SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM S-3 REGISTRATION STATEMENT

Under THE SECURITIES ACT OF 1933

ON SEMICONDUCTOR CORPORATION

(Exact name of Registrant as specified in its charter)

Delaware (State of incorporation)

36-3840979 (I.R.S. Employer Identification Number)

5005 E. McDowell Road,
Phoenix, Arizona 85008
(602) 244-6600
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

George H. Cave, Esq.
Senior Vice President, Secretary and General Counsel
ON Semiconductor Corporation
5005 E. McDowell Road, A700
Phoenix, Arizona 85008
(602) 244-5226

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Stephen H. Shalen Cleary, Gottlieb, Steen & Hamilton One Liberty Plaza New York, New York 10006 (212) 225-2000

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this Registration Statement, as determined in light of market conditions.

| | Calculation of Registration Fee |
|-------|---|
| | |
| | If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. \Box |
| Act 1 | If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act of 1933, check the following box and list the Securities egistration statement number of the earlier effective registration statement for the same offering. \Box |
| the S | If this Form is filed to register additional securities for an offering pursuant to Rule 464(b) under the Securities Act, please check the following box and list ecurities Act registration statement number of the earlier effective registration statement for the same offering. \Box |
| 1933 | If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of , other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. |
| box. | If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following \Box |

| Title of Each Class of Securities to be Registered | Amount to be Registered | Proposed Maximum Offering Price Per Unit (1) | Proposed Maximum Aggregate Offering Price (1) | Amount of Registration Fee (2) |
|--|----------------------------|---|---|--------------------------------------|
| Common Stock (3) | 107,749,433 shares | \$ 7.095 | \$ 764,482,227 | \$ 96,860 |

- (1) Estimated solely for purposes of computing registration fees pursuant to Rule 457(c), based on the average of the high and low prices of the common stock on March 23, 2004, as reported by the Nasdaq National Market.
- (2) Pursuant to Rule 429 promulgated under the Securities Act of 1933, as amended, the amount of registration fee does not include the \$2,078 previously paid to the Commission relating to the 4,108,936 common stock previously registered pursuant to Registration Statement No. 333-111702, which remain unissued at the close of business on March 30, 2004.
- (3) The aggregate amount of Common Stock registered hereunder is limited to that which is permissible under rule 415(a)(4) under the Securities Act of 1933.

This Registration Statement, which is a new Registration Statement, also constitutes Post-Effective Amendment No. 1 to Registration Statement No. 333-111702, which was declared effective on January 12, 2004. Such Post-Effective Amendment shall hereafter become effective concurrently with the effectiveness of this Registration Statement and in accordance with Section 8(c) of the Securities Act of 1933. Pursuant to Rule 429 under the Securities Act of 1933, the prospectus filed as part of this Registration Statement also constitutes a prospectus for Registration Statement No. 333-111702; 4,108,936 common stock remaining unissued from Registration Statement No. 333-111702 will be combined with the 107,749,433 common stock to be registered pursuant to this Registration Statement to enable the selling stockholder to offer an aggregate of 111,858,369 common stock pursuant to the combined prospectus.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, or until this Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. The selling stockholder may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where an offer or sale is prohibited.

Subject to completion, dated March 30, 2004

Prospectus

111,858,369 Shares

ON SEMICONDUCTOR CORPORATION

Common Stock

The selling stockholder named in this prospectus may from time to time offer and sell up to an aggregate of 111,858,369 shares of our common stock, par value \$.01 per share, at prices and on terms to be determined at or prior to the time of sale. We will not receive any proceeds from the sale of these shares.

The selling stockholder may from time to time offer and sell shares, in one or more offerings, to or through underwriters, dealers and agents or directly to purchasers. The names of any underwriters or agents involved in the sale of our common stock and their compensation will be described in the accompanying prospectus supplement.

This prospectus may not be used to consummate a sale of our common stock unless accompanied by a supplement to the prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is , 2004.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement we filed with the Securities and Exchange Commission ("SEC") using a shelf registration process. Under this process, the selling stockholder may offer and sell from time to time up to an aggregate of 111,858,369 shares of common stock.

This prospectus describes our common stock and the general manner in which the selling stockholder will offer our common stock. Each time shares of our common stock are to be sold, we will provide a supplemental prospectus that describes the specific manner in which they may be offered. You should read the prospectus supplement and this prospectus, along with the documents incorporated by reference and described under the heading "WHERE YOU CAN FIND MORE INFORMATION", before making your investment decision.

