dB)	9.5 min.	9.5 min.
Phase Difference (deg)	180 \pm 17	180 \pm 15
Amplitude Difference (dB)	3.5 max.	2.0 max.
Attenuation (dB)	8 min.@ 1540 - 1720MHz 15 min.@ 1720 - 1736MHz 15 min.@ 1736 - 1856MHz 30 min.@ 2310 - 2580MHz 30 min.@ 2580 - 2784MHz 33 min.@ 3080 - 3440MHz 35 min.@ 3440 - 3712MHz	
Power Capacity (W)	2 max. (CW)	



Texas Instruments - Approved!

Reel Quantity (pcs/reel)	4,000
Operating Temperature	-40°C to +85°C
Recommended Storage Conditions and Period for unused Product on T&R	+5 to +35 °C Humidity 45 - 75%RH 18 mos. max

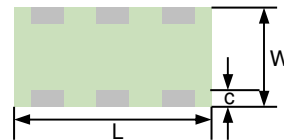
For more TI matched balun-filters, go to: <https://www.johansontechnology.com/ti>

Part Number Explanation

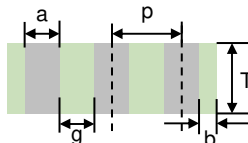
P/N Suffix	Packaging Style	Bulk (loose pcs.)	Suffix = S	eg. 0850BM14E0016S
		T & R	Suffix = T	eg. 0850BM14E0016T
		100% Tin	Suffix = None	eg. 0850BM14E0016(T or S)

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/-.008	0.20 +0.1/-0.2
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



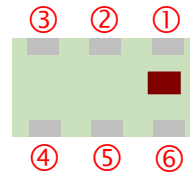
Bottom



Side

Terminal Configuration

No.	Function
1	Unbalanced Port
2	RX/TX
3	Balanced Port RF_N
4	Balanced Port RF_P
5	GND
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.



<https://www.johansontechnology.com>

4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

Ver. 2.4

2021 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

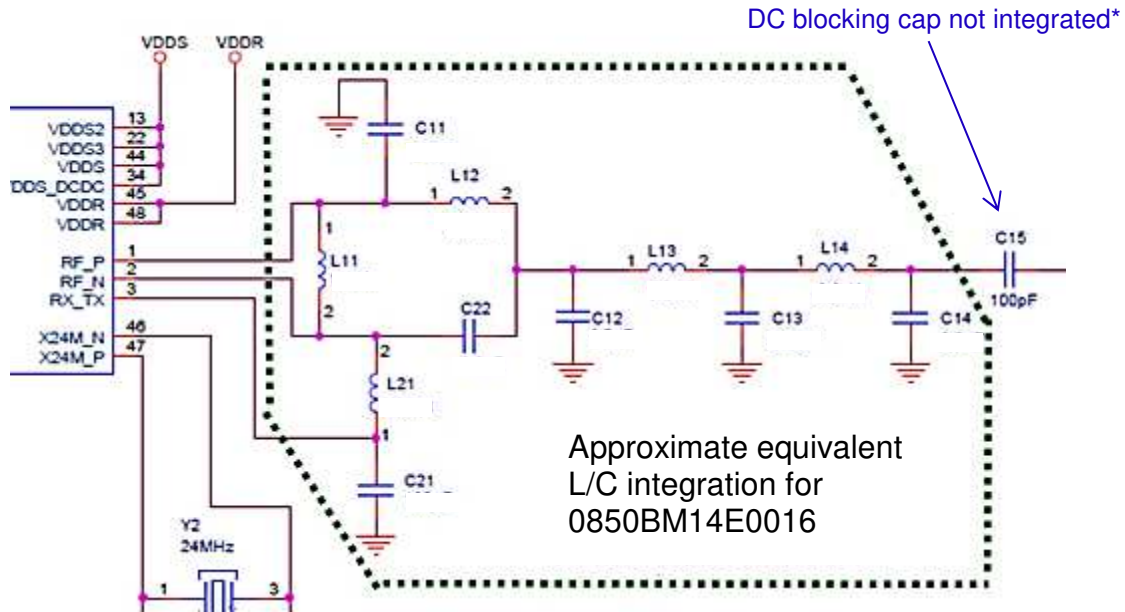
Sub-GHz Impedance Matched Balun + LPF integrated Passive Component for Texas Instruments' CC1310, CC1312 Chipsets

P/N: 0850BM14E0016

Detail Specification: 9/9/2021

Page 2 of 5

Equivalent L/C Circuit Integrated into IPC



*Even though Pins 3, 4, and 1 are internally *DC blocked* from GND, Pins 3/4 are *DC coupled* to Pin 1 (there's a DC path between them). We recommend the designer place a DC blocking cap (68-100pF) in series after Pin 1 (between IPC and antenna).

