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**"A SiGe monocycle impulse generator for impulse radio ultra-wideband applications"**, pp.276-281

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**Abstract** – A compact 0.56 mm × 0.56 mm SiGe HBT ultrawideband (UWB) impulse generator is presented. The realized circuit generates ultra-short, symmetrical impulses with a peak-to- peak amplitude of 260 mV. The spectrum of the generated impulses has a -10 dB bandwidth of 7.5 GHz centered around 6 GHz. The impulse shape is similar to the first derivative of the Gaussian bell shape which is achieved by a differentiating R-L-C resonance circuit which is driven by a current impulse with an impulse shape similar to the Gaussian bell shape. Excellent agreement between the targeted monocycle impulse shape and the measured impulse shape has been achieved. The corresponding power spectral density fits very well into the FCC regulatory spectrum mask. The impulse generator can be applied in the UWB transmitter as well as in an UWB correlation receiver as a wavelet generator.