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**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16658B**Generic Copy

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**Issue Date:** 16-Aug-2012**TITLE:** Sourcing MOSFET Die from United Microelectronics Corporation**PROPOSED FIRST SHIP DATE:** 18-Nov-2012**AFFECTED CHANGE CATEGORY(S):** Wafer Fabrication**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**Contact your local ON Semiconductor Sales Office or Jason Jeong <[Jason.Jeong@onsemi.com](mailto:Jason.Jeong@onsemi.com)>**SAMPLES:** Contact your local ON Semiconductor Sales Office or Brian Goodburn  
<[brian.goodburn@onsemi.com](mailto:brian.goodburn@onsemi.com)>**ADDITIONAL RELIABILITY DATA:** AvailableContact your local ON Semiconductor Sales Office or Donna Scheuch <[d.schuech@onsemi.com](mailto:d.schuech@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 <[quality@onsemi.com](mailto:quality@onsemi.com)>.**DESCRIPTION AND PURPOSE:**

ON Semiconductor is already utilizing United Microelectronics Corp (UMC) for their High Cell Density (HD3e) and Trench (T2) MOSFET technology silicon platforms.

A fraction of the Trench (T1) MOSFET portfolio started to use UMC Wafer Fab July 2012 per FPCN #16658 and FPCN #16658A. With additional qualification and electrical characterization of this silicon platform, more T1 products will be built with Die sourced from the UMC. Wafer starts of this third group of products will begin in November 2012.

Reliability Qualification and full electrical characterization over temperature have been performed, and available upon request.

**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16658B****RELIABILITY DATA SUMMARY:****Reliability Test Results: NTGS5120PT1G (60V 2.9A 111 mOhm Single P-ch TSOP6 Package)**

Test: High Temperature Reverse Bias (HTRB)

Conditions: Ta = 150°C, Vds = 80% BVdss Rating, Duration: 1008-Hrs, 3-Lots

Results: 0/231

Test: High Temperature Gate Bias (HTGB)

Conditions: Ta = 150°C, Vgs = 100% Vgs Rating, Duration: 1008-Hrs, 3-Lots

Results: 0/231

Test: Temperature Cycling (TC-PC)

Conditions: Ta = -55°C/150°C, Air-to-Air, Dwell ≥10-min, 1000-cy, 3-Lots

Results: 0/231

Test: Intermittent Operating Life (IOL-PC)

Conditions: Ta = 25°C, delta Tj = 100°C, 2-min on/off, 15K-cy, 3-Lots

Results: 0/231

Test: Autoclave Test (AC-PC)

Conditions: Ta = 121°C, P = 15psi, RH = 100%, Duration: 96-Hrs, 3-Lots

Results: 0/231

Test: Highly Accelerated Stress Test (HAST)

Conditions: Ta = 131°C, P = 18.8psi, RH = 85%, Duration: 96-Hrs, 3-Lots

Results: 0/231

**Reliability Test Results: 2N7002KT1G (60V 380mA 1.6 Ohm Single SOT23 Package)**

Test: High Temperature Reverse Bias (HTRB)

Conditions: Ta = 150°C, Vds = 80% BVdss Rating, Duration: 1008-Hrs, 3-Lots

Results: 0/231

Test: High Temperature Gate Bias (HTGB)

Conditions: Ta = 150°C, Vgs = 100% Vgs Rating, Duration: 1008-Hrs, 3-Lots

Results: 0/231

Test: Temperature Cycling (TC-PC)

Conditions: Ta = -55°C/150°C, Air-to-Air, Dwell ≥10-min, 1000-cy, 3-Lots

Results: 0/231

Test: Intermittent Operating Life (IOL-PC)

Conditions: Ta = 25°C, delta Tj = 100°C, 2-min on/off, 15K-cy, 3-Lots

Results: 0/231

Test: Autoclave Test (AC-PC)

Conditions: Ta = 121°C, P = 15psi, RH = 100%, Duration: 96-Hrs, 3-Lots

Results: 0/231

Test: Highly Accelerated Stress Test (HAST)

Conditions: Ta = 131°C, P = 18.8psi, RH = 85%, Duration: 96-Hrs, 3-Lots

Results: 0/231

**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16658B****Reliability Test Results: NTLJS3113PT1G (20V 7.7A 40 mOhm Single P-Ch WDF Package)**

Test: High Temperature Reverse Bias (HTRB)

Conditions: Ta = 150°C, Vds = 80% BVdss Rating, Duration: 1008-Hrs, 3-Lots

Results: 0/160

Test: High Temperature Gate Bias (HTGB)

