

High Frequency Ceramic Solutions

**Atmel AT86RF215 868/915/928 MHz Impedance Matched Balun + LPF
(FCC/ETSI compliant) integrated Passive Component**

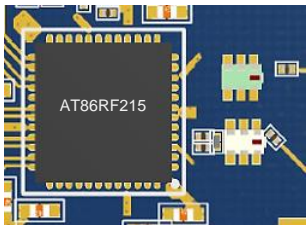
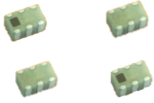
P/N: 0896BM15E0025

Detail Specification: 7/28/2016

Page 1 of 5

For the 2.4G Balun-filter, go to: www.johansontechnology.com/atmel

General Specifications

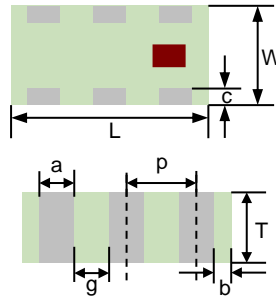
| | | | | | |
|-----------------------------|--|--|---|----------------------------------|----------------|
| Part Number | 0896BM15E0025 |  |  | | |
| Frequency (MHz) | 863-928 | | | | |
| Unbalanced Impedance | 50 | | | | |
| Balanced Impedance | Conjugate match to Atmel's AT86RF215, AT86RF215M, AT86RF215IQ chipsets | | | | |
| Insertion Loss | 1.25dB Typ. (1.6dB max.) | | | | |
| Return Loss | 9.5dB min. | | | | |
| Phase Diff. | 180±10 | | | | |
| Amp. Diff. | 2.0 max. | | | Q'ty/Reel | 4,000 pcs |
| Attenuation | 40Typ. 30 min. @ 1726~1856 MHz | | | Operating Temperature | -40°C to +85°C |
| | 45Typ. 34 min. @ 2589~2784 MHz | | | Storage Temperature Range | -40°C to +85°C |
| | 45Typ. 42 min. @ 3452~3712 MHz | Storage Period | 18 months max | | |
| Power Capacity | 45Typ. 34 min. @ 4315~4640 MHz | Recommended Storage Conditions for unused T&R product | +5 ~ +35 °C, Humidity 45~75%RH, 18 mos. max | | |
| | 54Typ. 31 min. @ 5178~5568 MHz | | | | |
| | 1W max. CW | | | | |

Part Number Explanation

| P/N Suffix | Packing Style | Bulk | Suffix = S | eg. 0896BM15E0025S |
|------------|---------------|----------|---------------|---------------------------|
| | | T & R | Suffix = E | eg. 0896BM15E0025E |
| | | 100% Tin | Suffix = None | eg. 0896BM15E0025(E or S) |

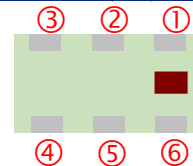
Mechanical Dimensions

| | In | mm |
|----------|-------------------|----------------|
| L | 0.079 ± 0.004 | 2.00 ± 0.10 |
| W | 0.049 ± 0.004 | 1.25 ± 0.10 |
| T | 0.037 ± 0.004 | 0.95 ± 0.10 |
| a | 0.012 ± 0.004 | 0.30 ± 0.10 |
| b | 0.008 ± 0.004 | 0.20 ± 0.10 |
| c | 0.012 +.004/-.008 | 0.30 +0.1/-0.2 |
| g | 0.014 ± 0.004 | 0.35 ± 0.10 |
| p | 0.026 ± 0.002 | 0.65 ± 0.05 |



Terminal Configuration

| No. | Function | No. | Function |
|-----|-----------------|-----|---------------|
| 1 | Unbalanced Port | 4 | Balanced Port |
| 2 | GND | 5 | GND |
| 3 | Balanced Port | 6 | GND |



Would you like us to review your layout for free and, if needed, recommend you an small antenna solution for your application?

