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**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION**

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**13-Jan-2009**

**SUBJECT: ON Semiconductor Final Product/Process Change Notification #16189**

**TITLE:** Final Notification for Transfer of Standard Logic Metal Gate Integrated Circuits Die Manufacturing From ON Semiconductor Piestany (Slovakia) To ON Semiconductor Roznov (Czech Republic).

**PROPOSED FIRST SHIP DATE: 19-Apr-2009**

**AFFECTED CHANGE CATEGORY(S):** ON Semiconductor Fab Site

**AFFECTED PRODUCT DIVISION(S):** Standard Logic Products

**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**

Contact your local ON Semiconductor Sales Office

**SAMPLES:** Contact your local ON Semiconductor Sales Office

**ADDITIONAL RELIABILITY DATA:** Available 1Q 2009

Contact your local ON Semiconductor Sales Office or Matt Kas <[Matt.Kas@onsemi.com](mailto:Matt.Kas@onsemi.com)>

**NOTIFICATION TYPE:**

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 90 days prior to implementation of the change.

ON Semiconductor will consider this change approved unless specific conditions of acceptance are provided in writing within 30 days of receipt of this notice. To do so, contact your local ON Semiconductor Sales Office.

**DESCRIPTION AND PURPOSE:**

This is the FPCN161189 to IPCN16177 available at [www.onsemi.com](http://www.onsemi.com) ON Semiconductor. As previously publically announced:

**May 14, 2008** - ON Semiconductor (Nasdaq: ONNN), has announced plans to close its two wafer manufacturing facilities located in Piestany, Slovakia, and transfer the production lines to other company-owned facilities. The targeted close date is Q4 2009.

Description of the change:

The transfer and qualification of the Metal Gate CMOS process and the associated integrated circuits from the ON Semiconductor Piestany facility (Slovakia) to the Roznov CZ4 wafer fabrication site located in the Czech Republic.

The Roznov CZ4 site is certified according to ISO/TS16949 standard.



**Final Product/Process Change Notification #16189**

The Metal Gate process is a CMOS technology being replicated at Roznov CZ4 to get the same electrical and reliability performances as the Piestany wafer fab.

Assembly will also be converted at the same time from gold wire bond to copper wire bond with the exception of the PDIP and SOIEAJ packages which still use gold wire bond. SOIC, SOIC-W and TSSOP will be converted to copper wire bond. The qualification plan includes the requirement to validate both the fab transfer and conversion to copper wire bond altogether.

The integrated circuits design and electrical specifications will remain identical. A full electrical characterization over the temperature range will be performed for each product to check the device functionality and electrical specifications.

Qualification tests are designed to show that the reliability of transferred devices will continue to meet or exceed ON Semiconductor standards. ON Semiconductor recommends that customers evaluate sample units in each associated application circuit to ensure there are no unexpected electrical incompatibilities.

The Metal Gate process is expected to be internally qualified at Roznov CZ4 by end of 1Q2009 and all the products by end of 3Q2009. Samples will become gradually available from March 2009.

**QUALIFICATION PLAN**

**Product Qualification Vehicles**

The product qualification vehicles should represent the broadest use of possible design library elements and available process modules. The minimum requirement is two devices. Reliability testing was performed on qualification vehicles chosen based on die size, voltage rating, and run rates. The following qualification vehicles were selected for this qualification.

MC14051	High Runner / Multiple Packages
MC14067	High Runner / Largest Die Size / Largest Package
MC14094	High Runner

Qualification of each device type to be transferred was performed to the following requirements:

- Three temperature electrical characterization
- ESD testing Human Body Model and Machine Model
- Latch up testing



**Final Product/Process Change Notification #16189**

**RELIABILITY DATA SUMMARY:**

**Reliability Test Results:**

<b>Test</b>	<b>Conditions</b>	<b>Results</b>
Early Life (ELFR)	Ta=+125°C, Bias	48hrs 0/2400
High Temp. Operating Life Life (HTOL)	Ta=+125°C, Bias	504hrs 0/231
Temp. Cycle (TC)*	-65°C to +150°C	500 cycles 0/231
Autoclave (AC)*	+121°C /15psig/100%RH	96hrs 0/231
High Temp Storage Life (HTSL)	+150°C	504hrs 0/231
High Accelerated Stress Test* (HAST)	+130°C/85%RH Bias	96hrs 0/231
Wire Bond Pull Strength (BPS)	After TC, 30 bonds/5 units	CPK > 1.33 Pass
Wire Bond Shear Strength (BS)	30 bonds/5 units	CPK > 1.33 Pass

\*Note : These tests may be performed with pre-conditioned parts depending upon the device type used.

