ON Semiconductor

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Automated Evaluation System for Testing of Protected FET Devices

Objective: To create an automated test system that will run a full applications evaluation of new Protected FET devices. The system would provide a range of voltage and current values, record the response of the device in tabular and graphical form, and test a range of temperatures from -50 C to 200 C.

The required hardware would be provided by On Semiconductor and the software would be developed using Visual BASIC. The existing solution requires the engineer to collect the required hardware, collect data manually, and typically takes around two weeks. The desired solution would allow testing to be complete in 1-2 days at most.

Scope: The project will require the creation of the following components:

1. Software program that will control test equipment through graphical interface, collect desired data, and present the data in an easily readable form, including graphs and spreadsheets
2. A main hardware board that connects to all of the test equipment (power supplies, multimeters, function generators, etc). This board would route all connections from the test hardware, to a slot where daughter cards containing the device under test would be housed.
3. A temperature chamber that can be accurately controlled, and can reliably hold the device at the desired temperature, without the device collecting frost at cold temperatures. A potential alternative, and maybe preferred, solution would be Peltier Plates for accurate local control of DUT temperature.
4. Work to be carried out at URI facilities as well as at On Semiconductor site in East Greenwich, RI (roughly a 30 minute drive from campus).

Required Skills: A team of 1 Computer Engineering and 2 Electrical Engineering students is required.

1. Computer Programming Skills- We envision the software portion to be a major part of the work load, and an individual skilled in programming is required.
2. Electronics Background- General understanding of FET's, circuit principles, and lab equipment.

3. Electro-mechanical Skills- Specifically for implementation of Peltier Plate solution for temperature control, if pursued.

Contact Information:

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