WHERE YOU CAN FIND MORE INFORMATION

ON Semiconductor files annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy any document we file at the SEC's Public Reference Room located at 450 Fifth Street N.W., Washington, D.C. 20549.

You may also obtain copies of our SEC filings by mail from the Office of Investor Education and Assistance of the SEC at 450 Fifth Street N.W., Washington, D.C. 20549 or by telephone at 1-800-SEC-0330. You may obtain information on the operation of the Public Reference Room and the Office of Investor Education and Assistance by calling the SEC at 1-800-SEC-0330. Our SEC filings are also available to the public from commercial document retrieval services and at the SEC's Internet site (http://www.sec.gov).

FORWARD-LOOKING STATEMENTS

This prospectus and each prospectus supplement includes and incorporates forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. All statements, other than statements of historical facts, included or incorporated in this prospectus or any prospectus supplement are forward-looking statements, particularly statements about our plans, strategies and prospects under the heading "Summary." Forward-looking statements are often characterized by the use of words such as "believes," "estimates," "expects," "projects," "may," "will," "intends," "plans" or "anticipates," or by discussions of strategy, plans or intentions. All forward-looking statements in this prospectus or any prospectus supplement are made based on our current expectations and estimates, which involve risks, uncertainties and other factors that could cause results or events to differ materially from those expressed in forward-looking statements. Among these factors are changes in overall economic conditions, the cyclical nature of the semiconductor industry, changes in demand for our products, changes in inventories at

our customers and distributors, technological and product development risks, availability of raw materials, competitors' actions, loss of key customers, order cancellations or reduced bookings, changes in manufacturing yields, control of costs and expenses, significant litigation, risks associated with acquisitions and dispositions, risks associated with our substantial leverage and restrictive covenants in our debt instruments, risks associated with our international operations, the threat or occurrence of international armed conflict and terrorist activities both in the United States and internationally and risks involving environmental or other governmental regulation. Additional factors that could affect our future results or events are described in "Management's Discussion and Analysis of Financial Conditions and Results of Operations" incorporated by reference from our annual report on Form 10-K for the year ended December 31, 2003, as amended, and other factors are described from time to time in our SEC filings. See in particular the description of trends, risks and uncertainties set forth in our annual report on Form 10-K for the year ended December 31, 2003, as amended, and similar disclosure in subsequently filed reports. Readers are cautioned not to place undue reliance on forward-looking statements. We assume no obligation to update such information.

You should carefully consider the trends, risks and uncertainties described in our annual report on Form 10-K for the year ended December 31, 2003, as amended, and subsequent reports filed with the SEC before making any investment decision with respect to our common stock. If any of the trends, risks or uncertainties set forth in annual report on Form 10-K for the year ended December 31, 2003, as amended, actually occurs or continues, our business, financial condition or operating results could be materially adversely affected, the trading prices of our common stock could decline and you could lose all or part of your investment. All forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by this cautionary statement.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference the information we file with the SEC, which means that we can disclose important information to you by referring you to those documents. The information that we incorporate by reference is considered to be part of this prospectus.

Information that we file later with the SEC will automatically update and supersede this information. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any documents previously incorporated by reference have been modified or superseded. ON Semiconductor incorporates by reference into this prospectus the following documents:

- Annual Report on Form 10-K for the year ended December 31, 2003 filed with the SEC on March 10, 2004, and the amendment thereto filed with the SEC on March 22, 2004.
- Proxy Statement filed with the SEC on April 9, 2003.

- The description of our common stock contained in the Registration Statement on Form 8-A filed with the SEC on April 21, 2000.
- All documents filed by us under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 after the date of the initial registration statement and before effectiveness of this registration statement, and after the date of this prospectus and before the termination of this offering.

You may request a copy of these filings at no cost, by writing, telephoning or e-mailing us:

ON Semiconductor Corporation 5005 E. McDowell Road Phoenix, Arizona 85008 (602) 244-3437 investor@onsemi.com

ON SEMICONDUCTOR CORPORATION

We are a global supplier of power and data management semiconductors and standard semiconductor components. We design, manufacture and market an extensive portfolio of semiconductor components that addresses the design needs of sophisticated electronic systems and products. Our power management semiconductor components distribute and monitor the supply of power to the different elements within a wide variety of electronic devices. Our data management semiconductor components provide high-performance clock management and data flow management for precision computing and communications systems. Our standard semiconductor components serve as "building block" components within virtually all electronic devices.