**CHARACTERIZATION RESULTS:**

DC, AC, ESD, and Latch-up testing has been performed on representative qualification vehicles and compared to historical data for each device. Characterization results on all qualification devices matched historical data. Characterization results are available for review upon request.

**CHANGED PART IDENTIFICATION**

There will be no changes to standard device markings. Normal assembly lots traceability codes will identify the wafer fab source.



**Final Product/Process Change Notification #16189**

**AFFECTED DEVICE LIST**

**PART**

- MC14001BCP
- MC14001BCPG
- MC14001BD
- MC14001BDG
- MC14001BDR2
- MC14001BDR2G
- MC14001BDTR2
- MC14001BDTR2G
- MC14001BFELG
- MC14001UBCPG
- MC14001UBD
- MC14001UBDG
- MC14001UBDR2
- MC14001UBDR2G
- MC14007UBCPG
- MC14007UBDG
- MC14007UBDR2
- MC14007UBDR2G
- MC14007UBFELG
- MC14008BCP
- MC14008BCPG
- MC14008BDR2G
- MC14011BCP
- MC14011BCPG
- MC14011BD
- MC14011BDG
- MC14011BDR2
- MC14011BDR2G
- MC14011BDR2GH
- MC14011BDTR2
- MC14011BDTR2G
- MC14011BFEL
- MC14011BFELG
- MC14011BFG
- MC14011UBCP
- MC14011UBCPG
- MC14011UBDG
- MC14011UBDR2
- MC14011UBDR2G
- MC14012BCP
- MC14012BCPG
- MC14012BDG
- MC14012BDR2
- MC14012BDR2G
- MC14012BFEL
- MC14013BCP
- MC14013BCPG
- MC14013BD
- MC14013BDG
- MC14013BDR2
- MC14013BDR2G
- MC14013BDTR2



**Final Product/Process Change Notification #16189**

MC14013BDTR2G  
MC14013BF  
MC14013BFEL  
MC14013BFELG  
MC14013BFG  
MC14014BCP  
MC14014BCPG  
MC14014BD  
MC14014BDG  
MC14014BDR2  
MC14014BDR2G  
MC14014BF  
MC14014BFEL  
MC14014BFELG  
MC14014BFG  
MC14015BCP  
MC14015BCPG  
MC14015BDG  
MC14015BDR2  
MC14015BDR2G  
MC14015BFEL  
MC14015BFELG  
MC14016BCP  
MC14016BCPG  
MC14016BDG  
MC14016BDR2  
MC14016BDR2G  
MC14016BFELG  
MC14017BCP  
MC14017BCPG  
MC14017BD  
MC14017BDG  
MC14017BDR2  
MC14017BDR2G  
MC14017BFELG  
MC14018BCP  
MC14018BCPG  
MC14018BD  
MC14018BDG  
MC14018BDR2G  
MC14020BCP  
MC14020BCPG  
MC14020BD  
MC14020BDG  
MC14020BDR2  
MC14020BDR2G  
MC14021BCP  
MC14021BCPG  
MC14021BD  
MC14021BDG  
MC14021BDR2  
MC14021BDR2G  
MC14021BFELG  
MC14022BCP  
MC14022BCPG



