



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION

Generic Copy

07-July-2004

SUBJECT: ON Semiconductor Final Product/Process Change Notification #13518

TITLE: Wafer Fabrication Site Transfer For Selected Product Families To The Com1 Facility

EFFECTIVE DATE: 09-SEP-2004

AFFECTED CHANGE CATEGORY(S): ON Semiconductor Fab Site

AFFECTED PRODUCT DIVISION(S): Analog Products

ADDITIONAL RELIABILITY DATA: Available

Contact your local ON Semiconductor Sales Office. (DON WARRING, RRG60@onsemi.com)

SAMPLES: Contact Below

Contact your local ON Semiconductor Sales Office. (TIM GURNETT, R13617@onsemi.com)

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:

Contact Sales Office (TIM GURNETT, R13617@onsemi.com)

DISCLAIMER:

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, 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. Device parameters will continue to meet all Data Book specifications, except where noted below. Reliability will continue to meet or exceed ON Semiconductor standards. In the course of reviewing the electrical data for the parts released in group 10, test methodology improvements indicate prior limits for propagation delays on several parts listed below were imprecisely set. A more accurate set of limits will be set and updated on current data sheet:

**Final Product/Process Change Notification #13518****ADDITIONAL INFORMATION**

- 10E112 & 100E112: (Combine D and EN to Q tpd)
Propagation delay min/max limits across temp.
D to Q old limits: 0C to 85C = 200 to 600 Ps.
EN to Q old limits: 0C to 85C = 275 to 675 Ps.
New limits for both: 0C to 85C = 350 to 750 Ps.
- 10E131 & 100E131: (Reset to Q only)
Propagation delay min/max limits across temp.
Old limits: 0C = 300 to 775, 25C = 350 to 725, 85C = 350 to 725 Ps.
New limits: 0C = 400 to 875, 25C = 450 to 825, and 85C = 450 to 825 Ps.
- 10E154: (D and LEN to Q TPD limits only)
Propagation delay min/max limits across temp.
D input old limits: 0C to 85C = 325 to 700 Ps.
LEN old limits: 0C to 85C = 350 to 750 Ps.
New limits for both: 0C to 85C = 450 to 800 Ps.
- 10E164 & 100E164: (All TPD to Q)
SEL to Q propagation delay min/max limits across temp.
A input old limits: 0C to 85C = 350 to 850 Ps.
SEL0 old limits: 0C to 85C = 500 to 900 Ps.
SEL1 old limits: 0C to 85C = 400 to 900 Ps.
SEL2 old limits: 0C to 85C = 400 to 900 Ps.
SEL3 old limits: 0C to 85C = 400 to 700 Ps.
New limits for all: 0C to 85C = 600 to 1100 Ps.
- 10E136 & 100E136: (Rise and Fall time limits)
Rise and Fall Time delay for min/max limits across temp.
COUT (bar) old limits: 0C to 85 C = 275 to 600 Ps.
ALL (others) old limits: 0C to 85 C = 300 to 700 Ps.
New limits for both: 0C to 85C = 250 to 600 Ps.
- 10E167: (Clock and Master Reset TPD limits)
Clock to Q delay min/max limits across temp.
Clk to Q old limits: 0C to 85 C = 450 to 800 Ps.
MR to Q old limits: 0C to 85 C = 450 to 850 Ps.
New limits for both: 0C to 85C = 650 to 1050 Ps.
- 10E431 & 100E431: (Clock to Q, Differential and Single-ended TPD limits only)
Clock to Q delay min/max limits across temp.
DIFF old limits: -40C = 410 to 790, 25C = 450 to 750, 85C = 450 to 750 Ps.
SE old limits: -40C = 460 to 840, 25C = 400 to 800, 85C = 400 to 800 Ps.
New limits for both: -40C to 85C = 550 to 850 Ps.
- 10E1651 & 10E1652: (V and LEN (bar) to Q TPD limits)
Input Comparator (V) to Q delay min/max limits across temp.
Old limits: 0C = 600 to 900, 25C = 625 to 925, 85C = 700 to 1050 Ps.
New limits: 0C = 750 to 1050, 25C = 775 to 1075, and 85C = 850 to 1200 Ps.
LEN (bar) to Q delay min/max limits across temp.
Old limits: 0C = 400 to 750, 25C = 400 to 750, 85C = 500 to 850 Ps.
New limits: 0C = 550 to 900, 25C = 550 to 900, and 85C = 650 to 1000 Ps.



