

ALTUM RF

5G Millimeter-wave Front-end Solutions

5G millimeter-wave demands extreme requirements for front-end components. Technically, the highest efficiency and linearity are needed for transmit, and in receive mode the lowest noise figure is required. Low-cost and high-volume manufacturing capability are mandatory for commercial application.

In order to address these challenging demands, Altum RF delivers solutions based on an optical GaAs process from a high-volume, pure-play foundry.

Altum RF enables cost-effective solutions with high RF performance and small form factor.

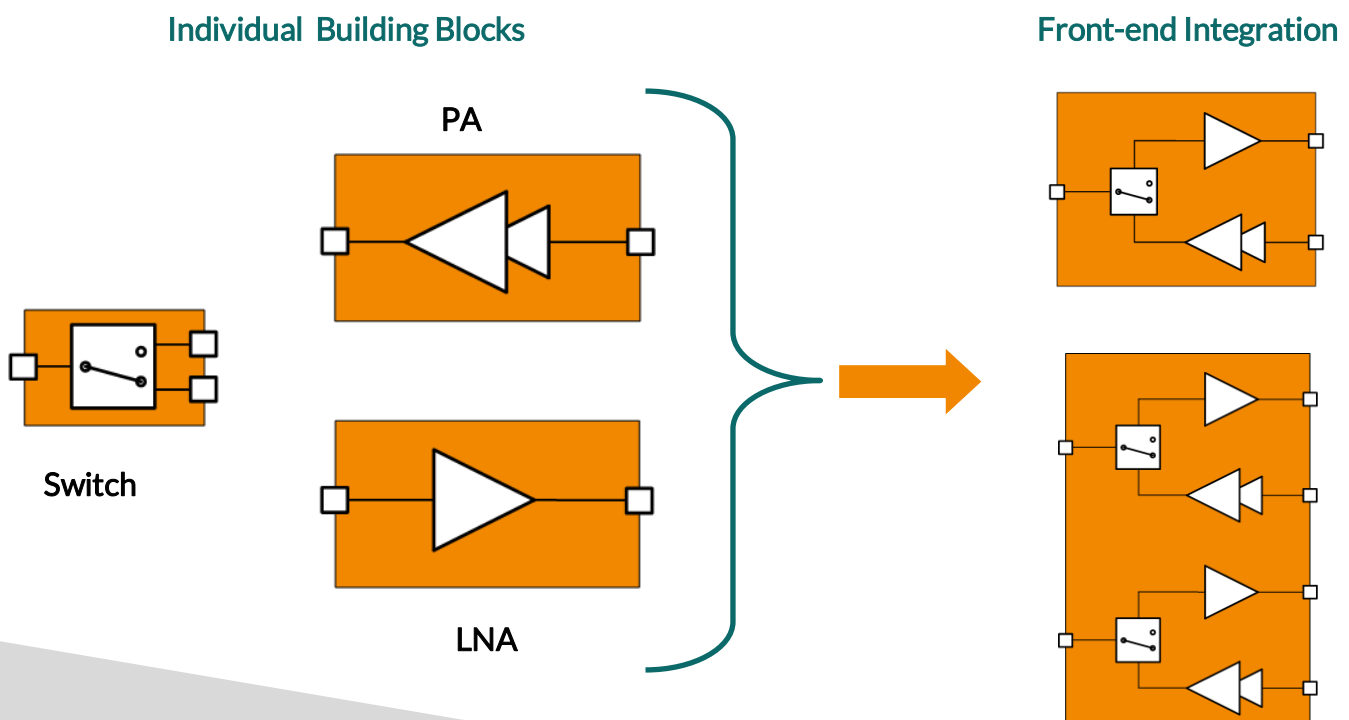
Products Features:

- 24-30 GHz, 37-42 GHz
- GaAs technology for up to 1 W P_{sat}
- Excellent linearity vs. efficiency trade-off
- Ultra-low noise figure
- Small footprint
- ESD protection

Benefits:

- Robust supply from one of the world's leading GaAs foundries
- Cost-effective optical GaAs technology
- Compatible with plastic overmold
- Enhanced moisture protection
- Integration

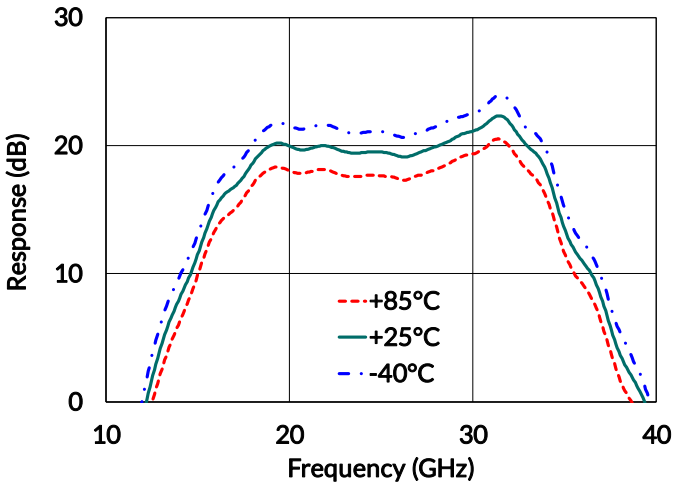
Building Blocks and Integration (28 and 39 GHz)



