Anaren

What'll we think of next?™

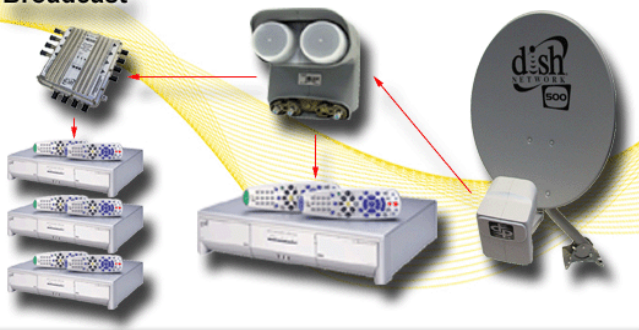
Wireless CCG
Base Presentation
May 5th 2010

Market Segmentation

Market Segmentation

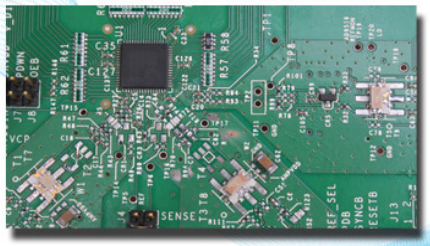
Handsets

Broadcast



Wireless Communications

Emerging Markets - A to D Converters



3 Anaren Baluns on "piggyback" boards

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Current Key Customers

End Application Users
Consumer wireless customer

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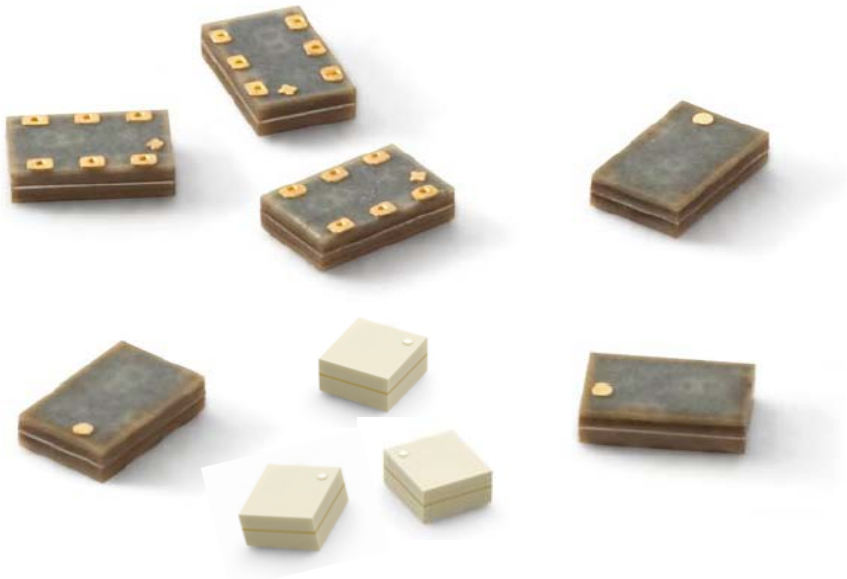
Technology Differentiators

- Lower dk compared to ceramic
  - Superior RF performance
    - Lower insertion loss
    - Tighter amplitude and phase balance
  - Less part – to – part variations:
    - Insertion Loss
    - Amplitude Balance
    - Phase Balance
  - Broader bandwidth which results in less susceptibility to variations in external circuitry
  - Ability to hit any and all required impedances
    - Many different design topologies
- CTE matches PWB materials
- Lower height profiles
  - One 0404 part with sub 0.5mm height profile
- Real estate occupied ~70% smaller than discrete competition
- Non – conductive top surface