We serve a broad base of end-user markets including wireless communications, consumer electronics, automotive and industrial electronics and networking and computing. Applications for our products in these markets include portable electronics, computers, game stations, servers, automotive and industrial automation control systems, routers, switches, storage-area networks and automated test equipment.

We have four main product lines: power management and standard analog devices, metal oxide semiconductor (MOS) power devices, high frequency clock and data management devices and standard components. Our extensive portfolio of devices enables us to offer advanced integrated circuits and the complementary parts that deliver system level functionality and design solutions. We specialize in micro packages, which offer increased performance characteristics while reducing the critical board space inside today's ever shrinking electronic devices. We believe that our ability to offer a broad range of products provides our customers with single source purchasing on a cost-effective and timely basis.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of shares of our common stock hereunder by the selling stockholder. The selling stockholder will be responsible for the payment of any underwriting discounts and commissions and transfer taxes, if any, attributable to the sale of shares covered by this prospectus. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including, without limitation, all registration and filing fees, Nasdaq listing fees, printing fees and expenses, fees and expenses of our counsel and our accountants, the fees and expenses of selling stockholder's counsel and accountants and the expenses of any special audits.

SELLING STOCKHOLDER

TPG Advisors II, Inc. may from time to time offer and sell pursuant to this prospectus and the applicable prospectus supplement up to an aggregate of 111,858,369 shares of our common stock. All of the shares of common stock being registered for sale by the selling stockholder were issued in connection with our August 4, 1999 recapitalization ("August 1999 Recapitalization"). Our registration of up to 111,858,369 shares of common stock held by the selling stockholder does not necessarily mean that the selling stockholder will sell all or any of such shares of common stock.

Beneficial Ownership

The following table sets forth, as of March 26, 2004, the number of shares of our common stock that the selling stockholder beneficially owns and the number of shares being registered for sale by the selling stockholder. The percentage of outstanding shares beneficially owned before the offering is based on 253,014,647 shares of common stock outstanding as of March 26, 2004 and assumes the conversion to common stock of our Series A preferred stock.

| | Owned Prior | Shares Beneficially Owned Prior to the Maximum Offering (1) Number of | | Shares Beneficially Owned After the Offering(2) | |
|-----------------------|-------------|---|-------------------------|---|---------|
| Name | Number | Percent | Shares Being Offered | Number | Percent |
| TPG Advisors II, Inc. | 155,846,741 | 52.5% | 111,858,369 | 43,988,372 | 14.8% |

201 Main Street, Suite 2420 Fort Worth, Texas 76102

⁽¹⁾ The shares of common stock indicated as beneficially owned by TPG Advisors II, Inc. include (a) 111,858,369 shares of common stock directly held by TPG Semiconductor Holdings LLC and (b) 43,988,372 shares of common stock that TPG ON Holdings LLC has the right to acquire upon conversion of Series A preferred stock, which includes shares that are or may become issuable as a result of

accrued and unpaid dividends as of 60 days after March 26, 2004. At the option of its holder, each share of Series A preferred stock is convertible into a number of shares of common stock determined by dividing (a) its stated value of \$10,000, plus accrued and unpaid dividends, by (b) the conversion price of \$2.82, which is subject to specified anti-dilution adjustments. TPG Advisors II, Inc. indirectly controls both TPG Semiconductor Holdings LLC and TPG ON Holdings LLC. The foregoing entities are affiliated with the Texas Pacific Group.

(2) The shares of common stock issuable upon conversion of Series A preferred stock have been registered for future resale. See "Certain Relationships and Related Transactions."

Certain Relationships and Related Transactions

Immediately prior to our August 1999 Recapitalization, we were a wholly owned subsidiary of Motorola, Inc. We held and continue to hold, through direct and indirect subsidiaries, substantially all of the assets and operations of the Semiconductor Components Group of Motorola's Semiconductor Products Sector. As part of the August 1999 Recapitalization, an affiliate of Texas Pacific Group purchased a portion of our common stock from Motorola. As a result, Texas Pacific Group's affiliate became the beneficial owner of approximately 91%, and Motorola was the beneficial owner of approximately 9% of our common stock. As of March 26, 2004, Texas Pacific Group was the beneficial owner of 52.5% of our common stock, assuming conversion of Series A preferred stock and including shares that are or may become issuable as a result of accrued and unpaid dividends as of 60 days after March 26, 2004. Four of our Directors, Richard Boyce, Kevin Burns, Justin Chang and John Marren, are also Texas Pacific Group partners. Another Director, William Franke, is the beneficial owner of a minority equity interest in TPG Semiconductor Holdings LLC, our majority stockholder, an equity partner with Texas Pacific Group in other investment entities and a former President, Chief Executive Officer and Chairman of America West Holdings Corp., a company in which Texas Pacific Group has a controlling interest.