**Final Product/Process Change Notification #16189**

MC14022BD  
MC14022BDG  
MC14022BDR2G  
MC14023BCP  
MC14023BCPG  
MC14023BD  
MC14023BDG  
MC14023BDR2  
MC14023BDR2G  
MC14023BFEL  
MC14023BFELG  
MC14024BCP  
MC14024BCPG  
MC14024BD  
MC14024BDG  
MC14024BDR2  
MC14024BDR2G  
MC14024BFELG  
MC14025BCPG  
MC14025BD  
MC14025BDG  
MC14025BDR2  
MC14025BDR2G  
MC14025BFELG  
MC14027BCP  
MC14027BCPG  
MC14027BD  
MC14027BDG  
MC14027BDR2  
MC14027BDR2G  
MC14028BCP  
MC14028BCPG  
MC14028BDG  
MC14028BDR2  
MC14028BDR2G  
MC14028BFELG  
MC14029BCP  
MC14029BCPG  
MC14029BDR2  
MC14029BDR2G  
MC14029BFELG  
MC14040BCP  
MC14040BCPG  
MC14053BCP  
MC14053BCPG  
MC14053BD  
MC14053BDG  
MC14053BDR2  
MC14053BDR2G  
MC14053BDTR2  
MC14053BDTR2G  
MC14053BF  
MC14053BFEL  
MC14053BFELG  
MC14053BFG



**Final Product/Process Change Notification #16189**

MC14060BCP  
MC14060BCPG  
MC14060BD  
MC14060BDG  
MC14060BDR2  
MC14060BDR2G  
MC14040BD  
MC14040BDG  
MC14040BDR2  
MC14040BDR2G  
MC14040BDTR2  
MC14040BDTR2G  
MC14040BFELG  
MC14042BCP  
MC14042BCPG  
MC14042BD  
MC14042BDG  
MC14042BDR2G  
MC14043BCP  
MC14043BCPG  
MC14043BD  
MC14043BDG  
MC14043BDR2  
MC14043BDR2G  
MC14043BFELG  
MC14044BCP  
MC14044BCPG  
MC14044BD  
MC14044BDG  
MC14044BDR2  
MC14044BDR2G  
MC14046BCP  
MC14046BCPG  
MC14046BDW  
MC14046BDWG  
MC14046BDWR2  
MC14066BFEL  
MC14066BFELG  
MC14066BFG  
MC14067BDW  
MC14067BDWG  
MC14067BDWR2  
MC14067BDWR2G  
MC14069UBCP  
MC14069UBCPG  
MC14069UBD  
MC14069UBDG  
MC14069UBDR2  
MC14069UBDR2G  
MC14069UBDTR2  
MC14069UBDTR2G  
MC14069UBFEL  
MC14069UBFELG  
MC14070BCP  
MC14046BDWR2G



**Final Product/Process Change Notification #16189**

MC14046BF  
MC14046BFEL  
MC14046BFELG  
MC14046BFG  
MC14049BCP  
MC14049BCPG  
MC14049BD  
MC14049BDG  
MC14049BDR2  
MC14049BDR2G  
MC14049BFELG  
MC14049UBCP  
MC14049UBCPG  
MC14049UBD  
MC14049UBDG  
MC14049UBDR2  
MC14049UBDR2G  
MC14049UBDTEL  
MC14049UBDTELG  
MC14049UBDTR2  
MC14049UBDTR2G  
MC14049UBFEL  
MC14049UBFELG  
MC14050BCP  
MC14050BCPG  
MC14050BD  
MC14050BDG  
MC14050BDR2  
MC14050BDR2G  
MC14071BDT  
MC14071BDTG  
MC14071BDTR2  
MC14071BDTR2G  
MC14071BFELG  
MC14073BCP  
MC14073BCPG  
MC14073BDG  
MC14073BDR2  
MC14073BDR2G  
MC14073BFELG  
MC14076BCP  
MC14076BCPG  
MC14076BDG  
MC14076BDR2  
MC14076BDR2G  
MC14077BCP  
MC14077BCPG  
MC14050BDT  
MC14050BDTG  
MC14050BDTR2  
MC14050BDTR2G  
MC14050BFEL  
MC14050BFELG  
MC14051BCP  
MC14051BCPG