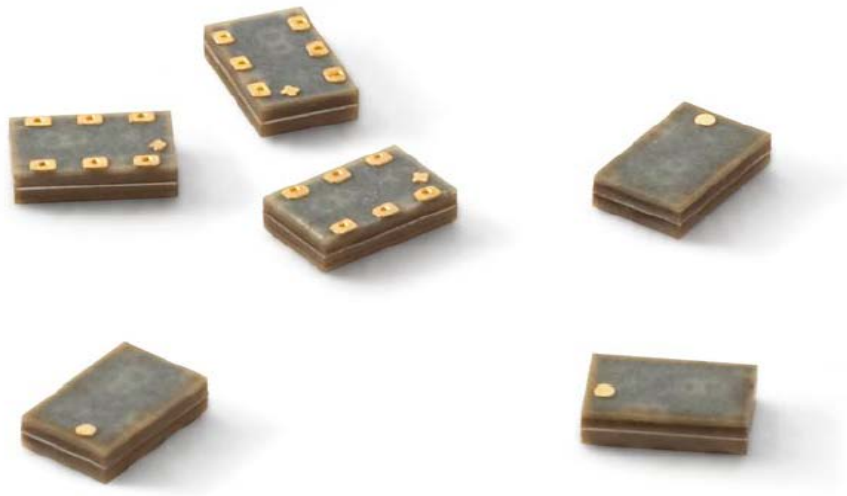
Baluns



Frequency (GHz)	Typical Insertion Loss	Differential Impedances	Typical Return Loss	Typical Amplitude Balance	Typical Phase Balance	Power [W]	Size [Inches]
0.8 – 1.0	< 1dB	100, 150, 200	> 13 dB	< 1 dB	< 8 degrees	2	.079 x .049
1.2 – 2.2	0.6	100, 200	14 dB	0.9	6	2	.079 x .049
2.4 - 2.5	0.7	50, 75, 100, 200	> 14 dB	< 1 dB	< 7 degrees	1	.04 x .04
3.1 – 5.0	0.7	100	16dB	1.3	7	1	.04 x .04
4.8 – 5.9	0.6	50, 100, 150	> 12 dB	< 1.5 dB	< 10 degrees	1	.04 x .04

Visit us at www.anaren.com for our standard product offering

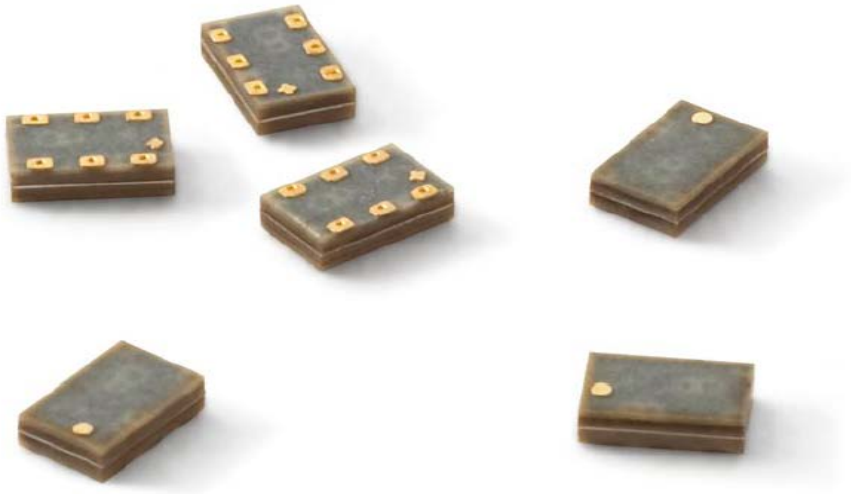
Xinger® 0805 Hybrids



Part number	Size [Inches]	Frequency (GHz)	Power [W]	Typical Insertion Loss	Typical Return Loss	Typical Isolation	Typical Amplitude Balance	Typical Phase Balance
C0810J503A00	.079 x .049	0.8 – 1.0	4	0.5	21	17	0.6	90 ± 4
C1720J503A00	.079 x .049	1.7 - 2.0	4	0.3	21	24	1.0	90 ± 5
C2023J503A00	.079 x .049	2.0 - 2.3	4	0.4	18	21	0.8	90 ± 6
C2327J503A00	.079 x .049	2. 3 - 2.7	4	0.4	15	18	1.0	90 ± 8
C3337J503A00	.079 x .049	3.3 - 3.7	4	0.3	15	18	1.0	90 ± 7

