文献

Yamaguchi, T.[a] , Nasu, M.[a] , Jiang, Z.-T.[a] , Tabe, M.[a] , Kanda, Y.[b]
Spectroellipsometric characterization of SIMOX with nanometre-thick top Si layers
(1998) *Thin Solid Films*, 313-314, pp. 264-269. 被引用数 5 回.

[a] Research Institute of Electronics, Shizuoka University, 3-5-1 Johoku, Hamamatsu 432, Japan
[b] Dept. of Elec. and Electron. Eng., Toyo University, 2100 Kujirai, Kawagoe 432, Japan

抄録 (Abstract)
The size dependence in optical properties of the top Si layer of SIMOX (separation by implanted oxygen) structures has been studied by spectroscopic ellipsometry. The ellipsometric parameters Ψ and Δ were measured in the spectral range from 230-800 nm in air. The sample structure analyzed is [top SiO2]/[top Si]/[buried SiO2]/[Si substrate]. By using the bulk dielectric functions, the thickness of the top SiO2, top Si, and buried SiO2 layers have been determined by the SIMPLEX method. The best fit to the data was realized by applying a fluctuating thickness model for the buried SiO2 layer. The fluctuating thickness model is found to yield a much better fit than a model including an EMA interface roughness layer. Furthermore the MDF (model dielectric function) developed by Adachi was applied for the nanometre (nm) thick top Si layers in order to improve the fitting. As a result, a size dependence in the dielectric functions of the nm thick top Si layers was observed. © 1998 Elsevier Science S.A.

著者キーワード
Dielectric constants; Si; SIMOX; Size dependence; Spectroscopic ellipsometry

文献タイプ: Article
情報源: Scopus