

"High Frequency Ceramic Solutions"

2.45GHz Impedance Matched Balun-Filter for Atmel Chipset AT86RF232 and AT86RF233. Platforms: ATmega256/128/64RFR2, Zigbit 256RFR2, Zigbit RF233, ZigBit RF233+FEM, Extension RF233, USB RF233, SAM R21, ATMEGA256RFR2 Xplained Pro.

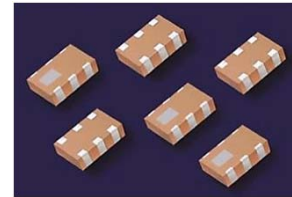
P/N 2450BM15A0015

Detail Specification: 12/5/2016

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Impedance matching network, balun, and harmonic filter all in one EIA 0805 package!

| General Specifications | |
|---------------------------------|---|
| Part Number | 2450BM15A0015 |
| Frequency (MHz) | 2400~2500 |
| Unbalanced Impedance | 50 Ω |
| Differential Balanced Impedance | Impedance match to: Atmel AT86RF232, AT86RF233, ATmega256/128/64RFR2, Zigbit 256RFR2, Zigbit RF233, ZigBit RF233+FEM, Extension RF233, USB RF233, SAM R21 |
| Insertion Loss (-40C to +85C) | 1.1dB Typ, 1.5 dB max. |
| Insertion Loss (-40C to +125C) | 1.3dB Typ, 1.9 dB max. |
| Return Loss | 9.5 min. |
| Phase Difference | 180 \pm 10 (deg) |
| Amplitude Difference | 2.0 dB max. |
| Power Capacity | 2 Watt max. (CW) |
| Differential Mode Attenuation | 20dB min. @2Fo 20dB min. @3Fo |
| Common Mode Rejection | 20dB min. @2Fo |



| | |
|---|--------------------------------|
| Solder Paste | SAC 305 type is recommended |
| Operating Temp. | -40 to +125°C |
| Storage Temp | -40 to +85°C |
| Recommended Storage Conditions for unused product on T&R* | +5C to +35C, Humidity 45~75%RH |
| Reel Quantity | 4,000 |
| Storage Period | 18 months max.* |

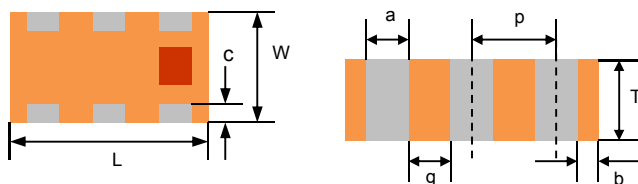
*18 months in vacuum sealed bag and 1 week cumulative after opened. For more info and proper handling go to: www.johansontechnology.com/silverleads

Part Number Explanation

| P/N Suffix | Packing Style | Bulk (Loose) | Suffix = S | eg. 2450BM15A0015S |
|------------|-------------------|---------------------|---------------|----------------------------|
| | | T & R | Suffix = E | eg. 2450BM15A0015E |
| | Termination style | AgPt | Suffix = None | eg. 2450BM15A0015 (E or S) |
| | Evaluation Board | 2450BM15A0015-EBSMA | | |

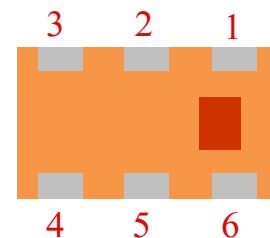
Mechanical Dimensions

| | In | mm |
|---|--------------------|-----------------|
| L | 0.079 \pm 0.004 | 2.00 \pm 0.10 |
| W | 0.049 \pm 0.004 | 1.25 \pm 0.10 |
| T | 0.031 \pm 0.004 | 0.80 \pm 0.10 |
| a | 0.012 \pm 0.004 | 0.30 \pm 0.10 |
| b | 0.008 \pm 0.004 | 0.20 \pm 0.10 |
| c | 0.012 +.004/-0.008 | 0.30 +0.1/-0.2 |
| g | 0.014 \pm 0.004 | 0.35 \pm 0.10 |
| p | 0.026 \pm 0.002 | 0.65 \pm 0.05 |