As a result of the August 1999 Recapitalization, we agreed to pay Texas Pacific Group a management fee of not more than \$2 million annually. In connection with the amendment to our senior bank facilities in August 2001, Texas Pacific Group agreed that all management fees payable by us to Texas Pacific Group or its affiliates will accrue and not be payable in cash until our quarterly financial statements establish compliance with certain financial ratios. Prior to such time, however, we may pay management fees to Texas Pacific Group or its affiliates with our common stock or warrants in respect of our common stock. Texas Pacific Group subsequently agreed that these fees will not accrue during the period in which we are not permitted to pay such fees in cash. No Texas Pacific Group management fee was paid or incurred during 2002 or 2003.

On September 7, 2001, TPG ON Holdings LLC purchased 10,000 shares of our Series A preferred stock for \$100.0 million in cash. The Series A preferred stock was sold to TPG ON Holdings LLC in a private offering exempt from registration under the Securities Act of 1933. Each share of Series A preferred stock is convertible at the option

of the holder at any time into shares of common stock at a conversion price of \$2.82 per share of common stock, representing a \$0.37 discount from the closing price per share price of our common stock on the issuance date, subject to specified anti-dilution adjustments. As of March 26, 2004, the shares of Series A preferred stock were convertible into 43,988,372 shares of our common stock, including shares that may become issuable as a result of accrued and unpaid dividends as of 60 days after March 26, 2004. At any time on or after the eighth anniversary of the issuance date of the Series A preferred stock, the holders may require that we redeem their shares at a redemption price per share equal to the greater of (i) the stated value of the Series A preferred stock plus all accrued and unpaid dividends thereon or (ii) 50% of the then current market price of the common stock (based upon the average closing price of the common stock over the preceding 30 trading days) and other assets and property, if any, into which one share of Series A preferred stock is then convertible. Upon a change in control, the holders of the Series A preferred stock may "put" their shares to us at 101% of the stated value plus accumulated and unpaid dividends. TPG ON Holdings LLC was also granted registration rights in respect of the common stock underlying the Series A preferred stock. On November 14, 2001, we filed a registration statement to register for future resale the common stock that is issuable upon the future conversion by TPG ON Holdings LLC of the Series A preferred stock. The holders of the Series A preferred stock will be entitled to vote with the holders of the common stock as a single class. As of the issuance date, each share of Series A preferred stock was entitled to approximately 3,135 votes, subject to certain adjustments for accumulated dividends and those made in accordance with the anti-dilution provisions. As the holder of our Series A preferred stock, TPG ON Holdings LLC is entitled to designate two Directors to serve on our Board of Directors for so long as TPG ON Holdings LLC and its affiliates beneficially own at least 50% of the Series A preferred stock. In connection with the Texas Pacific Group investment, the Board of Directors appointed a Special Independent Committee, which was comprised solely of independent Directors, to negotiate, consider and recommend approval or disapproval of the proposed investment transaction. The Special Independent Committee engaged an investment banker and independent legal counsel to assist in its negotiation and consideration of the Texas Pacific Group investment. The investment banker rendered an opinion that the Texas Pacific Group investment was fair, from a financial point of view, to holders of our common stock other than Texas Pacific Group. The Special Independent Committee unanimously recommended the approval and adoption of the Texas Pacific Group investment by the Board of Directors. For further information with respect to the Series A preferred stock, see our Form 8-K Current Report filed with the SEC on September 7, 2001.

DESCRIPTION OF COMMON STOCK

The following summary does not purport to be complete. You should read the applicable provisions of the Delaware General Corporation Law, our restated certificate of incorporation and by-laws.

We are authorized to issue up to 500,000,000 shares of common stock, par value \$.01 each. At March 26, 2004, we had outstanding 297,003,019 shares of common stock

(assuming conversion of our Series A preferred stock) and had reserved for future issuance approximately 38,359,923 shares of common stock with respect to our various employee benefit plans.