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- 10E163: (D and SEL's to Q TPD limits only)
 - Propagation delay min/max limits across temp.
 - D old limits: 0C to 85C = 400 to 800 Ps.
 - D new limits: 0C to 85C = 500 to 900 Ps.
 - SEL0 old limits: 0C to 85C = 525 to 950 Ps.
 - SEL0 new limits: 0C to 85C = 625 to 1050 Ps.
 - SEL1 old limits: 0C to 85C = 425 to 850 Ps.
 - SEL1 new limits: 0C to 85C = 525 to 950 Ps.
 - SEL2 old limits: 0C to 85C = 350 to 725 Ps.
 - SEL2 new limits: 0C to 85C = 450 to 825 Ps.
- 10E175: (D to Q and D to ODDPAR TPD limits only)
 - Propagation delay min/max limits across temp.
 - D to Q old limits: 0C to 85 C = 450 to 800 Ps.
 - D to Q new limits: 0C to 85 C = 550 to 900 Ps.
 - D to ODDPAR old limits: 0C to 85 C = 850 to 1450 Ps.
 - D to ODDPAR new limits: 0C to 85 C = 950 to 1550 Ps.
- MCH12140 & MCK12140: (R to U and V to D TPD limits only)
 - Propagation delay min/max limits across temp.
 - R to U and V to D limits: -40C to 70 C = 210 to 470 Ps.
 - New limits for both: -40C to 70C = 250 to 500 Ps.
- 10E101 & 100E101: (Data to Q tpd)
 - Propagation delay min/max limits across temp.
 - D to Q old limits: 0C to 85C = 200 to 500 Ps.
 - D to Q new limits: 0C to 85C = 300 to 600 Ps.
 - Trise and Tfall old limits: 0C to 85C = 300 to 575 Ps.
 - Trise and Tfall new limits: 0C to 85C = 275 to 575 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.

Test	Conditions	Results
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
PC-Autoclave (AC)	121DegC/100% RH/15 PSIG for 96 hours	0/560
PC-Temp Cycling (TC)	-65DegC to +150DegC; for 1000 cycles	0/479
	-65DegC to +150DegC; for 500 cycles	0/80
ESD per JEDEC Standard	Human Body Model(HBM)	MATCHES
	Machine Model (MM)	CONTROL
	Charge Device Model(CDM)	LOT



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RELIABILITY DATA SUMMARY (cont'd)

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 Technology MOSAIC3	<table border="0"> <tr> <td>Justification</td> <td>Reason Chosen</td> </tr> <tr> <td>Qualification Device MC10EL16D</td> <td>Smallest array, high volume, 8ld SOIC</td> </tr> <tr> <td>MC100E195FN</td> <td>Medium array, AC test critical, 28ld PLCC</td> </tr> <tr> <td>MC10E016FN</td> <td>Complex medium array, highest current, 28ld PLCC</td> </tr> </table>	Justification	Reason Chosen	Qualification Device MC10EL16D	Smallest array, high volume, 8ld SOIC	MC100E195FN	Medium array, AC test critical, 28ld PLCC	MC10E016FN	Complex medium array, highest current, 28ld PLCC	
Justification	Reason Chosen									
Qualification Device MC10EL16D	Smallest array, high volume, 8ld SOIC									
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MC10E016FN	Complex medium array, highest current, 28ld PLCC									

Reliability Test Conclusions:
 Reliability test data is consistent with passing ON Semiconductor requirements.

ELECTRICAL CHARACTERISTIC SUMMARY

Data is available on request.

CHANGED PART IDENTIFICATION

Product marked after WW37, 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 100E151 product marked after WW28, 2004 will contain COM1 die.



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AFFECTED DEVICE LIST:

PART

MC100E101FN
MC100E101FNR2
MC100E107FN
MC100E107FNR2
MC100E112FN
MC100E112FNR2
MC100E116FN
MC100E116FNR2
MC100E131FN
MC100E131FNR2
MC100E136FN
MC100E136FNR2
MC100E137FN
MC100E137FNR2
MC100E151FN
MC100E151FNR2
MC100E164FN
MC100E164FNR2
MC100E211FN
MC100E211FNR2
MC100E431FN
MC100E431FNR2
MC100E451FN
MC100E451FNR2
MC100LVE164FA
MC100LVE164FAG
MC100LVE164FAR2
MC100LVE164FAR2G
MC100LVEL37DW
MC100LVEL37DWR2
MC100LVEL40DW
MC100LVEL40DWR2
MC100LVEL51D
MC100LVEL51DR2
MC100LVEL51DR2G
MC100LVEL51DT
MC100LVEL51DTR2
MC100LVEL91DW
MC100LVEL91DWR2
MC100LVEL91DWR2G
MC10E101FN
MC10E101FNR2
MC10E104FN
MC10E104FNR2
MC10E112FN
MC10E112FNR2
MC10E116FN
MC10E116FNR2
MC10E131FN
MC10E131FNR2
MC10E136FN



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AFFECTED DEVICE LIST:

PART

MC10E136FNR2
MC10E137FN
MC10E137FNR2
MC10E141FN
MC10E141FNR2
MC10E150FN
MC10E150FNR2
MC10E154FN
MC10E154FNR2
MC10E156FN
MC10E156FNR2
MC10E157FN
MC10E157FNR2
MC10E158FN
MC10E158FNR2
MC10E163FN
MC10E163FNR2
MC10E164FN
MC10E164FNR2
MC10E1651FN
MC10E1651FNR2
MC10E1651L
MC10E1652FN
MC10E1652FNR2
MC10E1652L
MC10E167FN
MC10E167FNR2
MC10E175FN
MC10E175FNR2
MC10E195FN
MC10E195FNR2
MC10E211FN
MC10E211FNR2
MC10SX1130D
MC10SX1130DR2
MCK12140D
MCK12140DR2
MCW100E101
MCW100E116
MCW100E131
MCW100E136
MCW100E137
MCW100E164
MCW100E431
MCW100LEVEL40
MCW10E101
MCW10E116
MCW10E131
MCW10E141
MCW10E1651
MCWK12140