

A new ultra-wideband, ultra-short monocycle pulse generator with reduced ringing

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We introduce a new ultra-wideband (UWB), ultra-short, step recovery diode monocycle pulse generator. This pulse generator uses a simple RC high-pass filter as a differentiator to generate the monocycle pulse directly. The pulse-shaping network employs a resistive circuit to achieve UWB matching and substantial removal of the pulse ringing, and rectifying and switching diodes to further suppress the ringing. An ultra-short monocycle pulse of 300-ps pulse duration, -17-dB ringing level, and good symmetry has been demonstrated. Good agreement between the measured and calculated results was achieved.

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