

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

| OMB APPROVAL | |
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| 1. Name and Address of Reporting Person* <u>Mahoney Robert Charles</u> (Last) (First) (Middle) 5005 EAST MCDOWELL ROAD (Street) PHOENIX AZ 85008 (City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol <u>ON SEMICONDUCTOR CORP [ONNN]</u> | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director 10% Owner X Officer (give title below) Other (specify below) <u>Exec VP Sales & Marketing</u> |
| | 3. Date of Earliest Transaction (Month/Day/Year) 05/05/2010 | |
| | 4. If Amendment, Date of Original Filed (Month/Day/Year) | |
| | | 6. Individual or Joint/Group Filing (Check Applicable Line) X Form filed by One Reporting Person Form filed by More than One Reporting Person |

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | | 4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5) | | | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Indirect Beneficial Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|------------|--------|---|--|---|
| | | | Code | V | Amount | (A) or (D) | Price | | | |
| Common | 05/05/2010 | | A | | 58,479 ⁽¹⁾ | A | \$7.75 | 103,539 | D | |
| Common | 05/05/2010 | | F | | 21,236 ⁽²⁾ | D | \$7.75 | 82,303 | D | |

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) | | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | | 6. Date Exercisable and Expiration Date (Month/Day/Year) | | 7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4) | 8. Price of Derivative Security (Instr. 5) | 9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4) | 10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) |
|--|--|--------------------------------------|--|--------------------------------|---|--|-----|--|-----------------|---|--|--|---|--|
| | | | | Code | V | (A) | (D) | Date Exercisable | Expiration Date | | | | | |

Explanation of Responses:

- This transaction reports the acquisition, effective May 5, 2010, of 58,479 shares of common stock resulting from the attainment of a performance goal under an earlier Performance Based Restricted Stock Units Award ("PBRU Award"), as described more below. The Compensation Committee of the Issuer originally awarded 701,740 PBRUs to the Reporting Person with an effective grant date of March 2, 2009 subject to the Issuers 2000 Stock Incentive Plan and a related award agreement. The PBRU Award will vest, generally, over a three-year (twelve quarter) period but only upon the Issuer achieving certain adjusted non-GAAP earnings before interest, taxes, depreciation and amortization ("EBITDA") base and target performance measurements as set forth in the PBRU Award agreement.
- This disposition transaction represents shares withheld by the Issuer pursuant to the Reporting Person's March 2, 2009 award of Performance Based Restricted Stock Units ("PBRUs"). On May 5, 2010, certain of these units vested. These shares were withheld to satisfy the Reporting Person's withholding obligations for various taxes and similar items. The Issuer will pay these taxes on behalf of the Reporting Person.

Remarks:

Judith A. Boyle is signing on behalf of the Reporting Person pursuant to a Power of Attorney attached herein as an exhibit. mahoney2010poa.TXT

Judith A. Boyle, Attorney-in-Fact 05/07/2010

** Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.

POWER OF ATTORNEY
(Robert Charles Mahoney)

I hereby appoint Keith D. Jackson, George H. Cave and Judith A. Boyle, and each of them, attorney-in-fact for me, each with full power of substitution, to prepare, execute and deliver on my behalf reports required to be filed by me pursuant to Section 16 of the Securities Exchange Act of 1934, as amended ("Section 16"), and Rule 144 and Rule 145 under the Securities Act of 1933 (singly or collectively ("Rule 144")), and any and all related documents and instruments. Among other things, each attorney-in-fact is authorized to file original reports (either electronically or otherwise), signed by me or on my behalf, on Forms 3, 4 and 5, Form 144 with the Securities and Exchange Commission, any and all related documents and instruments, and to provide any necessary copies of such signed forms, documents and instruments to The NASDAQ Stock Market and ON Semiconductor Corporation as required by the rules under Section 16 and Rule 144 as in effect from time to time.

This power of attorney is effective from the date hereof until April 15, 2011, unless earlier revoked or terminated.

/s/ ROBERT CHARLES MAHONEY
Robert Charles Mahoney

Dated: March 1, 2010