

"High Frequency Ceramic Solutions"

2.45 GHz Harmonic Filter-Balun Optimized for AT86RF230/231 and ATmega128RFA1 P/N 2450FB15L0001

Detail Specification: 06/09/2010

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General Specifications

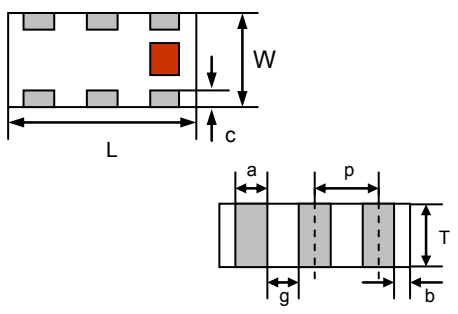
Part Number	2450FB15L0001
Frequency (MHz)	2400~2500
Unbalanced Impedance	50 Ω
Balanced Impedance	Impedance match to AT86RF230/231 and ATmega128RFA1
Insertion Loss	1.5 dB max.
Return Loss	9.5 dB min.
Phase Difference	180° \pm 10
Amplitude Difference	2.0 dB max.

Differential Mode Attenuation (dB)	20 min.@ 4800~5000MHz 20 min.@ 7200~7500MHz
Common Mode Attenuation (dB)	20 min.@ 4800~5000MHz
Operating Temperature	-40 to +85°C
Storage Temperature	+5 to +35°C, Humidity: 45-75%RH, 12 mos. Max
Input Power	2 Watts max.
Reel Quantity	4,000

* 12 months in vacuum sealed bag and 1 week after opened.

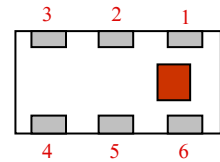
Mechanical Dimensions

	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 \pm 0.004/-0.008	0.30 \pm 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

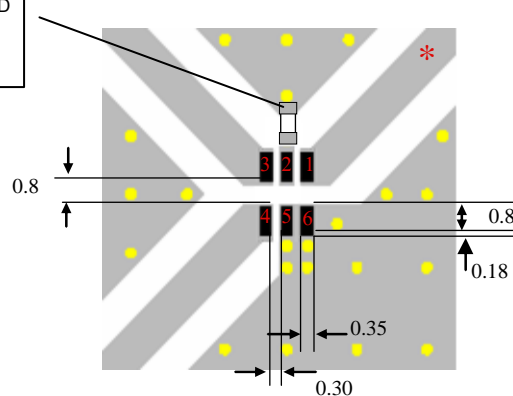
No.	Function
1	Unbalanced Port
2	GND or (DC Feed + RF GND)
3	Balanced Port
4	Balanced Port
5	GND
6	GND



Balun Layout with AT86RF231/2

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

0402 22pF RF GND cap Johanson p/n: 500R07S220JV4



Units: mm

- Solder Resist
- Land
- Through-hole (ϕ 0.3)

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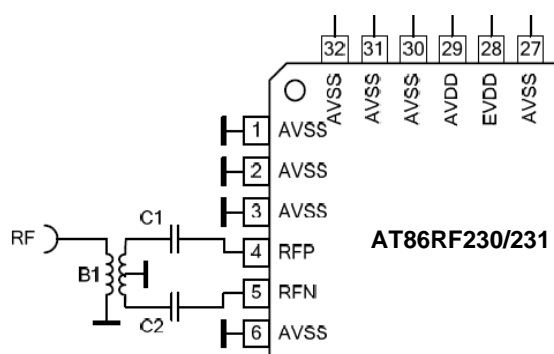
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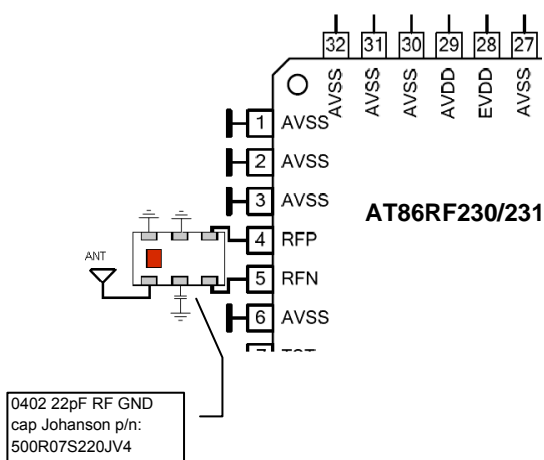
Advantages of using Johanson Technology's Filter-Balun

