

ABSTRACT

PLASMA ENHANCED ATOMIC LAYER DEPOSITION WITH PULSED PLASMA EXPOSURE

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The embodiments herein focus on plasma enhanced atomic layer deposition (PEALD) processes using pulsed plasmas. While conventional PEALD processes use continuous wave plasmas during the plasma exposure/conversion operation, the embodiments herein utilize a pulsed plasma during this operation to achieve a film with high quality sidewalls. Because conventional

10 PEALD techniques result in films having high quality at the bottom and top of a feature, but low quality on the sidewalls, this increased sidewall quality in the disclosed methods corresponds to a film that is overall more uniform in quality compared to that achieved with conventional continuous wave plasma techniques.

15 FIG. 2A