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April 17, 2009

Ms. Angela Crane  
Branch Chief  
Mail Stop 3030  
Securities and Exchange Commission  
100 F Street, N.E.  
Washington, D.C. 20549

Re: ON Semiconductor Corporation  
Form 10-K for the Year Ended December 31, 2008  
Filed February 27, 2009  
File No. 000-30419

Dear Ms. Crane:

This letter sets forth the responses of ON Semiconductor Corporation (“ON Semiconductor” or the “Company”) to the comments contained in the letter, of the staff of the Division of Corporation Finance (the “Staff”), dated April 8, 2009, regarding the above referenced filings. We appreciate the opportunity to respond to your comments and understand that the purpose of your review process is to assist ON Semiconductor in its compliance with the applicable disclosure requirements and to enhance the overall disclosure in its filings.

The responses set forth below are numbered so as to correspond to the Staff’s original comments. For your convenience, the Staff’s comment is repeated below (in italics), with our response to each comment set forth immediately thereafter.

1. **Comment provided by the Staff** – *“We note your disclosures on pages 69 and 96 that you carry your inventories not related to an acquisition at the lower of standard cost or market. Please clarify in future filings if inventory acquired as part of past acquisitions are also carried at lower of cost or market, or disclose your accounting policy for this inventory.”*

**Response to the Staff** – We agree in future filings to clarify that inventory acquired as part of past acquisitions is carried at the lower of cost or market.

2. **Comment provided by the Staff** – *“In the interest of providing readers with a better insight into management's judgments into accounting for goodwill, please consider disclosing the following:*
  - *In addition to disclosing the valuation methodology used to value goodwill, please include sufficient information to enable the reader to understand why management selected this method as being the most meaningful for the company in preparing goodwill impairment analysis.*
  - *If applicable, how the assumptions used for valuing goodwill in the current year have changed since the prior year highlighting the impact of any changes.”*

**Response to the Staff** – We have consistently used a discounted cash flow model (income approach) to assess our goodwill with the only adjustments made due to our latest economic outlook and the recent performance of the reporting unit. We consider other valuation methods such as the cost approach or market approach less desirable because there are no stand alone companies that exclusively sell the products that are similar to those sold by our reporting units. Further given the industry dynamics that require size and scale to be cost competitive, it is unlikely any comparable companies will develop to provide consistently reliable information on which to base a valuation of our reporting units. We agree to highlight these factors in future filings, if applicable and we also agree to disclose in future filings how the assumptions used for valuing goodwill have changed since the prior year.

**Financial Statements, page 91**

**Note 3. Significant Accounting Policies, page 95**

**Goodwill, page 97**

3. **Comment provided by the Staff** – “We note that you perform your annual impairment test on the first day of the fourth quarter and that your test this year resulted in an impairment of \$544.5 million. We also note your discussion elsewhere in the document regarding further declines in operating results and in your business outlook during the fourth quarter of fiscal 2008 and a continued decline in your stock price. Please tell us if you further tested your goodwill for impairment at the end of the fourth quarter, and if so, the results of such tests.”

**Response to the Staff** – We did not perform an additional impairment test of goodwill as of the end of the fourth quarter as we reviewed and used all available information at the time of the annual impairment test, including ensuring that the reporting unit cash flow forecasts that were prepared as of the first day of the fourth quarter gave appropriate consideration to the decline in operating results experienced in the fourth quarter of 2008 and that other significant assumptions were appropriate. We note that the market capitalization of the Company as of the first day of the fourth quarter, the last day of the fourth quarter and as of the 10-K filing date was \$2.5 billion, \$1.4 billion and \$1.5 billion respectively. These values are above the total stockholders' equity values of \$1.1 billion as of the first day of the fourth quarter and \$.7 billion as of December 31, 2008. In addition, we noted that no triggering events (as listed in SFAS 142 paragraph 28) occurred during the fourth quarter of 2008. The operating performance of each of our reporting units in the fourth quarter and the valuation assumptions were generally consistent with the forecasted results and valuation assumptions that had been used in the impairment testing as of the beginning of the quarter. As such, we concluded that a triggering event had not occurred which would necessitate additional goodwill impairment testing as of the end of the year.

