

Q-Band Monolithic Phase and Amplitude Weights

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Monolithic variable amplitude and phase weight components have been developed for applications at Q-band. The amplitude weight consists of a three-stage variable gain amplifier using 0.25 μm HEMT devices. Variable gain was achieved by adjustment of the bias voltages. The variable phase shifter is based on the I/Q design and utilizes two of the variable gain amplifiers in quadrature. Continually variable phase shift between 0 and 90 degrees was achieved with 2 dB insertion loss.

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