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Measurement of dielectric-film thickness at low density plasma SANG-BUM JEON, Department of Electrical Engineering, Hanyang University, South Korea, DONG-HWAN KIM, Department of Nanoscale Semiconductor Engineering, Hanyang University, South Korea, JIN-YONG KIM, SE-YEOL PAEK, CHIN-WOOK CHUNG, Department of Electrical Engineering, Hanyang University, South Korea — The measurement system of dielectric-film thickness was improved to measure thin-film at low density plasma. There are three improvements than previous method, which is electrical measurement of dielectric-film thickness using R-C sheath model. First, the frequency of input voltage was decreased to reduce the ratio of the dielectric-film impedance to sheath impedance. Second, three different frequencies were used to overcome the inaccuracy of measured phase; only amplitudes of measured current were used to obtain a film thickness. Third, the notch filter was used for sensing current instead of the resistor to improve the signal to noise ratio. Using this method, dielectric-film thickness was well measured at low density plasma (thickness: ˜300, sheath impedance: 100˜200 kΩ).

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