Would you like the reference design, schematic, and gerber files? Need us to review your layout for free or an antenna recommendation for your application? Contact us at:

<https://www.johansontechnology.com/ask-a-question>

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



<https://www.johansontechnology.com>

4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

Ver. 2.4

2021 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

Sub-GHz Impedance Matched Balun + LPF integrated Passive Component for Texas Instruments' CC1310, CC1312 Chipsets

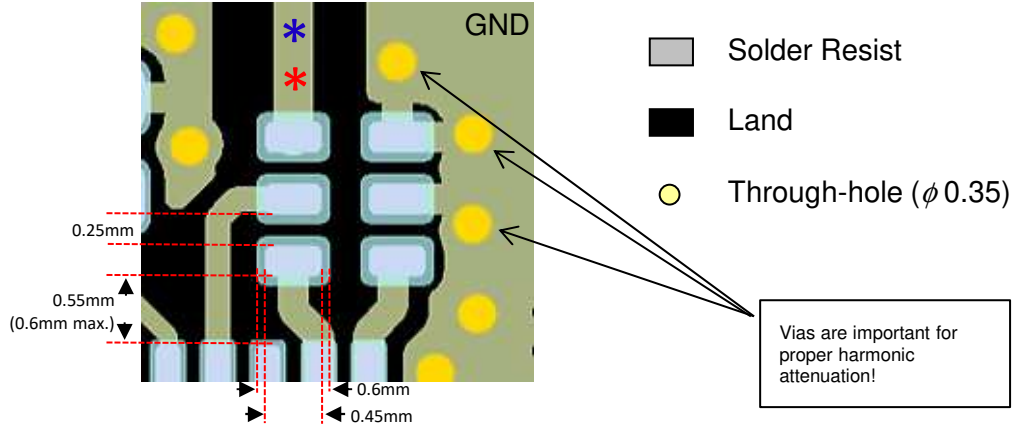
P/N: 0850BM14E0016

Detail Specification: 9/9/2021

Page 3 of 5

Pad-Soldermask Guidelines

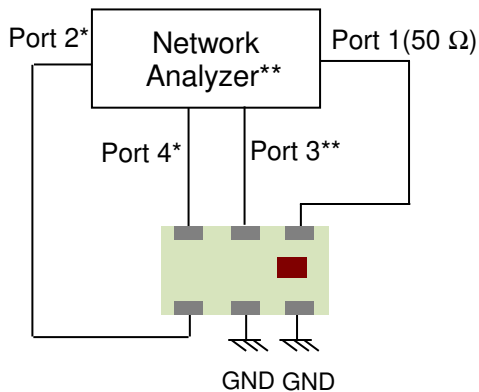
Request reference design, schematic, and gerber files at: <https://www.johansontechnology.com/ask-a-question>



* Even though Pins 3, 4, and 1 are DC blocked from GND, Pins 3/4 are DC coupled to Pin 1 (there's a DC path between them). We recommend the designer place a DC blocking cap (68-100pF) in series after Pin 1 (between IPC and antenna) per page 2 of the datasheet.

* Line width should be designed to match 50ohm characteristic impedance, depending on PCB material and thickness. Grounded CPWG is recommended.

Measurement Diagram



Port 1: Unbalanced Port

Ports 2 and 4: Balanced Port

*Ports 2 and 4 Terminate impedance

=Conjugate match to TI CC13XX chipset

Port 3: RX_TX Port

**Port 3 Terminate impedance

=The load Impedance looking into RX_TX pin of TI CC13XX chipset

$IL = S_{DS21}$

$RL = S_{SS11}$

$Amp_balance = dB(S(2,1)/S(4,1))$

$Phase_balance = Phase(S(2,1)/S(4,1))$

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

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



<https://www.johansontechnology.com>

4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

Ver. 2.4

2021 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

Sub-GHz Impedance Matched Balun + LPF integrated Passive Component for Texas Instruments' CC1310, CC1312 Chipsets