Subject to the prior dividend rights of the holders of shares of our Series A preferred stock and any other shares of preferred stock from time to time outstanding, holders of shares of common stock are entitled to receive dividends when, as and if declared by the Board of Directors out of funds legally available therefor. Each of our senior bank facilities, senior secured first lien notes, senior secured second lien notes, senior subordinated notes and Series A preferred stock restricts our ability to pay cash dividends to our common stockholders.

Each share of common stock is entitled to one vote on all matters submitted to a vote of stockholders. Holders of shares of common stock do not have cumulative voting rights. In the event of any liquidation, dissolution or winding up of ON Semiconductor, after the satisfaction in full of the liquidation preferences of holders of shares of our Series A preferred stock and any other shares of preferred stock then outstanding, holders of shares of common stock are entitled to ratable distribution of the remaining assets available for distribution to stockholders. The shares of common stock are not subject to redemption by operation of a sinking fund or otherwise. Holders of shares of common stock are not entitled to pre-emptive rights. The issued and outstanding shares of common stock are fully paid and nonassessable.

PLAN OF DISTRIBUTION

The selling stockholder may sell the shares of common stock described in this prospectus from time to time in one or more of the following ways:

- to or through underwriters or dealers;
- · directly to one or more purchasers;
- · through agents; or
- through a combination of any of such methods of sale.

The prospectus supplement with respect to the offered shares of common stock will describe the terms of the offering, including:

- the name or names of any agents or underwriters;
- · the purchase price of such shares and any proceeds to us from such sale;
- · any underwriting discounts and other items constituting underwriters' or agents' compensation;
- any initial public offering price;
- · any discounts or concessions allowed or reallowed or paid to dealers; and
- any securities exchanges on which such shares may be listed.

Only agents or underwriters named in the prospectus supplement are deemed to be agents or underwriters in connection with the shares of common stock offered thereby. If

underwriters are used in the sale, the shares will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions, either:

- · at a fixed public offering price or prices;
- at market prices prevailing at the time of sale;
- at varying prices determined at the time of sale; or
- · at negotiated prices.

The obligations of the underwriters to purchase the shares of common stock will be subject to various conditions precedent, and the underwriters will be obligated to purchase all of the shares offered by the applicable prospectus supplement if any of such shares are purchased. Any initial public offering price and any discounts or concessions allowed or reallowed or paid to dealers may be changed from time to time.

The selling stockholder may also sell shares of common stock directly or through agents designated from time to time. Any agent involved in the offering and sale of the offered shares of common stock will be named in the applicable prospectus supplement. Any commissions payable by the selling stockholder to such agent will be set forth in the applicable prospectus supplement. Unless otherwise indicated in such prospectus supplement, any such agent is acting on a best efforts basis for the period of its appointment.

If so indicated in a prospectus supplement, the selling stockholder will authorize agents, underwriters or dealers to solicit offers by certain institutional investors to purchase shares of common stock providing for payment and delivery on a future date specified in such prospectus supplement. There may be limitations on the number of shares that may be purchased by any such institutional investor or on the number of shares that may be sold pursuant to such arrangements.

Institutional investors to which such offers may be made, when authorized, include, commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutions. The obligations of any such purchasers under this delayed delivery and payment arrangement will only be subject to the following two conditions:

- at the time of delivery the purchase of the shares of common stock by an institution will not be prohibited under the laws of any jurisdiction in the United States to which such institution is subject; and
- if the shares of common stock are being sold to underwriters, the selling stockholder will have sold to such underwriters the total number of shares less the number of shares covered by such arrangements.

Underwriters will not have any responsibility in respect of the validity of such arrangements or the performance of the selling stockholder or such institutional investors.

Shares of our common stock may be offered or sold in connection with the settlement of forward purchase contracts the selling stockholder enters into from time to time with a financial institution. The financial institution may be deemed to be an underwriter or may be deemed to be a selling stockholder. If any such sales are conducted, whether the third party is deemed to be an underwriter or a selling stockholder, the prospectus supplement related to such sales will set forth, as required, the following information:

- the identity of the underwriter or selling stockholder;
- · the number of shares being sold;
- · the aggregate number of shares held by the financial institution before and after the proposed sale; and
- any material arrangements between the selling stockholder and the financial institution within the past three years.

In connection with an offering, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by underwriters of a greater number of shares than they are required to purchase in an offering. Stabilizing transactions consist of certain bids or purchases made for the purpose of preventing or retarding a decline in the market price of the securities while an offering is in progress.

