Abstracts

The Switch on Characteristics and Noise of Pulsed Read IMPATTS in Ku Band

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The switch on characteristics and interline noise of free running, phase primed and phase locked pulsed Read Impatts have been studied in detail. The results obtained have been compared with high efficiency transferred electron devices operating in the same frequency range and very significant differences noted. Although the majority of the work has centred upon the study of high power high efficiency single drift devices some results are presented for double drift devices. The rapid switch on characteristics show that the Read Impatt is ideally suited to short pulse fast rise time applications over broad temperature ranges. These characteristics of the device are explained by existing theoretical device models, and it is shown that in the phase primed mode the residual interline noise is dominated by a small random pulse to pulse starting phase error.

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