ON Semiconductor

FINAL PRODUCT/PROCESS CHANGE NOTIFICATION
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07-July-2004

SUBJECT: ON Semiconductor Final Product/Process Change Notification #13519

TITLE: Wafer Fab Site Transfer of Mosaic 1/1.5 Product Families to the ONCR Facility, Group C1 Continuation, 7th FPCN

EFFECTIVE DATE: 09-SEP-2004

AFFECTED CHANGE CATEGORY(S): ON Semiconductor Fab Site

AFFECTED PRODUCT DIVISION(S): Analog Products & ECL Products

ADDITIONAL RELIABILITY DATA: Available
Contact your local ON Semiconductor Sales Office. (DON WARRING, RRGA60@onsemi.com)

SAMPLES: Contact Below
Contact your local ON Semiconductor Sales Office. (GREGG HOOKER, FFMGNR@onsemi.com)

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:
Contact Sales Office (GREGG HOOKER, FFMGNR@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# 12671, located at www.onsemi.com, have been completed for the MC10ELT22, MC10H211, MC10H175, MC10H176, MC10H124, MC10H131, MC10H165, MC10ELT24, MC100ELT24, MC10H116, MC10H130, MC100H600, and the MC10H188 product families. ON Semiconductor is pleased to announce the continuation of the MOSAIC 1.0/1.5 FAB transfer process to our internal factory ON Semiconductor Czech Republic (ONCR; Formerly Tesla), located in Roznov, Czech Republic, to manufacture MOSAIC 1.0/1.5 Bipolar Technology products. The ONCR Fab is an ISO9001 certified facility and currently manufactures the Analog product family. MOSAIC 1.0/1.5 products were previously fabricated in the Motorola Bipolar Manufacturing Center (BMC) in Mesa, Arizona.

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This is the Final PCN only for the MC10ELT22, MC10H211, MC10H175, MC10H176, MC10H124, MC10H131, MC10H165, MC10ELT24, MC100ELT24, MC10H116, MC10H130, MC100H600, and the MC10H188 product families.

Additional notifications will be issued separately for subsequent products when they have completed all qualification testing. Device parameters will continue to meet Data Book specifications with exceptions noted below. Reliability will continue to meet or exceed ON Semiconductor standards.

In the course of reviewing the electrical data for the parts released, test methodology improvements indicate prior limits for Tpd were imprecisely set. A more accurate set of Minimum and Maximum limits will be corrected on the next revision of the datasheet to reflect these changes.

(Continued in the Additional Information Section)

ADDITIONAL INFORMATION

Changes to released parts include the MC10H211, MC10H124, MC10ELT24, MC100ELT24, and the MC100H600, where changes are listed below.

Old MC10H211 Limits:
Tpd Maximum Limits for AC across temperature ranges:
- Change 0, 25 deg C was 1.6 nS and will be changed to 2.0 nS
- Change 75 deg C was 1.7 nS and will be changed to 2.0 nS

Old MC10H124 Limits:
Tpd Maximum Limits for AC across temperature ranges:
- Change 0 deg C was 2.25 nS and will be changed to 2.5 nS
- Change 25 deg C was 2.4 nS and will be changed to 2.65 nS
- Change 75 deg C was 2.95 nS and will be changed to 3.1 nS

Old MC100H600 Limits:
IINH Limits for 10H and 100H ECL DC temperature ranges:
- Change IIH to IINH, but don't change the name of TTL DC IIH
- Change 0 deg C from 225 uA to 255 uA
- Change 25 & 85 deg C from 145 uA to 175 uA

Old MC10ELT24 and MC100ELT24 Limits:
Tplh Limits for Min AC across temperature ranges:
- Change -40 deg C was 0.7 nS min and will be changed to 0.5 nS
- Change 25 degrees C was 0.65 nS min and will be changed to 0.5 nS
- Change 85 deg C was 0.65 nS min and will be changed to 0.5 nS

Tplh Limits for Max AC across temperature ranges:
- Change -40 deg C was 1.3 nS max and will be changed to 2.0 nS
- Change 25 deg C was 1.25 nS max and will be changed to 2.0 nS
- Change 85 deg C was 1.25 nS max and will be changed to 2.0 nS

