Analog frequency divider by variable order 6 to 9

In this work, concepts from nonlinear dynamics are applied for the design of analog frequency dividers of variable order. The design takes advantage of the multiple Arnold tongues of highly nonlinear oscillators. The variation in the division order is obtained through the modification of a circuit parameter, like, for instance, the capacitance of a varactor diode. Here the design of a bipolar-based analog frequency divider, whose division order can be 6, 7, 8 or 9, is presented. A new simulation tool is proposed for the harmonic-balance analysis of high-order divisions. The circuit has been manufactured and experimentally characterized, with excellent results.

❏ Return to main document.