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MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
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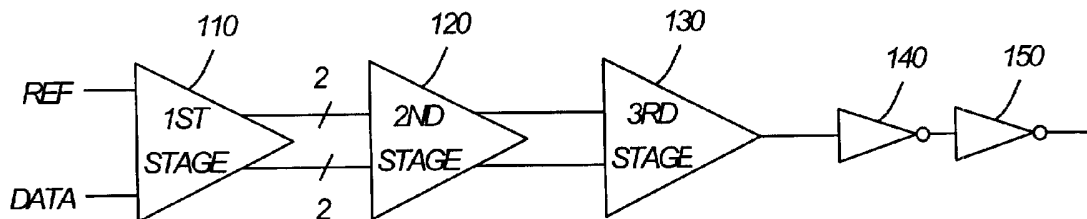
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: LARGE GAIN-BANDWIDTH AMPLIFIER



100

(57) Abstract: An amplifier includes multiple stages. Early stages of the multi-stage amplifier have low gain and preserve bandwidth.

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INTERNATIONAL SEARCH REPORT

National Application No
PCT/US2004/008921

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 H03F3/45 H03F1/48 H03K19/0175

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 H03F H03K

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 6 163 216 A (HALBERT JOEL M ET AL) 19 December 2000 (2000-12-19) column 4, line 55 - column 6, line 47; figure 2	1-9
Y	EP 0 750 391 A (MITSUBISHI ELECTRIC CORP) 27 December 1996 (1996-12-27)	1-9
A	page 5, line 55 - page 6, line 20; figure 1	12, 18, 21, 24, 27
Y	US 6 304 106 B1 (CECCHI DELBERT RAYMOND ET AL) 16 October 2001 (2001-10-16) column 2, line 63 - column 4, line 56; figures 2,3	10-30
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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

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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

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& document member of the same patent family

Date of the actual completion of the international search 14 October 2004	Date of mailing of the international search report 25. 10. 2004
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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 Fedi, G
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INTERNATIONAL SEARCH REPORT

national Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 081 133 A (HEDBERG MATS) 27 June 2000 (2000-06-27) column 3, line 31 - column 4, line 34; figures 1,2 -----	10-30
A	US 5 631 607 A (HOGERVORST RONALD ET AL) 20 May 1997 (1997-05-20) column 5, line 33 - column 7, line 50; figures 8,10,12 -----	1-8
A	US 2002/070804 A1 (GIDUTURI HARI) 13 June 2002 (2002-06-13) page 4, paragraph 39 - page 5, paragraph 54; figures 4,5 -----	6
A	BARRANDON G: "ETAGE AMPLIFICATEUR A HAUTES PERFORMANCES" NUCLEAR INSTRUMENTS AND METHODS, NORTH-HOLLAND PUBLISHING COMPANY. AMSTERDAM, NL, vol. 86, no. 2, 15 September 1970 (1970-09-15), pages 317-321, XP002036585 the whole document -----	9
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A	US 4 623 799 A (NYMAN JR PHILLIP A) 18 November 1986 (1986-11-18) column 8, line 40 - column 10, line 46; figures 3,4 -----	10-30

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/008921

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9

An amplifier circuit comprising an input stage having a low impedance load and a second stage including an active device coupled to the low impedance load of the input stage, and including a diode load coupled to the active device.

2. claims: 10-30

A simultaneous bidirectional port circuit comprising an output driver and a receiver having a low gain first stage coupled to the output driver and a second stage having current mirrors responsive to the low gain first stage to supply currents to low impedance summing points.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
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