An Automatic Test System for Schottky Diode Variability Characterization

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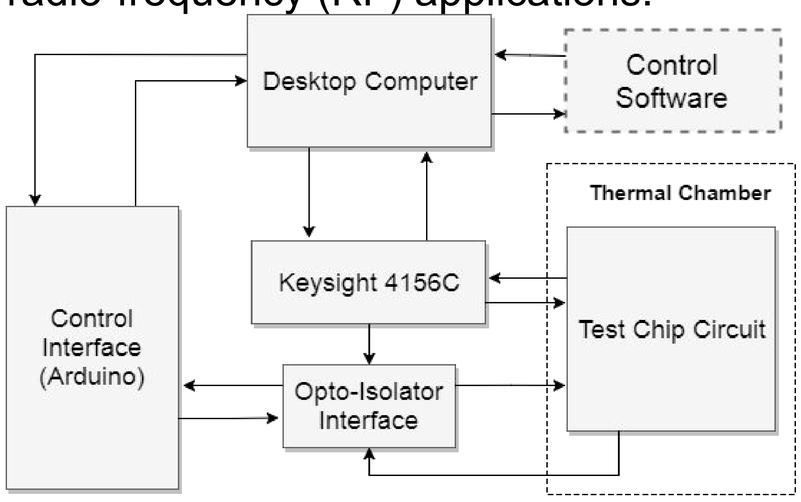
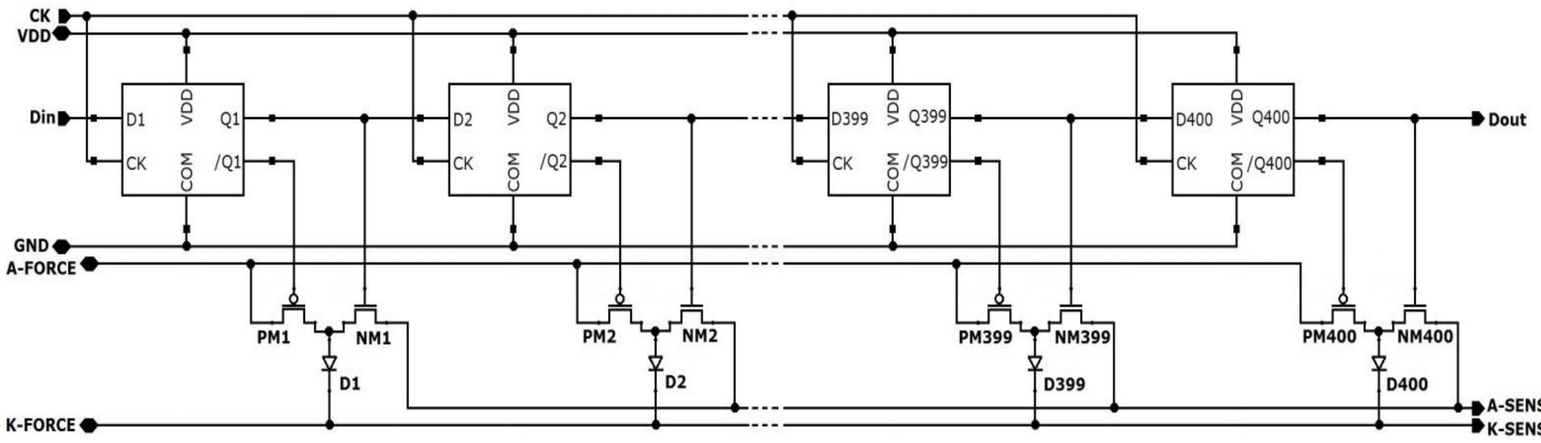
This paper brings light to the development of a system to measure and characterize custom designed electronic circuits. This system is developed with a particular circuit in mind, a Schotkky diode matrix [3], but can be generalized to the use of several other different circuits like digital-analog (DA) converters and even for radio-frequency (RF) applications.