Fewer components: space saving



Eliminating AC coupling caps C1, C2 and adding harmonic filtering (for FCC and ETSI regulations)

With DC feed:



See last page for filtering performance

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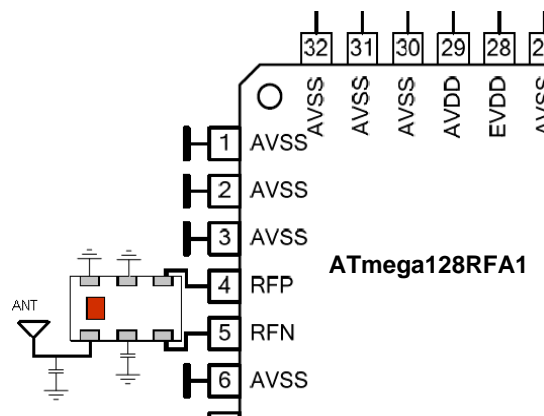
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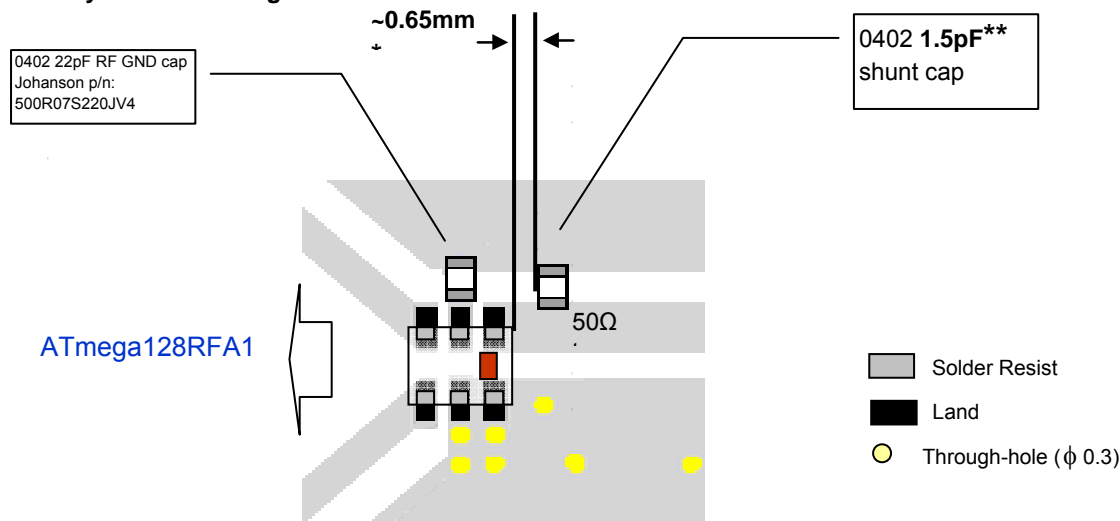
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Advantages of using Johanson Technology's Filter-Balun

Mounting Considerations for ATmega128RFA1



Balun Layout with ATmega128RFA1



* Distance can vary depending on PCB layout and stack-up (matching phase may be influenced by this distance)