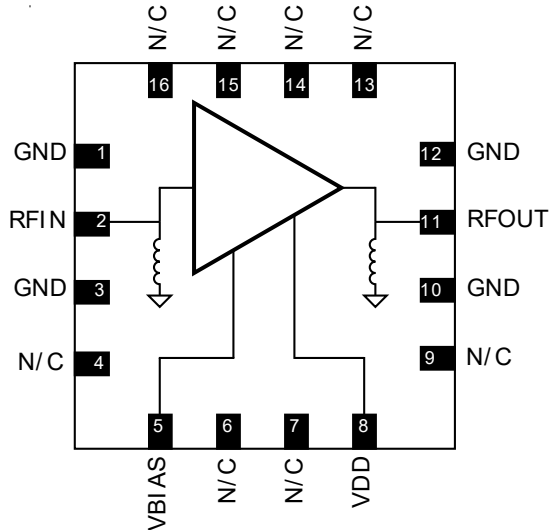
Low Noise Amplifiers (24 -30 GHz and 37–42 GHz)

Name	Frequency	Gain	NF	P _{1dB}	Bias	Package
ARF1200Q2	20.0 -31.5 GHz	20 dB	3.5 dB	2 dBm	3.3V, 15mA	2.5x2.5 mm PQFN
ARF1201Q2	17.0-31.5 GHz	21 dB	2.6 dB	8 dBm	3.3V, 40mA	2.5x2.5 mm PQFN
ARF1202Q2	37.0 - 42.0 GHz	17 dB	3.9 dB	8.5 dBm	3.3V, 15mA	2.5x2.5 mm PQFN
ARF1203Q2	37.0- 40.0 GHz	20.5 dB	4 dB	13 dBm	3.3V, 40mA	2.5x2.5 mm PQFN