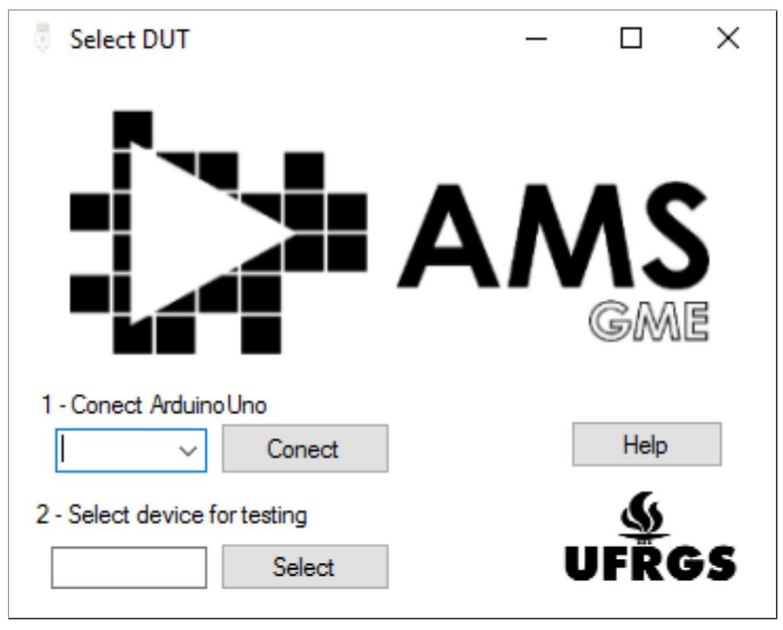


Structure – It consists of a parameter analyzer being connected to a test chamber, made to conform the environment to the desired needs, an isolator between the measured chip and desktop computer system, a microcontoller system for interpreting routines and the desktop computer itself which will interpret the routines developed for the system.

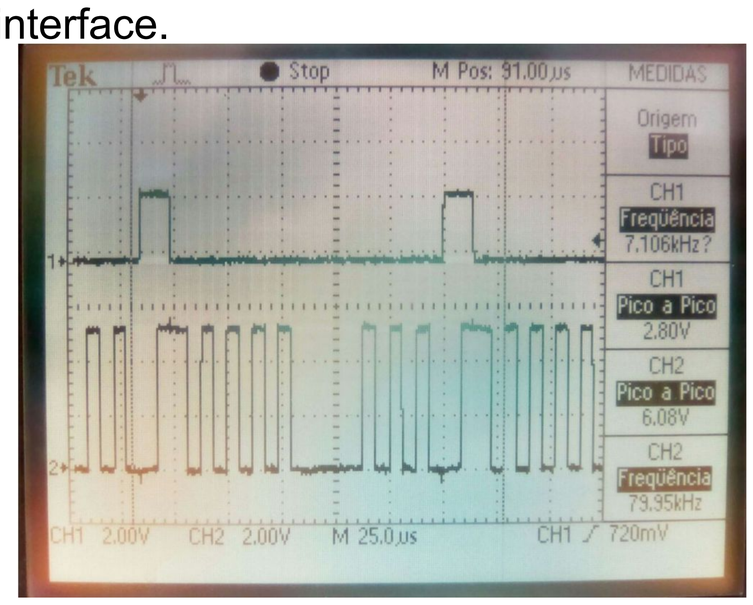


Test Chip – The schottky diodes are selected by CMOS switches controlled by programmable shift-registers. These are controlled by he Control Interface through the Opto-isolator interface.

Control Interface – The definition of the device to be tested, as well as the Arduino interface and verification of the vector signal sent are made by the control interface. It features a GUI to assist the user.



Preliminary Tests – The tests were performed in a modular way, here presented the opto-isolator interface while integrated with the control interface.



Further Work – Integration of the structure and performing of measurements to characterize the developed Schottky diode matrix.

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References

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