

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
14 February 2008 (14.02.2008)

PCT

(10) International Publication Number  
WO 2008/018034 A3

- (51) International Patent Classification:  
H03D 7/14 (2006.01) H03D 7/16 (2006.01)
- (21) International Application Number:  
PCT/IB2007/053138
- (22) International Filing Date: 8 August 2007 (08.08.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
06118709.2 10 August 2006 (10.08.2006) EP
- (71) Applicant (for all designated States except US): NXP B.V.  
[NL/NL]; High Tech Campus 60, NL-5656 AG Eindhoven (NL).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): RUIJS, Leonardus, C., H. [NL/NL]; c/o NXP Semiconductors, IP Department, HTC 60 1.31 Prof Holstlaan 4, NL-5656 AG Eindhoven (NL).
- (74) Agent: PENNING, Johannes, F., M.; c/o NXP Semiconductors, IP Department, HTC 60 1.31 Prof Holstlaan 4, NL-5656 AG Eindhoven, (NL).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

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

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

**Published:**

- with international search report

(88) Date of publication of the international search report:  
23 October 2008

(54) Title: DUAL GILBERT CELL MIXER WITH OFFSET CANCELLATION

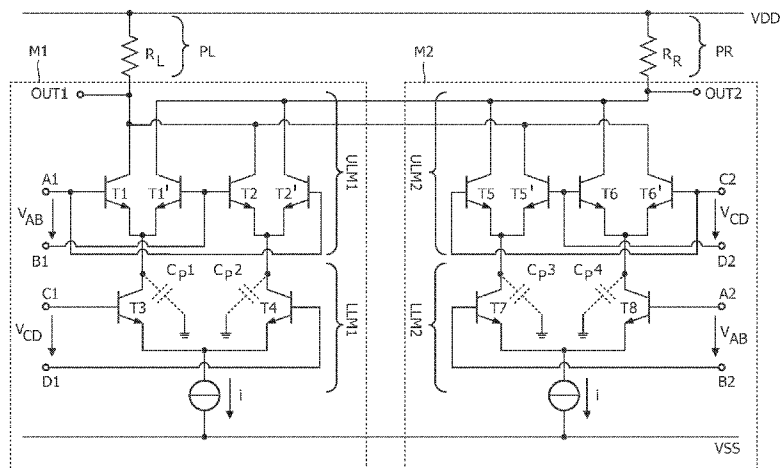


FIG. 4

(57) Abstract: The present invention relates to an electronic device that includes a first mixer portion (M1) having a first stage (ULM1) and a second stage (LLM1), and a second mixer portion (M2) having a first stage (ULM2) and a second stage (LLM2). Further, the electronic device has a first electrical path (PL) being coupled to the first mixer portion (M1) and the second mixer portion (M2), and a second electrical path (PR) being coupled to the first mixer portion (M1) and the second mixer portion (M2), wherein the first mixer portion (M1) is adapted to receive a first input signal (V<sub>AB</sub>) on the first stage (ULM1) and a second input signal (V<sub>CD</sub>) on the second stage (LLM1). The second mixer portion (M2) is adapted to receive the second input signal (V<sub>CD</sub>) on the first stage (ULM2) and the first input signal (V<sub>AB</sub>) on the second stage (LLM2), wherein the first and the second mixer portions (M1, M2) are adapted to process square wave input signals.

WO 2008/018034 A3

INTERNATIONAL SEARCH REPORT

International application No  
PCT/IB2007/053138

A. CLASSIFICATION OF SUBJECT MATTER  
INV. H03D7/14 H03D7/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
H03D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/216131 A1 (KOVACEVIC MILAN [US]. ET AL) 20 November 2003 (2003-11-20) paragraph [0005] - paragraph [0007]; figure 2	1-10
X	US 2001/027095 A1 (WANG JIANQIN [JP]) 4 October 2001 (2001-10-04) paragraph [0029] - paragraph [0036]; figure 2	1-10

