RTX BBN TECHNOLOGIES

Wide-Band Josephson Parametric Amplifier (WB-JPA)

Superconducting Low-Noise Amplifier for Quantum Computing

RTX BBN's WB-JPA

Designed for use at millikelvin temperatures, the amplifier features over 20dB of gain with a center frequency that can be tuned with an on-chip bias line. The amplifier can be operated in either four-wave mixing, or three-wave mixing with an external bias tee.

The RTX BBN WB-JPA is available as the only off-the-shelf component of its kind and can be easily acquired through RTX BBN's distributor Quantum Microwave.

Fast and high-fidelity qubit readout in the microwave domain

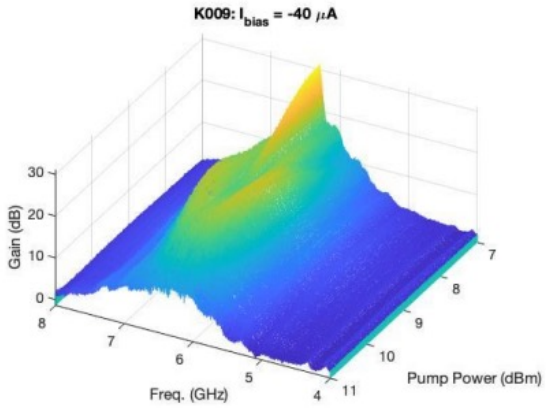
Key Capabilities

Benefits

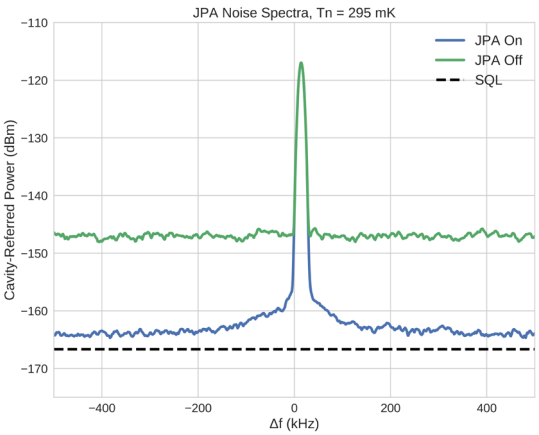
- Improved qubit readout fidelity, reduced noise < 300 mK @ 6.8GHz
- Large bandwidth supports multi-plexed readout
- Simple tune-up and low insertion loss for easy integration with qubit experiments

Features

- Gain: 20 dB
- Tunable Center Frequency: 5.0 – 7.0 GHz
- Instantaneous Bandwidth: 300 MHz
- Noise temperature: 295 mK @ 6.8 GHz
- Matched input: 50 Ohm
- Die: 4 x 4 mm
- Available as bare die
- Compact Aluminum cryo-package, 2.92mm K connectors
- 6-8 week delivery on order



Gain Measured at 15 mK



Measured Noise Temperature, 6.8 GHz

Contact Us

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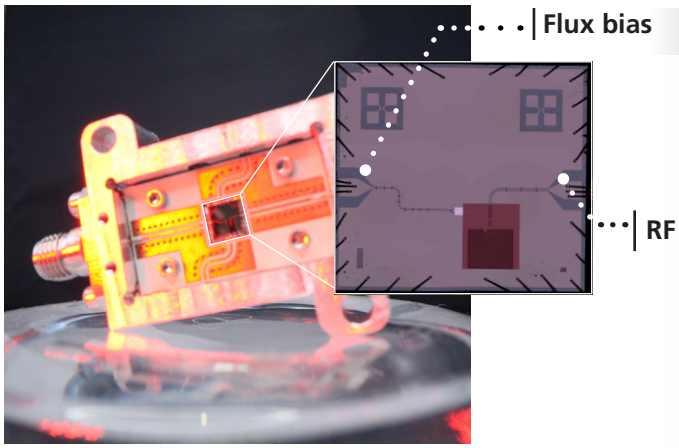
Raytheon BBN

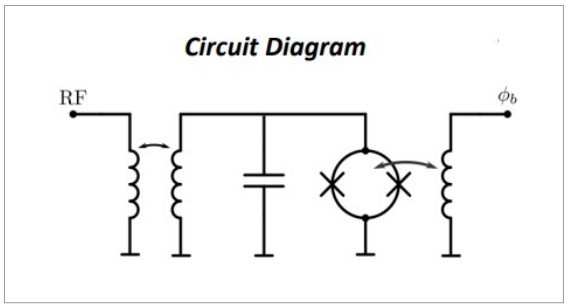
Product Roadmap

RTX BBN develops a broad range of enabling technology for quantum computing applications using its state-of-the-art superconducting fabrication. Other products in development include traveling-wave parametric amplifiers, superconducting passive components and other microwave devices. Contact RTX BBN to discuss customization opportunities to better enable your quantum computing.



Typical Performance Characteristics

Parameter	Typical Value	Units
Frequency Range	5.0-7.0	GHz
Bandwidth	300	MHz
Gain	20	dB
Noise Temperature	295	mK
Input Power 1dB Compression (P1dB)	-107.5	dBm
Flux Bias Current Periodicity ($1\Phi_0$)	4	mA
3 Wave Operation Pump Power	-45	dBm
4 Wave Operation Pump Power	-75	dBm



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