APPARATUS AND METHOD FOR INTEGRATED SURFACE TREATMENT AND DEPOSITION FOR COPPER INTERCONNECT

ABSTRACT OF THE DISCLOSURE

[109] The embodiments provide integrated apparatus and methods that perform substrate surface treatment and film deposition for copper interconnect with improved metal migration performance and reduced void propagation. In one exemplary embodiment, a chamber for performing surface treatment and film deposition is provided. The chamber includes a first proximity head for substrate surface treatment configured to dispense a first treatment gas to treat a portion of a surface of a substrate under the first proximity head for substrate surface treatment. The chamber also includes a first proximity head for atomic layer deposition (ALD) configured to sequentially dispensing a first reactant gas and a first purging gas to deposit a first ALD film under the second proximity head for ALD.

Figure 9A