

# High Frequency Ceramic Solutions

## 434MHz Impedance-Matched Balun+Filter Integrated Passive Device (IPD) for Silicon Labs EFR32 Chipset, EIA 0805.

0434BM15B0027

Detail Specification: 6/9/2021

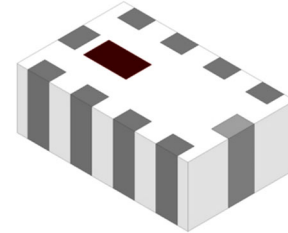
Page 1 of 6

Do you need a small sub-GHz or 2.4GHz antenna? Go to: <https://www.johansontechnology.com/antennas>

### General Specifications

Part Number	0434BM15B0027	
Frequency (MHz)	431 - 437	
Unbalanced Impedance ( $\Omega$ )	50	
Balanced Impedance ( $\Omega$ )	Impedance matched to Silicon Labs EFR32	
Insertion Loss (dB)	2.0 typ. (2.3 max)	
Return Loss (dB)	15 typ. (10 min)	
Phase Balance (deg)	$-155 \pm 15$	
Amplitude Difference (dB)	$-5.0 \pm 2.0$	
Attenuation (dB @MHz)	22 typ. (18 min.)	862 - 874 MHz
	35 typ. (30 min.)	1293 - 1311 MHz
Voltage Rating (V)	3.6 max.	
Power Capacity (W)	3 max. CW	
Operating Temperature	$-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$	

The entire sub-GHz discrete L/C circuit is integrated inside this small package!



Silicon Labs Approved!

Quantity/Reel	4,000
Storage Temperature Range	$-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$
Storage Period	18 months max
Recommended Storage Conditions for unused T&R product	$+5 \sim +35^{\circ}\text{C}$ , Humidity 45~75%RH, 18 mos. max

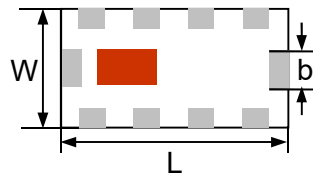
For more Silicon Labs matched balun-filters, go to: <https://www.johansontechnology.com/silabs>

### Part Number Explanation

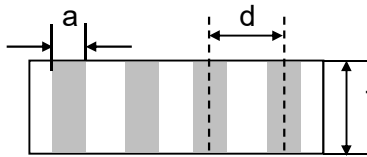
P/N Suffix	Packing Style	Bulk	Suffix = S	E.g. 0434BM15B0027S
		T & R	Suffix = E	E.g. 0434BM15B0027E

### Mechanical Dimensions

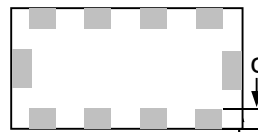
	In	mm
L	$0.079 \pm 0.008$	$2.00 \pm 0.20$
W	$0.049 \pm 0.008$	$1.25 \pm 0.20$
T	$0.035 \pm 0.004$	$0.90 \pm 0.10$
a	$0.010 \pm 0.004$	$0.25 \pm 0.10$
b	$0.012 \pm 0.006$	$0.30 \pm 0.15$
c	$0.008 + 0.004 / - 0.006$	$0.20 + 0.1 / - 0.15$
d	$0.020 \pm 0.004$	$0.50 \pm 0.10$



Top



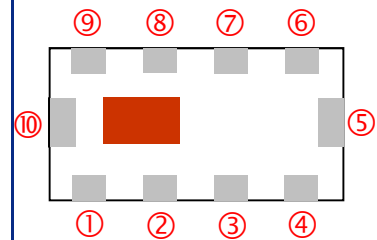
Side



Bottom

### Terminal Configuration

No.	Function	No.	Function
1	GND	6	RX_N
2	ANT	7	RX_P
3	GND	8	TX_N
4	GND	9	TX_P
5	GND	10	GND or DC Feed/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. 1.1

