

# Thermal Overstress Aging of Discrete Power MOSFETS

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## Experimental Description:

Run-to-failure experiments on Power MOSFETs under thermal overstress. Power cycling is used to generate the temperature gradients and controlled by a high level hysteresis controller to cycle the device's temperature between low and high temperature settings. Measurements of voltages and currents are taken at slow speed with data acquisition system resulting on aggregated measurements (averaged over multiple turn on-off cycles). In addition, transient measurements are taken with high speed oscilloscope. These transient measurements are not continuous but full cycle waveform are taken every few hundred milliseconds. Experiments ran on over 42 devices are included. Due to equipment memory limitations, several experimental runs were taken on a single device.

## Format:

For each experiment on a single device with multiple aging runs, there is a corresponding Matlab binary file. The structure of a file is consistent across all experiments. The data is organized on a single structure which contains substructure for slow aggregated measurements, transients and experiment control settings.

## Datasets:

MOSFET Thermal Overstress Aging v0.zip

## Dataset Citation:

J. R. Celaya, A. Saxena, S. Saha, and K. Goebel, "Prognostics of Power MOSFETs under Thermal Stress Accelerated Aging using Data-Driven and Model-Based Methodologies," in Annual Conference of the Prognostics and Health Management Society, (Montreal QC, Canada), September 2011.