



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C23C 14/34, B23P 13/04	A1	(11) International Publication Number: WO 99/63128 (43) International Publication Date: 9 December 1999 (09.12.99)
(21) International Application Number: PCT/US99/11604 (22) International Filing Date: 26 May 1999 (26.05.99) (30) Priority Data: 09/088,454 1 June 1998 (01.06.98) US (71) Applicant: MATERIALS RESEARCH CORPORATION [US/US]; 542 Route 303, Orangeburg, NY 10062 (US). (72) Inventors: GILMAN, Paul, S.; 5 Margaret Ann Lane, Suffern, NY 10901 (US). KOJIMA, Tetsuya; 259-01, Yamanishi, Ninomiya-cho, Kanagawa-ken 259-01 (JP). LO, Chi-Fung; 1110 Inwood Terrace, Fort Lee, NJ 07024 (US). SHIMIZU, Eiichi; 2-5-1, Kunimi, Aoba-ku, Sendai-shi 981 (JP). TAMURA, Hidemasa; 2-2-44-601, Odawara, Miyagino-ku, Sendai-shi 983 (JP). YOKOYAMA, Norio; 3-19-23, Ongouzawa, Takahaku-ku, Sendai-shi 982 (JP). (74) Agents: BRINKMAN, David, H. et al.; Wood, Herron & Evans, L.L.P., 2700 Carew Tower, Cincinnati, OH 45202 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, 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, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: CONTOURED SPUTTERING TARGET (57) Abstract A countoured sputtering target (10) includes a target member (12, 112) of sputtering material having a top surface (18, 118), a bottom surface (20, 120) and an outer peripheral surface (22, 122). One or more contoured annular regions (24, 124, 224) are formed on the top surface (18, 118) of the target member (12, 112) that extend radially inwardly from the outer peripheral surface (22, 122) and away from the bottom surface (20, 120). The target member may further include planar, concave (34, 134) or central recessed regions (38, 138) formed in the top surface (18, 118) that are surrounded by the one or more contoured annular regions (24, 124, 224). The configuration of the target member (12, 112) reduces generation of contaminating particles from nodules that may form near the outer peripheral surface (22, 122) of the target during a sputtering operation. Methods of forming a contoured sputtering target are also disclosed.		