

Title (en)
METAL OXIDE THIN FILMS FOR HIGH DIELECTRIC CONSTANT APPLICATIONS

Title (de)
DÜNNE SCHICHTEN AUS METALLOXID FÜR ANWENDUNGEN, WELCHE HOHE DIELEKTRISCHE KONSTANTEN ERFORDERN

Title (fr)
FINES COUCHES D'OXYDES METALLIQUES POUR APPLICATIONS A CONSTANCE DIELECTRIQUE ELEVEE

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Abstract (en)
[origin: WO0077832A2] A high dielectric constant insulator including a thin film of a metal oxide selected from the group consisting of tungsten-bronze-type oxides, pyrochlore-type oxides, and combinations of Bi₂O₃ with an oxide selected from the group consisting of perovskites and pyrochlore-type oxides. An embodiment contains metal oxides represented by the general stoichiometric formulae AB₂O₆, A₂B₂O₇ and A₂Bi₂B₂O₁₀, wherein A represents A-site atoms selected from the group of metals consisting of Ba, Bi, Sr, Pb, Ca, K, Na and La; and B represents B-site atoms selected from the group of metals consisting of Ti, Zr, Ta, Hf, Mo, W and Nb. Preferably, the metal oxides are (BaxSr1-x)(TayNb1-y)2O6, where 0<=x<=1.0 and 0<=y<=1.0; (BaxSr1-x)2(TayNb1-y)2O7, where 0<=x<=1.0 and 0<=y<=1.0; and (BaxSr1-x)2Bi2(TayNb1-y)2O10, where 0<=x<=1.0 and 0<=y<=1.0. Thin films according to the invention have a relative dielectric constant >=40, and preferably about 100. The value of Vcc in the metal oxides of the invention is close to zero. The value of Tcc is <1000ppm, preferably <100.

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