The underwriters also may impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the underwriters have repurchased shares of common stock sold by or for the account of the underwriter in stabilizing or short-covering transactions.

These activities by the underwriters may stabilize, maintain or otherwise affect the market price of the shares of common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued by the underwriters at any time. These transactions may be effected on an exchange or automated quotation system, if the securities are listed on that exchange or admitted for trading on that automated quotation system, or in the over-the-counter market or otherwise.

Agents and underwriters may be entitled under agreements entered into with the Company and the selling stockholder to indemnification against certain civil liabilities, including liabilities under the Securities Act of 1933, or to contribution with respect to payments which the agents or underwriters may be required to make in respect thereof. Agents and underwriters may be customers of, may engage in transactions with, or perform services for, the Company and the selling stockholder in the ordinary course of business.

LEGAL MATTERS

Cleary, Gottlieb, Steen & Hamilton, New York, New York, will pass upon the validity of the securities for us.

EXPERTS

The consolidated financial statements and financial statement schedule of ON Semiconductor Corporation as of December 31, 2003 and 2002 and for each of the three years in the period ended December 31, 2003 incorporated in this prospectus by reference from ON Semiconductor Corporation's Annual Report on Form 10-K/A for the year ended December 31, 2003 filed March 22, 2004, have been so incorporated in reliance on the reports of PricewaterhouseCoopers LLP, independent accountants, given on authority of said firm as experts in auditing and accounting. The separate financial statements of Semiconductor Components Industries, LLC, SCG Malaysia Holdings Sdn. Bhd., SCG Philippines, Incorporated, SCG (China) Holding Corporation and ON Semiconductor Trading Ltd. as of December 31, 2003 and 2002 and for each of the three years in the period ended December 31, 2003 incorporated in this prospectus by reference to ON Semiconductor Corporation's Annual Report on Form 10-K/A for the year ended December 31, 2003 filed March 22, 2004, have been so incorporated in reliance on the reports of PricewaterhouseCoopers LLP, independent accountants, given on authority of said firm as experts in auditing and accounting.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The following table sets forth the costs and expenses payable by ON Semiconductor in connection with the distribution of the securities being registered. All amounts are estimates except the SEC registration fee.

| SEC registration fee | \$ 96,860 |
|------------------------------|-----------|
| Printing expenses | 350,000 |
| Legal fees and expenses | 175,000 |
| Accounting fees and expenses | 30,000 |
| Miscellaneous | 8,140 |
| | |
| Total | \$660,000 |
| | |

Item 15. Indemnification of Directors and Officers

The registrant is a Delaware corporation. Section 145 of the Delaware General Corporation Law (the "DGCL") provides that a Delaware corporation has the power to indemnify its officers and directors in certain circumstances. Article Eleventh of the registrant's Restated Certificate of Incorporation provides that the registrant shall

indemnify its directors and officers to the fullest extent permitted by Section 145 of the DGCL.

Subsection (a) of Section 145 of the DGCL empowers a corporation to indemnify any director or officer, or former director or officer, who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of his service as director, officer, employee or agent of the corporation, or his service, at the corporation's request, as a director, officer, employee or agent of another corporation or enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding provided that such director or officer acted in good faith and in a manner reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, provided that such director or officer had no reasonable cause to believe his conduct was unlawful.

Subsection (b) of Section 145 empowers a corporation to indemnify any director or officer, or former director or officer, who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that such person acted in any of the capacities set forth above, against expenses (including attorneys' fees) actually and reasonably incurred in connection with the defense or settlement of such action or suit provided that such director or officer acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification may be made in respect of any claim, issue or matter as to which such director or officer shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such director or officer is fairly and reasonably entitled to indemnity for such expenses which the court shall deem proper.

Section 145 further provides that to the extent a director or officer of a corporation has been successful in the defense of any action, suit or proceeding referred to in subsections (a) or (b) or in the defense of any claim, issue or matter therein, he shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by him in connection therewith, provided that indemnification provided for by Section 145 or granted pursuant thereto shall not be deemed exclusive of any other rights to which the indemnified party may be entitled, and empowers the corporation to purchase and maintain insurance on behalf of a director or officer of the corporation against any liability asserted against him or incurred by him in any such capacity or arising out of his status as such whether or not the corporation would have the power to indemnify him against such liabilities under Section 145.

