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(54) Title: ORGANOMETALLIC COMPOUNDS AND METHODS OF USE THEREOF

(57) Abstract: This invention relates to organometallic precursor compounds represented by the formula $(Cp(R')_x)_yM(H)_{z-y}$, a process for producing the organometallic precursor compounds, and a method for depositing a metal and/or metal carbide layer, e.g., Ta metal and/or TaC layer, on a substrate by the thermal or plasma enhanced disassociation of the organometallic precursor compounds, e.g., by CVD or ALD techniques. The metal and/or metal carbide layer is useful as a liner or barrier layer for conducting metals and high dielectric constant materials in integrated circuit manufacturing.



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