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Abstract
This thesis discusses the feasibility of 32 nm node with 1.3 NA and 193 nm light source immersion lithography system and tries to extend the lifetime of the system. We present the process window and some typical OPC rules by numerical simulation with open software SPLAT. Without any resolution enhancement technologies (RETs), the 10% variation process window is 44 nm × 4.09% and the 15% variation process window is 54 nm × 6.80%. We find that OPC rules for 32 nm node with the system is extremely tedious and suggest that the minimum spacing between two parallel lines is 74 nm. Therefore, higher NA system will be helpful to achieve real 32 nm half pitch.
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