In addition, Section 102(b)(7) of the DGCL permits Delaware corporations to include a provision in their certificates of incorporation eliminating or limiting the

personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, provided that such provisions shall not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law, (iii) for unlawful payment of dividends or other unlawful distributions, or (iv) for any transactions from which the director derived an improper personal benefit. Article Sixteenth of the registrant's Restated Certificate of Incorporation states that the personal liability of the directors of the registrant is eliminated to the fullest extent permitted by Section 102(b)(7). The registrant also carries liability insurance covering officers and directors.

As of September 7, 2001, we entered into an investment agreement with an affiliate of Texas Pacific Group in connection with the affiliate's acquisition of our Series A preferred stock. In connection with this transaction, the Board of Directors formed a Special Independent Committee to assist with our Series A preferred stock purchase. As part of the investment agreement, we agreed to indemnify and hold harmless each member of the Special Independent Committee from and against any and all losses, penalties, judgments, suits, costs, claims, liabilities, damages and expenses incurred by each member as a result of, or arising out of, any claim relating to breach of fiduciary duty or illegality (other than claims based upon fraud, embezzlement or any criminal violation of law), in each case, related to our Series A preferred stock purchase; *provided*, *however*, that such indemnification shall only be available to the extent that both (i) indemnification for these losses is not available from us under applicable law or as a result of our insolvency, and (ii) our insurers refuse to pay on our directors' and officers' liability insurance policies with respect to these losses.

The foregoing summaries are necessarily subject to the complete text of the DGCL, our Certificate of Incorporation, our insurance policies and the investment agreement referred to above and are qualified in their entirety by reference thereto.

| Item 16. | Exhibits |
|----------|---|
| Exhibit | Description |
| | |
| 5.1 | Opinion of Cleary, Gottlieb, Steen & Hamilton |
| 23.1 | Consent of Cleary, Gottlieb, Steen & Hamilton (included in Exhibit 5.1) |
| 23.2 | Consent of PricewaterhouseCoopers LLP |
| 24.1 | Power of Attorney (included on signature page) |
| | |

Item 17. Undertakings

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) to include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) to reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;
 - (iii) to include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (l)(i) and (l)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement;

- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof;
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of this offering.

The undersigned registrant further undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant

to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Phoenix, State of Arizona on March 30, 2004.

ON SEMICONDUCTOR CORPORATION

| By: | /s/ | KEITH D. JACKSON | |
|-----|-----|------------------|--|
| | | | |

(Keith D. Jackson, President and Chief Executive Officer)

KNOWN ALL MEN BY THESE PRESENTS that each person whose signature appears below constitutes and appoints Keith D. Jackson, Donald Colvin and George H. Cave, and each of them, his true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments to this Form S-3 registration statement and to sign any registration statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) of the Securities Act of 1933, and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully and to all intents and purposes as he might or could do in person hereby ratifying and confirming that all said attorneys-in-fact and agents, or his substitutes, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed below by the following persons in the capacities and on the dates indicated.

| Signature ——— | Title | Date |
|------------------------|---|----------------|
| /s/ KEITH D. JACKSON | President, Chief Executive Officer and Director of the registrant | March 30, 2004 |
| (Keith D. Jackson) | registuali | |
| /s/ Donald Colvin | Senior Vice President, Chief Financial Officer and Treasurer of | March 30, 2004 |
| (Donald Colvin) | the registrant | |
| /s/ J. Daniel McCranie | Chairman of the Board of Directors of the registrant | March 30, 2004 |
| (J. Daniel McCranie) | | |

| /S/ RICHARD W. BOYCE | Director of the registrant | March 30, 2004 |
|---------------------------|----------------------------|----------------|
| (Richard W. Boyce) | | |
| /s/ KEVIN R. BURNS | Director of the registrant | March 30, 2004 |
| (Kevin R. Burns) | | |
| /s/ Justin T. Chang | Director of the registrant | March 30, 2004 |
| (Justin T. Chang) | | |
| /s/ Curtis J. Crawford | Director of the registrant | March 30, 2004 |
| (Curtis J. Crawford) | | |
| /S/ WILLIAM A. FRANKE | Director of the registrant | March 30, 2004 |
| (William A. Franke) | | |
| /s/ Jerome N. Gregoire | Director of the registrant | March 30, 2004 |
| (Jerome N. Gregoire) | | |
| /S/ EMMANUEL T. HERNANDEZ | Director of the registrant | March 30, 2004 |
| (Emmanuel T. Hernandez) | | |
| /S/ JOHN W. MARREN | Director of the registrant | March 30, 2004 |
| (John W. Marren) | | |

