

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SEC FILE NUMBER

000-30419

CUSIP NUMBER

682189105

FORM 12b-25

NOTIFICATION OF LATE FILING

For Period Ended: December 31, 2004

- Transition Report on Form 10-K
 Transition Report on Form 20-F
 Transition Report on Form 11-K
 Transition Report on Form 10-Q
 Transition Report on Form N-SAR

For the Transition Period Ended: _____

Read Instruction (on back page) Before Preparing Form. Please Print or Type.

Nothing in this form shall be construed to imply that the Commission has verified any information contained herein.

If the notification relates to a portion of the filing checked above, identify the Item(s) to which the notification relates:

PART I — REGISTRANT INFORMATION

ON Semiconductor Corporation

Full Name of Registrant

Former Name if Applicable

5005 E. McDowell Road

Address of Principal Executive Office (Street and Number)

Phoenix, Arizona 85008

City, State and Zip Code

PART II — RULES 12b-25(b) AND (c)

If the subject report could not be filed without unreasonable effort or expense and the registrant seeks relief pursuant to Rule 12b-25(b), the following should be completed. (Check box if appropriate)

- (a) The reason described in reasonable detail in Part III of this form could not be eliminated without unreasonable effort or expense;
- (b) The subject annual report, semi-annual report, transition report on Form 10-K, Form 20-F, Form 11-K, Form N-SAR or Form N-CSR, or portion thereof, will be filed on or before the fifteenth calendar day following the prescribed due date; or the subject quarterly report or transition report on Form 10-Q, or portion thereof, will be filed on or before the fifth calendar day following the prescribed due date; and
- (c) The accountant's statement or other exhibit required by Rule 12b-25(c) has been attached if applicable.

PART III — NARRATIVE

State below in reasonable detail why Forms 10-K, 20-F, 11-K, 10-Q, N-SAR, N-CSR, or the transition report or portion thereof, could not be filed within the prescribed time period.

As summarized below, ON Semiconductor Corporation (“Company”) is unable to file its Annual Report on Form 10-K for the fiscal year ended December 31, 2004 (“Form 10-K”) by the prescribed due date of March 16, 2005 without unreasonable effort or expense. The Company will file its Form 10-K with the Securities and Exchange Commission (“SEC”) no later than March 31, 2005.

As of the date of filing this Notification of Late Filing (“Notice”), the Company is in the process of completing its testing of the Company’s internal control over financial reporting in order to satisfy the requirements of Section 404 of the Sarbanes-Oxley Act of 2002, which requires, beginning with this Form 10-K, (i) management to report on the effectiveness of the Company’s internal control over financial reporting under Item 308(a) of Regulation S-K and (ii) the Company’s independent registered public accounting firm to attest to this report under Item 308(b) of Regulation S-K. During 2004 and through the date of the filing of this Notice, the Company has spent considerable time and resources analyzing, documenting and testing its system of internal control. This evaluation of internal control over financial reporting has not yet been completed. Although the Company is not currently aware of any material weakness in its internal control over financial reporting and related disclosures, there can be no assurance that, as a result of the ongoing evaluation of internal control over financial reporting, additional deficiencies will not be identified or any deficiencies identified previously or hereafter, either alone or in combination with others, will not be considered a material weakness. The identification of a material weakness would require management to conclude that its internal control over financial reporting was not effective at December 31, 2004.

PART IV — OTHER INFORMATION

- (1) Name and telephone number of person to contact in regard to this notification

Donald A. Colvin
Senior Vice President and Chief
Financial Officer

602

244-7362

(Name)

(Area Code)

(Telephone Number)

- (2) Have all other periodic reports required under Section 13 or 15(d) of the Securities Exchange Act of 1934 or Section 30 of the Investment Company Act of 1940 during the preceding 12 months or for such shorter period that the registrant was required to file such report(s) been filed? If answer is no, identify report(s). Yes No

- (3) Is it anticipated that any significant change in results of operations from the corresponding period for the last fiscal year will be reflected by the earnings statements to be included in the subject report or portion thereof? Yes No

If so, attach an explanation of the anticipated change, both narratively and quantitatively, and, if appropriate, state the reasons why a reasonable estimate of the results cannot be made.

See the Company’s Current Report on Form 8-K dated and filed February 2, 2005, which announced financial results of the Company for the quarter and year ended December 31, 2004, and included an unaudited consolidated statement of operations for the years ended December 31, 2004 and December 31, 2003.

ON Semiconductor Corporation

(Name of Registrant as Specified in Charter)

has caused this notification to be signed on its behalf by the undersigned hereunto duly authorized.

Date: March 16, 2005

By: /s/ Donald A. Colvin

Donald A. Colvin
Senior Vice President and Chief
Financial Officer

INSTRUCTION: The form may be signed by an executive officer of the registrant or by any other duly authorized representative. The name and title of the person signing the form shall be typed or printed beneath the signature. If the statement is signed on behalf of the registrant by an authorized representative (other than an executive officer), evidence of the representative’s authority to sign on behalf of the registrant shall be filed with the form.

ATTENTION

Intentional misstatements or omissions of fact constitute Federal Criminal Violations (See 18 U.S.C. 1001).

GENERAL INSTRUCTIONS

1. This form is required by Rule 12b-25 (17 CFR 240.12b-25) of the General Rules and Regulations under the Securities Exchange Act of 1934.
2. One signed original and four conformed copies of this form and amendments thereto must be completed and filed with the Securities and Exchange Commission, Washington, D.C. 20549, in accordance with Rule 0-3 of the General Rules and Regulations under the Act. The information contained in or filed with the form will be made a matter of public record in the Commission files.
3. A manually signed copy of the form and amendments thereto shall be filed with each national securities exchange on which any class of securities of the registrant is registered.
4. Amendments to the notifications must also be filed on Form 12b-25 but need not restate information that has been correctly furnished. The form shall be

clearly identified as an amended notification.

5. *Electronic Filers:* This form shall not be used by electronic filers unable to timely file a report solely due to electronic difficulties. Filers unable to submit reports within the time period prescribed due to difficulties in electronic filing should comply with either Rule 201 or Rule 202 of Regulation S-T (§232.201 or §232.202 of this chapter) or apply for an adjustment in filing date pursuant to Rule 13(b) of Regulation S-T (§232.13(b) of this chapter).