IMPROVING PLASMA PROCESS UNIFORMITY ACROSS A WAFER BY APPORTIONING POWER AMONG PLURAL VHF SOURCES

ABSTRACT

A method is provided for processing a workpiece in a plasma reactor chamber having electrodes including at least a ceiling electrode and a workpiece support electrode. The method includes coupling respective RF power sources of respective VHF frequencies f1 and f2 to either (a) respective ones of the electrodes or (b) a common one of the electrodes, where f1 is sufficiently high to produce a center-high non-uniform plasma ion distribution and f2 is sufficiently low to produce a center-low non-uniform plasma ion distribution. The method further includes adjusting a ratio of an RF parameter at the f1 frequency to the RF parameter at the f2 frequency so as to control plasma ion density distribution, the RF parameter being any one of RF power, RF voltage or RF current.

FIG. 1A