2021 Johanson Technology, Inc. All Rights Reserved

# High Frequency Ceramic Solutions

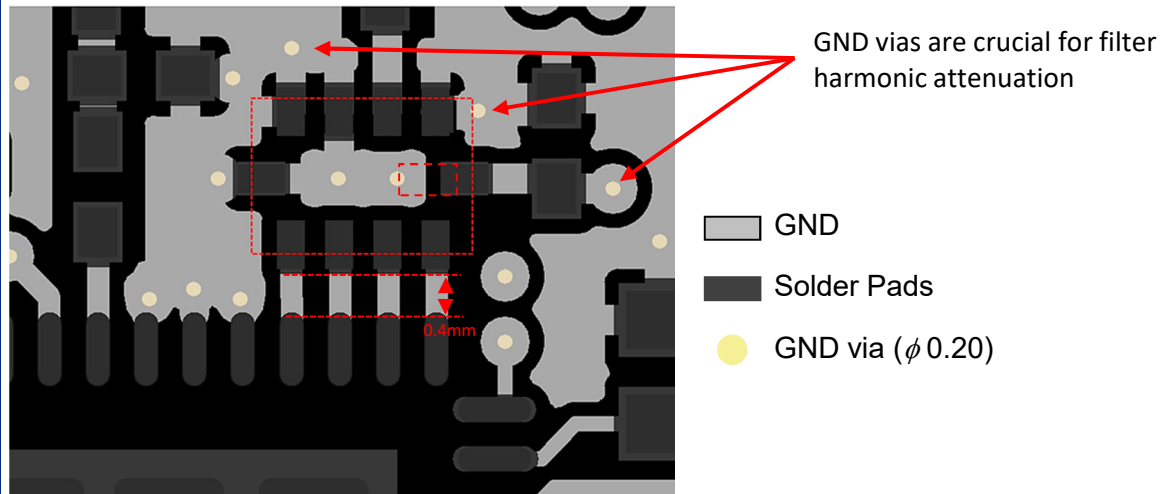
**434MHz Impedance-Matched Balun+Filter Integrated Passive Device (IPD) for Silicon Labs EFR32 Chipset, EIA 0805.**

**0434BM15B0027**

Detail Specification: 6/9/2021

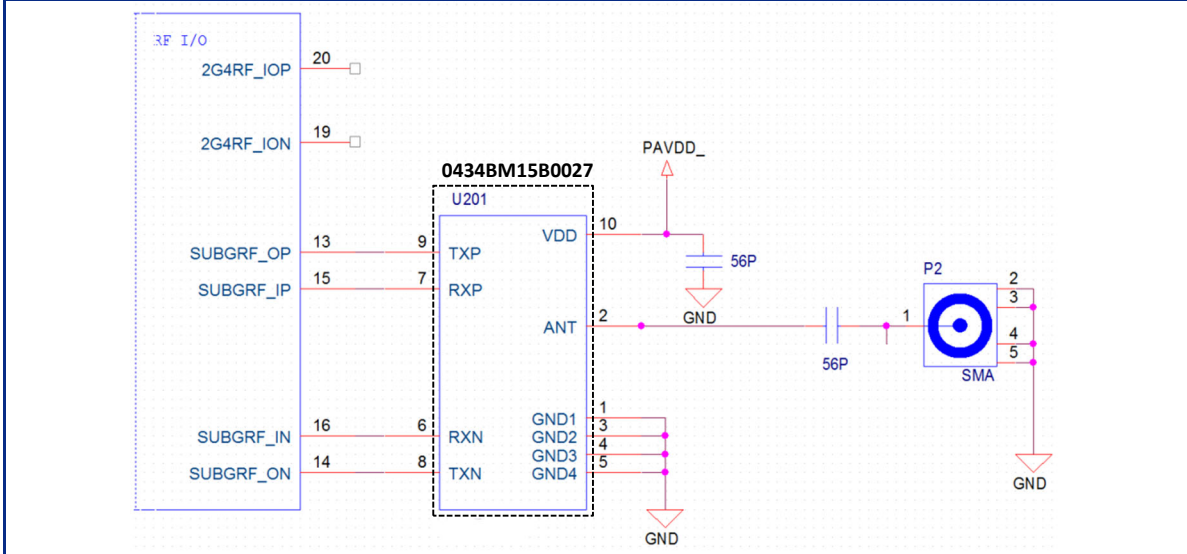
Page 2 of 6

## Pad-Soldermask Guidelines (with DC Feed)



For reference design package and PCB CAD files, please contact us at: <https://www.johansontechnology.com/ask-a-question>