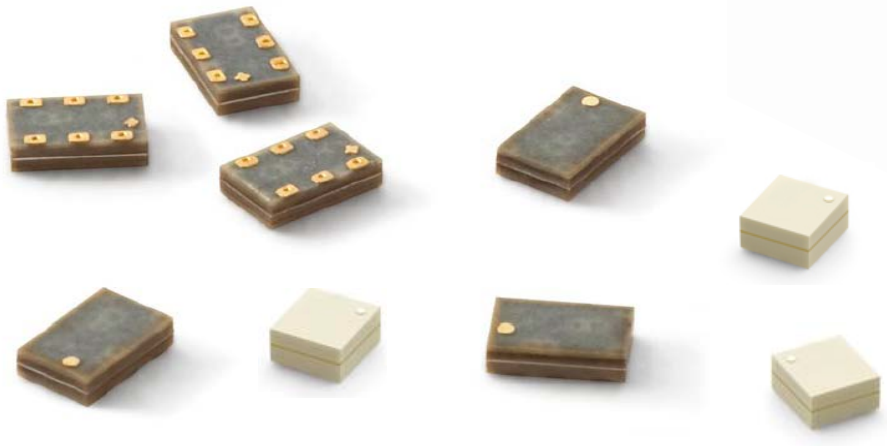
Xinger® 0805 Directional Couplers

Coming Soon



- Coupling values of 10, 15 and 20 dB
- Frequencies starting at 0.7 GHz up to 3.7 GHz
- Low insertion loss and excellent frequency sensitivity
- Engineering samples available in September 2010
- Full production release in November 2010

Xinger® Power Dividers



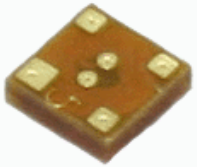
Part number	Size [Inches]	Frequency (GHz)	Power [W]	Insertion Loss	Return Loss	Isolation	Amplitude Balance	Phase Balance
PD0810J5050S2	.079 x .049	0.8-1.0	2	0.60	14	17	0.6	4
PD0922J5050S2	.079 x .049	0.9-2.2	2	0.70	10	10	0.3	3
PD1722J5050S2	.079 x .049	1.7-2.2	2	0.80	10	15	0.3	3
PD2425J5050S2	.079 x .049	2.4-2.5	2	0.40	18	22	0.2	2
PD2425N5050S2*	.040 x .040	2.4-2.5	0.5	0.46	21	20	0.3	2
PD3150J5050S2	.079 x .049	3.1-5.0	2	1.3	6.8	13	0.4	2
PD4859J5050S2	.079 x .049	4.8-5.9	2	1.0	7.9	14	0.3	4

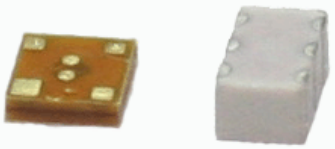
*** Our new 0404 power divider is the smallest in the world**