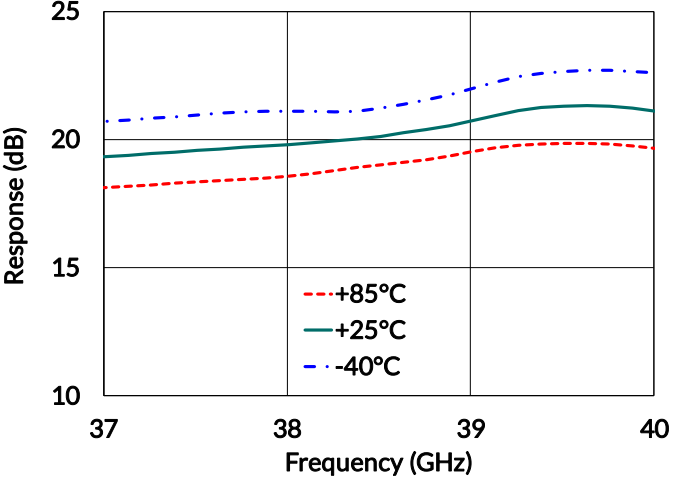
Measured GAIN - ARF1200Q2



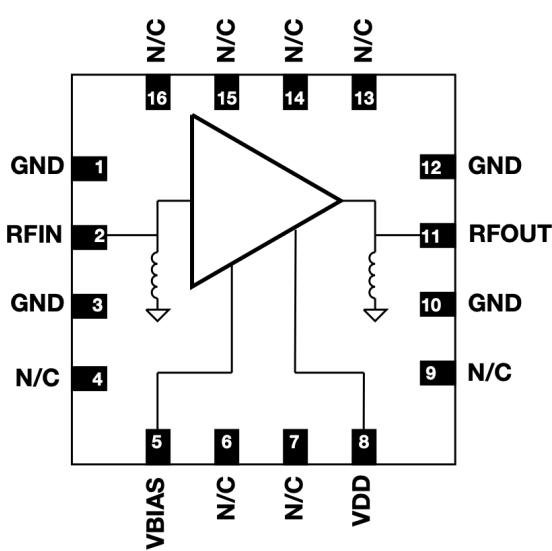
Pinning ARF1200Q2



Measured GAIN - ARF1203Q2



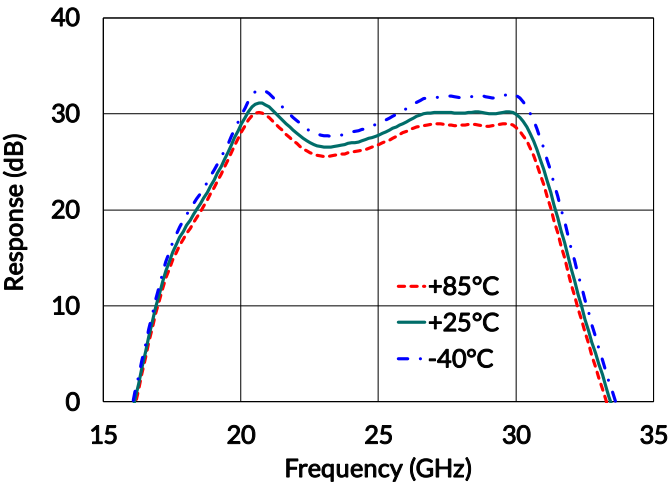
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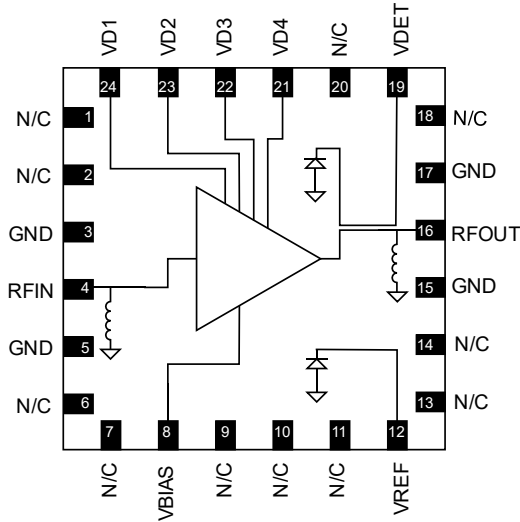
Power Amplifiers (24-30 GHz and 37-43 GHz)

Name	Frequency	Gain	P _{1dB}	P _{sat}	Bias	Package
ARF1010Q4	24-30 GHz	28 dB	27 dBm	29.5 dBm	4V, 600mA	4x4 QFN
ARF1012Q4	37-40 GHz	25 dB	27.5 dBm	28.5 dBm	4V, 550mA	4x4 QFN

Measured GAIN - ARF1010Q4



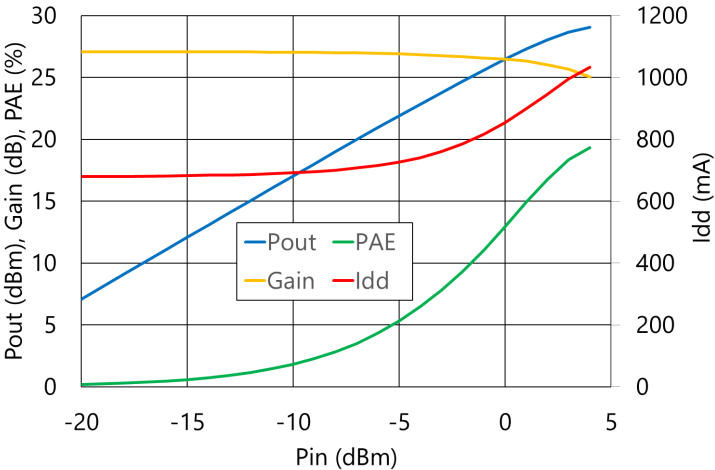
Pinning ARF1010Q4



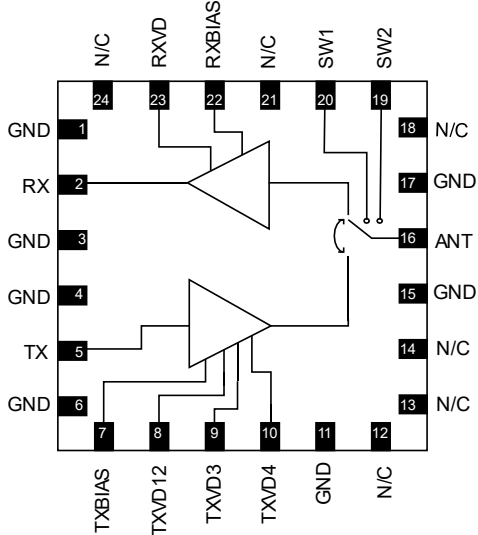
Integrated Front-end

Name	Frequency	T _x Gain	T _x P _{1dB}	T _x P _{sat}	R _x NF	R _x Gain	Package
ARF1500Q4	24-30 GHz	27 dB	25 dBm	28.5 dBm	3.5 dB	25 dB	4x4 QFN
ARF1501Q4	37-40 GHz	22 dB	25 dBm	26 dBm	3.9 dB	19 dB	4x4 QFN

Tx Output PA ARF1500Q4



Pinning ARF1500Q4





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About Altum RF

Inspired by leading experts in the RF/microwave industry, Altum RF transforms how partnerships work to develop high-performance products with a focus on superior technical support and customer service. Our engineers use decades of modeling expertise and system applications knowledge to define the right products for the most challenging requirements.

With the help of our exceptional global partners, we can significantly shorten the product development cycles by managing the entire supply chain from design to packaging, testing and qualification. For development of GaAs or GaN components, discover Altum RF as your next RF semiconductor partner.

Contact Altum RF

Europe

Altum RF – Eindhoven Office
Twinning Center
De Zaale 11
5612 AJ Eindhoven
The Netherlands

United States

Altum RF – Dallas/Richardson Office
1401 North Central Expressway
Suite 106
Richardson, TX 75080
United States

altumrf.com