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标题: Low-Power Very Low-Noise Cryogenic SiGe IF Amplifiers for Terahertz Mixer Receivers

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摘要: State-of-the-art radio astronomy terahertz receivers utilize clusters of super-conducting mixers with cryogenic IF amplifiers. The critical parameters of the IF amplifiers are noise temperature, bandwidth, power consumption, input return loss, and physical size. This paper presents test data on three approaches to the IF amplifier; two are silicon-germanium (SiGe) monolithic microwave integrated circuit designs and the third is a discrete SiGe transistor miniature module. The amplifiers provide noise temperatures in the range of 5-15 K, from 1 to 6 GHz, at power consumptions as low as 2 mW.

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