## PCB Reference Design Schematic



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. 1.1

2021 Johanson Technology, Inc. All Rights Reserved

# High Frequency Ceramic Solutions

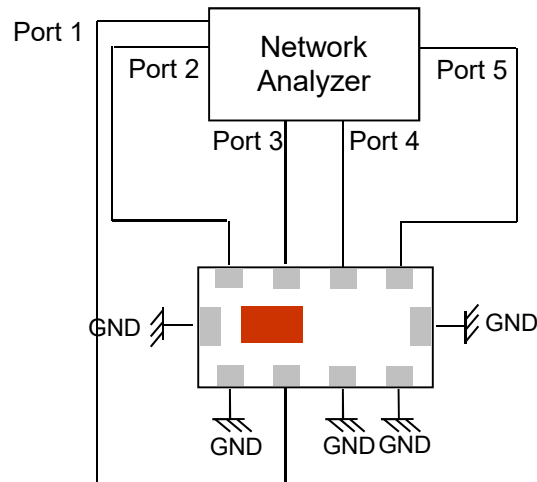
**434MHz Impedance-Matched Balun+Filter Integrated Passive Device (IPD) for Silicon Labs EFR32 Chipset, EIA 0805.**

**0434BM15B0027**

Detail Specification: 6/9/2021

Page 3 of 6

## Measuring Diagram



### Tx mode:

Port 1 impedance:  $50\Omega$

Port 2 and 3 impedance\*: Complex conjugate to EFR32  $Z_{IC,TX\ on}$

Port 4 and 5 impedance\*: Load impedance of EFR32  $Z_{IC,RX\ off}$

$$IL=TX\ S_{DS21}$$

$$RL=TX\ S_{SS11} / TX\ S_{DD22}$$

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

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

### Rx mode:

Port 1 impedance:  $50\Omega$

Port 4 and 5 impedance\*: Complex conjugate to EFR32  $Z_{IC,RX\ on}$

Port 2 and 3 impedance\*: Load impedance of EFR32  $Z_{IC,TX\ off}$

$$IL=RX\ S_{DS21}$$

$$RL=RX\ S_{SS11} / RX\ S_{DD22}$$

$$\text{Amp\_balance} = dB(S(1,4)/S(1,5))$$

$$\text{Phase\_balance} = \text{Phase}(S(1,4)/S(1,5))$$

\*Termination impedance included in s-parameters

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. 1.1

2021 Johanson Technology, Inc. All Rights Reserved

# High Frequency Ceramic Solutions

434MHz Impedance-Matched Balun+Filter Integrated Passive Device (IPD) for Silicon Labs EFR32 Chipset, EIA 0805.