Conditions: Ta = 150°C, Vgs = 100% Vgs Rating, Duration: 1008-Hrs, 3-Lots

Results: 0/160

Test: Temperature Cycling (TC-PC)

Conditions: Ta = -55°C/150°C, Air-to-Air, Dwell ≥10-min, 1000-cy, 3-Lots

Results: 0/160

Test: Intermittent Operating Life (IOL-PC)

Conditions: Ta = 25°C, delta Tj = 100°C, 2-min on/off, 15K-cy, 3-Lots

Results: 0/160

Test: Autoclave Test (AC-PC)

Conditions: Ta = 121°C, P = 15psi, RH = 100%, Duration: 96-Hrs, 3-Lots

Results: 0/160

Test: Highly Accelerated Stress Test (HAST)

Conditions: Ta = 131°C, P = 18.8psi, RH = 85%, Duration: 96-Hrs, 3-Lots

Results: 0/160

**Reliability Test Results: NTHS4166NT1G (30V 8.2A 24mOhm Single N-Ch ChipFET Package)**

Test: High Temperature Reverse Bias (HTRB)

Conditions: Ta = 150°C, Vds = 80% BVdss Rating, Duration: 1008-Hrs, 3-Lots

Results: 0/160

Test: High Temperature Gate Bias (HTGB)

Conditions: Ta = 150°C, Vgs = 100% Vgs Rating, Duration: 1008-Hrs, 3-Lots

Results: 0/160

Test: Temperature Cycling (TC-PC)

Conditions: Ta = -55°C/150°C, Air-to-Air, Dwell ≥10-min, 1000-cy, 3-Lots

Results: 0/160

Test: Intermittent Operating Life (IOL-PC)

Conditions: Ta = 25°C, delta Tj = 100°C, 2-min on/off, 15K-cy, 3-Lots

Results: 0/160

Test: Autoclave Test (AC-PC)

Conditions: Ta = 121°C, P = 15psi, RH = 100%, Duration: 96-Hrs, 3-Lots

Results: 0/160

Test: Highly Accelerated Stress Test (HAST)

Conditions: Ta = 131°C, P = 18.8psi, RH = 85%, Duration: 96-Hrs, 3-Lots

Results: 0/160



## FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16658B

### **Reliability Test Results: NTJS3157NT1G (20V 4A 60 mOhm Single N-Ch SC88 Package)**

Test: High Temperature Reverse Bias (HTRB)

Conditions: Ta = 150°C, Vds = 80% BVdss Rating, Duration: 1008-Hrs, 3-Lots

Results: 0/160

Test: High Temperature Gate Bias (HTGB)

Conditions: Ta = 150°C, Vgs = 100% Vgs Rating, Duration: 1008-Hrs, 3-Lots

Results: 0/160

Test: Temperature Cycling (TC-PC)

Conditions: Ta = -55°C/150°C, Air-to-Air, Dwell ≥10-min, 1000-cy, 3-Lots

Results: 0/160

Test: Intermittent Operating Life (IOL-PC)

Conditions: Ta = 25°C, delta Tj = 100°C, 2-min on/off, 15K-cy, 3-Lots

Results: 0/160

Test: Autoclave Test (AC-PC)

Conditions: Ta = 121°C, P = 15psi, RH = 100%, Duration: 96-Hrs, 3-Lots

Results: 0/160

Test: Highly Accelerated Stress Test (HAST)

Conditions: Ta = 131°C, P = 18.8psi, RH = 85%, Duration: 96-Hrs, 3-Lots

Results: 0/160

### **ELECTRICAL CHARACTERISTIC SUMMARY:**

There is no change in electrical parametric performance. Characterization data is available upon request.

### **CHANGED PART IDENTIFICATION:**

There will be no physical change to the Devices assembled with Die from the United Microelectronics Corp (UMC) wafer fabrication facility. There will be Wafer Lot traceability from the manufacturing Lot to determine the Die origin. Product assembled with the Die fabricated from the UMC wafer facility will have a Finish Good Date Code of '1247' and newer indicating a Die change-over during the fourth week of November, 2012.

### **List of affected General Parts:**

2N7002ET1G	2V7002WT1G	NTGS5120PT1G
2N7002KT1G	NSTHD3102CT1G	NTJD5121NT1G
2N7002KT1H	NSTJS3151PT1G	NTJD5121NT2G
2N7002LT1G	NSTJS3157NT1G	NVTE4151PT1G
2N7002LT3G	NTA4151PT1H	NVTJD4158CT1G
2N7002WT1G	NTGD1100LT1G	NTZD5110NT1G
2V7002KT1G		