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ETCHING ALUMINUM OVER REFRACTORY METAL WITH SUCCESSIVE PLASMAS

ABSTRACT

A process and apparatus for etching an exposed region of a multi-layer metal having at least two layers: a layer of aluminum or aluminum alloy, and an underlying layer of refractory metal. The etching process includes at least two steps. In a first step, the aluminum layer is etched by processing the substrate with a first plasma chemistry that etches aluminum. Optionally a portion, but not all, of the refractory metal layer also is etched by the first plasma chemistry. In a subsequent second step, the remainder of the refractory metal layer is etched by a second plasma chemistry that etches the lower refractory metal much faster than it etches aluminum. The invention minimizes undercutting of the aluminum side wall as the refractory metal layer becomes depleted.

Figure 3

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