4. **Comment provided by the Staff** – “We note your remaining reporting units whose goodwill was not impaired had declines in business outlook, although not significant enough to trigger impairment. Consider further disclosure in future filings to explain to investors why these reporting units were not impaired, for example, consider further discussion regarding how the nature of the business or sales differs in these reporting units where impairment was significant.”

**Response to the Staff** – In future filings, we will consider further disclosure of any such factors to explain to investors why these reporting units were not impaired, if considered meaningful to investors.

**Intangible Assets, page 99**

5. **Comment provided by the Staff** – “We note that “despite a decline in business outlook, primarily due to the macroeconomic environment, during the fourth quarter of 2008 the company determined that the carrying amounts of its intangible assets were recoverable as of December 31, 2008.” Please tell us more about your impairment test performed for your intangible assets. Explain if you further tested your goodwill for impairment at the end of the fourth quarter and if so, the results of such tests. Refer to the guidance in SFAS 144 paragraph 7-24 in your response.”

**Response to the Staff** – We note that SFAS 144 does not require annual impairment testing; rather, SFAS 144 paragraph 8 requires long-lived intangible assets to be tested for recoverability whenever events or changes in circumstances indicate the carrying amount may not be recoverable. We considered the examples of such events listed in paragraph 8 of SFAS 144 and determined that none of those situations were present. However, due to the downturn in the macroeconomic environment, we deemed it prudent to complete an analysis to ensure the carrying amounts of our intangible assets were recoverable, prior to completing our annual impairment test of goodwill as of the first day of the fourth quarter of 2008, to comply with SFAS 142 paragraph 29.

Accordingly, as of the first day of our fourth quarter we reviewed our intangible assets at the asset group level. We followed the guidance in SFAS 144 paragraphs 10-14 to identify our asset groups. Using SFAS 144 paragraph 18 as our guide, we determined that the primary asset of the asset group was our customer relationship intangible assets that resulted from our purchase of AMIS Semiconductor, Inc (“AMIS”) on March 17, 2008. These customer-relationship intangible assets had a remaining useful life of approximately 14.5 years at the time of the impairment test. In accordance with SFAS 144 paragraphs 10 and 18, we estimated future cash flows at the lowest level for which identifiable cash flows were largely independent of cash flows of other assets and liabilities. We determined that the undiscounted cash flows projected over the expected useful lives exceeded the carrying value of our intangible assets as of the first day of the fourth quarter of 2008.

As of December 31, 2008, we determined that the long-term forecasts and projections we developed as of the first day of the fourth quarter appropriately factored in the decline in operating results experienced in the fourth quarter and that there were no additional changes in events or circumstances that were not already considered when assessing long-lived intangible assets for impairment that would require us to further test for impairment as of December 31, 2008.

**Note 14. Fair Value of Financial Instruments, page 147**

**Long-term Debt, Including Current Portion, page 147**

6. **Comment provided by the Staff** – *“We note that the fair values of your long-term borrowings are determined by obtaining quoted market prices (level 1) if available or market prices for comparable debt instruments (level 2). Please revise in future filings to disclose the level within the fair value hierarchy in which your long-term borrowings fall. Refer to the guidance in SFAS 157, paragraph 32. Also, explain to us the factors you considered in concluding that certain long-term borrowings could not be measured using level 1, but that level 2 was more appropriate.”*

**Response to the Staff** – We agree in future filings to specify the debt fair value disclosures based on the hierarchy level and disclose the factors that lead us to conclude which level to use. We concluded that certain of our long-term borrowings could not be measured using level 1, and that level 2 was more appropriate, because we could not obtain quoted market prices as of the measurement date for all debt instruments. To the extent the debt instruments were not actively traded, we considered other observable inputs per the guidance in SFAS 157 paragraph 28(b).

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With respect to all the preceding responses, we acknowledge the following:

- ON Semiconductor is responsible for the adequacy and accuracy of the disclosures in the filings,
- Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- ON Semiconductor may not assert Staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

We believe this letter fully responds to the Staff's inquiries. We greatly appreciate the efforts of the Staff to review our responses and look forward to a speedy completion. Please contact me at (602) 244-7362 if I can be of further assistance.

Sincerely,

/s/ Donald Colvin

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