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D E C I S I O N
of 23 September 2005

Case Number: T 0199/04 - 3.5.2

Application Number: 98306852.9

Publication Number: 0899871

IPC: H03F 3/72

Language of the proceedings: EN

Title of invention:
Performance selection in an integrated circuit

Applicant:
General Electric Company

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Novelty, inventive step - after amendment (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0199/04 - 3.5.2

D E C I S I O N
of the Technical Board of Appeal 3.5.2
of 23 September 2005

Appellant: General Electric Company
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Schenectady
NY 12345 (US)

Representative: Goode, Ian Roy
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 8 August 2003 refusing European application No. 98306852.9 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: W. Wheeler
Members: J.-M. Cannard
P. Mühlens

Summary of Facts and Submissions

I. The appellant contests the decision of the examining division to refuse European patent application No. 98 306 852.9. The reason given for the refusal was that the subject-matter of claim 1 as originally filed, then the independent claim under examination, lacked novelty within the meaning of Article 54(1) and (2) EPC, having regard to the prior art known from document:

D1: Shin et al: "Design of a Programmable Slew-Rate Op Amp", Proceedings of the Midwest Symposium on Circuits and Systems, Lafayette, 1994, pages 142 to 146.

II. Another piece of prior art:

D2: Malcovati et al: "Design of Analog Blocks for Low-Voltage Switched Systems", Proceedings of the Midwest Symposium on Circuits and Systems, Lafayette, 1994, pages 93 to 96,

was mentioned in the examining division's communication of 20 June 2002 as describing a signal processing circuit like that defined in claim 1.

III. The current version of claim 1, which was filed with a letter dated 23 August 2005, reads as follows:

"A signal processing circuit comprising:

a first current source (20) for providing a first, minimal, current level through an input device (12);

an additional current source means (26) for providing a second, additional, current through the input device; and

switching means (28) for switching the second, additional, current source means into or out of the circuit, characterized in that

the switching means (28) are arranged for providing the second, additional, current when increased noise control is required, and for switching the second, additional, current source means out of the circuit to conserve power when increased noise control is not required."

Claim 2 is dependent on claim 1.

IV. The appellant's arguments concerning the present request may be summarized as follows:

D1 concerned an operational amplifier with a programmable slew-rate in which the bias current was varied upon the desired magnitude of the slew-rate. The small signal characteristics were unaffected by the dynamic current source, which turned on when large differential signals were presented at the input. This was precisely the opposite of what happened in the present invention.

V. The appellant requested that the decision under appeal be set aside and that a patent be granted in the following version:

claims: 1 and 2 filed with letter of 23 August 2005;

description: pages 1, 2, 2a and 5 filed with letter of 23 August 2005; pages 3, 4, 6 and 7 as originally filed; and

drawings: figures 1 and 2 of the published application.

Reasons for the Decision

1. The appeal is admissible.

Amendments

2. The features recited in the present claims are all disclosed in the application as originally filed; see in particular claim 1 as filed and page 2 of the original description, paragraph beginning at line 10, for the expression "noise control".

The description has been adapted to the amended claims and to mention the prior art known from D1.

The amendments do not infringe Article 123(2) EPC.

Novelty - Inventive step

3. The closest prior art among the documents cited by the examining division is D1, which discloses (figures 1 and 3a) an operational amplifier with a programmable slew rate. This amplifier may be regarded as a signal

processing circuit. It has a static bias circuit (M14-M17), a dynamic current source (M18-M20) and a switched parallel subtraction circuit (M21-M26), which may be controlled by digital switching signals to provide a variable bias current level to the amplifier, which may be minimal at some times and have greater than minimal values at other times.

4. According to D1, page 142, right hand column, seventh to ninth lines under the heading: II. Programmable slew rate circuit, "The bias current must be temporarily increased to enhance the slew rate only when a large differential input signal is detected". On page 143, in the eighth to twelfth lines of the left hand column, it is stated that "When the large differential signals are presented at the input, the dynamic current source turns on, and then the dynamic current source excites an extra current to be injected into a source-coupled differential input stage". According to pages 142 and 143, the bridging paragraph, "When a magnitude of the detected differential signal is less than a few hundred millivolts, the dynamic current source is off and the current of the each stage is determined by static bias circuit". Thus, according to D1, the additional current is provided through the input device when the input signal is large and not when it is small. Without modifying the circuits shown in figures 3a, 3b and 4a, it is not possible to switch the switching means so that the additional current source means (M18-M26) may provide additional current when increased noise control is required, that is, when the input signal level is relatively low. Nor is it possible to switch the switching means so that the additional current source means (M18-M26) may be switched out of the circuit to

conserve power when increased noise control is not required, that is, when the input signal level is relatively high.

5. The subject-matter of claim 1 differs from the circuitry known from D1 in that the claimed circuit has means for switching the additional current source means into or out of the circuit, whereby the switching means are arranged for providing the second, additional, current through the input device when increased noise control is required, and for switching the second, additional, current source means out of the circuit to conserve power when increased noise control is not required.

6. From the above analysis it can be seen that, far from rendering the present invention obvious, D1 actually teaches away from it.

7. Regarding disclosure of D2, the examining division did not indicate any specific passage as being relevant to the present application. The Board cannot see any reason why D2, alone or in combination with D1, would render the claimed subject-matter obvious to the skilled person.

8. The Board therefore concludes that the subject-matter of claim 1 shall be considered as new and involving an inventive step in accordance with Articles 54 and 56 EPC.

9. The Board finds that the application as amended meets the requirements of the EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent in the following version:

   claims: 1 and 2 filed with letter of 23 August 2005;

   description: pages 1, 2, 2a and 5 filed with letter of 23 August 2005; pages 3, 4, 6 and 7 as originally filed; and

   drawings: figures 1 and 2 of the published application.

The Registrar: The Chairman:

D. Sauter W. J. L. Wheeler