Terminal Configuration

| No. | Function |
|-----|--------------------------------|
| 1 | Unbalanced Port (50 Ω) |
| 2 | GND |
| 3 | Balanced Differential Port |
| 4 | Balanced Differential Port |
| 5 | GND |
| 6 | GND |



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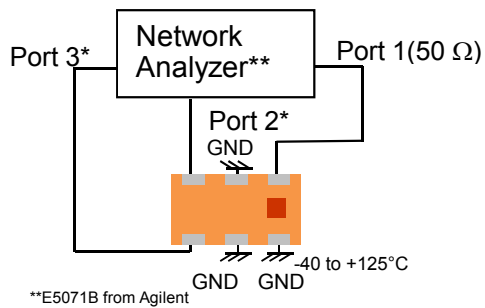
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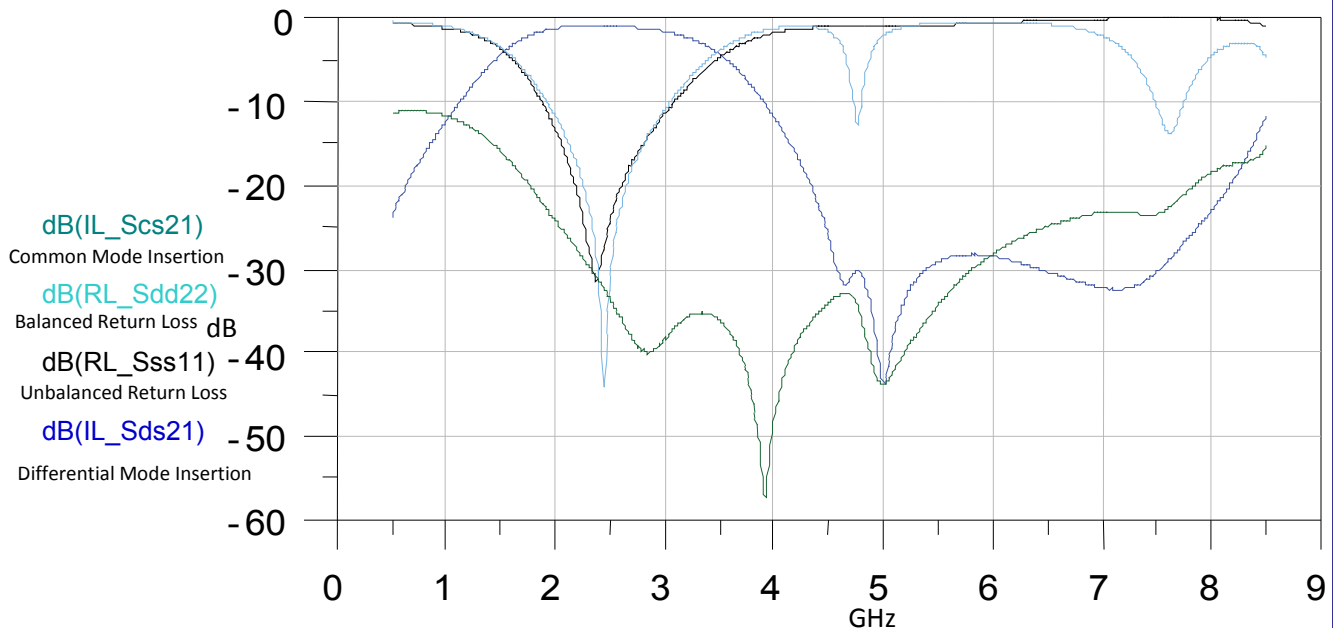
Measuring Diagram



Port 1: Unbalanced Port
 Ports 2 and 3: Balanced Port
 IL=Sds21
 RL=Sss11
 Amp_balance = dB(S(2,1)/S(3,1))
 Phase_balance = Phase(S(2,1)/S(3,1))
 *Impedance for ports 2 and 3
 = Conjugate to Balanced Impedance/2

Typical Electrical Performance (T=25°C)

Insertion and Return Loss



Impedance matching network, balun, and harmonic filter all in one EIA 0805 package!

