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**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION**  
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**02-APR-2004**

**SUBJECT: ON Semiconductor Final Product/Process Change Notification #13416**

**TITLE: Wafer Fabrication Site Transfer for Selected Product Families to the COM1 Facility**

**EFFECTIVE DATE: 02-Jun-2004**

**AFFECTED CHANGE CATEGORY:**

ON Semiconductor Fab Site  
Wafer Process

**AFFECTED PRODUCT DIVISION:** ECL Products

**ADDITIONAL RELIABILITY DATA:** Available

Contact your local ON Semiconductor Sales Representative  
or Keith Stapley <RXNN90@onsemi.com>

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

**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**

Contact Sales Representative or Tim Gurnett <R13617@onsemi.com>

**NOTIFICATION TYPE:**

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 60 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 Final PCN to notify customers that the changes described in Initial PCN# 12874, located at [www.onsemi.com](http://www.onsemi.com), have been completed for the selected product families listed below. ON Semiconductor is pleased to announce the continuation of the MOSAIC 35 FAB transfer process in their internal factory COM 1, located on the ON Semiconductor site in Phoenix, AZ, to manufacture MOSAIC 3 Bipolar Technology products. COM1 is an ISO9001 certified facility and currently manufactures the MOSAIC 5 product family. MOSAIC 3 products were previously fabricated in the Motorola Bipolar Manufacturing Center (BMC) in Mesa, Arizona. This is the Final PCN only for the selected product families. Additional notifications will be issued separately for subsequent products when they have completed all qualification testing. Device parameters will continue to meet all Data Book specifications, except where noted below. Reliability will continue to meet or exceed ON Semiconductor standards.



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In the course of reviewing the electrical data for the parts released in group 8, test methodology improvements indicate prior limits for propagation delays on the MC100EL30 & 100LVEL30, MC100EL38 & 100LVEL38, 10E431 and 10E451, listed below were imprecisely set. A more accurate set of limits will be set and update on current data sheet:

**100EL30 & LVEL30:**

Change and combine propagation delay min/max limits across temp.  
 Old limits: -40C = 460 to 710, 25C = 480 to 710 and 85C = 500 to 755 Ps.  
 New limits: -40C = 550 to 800, 25C = 570 to 820 and 85C = 590 to 840 Ps.

**100EL38 & LVEL38:**

Change differential propagation delay (only) min/max limits across temp.  
 Old limits: -40C = 760 to 960, 25C = 800 to 1000 and 85C = 850 to 1050 Ps.  
 New limits: -40C = 810 to 1010, 25C = 850 to 1050 and 85C = 900 to 1100 Ps.

**10E431: (approx, waiting for full AC results)**

Both differential and single-ended propagation delay min/max limits across temp.

Old limits: -40C = 410 to 790, 25C = 450 to 750, 85C = 450 to 750 Ps.  
 New limits: -40C = 550 to 850, 25C = 550 to 850, and 85C = 550 to 850 Ps.

**10E451:**

Combine differential and single-ended prop delay min/max limits across temp.  
 Old limits: 425 and 475 to 800 and 850 Ps.  
 New limits: 625 to 1050 Ps for all paths.

**100EL91:**

Change rise and fall min/max limits across temp.  
 Old limits: 320 to 580 Ps.  
 New limits: 270 to 530 Ps.

**LVEL92:**

Change rise and fall min/max limits across temp.  
 Old limits: 320 to 580 Ps.  
 New limits: 270 to 530 Ps.

There were no changes to the actual design, electrical performance or function of the parts.

**RELIABILITY DATA SUMMARY:**

**Reliability Test Results:**

Below is a summary of the interim reliability results for the MC10EL16D. A more detailed reliability report is available upon request.

<b>Test</b>	<b>Conditions</b>	<b>Results</b>
High Temp Op Life (HTOL)	Tj =150DegC for 2016 hours	0/558
High Temp Bake (HTB)	150DegC for 1008 hours	0/480
	175DegC for 504 hours	0/480
Preconditioning for MSL-1 (PC)	IR at 260DegC TC/HAST (SOIC8 PLCC28)	0/1120
	IR at 260DegC AC (SOIC8)	0/240
	IR at 220DegC AC (PLCC28)	0/320
PC-HAST	130DegC/85% RH/18.8 PSIG for 96 hours	0/556



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PC-Autoclave (AC)	121DegC/100% RH/15 PSIG for 96 hours	0/560
PC-Temp Cycling (TC)	-65DegC to +150DegC; for 1000 cycles -65DegC to +150DegC; for 500 cycles	0/479 0/80
ESD per JEDEC Standard	Human Body Model(HBM) Machine Model (MM) Charge Device Model(CDM)	MATCHES CONTROL LOT
Destructive Physical Analysis (DPA)	Analysis done after PC-Temp Cycling	PASS
Intrinsic Reliability (IR)	Compare to BMC results for Stress migration, Electromigration & Hot Carrier Injection	MEETS OR EXCEEDS CRITERIA
Construction Analysis (CA)	Compare to BMC results	MEETS OR EXCEEDS CRITERIA
Parameter Verification	Electrical Characterization/distribution summary of Critical Parameters	AVAIL

**Qualification Vehicle Justification**

<b>Technology</b>	<b>Qualification Device</b>	<b>Reason Chosen</b>
MOSAIC3	MC10EL16D	Smallest array, high volume, 8ld SOIC
	MC100E195FN	Medium array, AC test critical, 28ld PLCC
	MC10E016FN	Complex medium array, highest current, 28ld PLCC

**Reliability Test Conclusions:**

Reliability test data is consistent with passing ON Semiconductor requirements.

**ELECTRICAL CHARACTERISTIC SUMMARY:** Characterization data available upon request.

**CHANGED PART IDENTIFICATION:**

Product marked after WW22, 2004 may contain COM1 die, but is dependent on the inventory usage of the current material. Customers are encouraged to contact ON Semiconductor to order samples. After the PCN expiration date, customers may receive products manufactured with die from either the COM1 or BMC FAB. For the 10E431, 10E446, 10E451 and SC64029 product marked after WW14, 2004 will contain COM1 die.

**AFFECTED DEVICE LIST(WITHOUT SPECIALS):**

**PART**

- MC100EL17DW
- MC100EL17DWR2
- MC100EL17DWR2G
- MC100EL30DW
- MC100EL30DWR2
- MC100EL38DW
- MC100EL38DWR2
- MC100EL90DW
- MC100EL90DWR2



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MC100EL91DW  
MC100EL91DWR2  
MC100EL91DWR2G  
MC100LVE111FN  
MC100LVE111FNR2  
MC100LVE222FA  
MC100LVE222FAR2  
MC100LVEL17DW  
MC100LVEL17DWR2  
MC100LVEL17DWR2G  
MC100LVEL30DW  
MC100LVEL30DWR2  
MC100LVEL38DW  
MC100LVEL38DWR2  
MC100LVEL90DW  
MC100LVEL90DWR2  
MC100LVEL92DW  
MC100LVEL92DWR2  
MC100LVEL92DWR2G  
MC10E431FN  
MC10E431FNR2  
MC10E451FN  
MC10E451FNR2  
MC10EL89D  
MC10EL89DR2  
MC10EL89DR2G  
MC10EL89DT  
MC10EL89DTR2  
MCW100LVEL17  
MCW10E431  
MCW10E451  
SC64029FN  
SC64029FNR2