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Self-oscillatory System with Distributed $RC$ Transmission Lines

Hirofumi SHIMADA*

In this thesis the author considers about a very simple self-oscillatory system set up with distributed $RC$ transmission lines as feedback networks, transistor as active device and load resistance.

As this system is worked under an autobias owing to non-linearity of base characteristic between voltage and current, the characteristics of this system is proved about the operating point, amplitude, frequency and so on considering of its non-linearity.

And when a non-linear distributed $RC$ transmission line is used as feedback networks of this system, oscillating frequency can be changed by supply voltage or load resistance. The author has applied the same consideration about this system and proved all kinds of the characteristics.

Lastly, the experimental results used ladder networks are made better coincidence with the theoretical one.

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