EXHIBIT INDEX

| Exhibit | Description |
|---------|---|
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| 23.2 | Consent of PricewaterhouseCoopers LLP |
| 24.1 | Power of Attorney (included on signature page) |

Writer's Direct Dial: (212) 225-2420

E-Mail: sshalen@cgsh.com

March 30, 2004

ON Semiconductor Corporation 5005 E. McDowell Road Phoenix, Arizona 85008

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to ON Semiconductor Corporation, a Delaware corporation (the "Company"), in connection with the registration statement on Form S-3 (the "Registration Statement") filed with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act of 1933, as amended (the "Act"), for the registration of shares of the Company's Common Stock, par value \$.01 per share (the "Securities").

We have participated in the preparation of the Registration Statement and have reviewed the originals or copies certified or otherwise identified to our satisfaction of all such corporate records of the Company and such other instruments and other certificates of public officials, officers and representatives of the Company and such other persons, and we have made such investigations of law, as we have deemed appropriate as a basis for the opinions expressed below.

In arriving at the opinions expressed below, we have assumed the authenticity of all documents submitted to us as originals and the conformity to the originals of all documents submitted to us as copies. In addition, we have assumed and have not verified the accuracy as to factual matters of each document we have reviewed.

ON Semiconductor Corporation, p. 2

Based on the foregoing, and subject to the further qualifications set forth below, it is our opinion that the Securities being registered for sale by TPG Advisors II, Inc., the selling stockholder, have been duly authorized by all necessary corporate action of the Company, have been validly issued by the Company and are fully paid and nonassessable.

The foregoing opinion is limited to the General Corporation Law of the State of Delaware (including the applicable provisions of the Delaware Constitution and reported judicial decisions interpreting that Law).

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and to the use of our name under the caption "Legal Matters" in the Registration Statement and the prospectus which forms a part of the Registration Statement and any supplement or supplements to such prospectus. By the giving of such consent, we do not admit that we are experts with respect to any part of the Registration Statement, or otherwise, within the meaning of the Rules and Regulations of the Commission.

Very truly yours,

CLEARY, GOTTLIEB, STEEN & HAMILTON

By: <u>/S/ STEPHEN H. SHALEN</u>
Stephen H. Shalen, a partner

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CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of ON Semiconductor Corporation of the following reports, which appear in ON Semiconductor Corporation's Annual Report on Form 10-K/A for the year ended December 31, 2003:

- Our report dated February 2, 2004 relating to the financial statement schedule of ON Semiconductor Corporation;
- Our report dated February 2, 2004, except for the third paragraph of Note 2 and the third paragraph of Note 11 for which the date is February 9, 2004, relating to the consolidated financial statements of ON Semiconductor Corporation;
- Our report dated February 2, 2004, except for the third paragraph of Note 2 for which the date is February 9, 2004, relating to the consolidated financial statements of Semiconductor Components Industries, LLC (a wholly-owned subsidiary of ON Semiconductor Corporation);
- Our report dated February 2, 2004, except for the third paragraph of Note 2 for which the date is February 9, 2004, relating to the consolidated financial statements of SCG (China) Holding Corporation (a wholly-owned subsidiary of ON Semiconductor Corporation);
- Our report dated February 2, 2004, except for the third paragraph of Note 2 for which the date is February 9, 2004, relating to the consolidated financial statements of ON Semiconductor Trading Ltd. (an indirect wholly-owned subsidiary of ON Semiconductor Corporation);
- Our report dated February 2, 2004, except for the third paragraph of Note 2 for which the date is February 9, 2004, relating to the consolidated financial statements of SCG Malaysia Holdings Sdn. Bhd. (an indirect wholly-owned subsidiary of ON Semiconductor Corporation); and,
- Our report dated February 2, 2004, except for the third paragraph of Note 2 for which the date is February 9, 2004, relating to the financial statements of SCG Philippines, Incorporated (an indirect wholly-owned subsidiary of ON Semiconductor Corporation).

We also consent to the reference to us under the heading "Experts" in such Registration Statement.

By: <u>/s/ PRICEWATERHOUSE COOPERS LLP</u>
Pricewaterhouse Coopers LLP

Phoenix, Arizona March 30, 2004