An Integrated Picosecond Pulse Generation Circuit

Description

This invention features an on-chip picosecond pulse generator that can be implemented using complementary metal-oxide-semiconductor (CMOS). The transmission line, the switching device, and the trigger circuit are located on a common semiconductor substrate (CMOS) using standard CMOS technology. The pulse width and amplitude of the output pulse can be modified using the length of the transmission line and on the charging voltage applied to the transmission line. Additional components can be provided on the common semiconductor substrate or chip to shape the input pulse to the switching device to ensure a fast rise time.

Applications:

- High-speed analog-to-digital converters (ADC) and high-speed circuit component characterization using time-domain-reflectometry (TDR)
- Circuits where control over pulse width and amplitude is required
- Generating pulse having desired fast rise time

Benefits:

- Generates output pulse having a desired pulse width and amplitude by varying transmission line length and charging voltage
- Convert an input signal provided by an input signal generator into an input pulse having a desired fast rise time

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