**Final Product/Process Change Notification #16189**

MC14051BD  
MC14051BDG  
MC14051BDR2  
MC14051BDR2G  
MC14051BDTR2  
MC14051BDTR2G  
MC14051BF  
MC14051BFEL  
MC14051BFELG  
MC14051BFG  
MC14052BCP  
MC14052BCPG  
MC14052BD  
MC14052BDG  
MC14052BDR2  
MC14052BDR2G  
MC14052BDTR2  
MC14052BDTR2G  
MC14052BF  
MC14052BFEL  
MC14052BFELG  
MC14052BFG  
MC14081BFELG  
MC14082BCPG  
MC14082BDG  
MC14082BDR2G  
MC14093BCP  
MC14093BCPG  
MC14093BD  
MC14093BDG  
MC14093BDR2  
MC14093BDR2G  
MC14093BDTR2  
MC14093BDTR2G  
MC14093BFEL  
MC14093BFELG  
MC14094BCP  
MC14094BCPG  
MC14094BD  
MC14094BDG  
MC14060BDTR2G  
MC14060BFELG  
MC14066BCP  
MC14066BCPG  
MC14066BD  
MC14066BDG  
MC14066BDR2  
MC14066BDR2G  
MC14066BDTR2  
MC14066BDTR2G  
MC14066BF  
MC14099BDWR2  
MC14099BDWR2G  
MC14106BCP  
MC14106BCPG



**Final Product/Process Change Notification #16189**

MC14106BD  
MC14106BDG  
MC14106BDR2  
MC14106BDR2G  
MC14106BDTR2  
MC14106BDTR2G  
MC14174BCP  
MC14174BCPG  
MC14174BDR2  
MC14174BDR2G  
MC14175BCP  
MC14175BCPG  
MC14175BDG  
MC14175BDR2  
MC14175BDR2G  
MC14175BFELG  
MC14490DW  
MC14490DWG  
MC14490DWR2  
MC14490DWR2G  
MC14490F  
MC14490FEL  
MC14490FELG  
MC14490FG  
MC14490P  
MC14490PG  
MC14532BCPG  
MC14532BDG  
MC14532BDR2  
MC14532BDR2G  
MC14536BCP  
MC14536BCPG  
MC14536BDW  
MC14070BD  
MC14070BDG  
MC14070BDR2  
MC14070BDR2G  
MC14070BFELG  
MC14071BCP  
MC14071BCPG  
MC14071BD  
MC14071BDG  
MC14071BDR2  
MC14071BDR2G  
MC14503BCP  
MC14503BCPG  
MC14503BD  
MC14503BDG  
MC14503BDR2  
MC14503BDR2G  
MC14503BFELG  
MC14504BCP  
MC14504BCPG  
MC14504BD  
MC14504BDG



**Final Product/Process Change Notification #16189**

MC14504BDR2  
MC14504BDR2G  
MC14504BDT  
MC14504BDTG  
MC14504BDTR2  
MC14504BDTR2G  
MC14504BFEL  
MC14504BFELG  
MC14504BFG  
MC14511BCP  
MC14511BCPG  
MC14511BD  
MC14511BDG  
MC14511BDWR2  
MC14511BDWR2G  
MC14511BF  
MC14511BFELG  
MC14511BFG  
MC14512BCP  
MC14541BCPG  
MC14541BD  
MC14541BDG  
MC14541BDR2  
MC14541BDR2G  
MC14541BDTR2  
MC14541BDTR2G  
MC14077BDR2G  
MC14077BFELG  
MC14081BCP  
MC14081BCPG  
MC14081BD  
MC14081BDG  
MC14081BDR2  
MC14081BDR2G  
MC14081BDTR2  
MC14081BDTR2G  
MC14081BFEL  
MC14512BCPG  
MC14512BD  
MC14512BDG  
MC14512BDR2  
MC14512BDR2G  
MC14513BCP  
MC14513BCPG  
MC14514BDWR2  
MC14514BDWR2G  
MC14515BDWR2  
MC14515BDWR2G  
MC14516BCP  
MC14516BCPG  
MC14516BD  
MC14516BDG  
MC14516BDR2  
MC14516BDR2G  
MC14516BF



