



Integrated Balanced BPSK Modulator for Millimeter Wave Systems

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This paper details the design of integrated balanced PSK modulator using finline coplanar line hybrid junction. The PSK signal output is in suspended stripline with incident wave carrier in finline. Schottky barrier Diode MA4E2037 has been used for modulation. The balanced configuration offers high isolation between the carrier input port and the modulated carrier output port and thus the pulse width variations and amplitude deviations are suppressed. An insertion loss imbalance of ± 1.5 dB with an average loss of 2 dB in the two switching states has been achieved over 38.9 to 40 GHz. The phase imbalance is ± 10 degrees with phase switching from 180 to 199 degrees. As the PSK output signal is in suspended stripline, two BPSK modulators can be easily combined together to work as QPSK modulator.

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