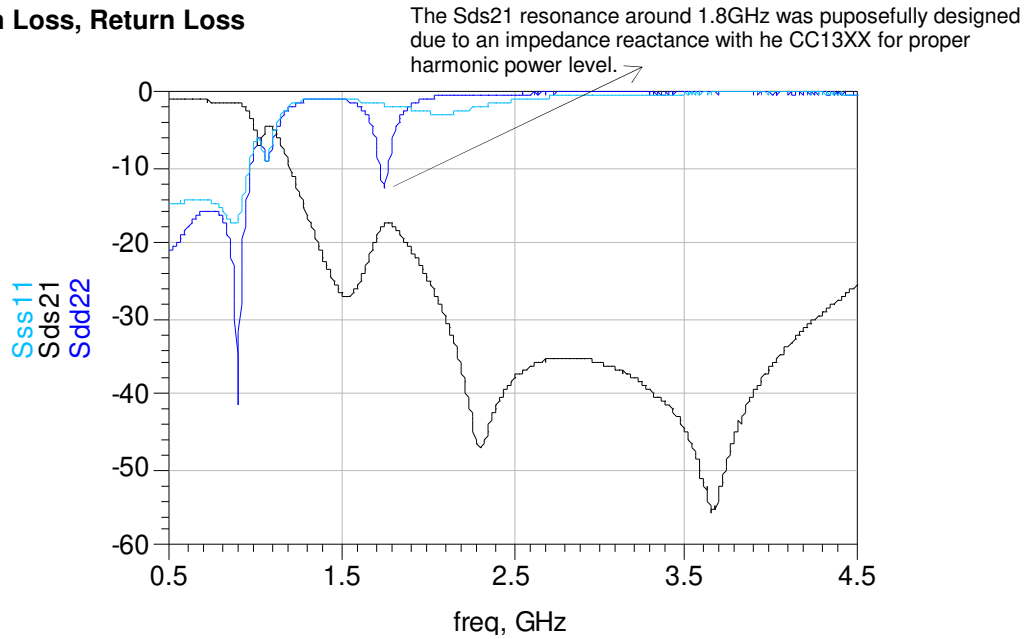
P/N: 0850BM14E0016

Detail Specification: 9/9/2021

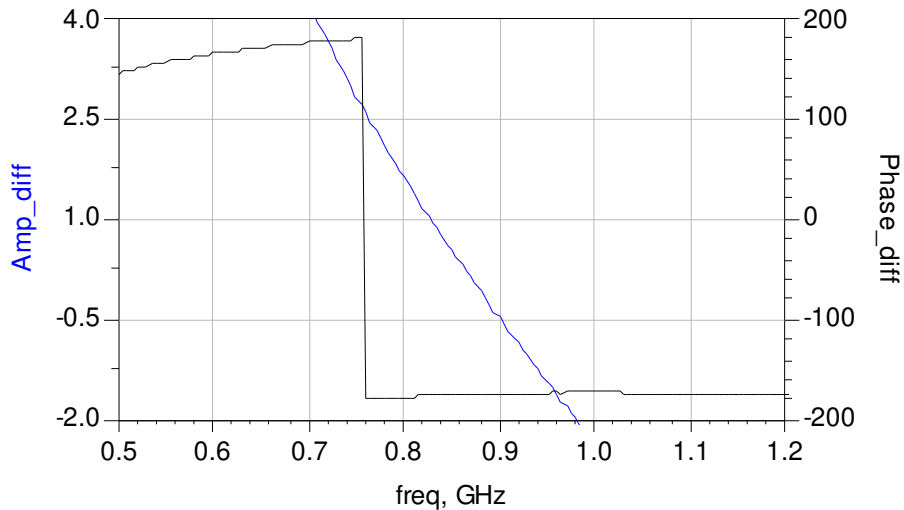
Page 4 of 5

Typical Electrical Characteristics (T=25°C)

Insertion Loss, Return Loss



Phase Difference, Amplitude Balance



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



<https://www.johansontechnology.com>

4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

Ver. 2.4

2021 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

Sub-GHz Impedance Matched Balun + LPF integrated Passive Component for Texas Instruments' CC1310, CC1312 Chipsets

P/N: 0850BM14E0016

Detail Specification: 9/9/2021

Page 5 of 5

Application Notes, Layout Files, and more

<https://www.johansontechnology.com/ti>

Small SMD 433MHz (or 900M, 2.4G, 5G) antennas

<https://www.johansontechnology.com/antennas>

RoHS Compliance

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

Soldering Information

<https://www.johansontechnology.com/ipcsoldering-profile>

Antenna layout and tuning techniques

<https://www.johansontechnology.com/tuning>

Antenna layout review, tuning, and characterization services

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

MSL Info

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

Recommended Storage Condition and Max Shelf Life

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

Packaging information

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

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



<https://www.johansontechnology.com>

4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

Ver. 2.4

2021 Johanson Technology, Inc. All Rights Reserved

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View 0850BM14E0016T on WIN SOURCE](#)

 [Johanson Technology Inc. Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management