Abstracts

Traveling-Wave Microwave Power Divider Composed of Reflectionless Dividing Units

A. Sanada, K. Fukui, S. Nogi and M. Sanagi. "Traveling-Wave Microwave Power Divider Composed of Reflectionless Dividing Units." 1995 Transactions on Microwave Theory and Techniques 43.1 (Jan. 1995 [T-MTT]): 14-20.

We propose a new waveguide type traveling-wave microwave power divider that is adequate for high power applications. The divider is composed of multiple stages of reflectionless dividing units, each having two output ports. Design formulas for reflectionless equal-power dividing are first derived. Structural parameters for wideband design of two- to six-stage dividers are then obtained by means of numerical analyses based on an equivalent circuit. Comparison of experiments at X-band shows good qualitative agreement with the analyses. Typical measured bandwidth for relative divided powers deviation of less than ±0.5 dB was 2.7 GHz, and that for -20 dB return loss was more than 3.2 GHz for the four-stage (eight-way) divider. The divider presented here has excellent features; the bandwidth for equal-power dividing decreases very little and the bandwidth for low return loss increases with increasing number of the dividing stages. It also has advantages of low insertion loss and flexibility over the number of the dividing stages.

❑ Return to main document.