Abstracts

Stability Ranges of Regenerative Frequency Dividers Employing Double Balanced Mixers in Large-Signal Operation (Short Papers)

R.H. Derksen, V. Luck and H.-M. Rein. "Stability Ranges of Regenerative Frequency Dividers Employing Double Balanced Mixers in Large-Signal Operation (Short Papers)." 1991 Transactions on Microwave Theory and Techniques 39.10 (Oct. 1991 [T-MTT]): 1759-1762.

Regenerative frequency dividers, in general, may suffer from frequency ranges of unstable operation. An analysis of the stable ranges was given by Immovilli and Mantovani in 1973. However, its usability is restricted, since small-signal operation is assumed. In recent years the first monolithically integrated regenerative frequency dividers were presented. These are examples of circuits on which the analysis of Immovilli and Mantovani is not applicable, since the quasi-small-signal assumption is not met. This paper presents a simple theory which makes it possible to calculate the frequency ranges of stable operation for a regenerative divider employing a double balanced mixer in large-signal operation. The validity of the derived formulas is tested by various network simulations. Though the presented theory is simple, it describes the boundaries of the stable ranges quite correctly.

❑ Return to main document.