

Design of LNA Based on the Domestic ECB Using CAD AWR

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Abstract. The purpose of this work was to design a low noise amplifier (LNA) based on the domestic electronic component base (ECB). LNA is in the form of micro assembly. This microassembly was designed on the base of the transistor of 3P398 type (manufactured in Veliky Novgorod). The results of this research showed that the microassembly based on the domestic ECB meets the requirements of the receiver. The paper presents the design solutions used in the creation of the X band LNA. Moreover, the results of calculations characteristics of amplification, noise temperature, matching from input and output and assessment of stability are presented. The design work was made by means of CAD (computer-aided design) MWO AWR. As a result of this study this LNA was compared to foreign analogues and it turned out that this product is at the same level as foreign analogues used in space technology. In addition, a method of increasing the lifetime of circuit operation of transistors is demonstrated.

Key words: LNA, VSWR, transistors, HEMT, ECB, radiation, lifetime