

Abstract Submitted
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Improving Radio Astronomy Surveys with a Low Noise Differential Amplifier BRITTANY JOHNSTONE, KEVIN BANDURA, West Virginia University — We present here a differential low noise amplifier (LNA) to be used as an active balun on antennas for radio astronomy surveys. The LNA was designed around an Avago Technologies chip to be wideband while maintaining a low noise figure and unconditional stability. Design optimization was accomplished using Advanced Design System (ADS) to simulate component possibilities and layouts. After fabrication, the S-parameters of the LNA were measured between 10 MHz and 1.5 GHz showing that it is unconditionally stable within its working frequency band (100 MHz - 1 GHz). At 100 MHz it has a gain of 22 dB which decreases linearly to a gain of 15 dB at 1 GHz. The noise figure ranges between 0.3 dB at 100 MHz and 0.6 dB at 1 GHz and has an average value of 0.4 dB. In the future, we will attach the LNA to an antenna to test the performance of the system.

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