Johanson Technology, Inc. reserves the right to make design changes without notice. Please confirm the specifications and delivery conditions when placing your order. All sales are subject to Johanson Technology, Inc. terms and conditions.



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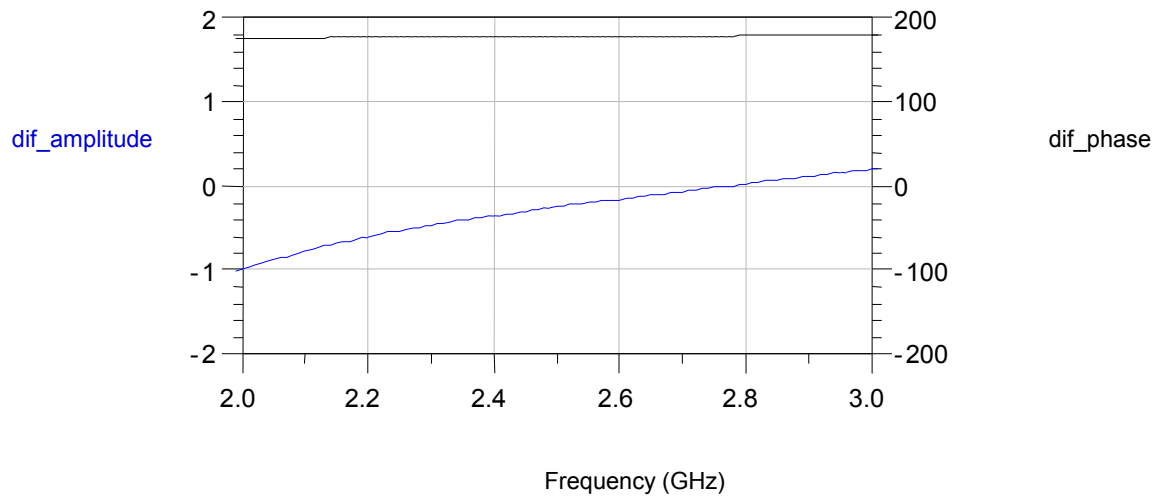
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Typical Electrical Performance (T=25°C)

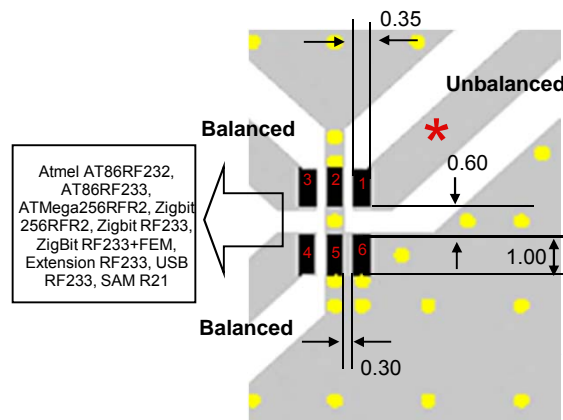
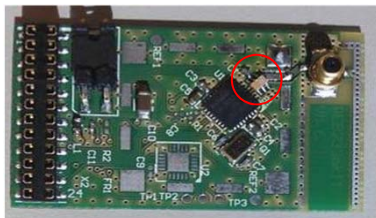
Amplitude and Phase Balance



Mounting Considerations

Mount these devices with brown mark facing up.

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



LEGEND

- Solder Resist
- Land
- Through-hole (φ0.3)

Units : mm

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For layout/gerber files for this and other Atmel reference designs, go to: www.johansontechnology.com/atmel

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Component Handling

www.johansontechnology.com/silverleads

Packaging information

www.johansontechnology.com/ipcpackaging.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

Pad metalization information

www.johansontechnology.com/silverleads

MSL Info

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

Recommended Storage Condition and Max Shelf Life

www.johansontechnology.com/ipcstorage-shelflife

Application Notes, Layout Files, and more

www.johansontechnology.com/atmel

RoHS Compliance

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

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