

## FD-TLM Modeling of Josephson Junction Circuits

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Josephson junction circuits are capable of operating at high frequencies where a full-wave field simulation is needed to completely analyze the circuits. The FD-TLM time-domain full-wave electromagnetic field calculation method is extended to modeling high-speed Josephson junction (JJ) circuits by the incorporation of a model for the JJ. The JJ model implementation is described and is validated by excellent agreement between FD-TLM and conventional circuit simulations of the transient response of a JJ circuit having short interconnections.

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