(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
14 November 2002 (14.11.2002)

PCT

(10) International Publication Number
WO 02/091476 A1

(51) International Patent Classification[7]: H01L 29/788, 29/51

(21) International Application Number: PCT/US02/14237

(22) International Filing Date: 7 May 2002 (07.05.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/289,091 7 May 2001 (07.05.2001) US

(71) Applicant: **COATUE CORPORATION** [US/US]; 25 Olympia Avenue, Suite B, Woburn, MA 01801 (US).

(72) Inventors: **MANDELL, Aaron**; 140 Marlborough Street, Apt. 3, Boston, MA 02116 (US). **PERLMAN, Andrew**; 310 Marlborough Street, Boston, MA 02116 (US).

(74) Agents: **HANKINS, John, A.** et al.; McDermott, Will & Emery, 600 13th Street, N.W., Washington, DC 20005-3096 (US).

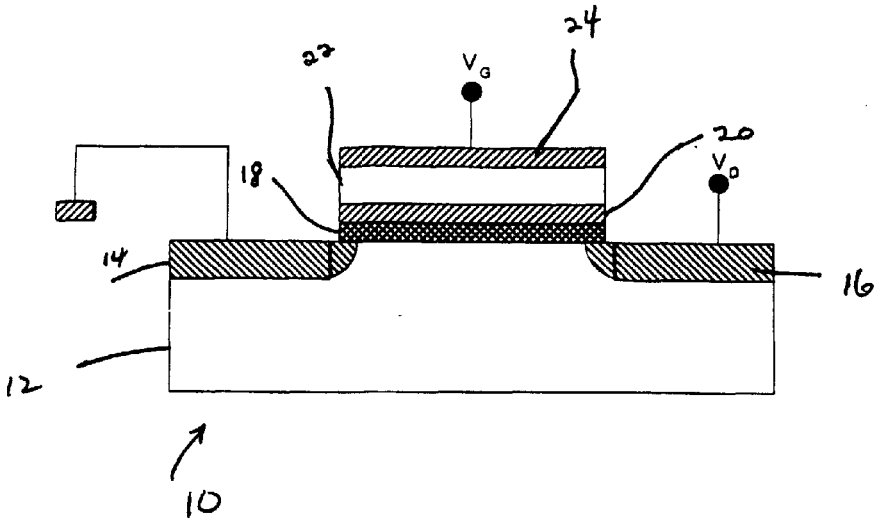
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FLOATING GATE MEMORY DEVICE USING COMPOSITE MOLECULAR MATERIAL



(57) Abstract: A floating gate memory device has a floating gate (20) and an insulating layer (22) on the floating gate (20). A control gate (24) is on the insulating layer (22). The insulating layer (22) is made up of a molecular matrix with ionic complexes distributed in the molecular matrix. By the application of an electric field, the ionic complexes are dissociable in the molecular matrix to change the resistivity (or conductivity) of the insulating layer (22). By switching between a high resistivity (low conductivity) state, where charge is retained by the floating gate (20), to a low resistivity (high conductivity) state, the charge stored on the floating gate (20) can readily drained off to the gate electrode (24).

WO 02/091476 A1