Contact us at:

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.



www.johansontechnology.com

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

Ver. 1.4

2016 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

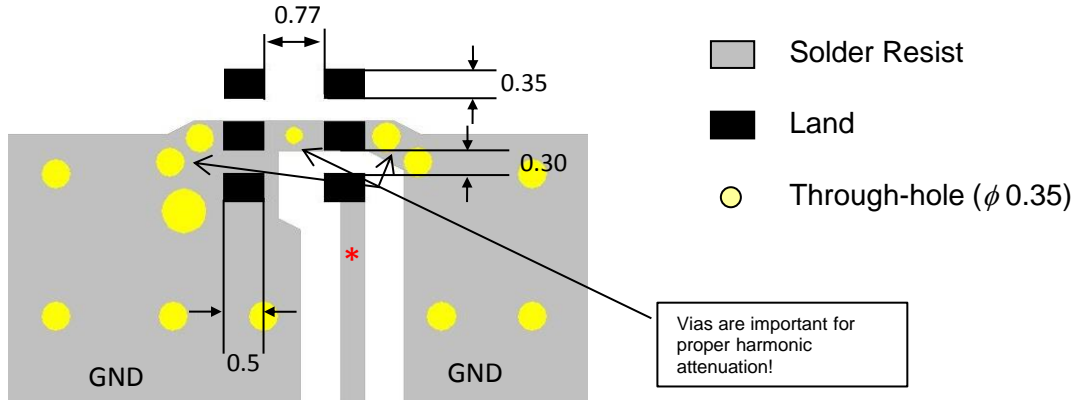
Atmel AT86RF215 868/915/928 MHz Impedance Matched Balun + LPF
(FCC/ETSI compliant) integrated Passive Component

P/N: 0896BM15E0025

Detail Specification: 7/28/2016

Page 2 of 5

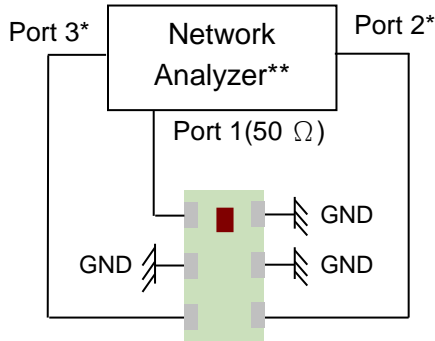
Pad-Soldermask Guidelines



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

Schematic and layout (gerber) file download info at: www.johansontechnology.com/atmel

Measurement Diagram



Port 1: Unbalanced Port
Ports 2 and 3: Balanced Port
IL=Sds21
RL=Sss11
Amp_diff = $\text{dB}(S(2,1)/S(3,1))$
Phase_diff = $\text{Phase}(S(2,1)/S(3,1))$

*Impedance for ports 2 and 3 = Balanced Impedance/2
**E5071B from Agilent

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 • TEL 805.389.1166 FAX 805.389.1821

Ver. 1.4

2016 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

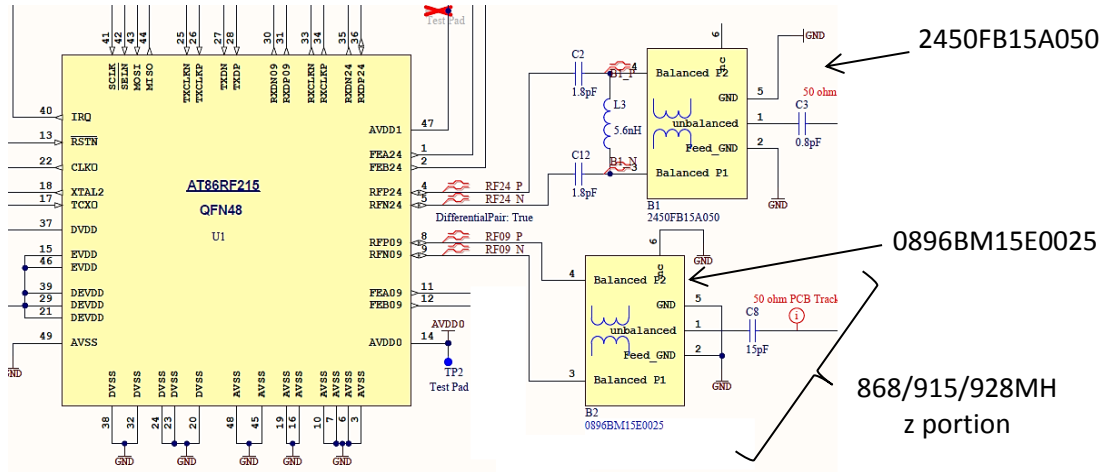
Atmel AT86RF215 868/915/928 MHz Impedance Matched Balun + LPF
(FCC/ETSI compliant) integrated Passive Component