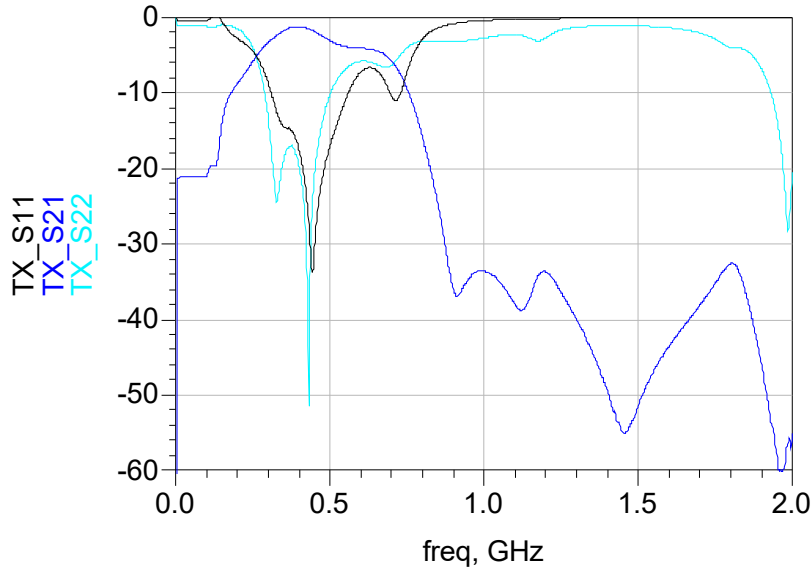
0434BM15B0027

Detail Specification: 6/9/2021

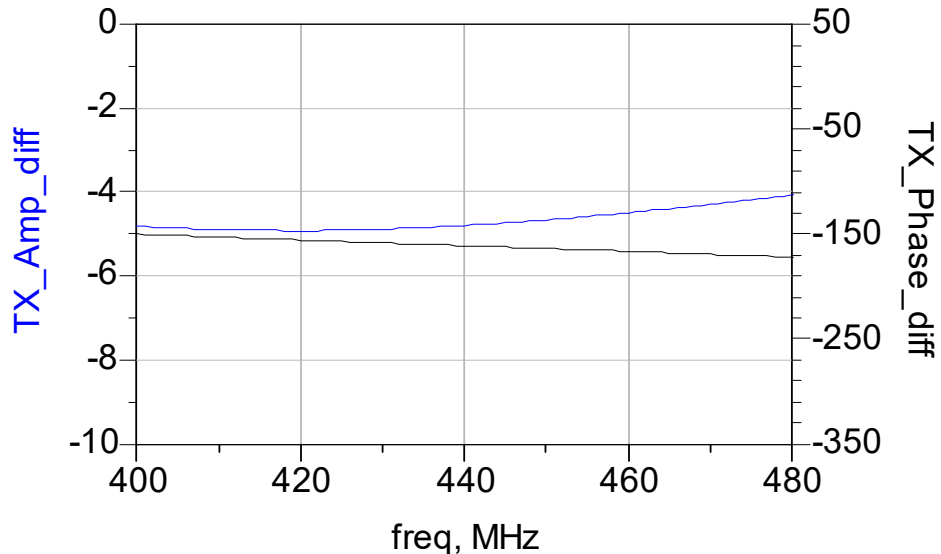
Page 4 of 6

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

### Transmit Mode Insertion Loss, Return Loss, and Attenuation



### Transmit Mode Phase Balance, Amplitude Difference



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. 1.1

2021 Johanson Technology, Inc. All Rights Reserved

# High Frequency Ceramic Solutions

434MHz Impedance-Matched Balun+Filter Integrated Passive Device (IPD) for Silicon Labs EFR32 Chipset, EIA 0805.