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

30 July 2008

Date of mailing of the international search report

06/08/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Ratajski, André

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2007/053138

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003216131	A1	20-11-2003	NONE
US 2001027095	A1	04-10-2001	DE 10115235 A1 13-12-2001
			JP 3510556 B2 29-03-2004
			JP 2001284968 A 12-10-2001
			KR 20010094949 A 03-11-2001

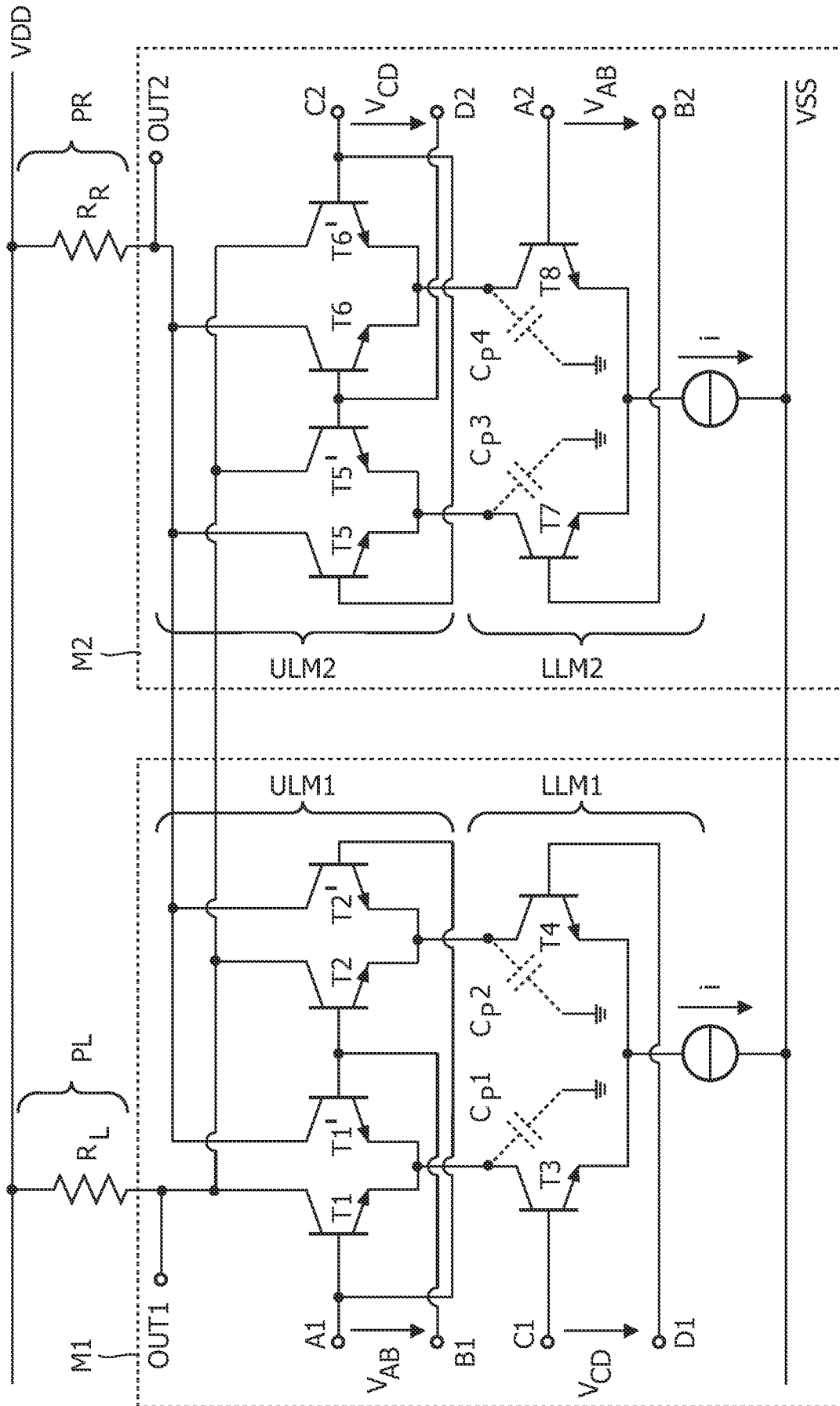


FIG. 4