Tphl Limits for Min AC across temperature ranges:
- Change -40 deg C was 0.4 nS min and will be changed to 0.5 nS
- Change 25 deg C was 0.5 nS min and will be changed to 0.5 nS
- Change 85 deg C was 0.7 nS min and will be changed to 0.5 nS

Tphl Limits for Max AC across temperature ranges:
- Change -40 deg C was 1.0 nS max and will be changed to 2.0 nS
- Change 25 deg C was 1.10 nS max and will be changed to 2.0 nS
- Change 85 deg C was 1.30 nS max and will be changed to 2.0 nS

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

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RELIABILITY DATA SUMMARY

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

Test	Conditions	Results
High Temp Op Life (HTOL)	Tj =150DegC for 2016 hours Tj =150DegC for 504 hours	0/394 0/79
High Temp Bake (HTB)	175DegC for 504 hours 150DegC for 1008 hours	0/320 0/80
Preconditioning for MSL-1 (PC)	IR at 260DegC, TC, HAST, AC IR at 220DegC, TC, HAST, AC	0/718 0/320
PC-HAST	130DegC/85% RH/18.8 PSIG for 96 hours	0/315
PC Autoclave (AC)	121DegC/100% RH/15 PSIG for 96 hours	0/320
PC-Temp Cycling (TC)	-65DegC to +150DegC; for 500 cycles	0/400
PC-Temp Cycling w/PC	-65DegC to +150DegC; for 500 cycles	0/80
Bond Pull Strength (BPS)	Per Factory Testing with CpK>= 1.33	PASS
Bond Shear Test (BS)	Per Factory Testing with CpK>= 1.33	PASS
ESD per JEDEC Standard	Human Body Model (HBM) Machine Model (MM) Charge Device Model (CDM)	MEETS CRITERIA
Destructive Physical Analysis (DPA)	Analysis done after PC-Temp Cycling	PASS
Construction Analysis (CA)	Compare to BMC results	MEETS OR EXCEEDS CRITERIA

Qualification Vehicle Justification

Technology	Qualification Device	Reason Chosen
MOSAIC1/1.5	MC10H605FN	Large Die, Highest Voltage, Schottky Diodes
	MC10H141FN	Complexity
	MC10H125P	Translator Function
	MC10ELT21D	Translator Function

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

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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 ONCR or BMC FAB.

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AFFECTED DEVICE LIST:

PART

MC10ELT22D
MC10ELT22DG
MC10ELT22DR2
MC10ELT22DR2G
MC10ELT22DT
MC10ELT22DTG
MC10ELT22DTR2
MC100ELT22D
MC100ELT22DG
MC100ELT22DR2
MC100ELT22DR2G
MC100ELT22DT
MC100ELT22DTR2
MC10ELT24D
MC10ELT24DG
MC10ELT24DR2
MC10ELT24DR2G
MC10ELT24DT
MC10ELT24DTR2
MC10ELT24DTR2G
MCW10ELT24
MC100ELT24D
MC100ELT24DR2
MC100ELT24DT
MC100ELT24DTR2
MC10H211FN
MC10H211FNR2
MC10H211L
MC10H211M
MC10H211MEL
MC10H211P
MC10H175FN
MC10H175FNR2
MC10H175L
MC10H175M
MC10H175P
MC10H175PG
MC10H176FN
MC10H176FNR2
MC10H176L
MC10H176M
MC10H176MEL
MC10H176P
MC10H176PG
MCW10H176
MC10H124FN
MC10H124FNR2
MC10H124L
MC10H124M
MC10H124MEL
MC10H124P

MC10H124PG
MCW10H124
MC10H116D
MC10H116DR2
MC10H116FN
MC10H116FNR2
MC10H116L
MC10H116M
MC10H116MEL
MC10H116P
MC10H116PG
MCW10H116
SC63610FN116HR2
SC63610L116H
MC10H130FN
MC10H130FNR2
MC10H130L
MC10H130P
MC10H130PG
MC10H131FN
MC10H131FNR2
MC10H131L
MC10H131M
MC10H131MEL
MC10H131P
MC10H131PG
MCW10H131
SC63610FN131HR2
MC10H165FN
MC10H165FNR2
MC10H165L
MC10H165P
MC10H188FN
MC10H188FNR2
MC10H188L
MC10H188M
MC10H188MEL
MC10H188P
MC100H600FN
MC100H600FNG
MC100H600FNR2
MC100H600FNR2G