

(12) International Application Status Report

Received at International Bureau: 02 January 2017 (02.01.2017)

Information valid as of: 10 April 2019 (10.04.2019)

Report generated on: 16 July 2019 (16.07.2019)

(10) Publication number:

WO2018/111268

(43) Publication date:

21 June 2018 (21.06.2018)

(26) Publication language:

English (EN)

(21) Application Number:

PCT/US2016/066717

(22) Filing Date:

14 December 2016 (14.12.2016)

(25) Filing language:

English (EN)

(51) International Patent Classification:

H01L 23/66 (2006.01); **H01L 23/522** (2006.01); **H01L 25/04** (2006.01); **H01L 23/538** (2006.01); **H01L 23/00** (2006.01); **H01Q 1/22** (2006.01); **H01Q 9/04** (2006.01)

(71) Applicant(s):

INTEL CORPORATION [US/US]; 2200 Mission College Boulevard Santa Clara, California 95054 (US) *(for all designated states)*

(72) Inventor(s):

EID, Feras; 5443 W Elgin Street Chandler, Arizona 85226 (US)

OSTER, Sasha N.; 1441 E Folley Place Chandler, Arizona 85225 (US)

KAMGAING, Telesphor; 2204 E Firestone Drive Chandler, Arizona 85249 (US)

DOGIAMIS, Georgios C.; 4909 W Joshua Boulevard APT 2014 Chandler, Arizona 85226 (US)

ALEKSOV, Aleksandar; 2962 S. Salida Del Sol Ct Chandler, Arizona 85286 (US)

(74) Agent(s):

BRASK, Justin, K.; Schwabe, Williamson & Wyatt 1211 SW 5th Ave., Suite 1900 Portland, OR 97204 (US)

(54) Title (EN): MICROELECTRONIC DEVICES DESIGNED WITH MOLD PATTERNING TO CREATE PACKAGE-LEVEL COMPONENTS FOR HIGH FREQUENCY COMMUNICATION SYSTEMS

(54) Title (FR): DISPOSITIFS MICROÉLECTRONIQUES CONÇUS AVEC UNE FORMATION DE MOTIFS DE MOULE POUR CRÉER DES COMPOSANTS AU NIVEAU DU BOÎTIER POUR DES SYSTÈMES DE COMMUNICATION HAUTE FRÉQUENCE

(57) Abstract:

(EN): Embodiments of the invention include a microelectronic device that includes a first substrate having radio frequency (RF) components and a second substrate that is coupled to the first substrate. The second substrate includes a first conductive layer of an antenna unit for transmitting and receiving communications at a frequency of approximately 4 GHz or higher. A mold material is disposed on the first and second substrates. The mold material includes a first region that is positioned between the first conductive layer and a second conductive layer of the antenna unit with the mold material being a dielectric material to capacitively couple the first and second conductive layers of the antenna unit.

(FR): Des modes de réalisation de l'invention concernent un dispositif microélectronique qui comprend un premier substrat ayant des composants radiofréquence (RF) et un second substrat qui est couplé au premier substrat. Le second substrat comprend une première couche conductrice d'une unité antenne pour émettre et recevoir des communications à une fréquence d'environ 4 GHz ou plus. Un matériau de moule est disposé sur les premier et second substrats. Le matériau de moule comprend une première région qui est positionnée entre la première couche conductrice et une seconde couche conductrice de l'unité d'antenne, le matériau de moule étant un matériau diélectrique pour coupler de manière capacitive les première et seconde couches conductrices de l'unité d'antenne.

International search report:

Received at International Bureau: 31 August 2017 (31.08.2017) [KR]

International Report on Patentability (IPRP) Chapter II of the PCT:

Not available

(81) Designated States:

AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

European Patent Office (EPO) : AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR

African Intellectual Property Organization (OAPI) : BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG

African Regional Intellectual Property Organization (ARIPO) : BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW

Eurasian Patent Organization (EAPO) : AM, AZ, BY, KG, KZ, RU, TJ, TM

Declarations:

Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv)) for the purposes of the designation of the United States of America