** Shunt capacitor value is between 0.5pF and 1.5pF, depending of the true line impedance

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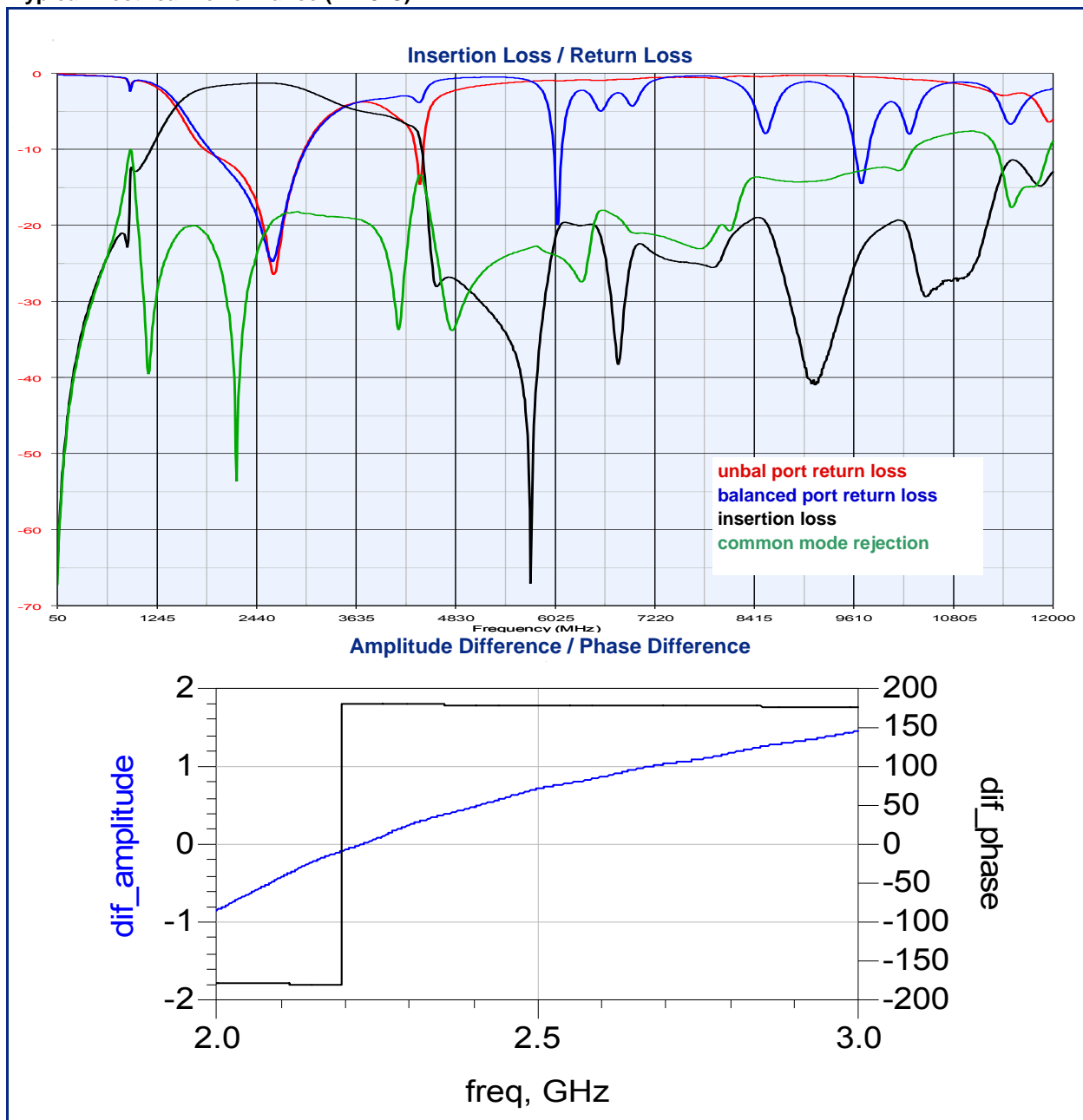
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Typical Electrical Performance (T=25°C)



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