

多重磁極マグネトロンスパッタ法により作製したCo及びCu薄膜の電磁波シールド効果

村岡 裕紀*, 武田 健吾*, 熊淵 善太*, 河合 克浩**, 川畑 敬志*, 本多 茂男**

Effect of Electromagnetic Wave Shield for Co and Cu Thin Films Deposited by Magnetron Sputtering with Multipolar Magnetic Plasma Confinement

Yuuki MURAOKA*, Kengo TAKEDA*, Zenta KUMABUCHI*, Katuhiro KAWAI**, Keishi KAWABATA* and Shigeo HONDA**

*広島工業大学工学部電子・光システム工学科 (〒731-5193 広島県広島市佐伯区三宅2-1-1)

**島根大学総合理工学部電子制御システム工学科 (〒690-8504 島根県松江市西川津町1060)

*Department of Electronics and Photonic Systems, Hiroshima Institute of Technology (2-1-1 Miyake, Saeki-ku, Hiroshima-shi, Hiroshima 731-5193)

**Department of Electronic Functions and System Engineering, Interdisciplinary Faculty of Science and Engineering, Shimane University (1060 Nishikawatsu-cho, Matsue-shi, Shimane 690-8504)

Abstract

Electromagnetic wave shield characteristics were studied for Co and Cu thin films prepared by magnetron sputtering with multipolar magnetic plasma confinement (MMPC). The characteristics were measured utilizing the Kansai Electronic Industry Development Center (KEC) Method. Results show that the electric field and magnetic field shield effects depend significantly on the thickness of the Co and Cu thin films. The shielding effectiveness of 1 μm -thick deposited Co films for electric and magnetic fields was 69 dB and 51 dB, respectively, measured at 800 MHz. For Cu films, the effectiveness was 77 dB and 61 dB, respectively. It was demonstrated that the electromagnetic wave shield effect of Co and Cu thin films, which is dependent upon the film thickness, is the result of attenuation loss and the skin effect.

Key Words: MMPC, Electromagnetic Wave Shield, KEC Method, Thin Films