**Final Product/Process Change Notification #16189**

MC14516BFG  
MC14517BCP  
MC14517BCPG  
MC14517BDW  
MC14517BDWG  
MC14517BDWR2  
MC14517BDWR2G  
MC14518BCP  
MC14518BCPG  
MC14518BDWG  
MC14518BDWR2G  
MC14520BCP  
MC14551BFG  
MC14553BCP  
MC14553BCPG  
MC14555BCP  
MC14555BCPG  
MC14555BD  
MC14555BDG  
MC14094BDR2G  
MC14094BDTR2  
MC14094BDTR2G  
MC14094BF  
MC14094BFEL  
MC14094BFELG  
MC14094BFG  
MC14099BCP  
MC14099BCPG  
MC14099BDW  
MC14099BDWG  
MC14520BCPG  
MC14520BDWG  
MC14520BDWR2  
MC14520BDWR2G  
MC14521BCP  
MC14521BCPG  
MC14521BD  
MC14521BDG  
MC14521BDR2  
MC14521BDR2G  
MC14521BF  
MC14521BFELG  
MC14521BFG  
MC14526BCP  
MC14526BCPG  
MC14526BDWG  
MC14526BDWR2  
MC14526BDWR2G  
MC14526BFG  
MC14528BCP  
MC14528BCPG  
MC14528BD  
MC14528BDG  
MC14528BDR2  
MC14528BDR2G



**Final Product/Process Change Notification #16189**

MC14528BF  
MC14528BFEL  
MC14528BFELG  
MC14528BFG  
MC14532BCP  
MC14572UBCP  
MC14572UBCPG  
MC14572UBDG  
MC14572UBDR2  
MC14572UBDR2G  
MC14584BCP  
MC14584BCPG  
MC14536BDWR2  
MC14536BDWR2G  
MC14536BFEL  
MC14536BFELG  
MC14538BCP  
MC14538BCPG  
MC14538BD  
MC14538BDG  
MC14538BDR2  
MC14538BDR2G  
MC14538BDTR2  
MC14538BDTR2G  
MC14538BDW  
MC14538BDWG  
MC14538BDWR2  
MC14538BDWR2G  
MC14538BF  
MC14538BFEL  
MC14538BFELG  
MC14538BFG  
MC14541BCP  
SC14046BDWR2G  
SC14051BDR2  
SC14051BDR2G  
SL14046BDWR2G  
MC14541BFG  
MC14543BCP  
MC14543BCPG  
MC14543BD  
MC14543BDG  
MC14543BDR2  
MC14543BDR2G  
MC14543BFG  
MC14549BCP  
MC14549BCPG  
MC14549BDWR2  
MC14549BDWR2G  
MC14551BCP  
MC14551BCPG  
MC14551BD  
MC14551BDG  
MC14551BDR2  
MC14551BDR2G



**Final Product/Process Change Notification #16189**

MC14551BF  
MC14551BFEL  
MC14551BFELG  
MC14555BFEL  
MC14555BFELG  
MC14556BCP  
MC14556BCPG  
MC14556BDR2G  
MC14556BFEL  
MC14556BFELG  
MC14557BCP  
MC14557BCPG  
MC14557BDW  
MC14557BDWG  
MC14557BDWR2G  
MC14559BCP  
MC14559BCPG  
MC14559BDWR2  
MC14559BDWR2G  
MC14569BCP  
MC14569BCPG  
MC14569BDWG  
MC14569BDWR2  
MC14569BDWR2G  
MC14584BDR2  
MC14584BDR2G  
MC14584BDTR2  
MC14584BDTR2G  
MC14584BF  
MC14584BFEL  
MC14584BFELG  
MC14584BFG  
MC14585BCP  
MC14585BCPG  
MC14585BD  
MC14585BDG  
MC14585BDR2G  
MC14585BFELG  
MC14598BCPG  
NLV14066BCP  
NLV14066BCPG  
NLV14099BDWR2  
NLV14099BDWR2G  
SC027MG066BFEL  
SC14046BDWG