Innovation - Non Ferrite Transformers

Wire wound Broadband Low Frequency Baluns

Multilayer – Non Ferrite Broadband Low Frequency Baluns

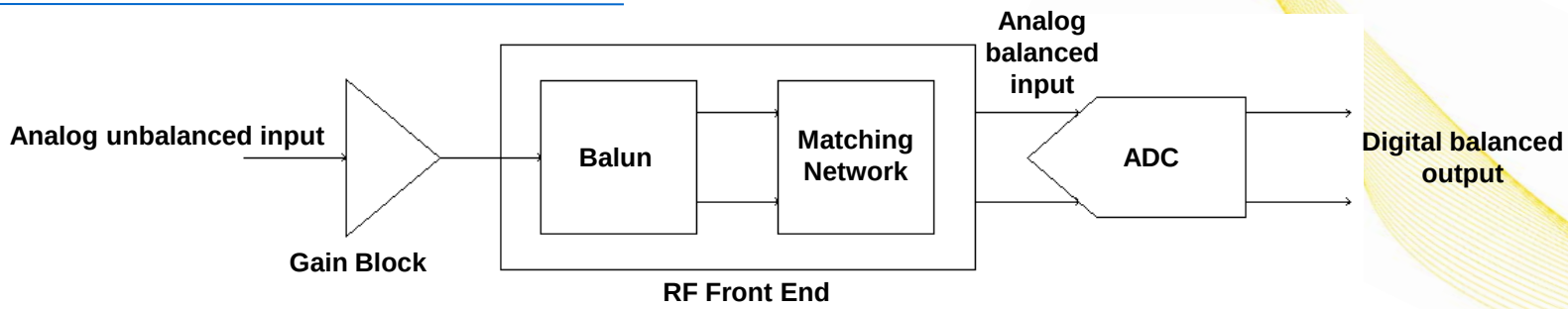




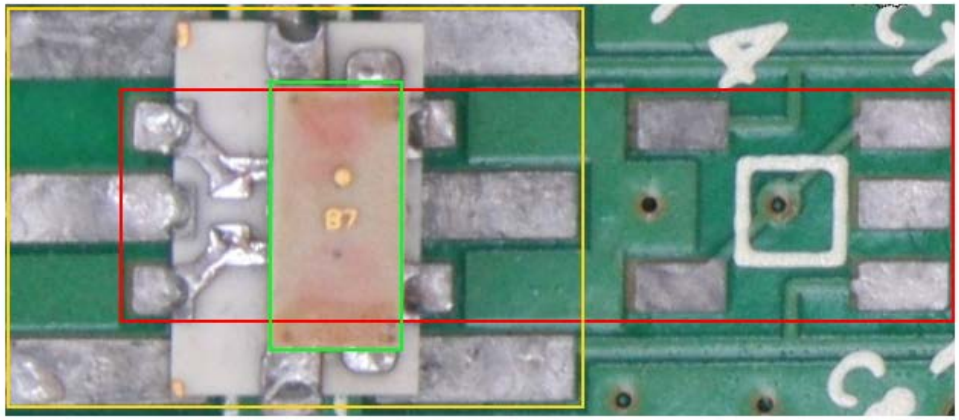
Anaren's new 0606 balun
Placed next to a standard 0805 Ceramic Balun

Anaren's new 0606 balun
Placed on a dime to demonstrate the significant size reduction and thickness reduction we have achieved with this technology

ADC & DAC Balun



- Improved amplitude and phase balance result in better SFDR and gain flatness
- Improved gain flatness reduces input drive requirements
- Application notes for Analog Devices AD9640, AD9445, AD9446
- Anaren balun is ferrite free eliminating intermodulation and other non-linear effects
- 1 BD0205F5050A00 replaces 2 ETC1-1-13 and significantly smaller footprint than ADT1-WT



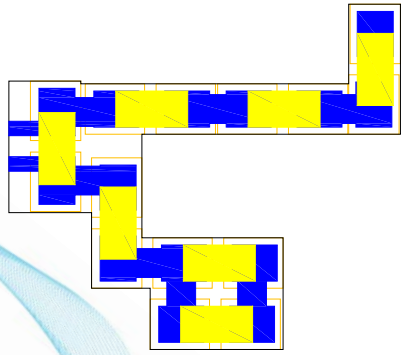
MA/Com ETC1-1-13 (red), Mini-Circuits ADT1-WT (yellow), and Anaren BD0205F5050A00 (green) balun

Partnering Solutions

Suunto 2.4GHz Fitness Watch Implementation

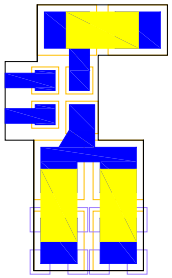
Anaren's Matched Balun Implementation
77% smaller

Comparison of PWB Layouts



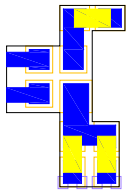
(a)

Standard customer layout



(b)

60% reduction With matched balun and 0402



(c)

