URN etd-0407109-183703-177
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Statistics This thesis had been viewed 53 times. Download 0 times.
Department
Year 2006
Semester 1
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title On the Analysis of the Design for Manufacturability (DFM) for SRAM Cells
Date of Defense 0000-00-00
Page Count 81

Keyword
Optical Proximity Correction(OPC)
Design for Manufacturability(DFM)

Abstract
With the rapid development of Semiconductor, slender and dense lithography technology becomes the key factor during manufacturing.
Low yield manufacture mainly results from inaccuracy of exposure photolithography while mask pattern transfers to wafer.
Abnormal distribution of intensity, namely optical proximity distortion,deduces from the mutual diffraction when critical dimension of mask pattern is shorter than wavelength. Therefore, Resolution Enhancement Techniques (RET) such as Optical Proximity Correction (OPC), Phase Shift Mask (PSM),and Off-Axis Illumination (OAI) effectively diminish optical proximity distortion to meet the original design.

In this study mainly focus on the image analysis of wafer pattern with proximity effect on the basis of splat simulator,created by UC Berkeley. According the result of SPLAT, Exposure Latitude (EL),Mask Error Factor (MEF), and Process Windows (PW) developing in this study are 3 subsystem to analyze image accuracy after exposure.

Base on three subsystems.The target for analysis is SRAM cells in this thesis.In exposure latitude(EL) , We analysis the intensity contrast of pattern.In mask error factor(MEF), We analysis the variation of the pattern on the wafer with the pattern on the mask.
In Process windows(PW), We analysis the different focus range that make wafer pattern variation.We use the subsystems that analysis the best layout style of SRAM cell.
Advisory Committee Jing Jou Tang - advisor

Files No Any Full Text File.
Date of Submission 2007-08-17