

16/09/02
2002055572

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

(19) World Intellectual Property Organization
International Bureau



162162

(43) International Publication Date
1 August 2002 (01.08.2002)

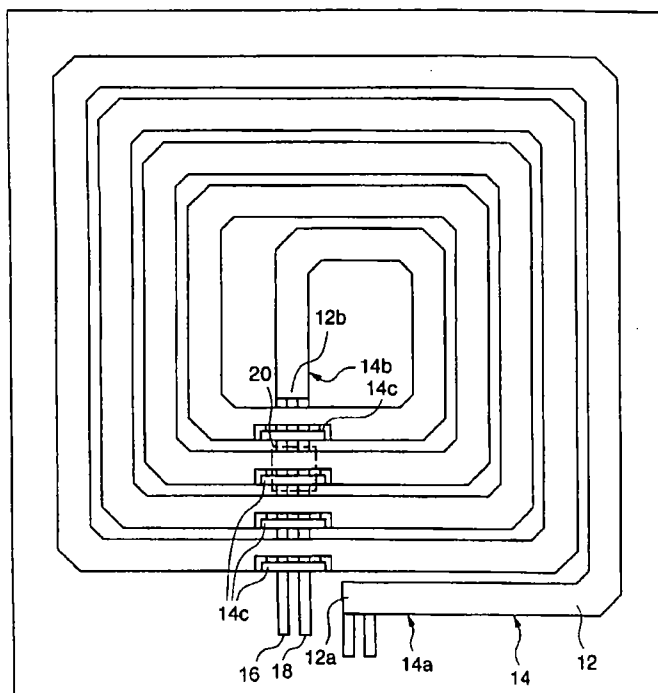
PCT

(10) International Publication Number
WO 02/060002 A1

- (51) International Patent Classification⁷: **H01P 5/10, 5/18** (74) Agents: **ALLENBY, Christopher, B.** et al.; Skjerven Morrill Macpherson LLP, 25 Metro Drive, Suite 700, San Jose, CA 95110 (US).
- (21) International Application Number: PCT/US02/01529
- (22) International Filing Date: 16 January 2002 (16.01.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
09/768,865 23 January 2001 (23.01.2001) US
- (71) Applicant: **TRIQUINT SEMICONDUCTOR, INC.** [US/US]; 2300 N.E. Brookwood Parkway, Hillsboro, OR 97124 (US).
- (72) Inventors: **APEL, Thomas, R.**; 3144 NW Chapin Drive, Portland, OR 97229 (US). **CAMPBELL, Richard, L.**; 4105 NW Carlton Court, Portland, OR 97229 (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).

[Continued on next page]

(54) Title: INTEGRATED BROADSIDE COUPLED TRANSMISSION LINE ELEMENT



(57) Abstract: A novel broadside-coupled transmission line element is disclosed. The element includes a first metallization layer that has a first spiral-shaped transmission line and at least one bridge segment formed therein. The element also includes a second metallization layer that has a second spiral-shaped transmission line and connector segments formed therein. The connector segments provide respective electrical conduction paths between the inner area of the first and second transmission lines and the outer area of the first and second transmission lines. A first one of the connector segments is electrically connected to the inner terminus of the second transmission line. The second transmission line has a gap at each intersection with the connector segments. A dielectric layer lies between the first and second metallization layers. The dielectric layer has a plurality of apertures formed therein for providing electrical connections between the second transmission line and the bridge segment(s) of the first metallization layer, and for providing an electrical connection between the inner terminus of the first transmission line and a second one of the connector segments. The element is realized in an integrated circuit environment, and may be used to create various circuit elements such as baluns, balanced and unbalanced transformers and current and voltage inverters for operation at high frequencies.

WO 02/060002 A1



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.