80% reduction With matched balun and 0201

Matched Solutions for Chips

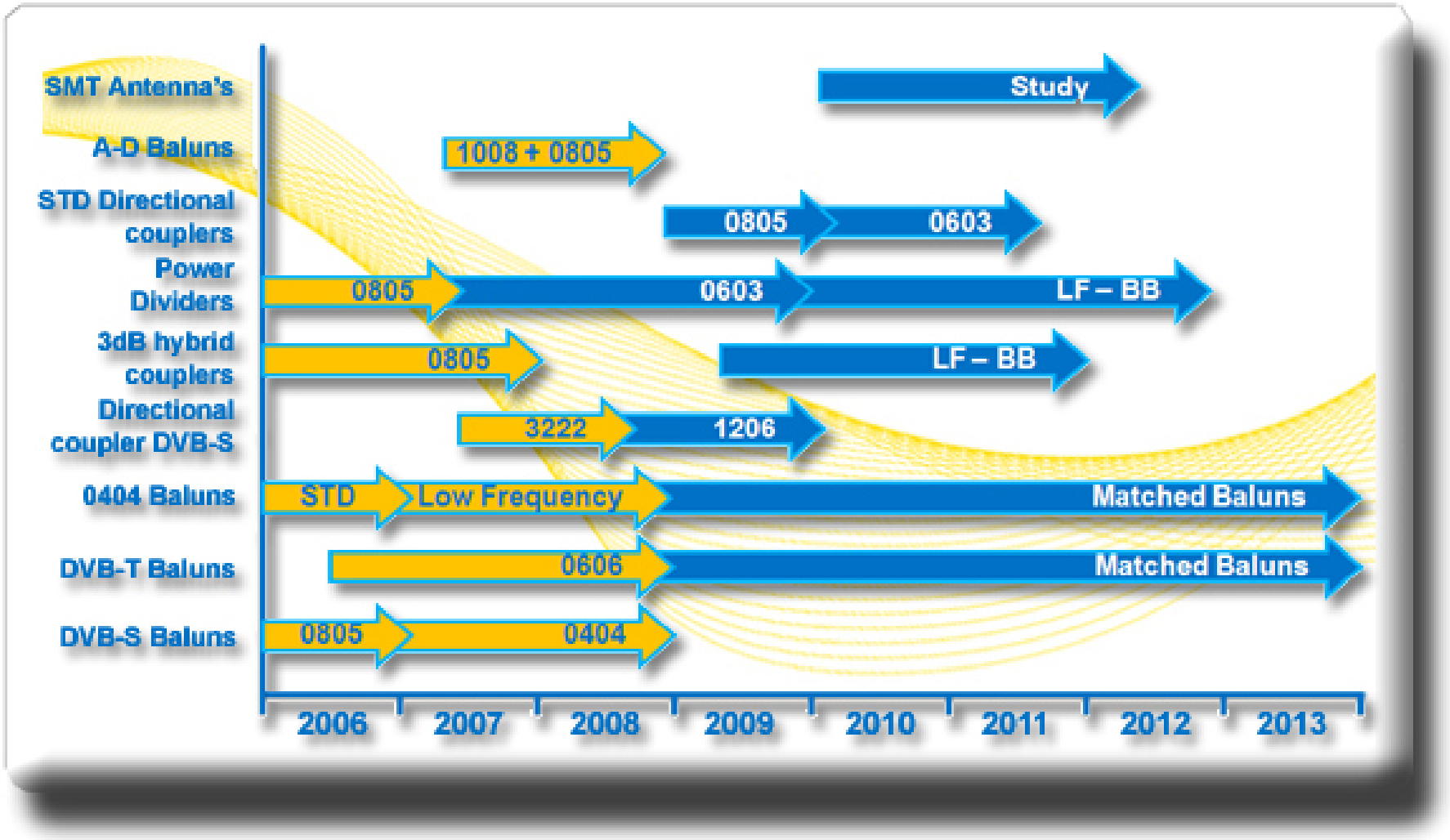
- CSR
- NanoRadio
- Nordic RF
- TI
- Broadcom
- Entropic
- Silicon Labs
- GCT
- Intersil

Anaren

Xinger

Semiconductor Partners

Product Line Roadmap 2010



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