P/N: 0896BM15E0025

Detail Specification: 7/28/2016

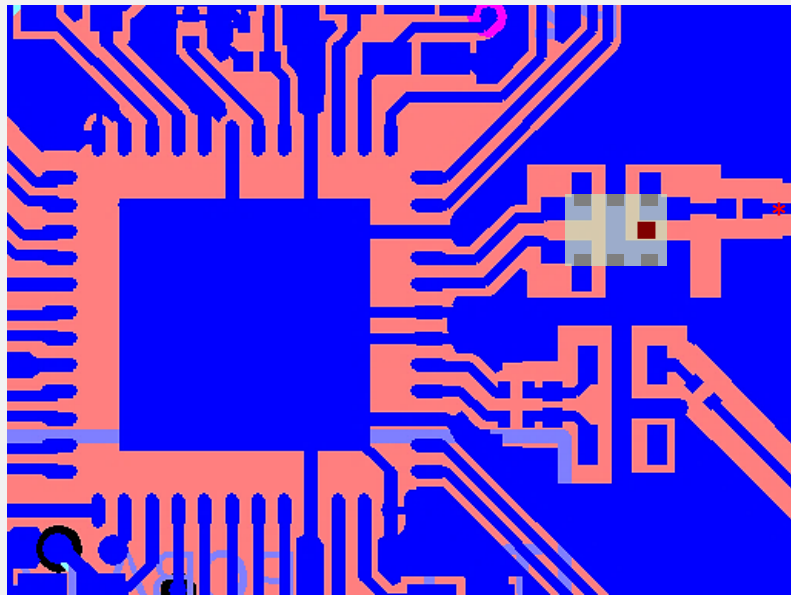
Page 3 of 5

Schematic



Schematic and layout (gerber) file download info at: www.johansontechnology.com/atmel

Layout Mounting Considerations



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

868/915/928MHz portion

2.4G portion

Get the 2.4GHz component info at:

Download the complete layout file at at: www.johansontechnology.com/atmel

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 • TEL 805.389.1166 FAX 805.389.1821
Ver. 1.4 2016 Johanson Technology, Inc. All Rights Reserved

