9704961-3

RTMP's copy

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6: H01L 21/3205, C04B 35/622 — A1

(11) International Publication Number: WO 96/29728

(43) International Publication Date: 26 September 1996 (26.09.96)

(21) International Application Number: PCT/US96/03523

(22) International Filing Date: 14 March 1996 (14.03.96)

(30) Priority Data:
08/406,374 17 March 1995 (17.03.95) US

(71) Applicants: MATSUSHITA ELECTRONICS CORPORATION [JP/JP]; Takatsuki, Osaka 569 (JP). SYMETRIX CORPORATION [US/US]; Suite 100, 5055 Mark Dabling Boulevard, Colorado Springs, CO 80918 (US).

(72) Inventors: AZUMA, Masamichi; 1-3-5-502, Wakayamadai, Shimamoro-cho, Mishima-gun, Osaka 618 (JP). PAZ DE ARAUJO, Carlos, A.; 317 West Sunbird Cliffs Lane, Colorado Springs, CO 80909 (US). MCMILLAN, Larry, D.; 4255 Loch Lomond Lane, Colorado Springs, CO 80909 (US).

(74) Agents: DUFT, Donald, M. et al.; Duft, Graziano & Forest, P.C., Suite 140, 1790 30th Street, Boulder, CO 80301-1018 (US).

(81) Designated States: CA, CN, JP, KR, SG, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: INTEGRATED CIRCUITS HAVING MIXED LAYERED SUPERLATTICE MATERIALS AND PRECURSOR SOLUTIONS FOR USE IN A PROCESS OF MAKING THE SAME

(57) Abstract

Metal alkoxycarboxylate-based liquid precursor solutions are used to form electronic devices (100) that include mixed layered superlattice materials (112) of a type having discrete oxygen octahedral layers (124 and 128) collated with a superlattice-generator layer (116). The precursor solutions include a plurality of metal moieties in effective amounts for yielding the layered superlattice materials. These metal moieties are mixed to include an A/B portion capable of forming an A/B layer (124), a perovskite-like AB layer portion capable of forming a perovskite-like AB octahedral layer (128), and a superlattice-generator portion capable of forming the superlattice-generator layer (116). The precursors are deposited in liquid form upon a substrate and annealed to provide the layered superlattice materials.

