

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 September 2003 (04.09.2003)

PCT

(10) International Publication Number
WO 03/073165 A3

(51) International Patent Classification⁷: **G03F 7/095**,
7/075

(21) International Application Number: PCT/US03/04960

(22) International Filing Date: 21 February 2003 (21.02.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/083,914 27 February 2002 (27.02.2002) US

(71) Applicant: **ADVANCED MICRO DEVICES, INC.**
[US/US]; One AMD Place, Mail Stop 68, P.O. Box 3453,
Sunnyvale, CA 94088-3453 (US).

(72) Inventors: **OKOROANYANWU, Uzodinma**; 1958 Rock
Street, Apt. #8, Mountain View, CA 94043 (US). **BOT-
TELLI, Armando, C.**; 1747 Cunningham Street, Santa
Clara, CA 95050 (US).

(74) Agent: **COLLOPY, Daniel, R.**; Advanced Micro Devices,
Inc., One AMD Place, Mail Stop 68, P.O.Box 3453, Sun-
nyvale, CA 94088-3453 (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,
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, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,
SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

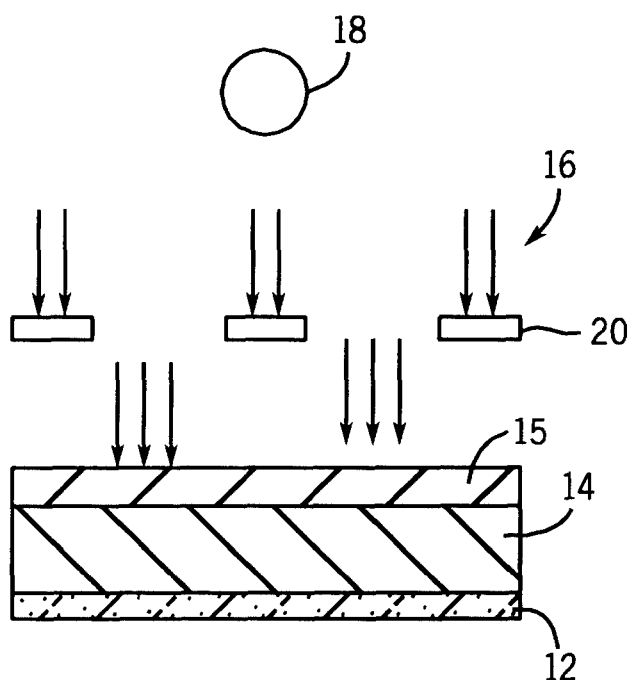
- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:

16 October 2003

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

(54) Title: SELF-ALIGNED PATTERN FORMATION USING DUAL WAVELENGTHS



(57) Abstract: An integrated circuit fabrication process for patterning features at sub-lithographic dimensions is disclosed herein. The process includes sequentially exposing a film of arylalkoxysilane with a photobase generator, and catalytic amount of water coated on top of a conventional lipophilic photoresist layer provided over a substrate and exposed to a radiation at a first and a second lithographic wavelengths. The first lithographic wavelength is shorter than the second lithographic wavelength. Exposure to the first lithographic wavelength causes a self-aligned mask to form within the photoresist layer.



WO 03/073165 A3