High Frequency Ceramic Solutions

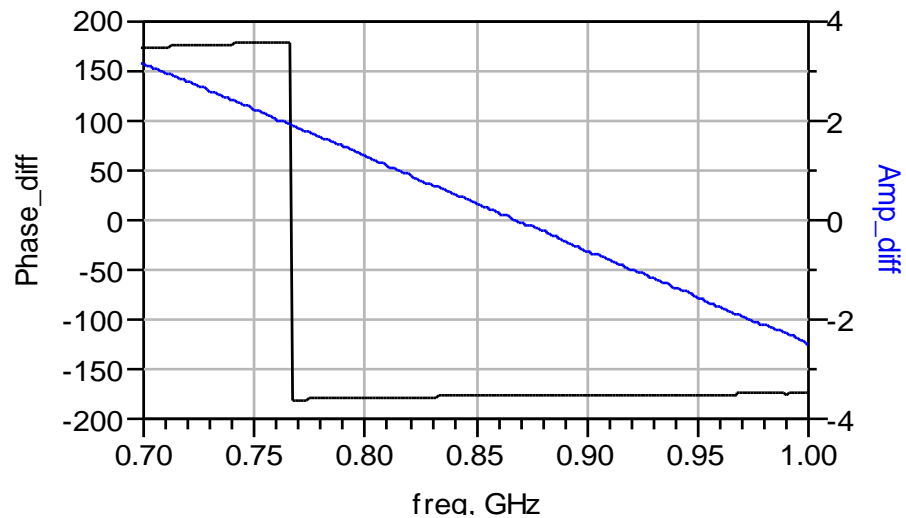
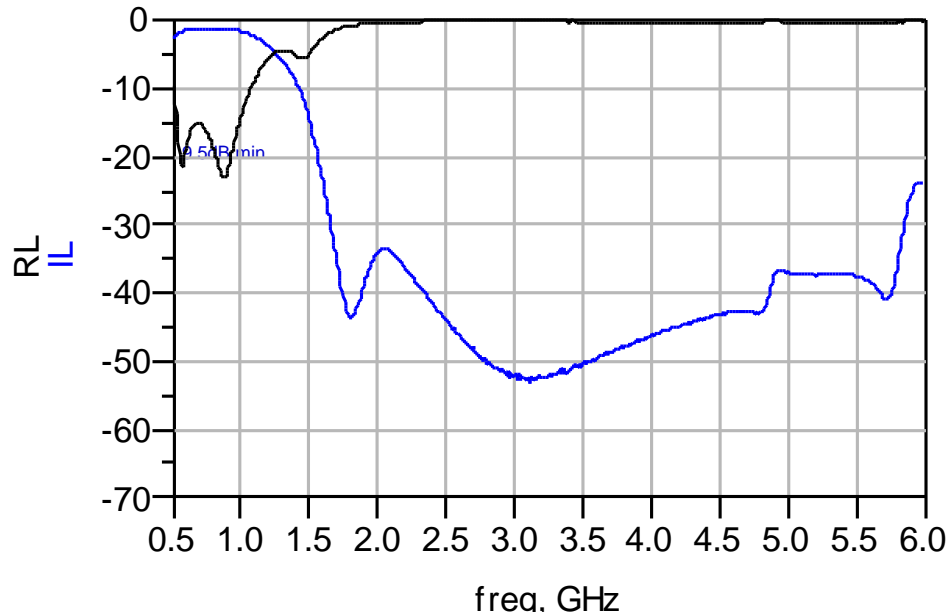
Atmel AT86RF215 868/915/928 MHz Impedance Matched Balun + LPF
(FCC/ETSI compliant) integrated Passive Component

P/N: 0896BM15E0025

Detail Specification: 7/28/2016

Page 4 of 5

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.johansontechnology.com

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

Ver. 1.4

2016 Johanson Technology, Inc. All Rights Reserved

"High Frequency Ceramic Solutions"

Atmel AT86RF215 868/915/928 MHz Impedance Matched Balun + LPF
(FCC/ETSI compliant) integrated Passive Component

P/N: 0896BM15E0025

Detail Specification: 7/28/2016

Page 5 of 5

Application Notes, Layout Files, and more

www.johansontechnology.com/atmel

RoHS Compliance

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

Soldering Information

www.johansontechnology.com/ipcsoldering-profile

Antenna layout and tuning techniques

www.johansontechnology.com/tuning

Antenna layout review, tuning, and characterization services

www.johansontechnology.com/ipcantennaservices

MSL Info

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

Recommended Storage Condition and Max Shelf Life

www.johansontechnology.com/ipcstorage-shelflife

Packaging information

www.johansontechnology.com/ipcpackaging.html

Would you like us to review your layout for free and, if needed, recommend you an small antenna solution for your application?

Contact us at:

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.



www.johansontechnology.com
4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

Ver. 1.4

2016 Johanson Technology, Inc. All Rights Reserved