IMPROVEMENT OF PROCESS CAPABILITY INDEX (Cpk) OF BOND LINE THICKNESS (BLT) / DIE TILT FOR DIE ATTACH PROCESS IN SEMICONDUCTOR MANUFACTURER

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A thesis submitted in partial fulfillment of the requirement for the award of Bachelor of Engineering (Hons) Mechanical

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JULY 2016

"I declared that thesis is the result of my own work except the idea and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree."

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ABSTRACT

One of the production lines in semiconductor manufacturer has faced poor performance in quality. Based on the monthly Statistical Process Control (SPC) measurement, Bond Line Thickness (BLT) / Die Tilt (DT) in die attached process is not achieving Process Capability Index (Cpk) greater than 1.67. Bond line thickness is one of the important factors to be considered in designing a bond joint and it is very important to have a uniform bond line thickness for optimal adhesive performance. Hence, BLT/DT is one of the SPC measurements in production line to measure the capability and reliability of in-process control for die attached process. This paper will investigate on the factors that influenced the poor performance from BLT/DT process by using fishbone/Ishikawa diagram. The factors are as follows: man; method; material and machine. The others methodology to be considered in this paper are using Gauge Repeatability and Reproducibility (GR&R) study to determine the variation measurement made by different shift operators, and Standardize Work (SW) to standardize the operator measurement and observation skills. Aiming at these factors, this paper also provides some corrective action improvement plans to improve the specific process line to achieve Cpk greater than 1.67.

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