

Master 2018

Ahsan Arshad

High Current Measurement and Light Intensity Detection for LED Chips on a 6 Inch Wafer.

ABSTRACT - Masterthesis

The high current (3-10A) electrical and optical testing (EOT) of the LED chips (1-2mm²) on a 6 inch wafer is an essential task of this research based Mater Thesis. The EOT of an LED chip is performed on a probing System using source measuring unit (SMU) and spectrometer. Investigation and evaluation of the speed and performance of high current EOT measurement on a probing System are the essentials of this project. High current measurement and light spectrum detection is to be performed by setting up the triggering sequence of SMUs and spectrometer in series for 6 channels. To analyze the probing System limitation and efficient response, a detailed capability and efficiency study is required for the system in terms of high current measurement. The literature study of the EOT of the LED chips on 6 inch wafer will be a critical task for determining and enhancing the best possible electrical and optical measurement results. Best possible result tends to the high current measurement and light intensity detection within the shortest possible time range.

Challenges:

- 1) Setting up and Optimization of the triggering sequence of SMUs and Spectrometer in series for 6 channels, in order to obtain the best possible current and light measurement.
- 2) Light intensity spectrum calculation and correction.
- 3) Investigating the maximum current measurement capabilities on prober cluster.
- 4) Investigating, Studying and Evaluating the measurement speed and performance on prober cluster in terms of high current measurements.
- 5) Thesis report writing.