

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 February 2002 (28.02.2002)

PCT

(10) International Publication Number
WO 02/17493 A3

(51) International Patent Classification⁷: **H03K 17/082**

(74) Agents: **REGAN, Christopher, F.** et al.; Allen, Dyer, Doppelt, Milbrath & Gilchrist, P.A., Suite 1401, 255 South Orange Avenue, P.O. Box 3791, Orlando, FL 32802-3791 (US).

(21) International Application Number: PCT/US01/25427

(22) International Filing Date: 14 August 2001 (14.08.2001)

(25) Filing Language: English

(81) Designated States (national): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, 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, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(26) Publication Language: English

(30) Priority Data:
60/227,566 23 August 2000 (23.08.2000) US
09/928,857 13 August 2001 (13.08.2001) US

(71) Applicant (for all designated States except US): **INTER-SIL AMERICAS INC.** [US/US]; Suite 100, 7587 Irvine Center Drive, Irvine, CA 92618 (US).

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, 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, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

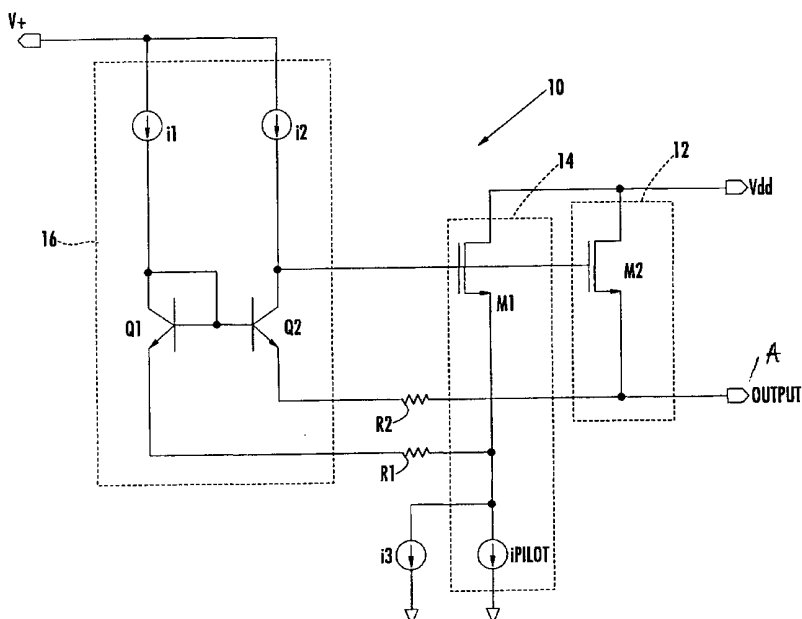
(72) Inventors; and

(75) Inventors/Applicants (for US only): **SHEARON, William** [US/US]; 311 Hedgewyck Drive, Findlay, OH (US). **VULIH, Salomon** [US/US]; 90 Beechwood Circle, Nesshanic Station, NJ 08853 (US). **PRESLAR, Donald** [US/US]; 750 River Road, Somerville, NJ 08876 (US).

Published:
— with international search report

[Continued on next page]

(54) Title: INTEGRATED CIRCUIT WITH CURRENT-LIMITED POWER OUTPUT AND ASSOCIATED METHODS



(57) Abstract: The integrated circuit includes a power FET (M2) for generating an output voltage, a pilot FET (M1) for sensing current through the power driving device and generating a reference voltage, and an amplifier circuit (16) for comparing the reference voltage of the pilot device with the output voltage of the power driving device. The amplifier circuit includes a differential pair of matched bipolar junction transistors (BJTs) having a common base. A first BJT of the differential pair being diode-connected. The amplifier circuit controls the gates of the power FET and the pilot FET.



WO 02/17493 A3



(88) Date of publication of the international search report:
13 June 2002

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.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/25427

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H03K17/082

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)

IPC 7 H03K H03F

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, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 272 392 A (WONG STEPHEN L ET AL) 21 December 1993 (1993-12-21) column 4, line 30 -column 6, line 37; figure 2	1-3, 8-10, 12-17
Y	EP 0 574 646 A (MARELLI AUTRONICA ;ST MICROELECTRONICS SRL (IT)) 22 December 1993 (1993-12-22) column 4, line 9 -column 5, line 39; figures 5,6	1-3, 8-10, 12-17

Further documents are listed in the continuation of box C.

Patent family members are listed in 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.
- * & * document member of the same patent family

Date of the actual completion of the international search

4 March 2002

Date of mailing of the international search report

12/03/2002

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

Cantarelli, R

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/25427

Patent document cited in search report	A	Publication date		Patent family member(s)	Publication date
US 5272392	A	21-12-1993	DE	69308112 D1	27-03-1997
			DE	69308112 T2	31-07-1997
			EP	0602699 A2	22-06-1994
			JP	6217453 A	05-08-1994
EP 0574646	A	22-12-1993	EP	0574646 A1	22-12-1993
			DE	69223775 D1	05-02-1998
			DE	69223775 T2	30-04-1998
			ES	2112895 T3	16-04-1998
			JP	6077741 A	18-03-1994
			US	5404053 A	04-04-1995