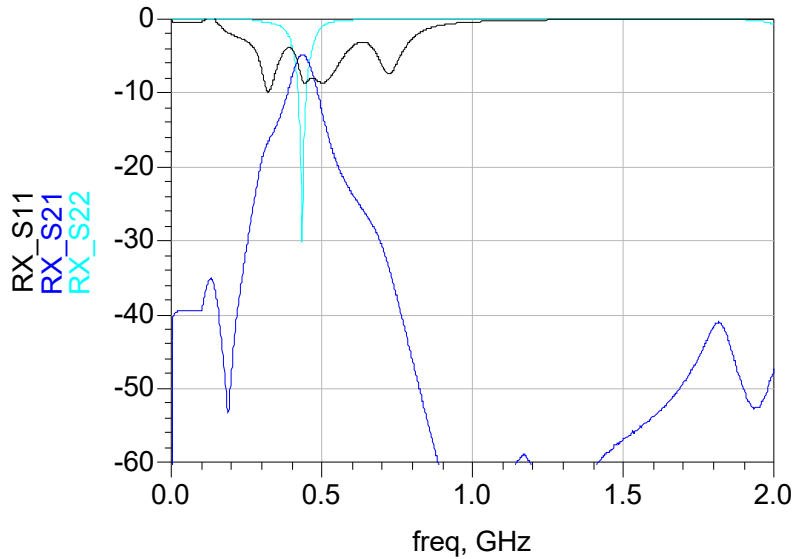
0434BM15B0027

Detail Specification: 6/9/2021

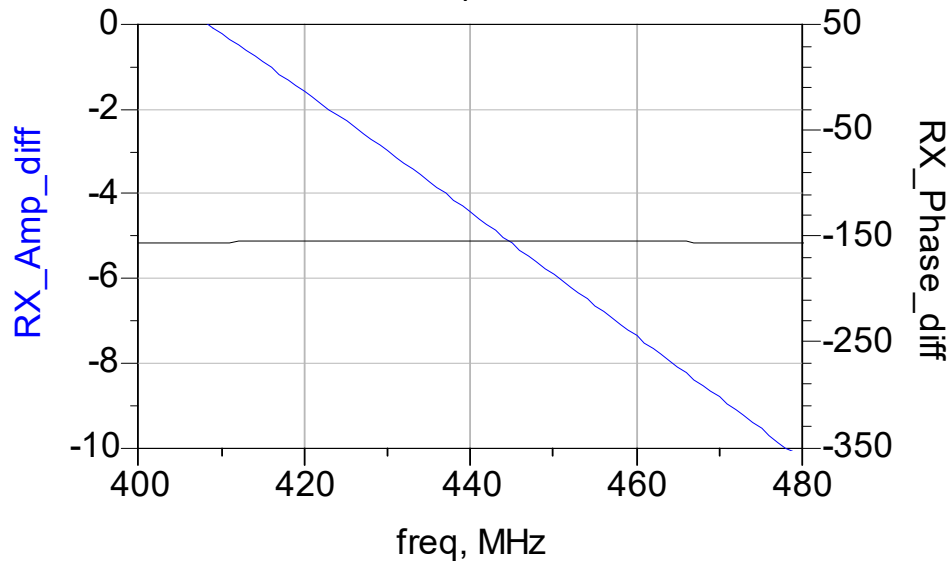
Page 5 of 6

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

### Receive Mode Insertion Loss, Return Loss, and Attenuation



### Receive Mode Phase Balance, Amplitude Difference



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. 1.1

2021 Johanson Technology, Inc. All Rights Reserved

# High Frequency Ceramic Solutions

**434MHz Impedance-Matched Balun+Filter Integrated Passive Device (IPD) for Silicon Labs EFR32 Chipset, EIA 0805.**

**0434BM15B0027**

Detail Specification: 6/9/2021

Page 6 of 6

## Application Notes, Layout Files, and more

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

## 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>

## Terminal Pad Composition

100% Tin (Sn)

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. 1.1

2021 Johanson Technology, Inc. All Rights Reserved

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Signal Conditioning](#) category:*

*Click to view products by [Johanson](#) manufacturer:*

Other Similar products are found below :

[MAPDCC0001](#) [MAPDCC0004](#) [PD0409J5050S2HF](#) [880157](#) [HHS-109-PIN](#) [DC1417J5005AHF](#) [AFS14A30-2185.00-T3](#) [AFS14A35-1591.50-T3](#) [DS-323-PIN](#) [B39321R801H210](#) [1A0220-3](#) [JP510S](#) [LFB212G45SG8C341](#) [LFB322G45SN1A504](#) [LFL182G45TC3B746](#) [SF2159E](#) [30057](#)  
[FM-104-PIN](#) [CER0813B](#) [MAPDCC0005](#) [3A325](#) [40287](#) [41180](#) [ATB3225-75032NCT](#) [BD0810N50100AHF](#) [BD2425J50200AHF](#)  
[C5060J5003AHF](#) [JHS-115-PIN](#) [JP503AS](#) [DC0710J5005AHF](#) [DC2327J5005AHF](#) [DC3338J5005AHF](#) [43020](#) [LFB2H2G60BB1C106](#)  
[LFL15869MTC1B787](#) [X3C19F1-20S](#) [XC3500P-20S](#) [10013-20](#) [SF2194E](#) [CDBLB455KCAX39-B0](#) [TGL2208-SM, EVAL](#) [RF1353C](#)  
[PD0922J5050D2HF](#) [1E1305-3](#) [1F1304-3S](#) [1G1304-30](#) [B0922J7575AHF](#) [2020-6622-20](#) [TP-103-PIN](#) [BD1222J50200AHF](#)