ON Semiconductor

FINAL PRODUCT/PROCESS CHANGE NOTIFICATION
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26-NOV-2003

SUBJECT: ON Semiconductor Final Product/Process Change Notification #13241

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

EFFECTIVE DATE: 26-Jan-2004

AFFECTED CHANGE CATEGORY:
ON Semiconductor Fab Site
Wafer Process

AFFECTED PRODUCT DIVISION: Broadband Products Div

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, have been completed for the selected product families listed below.

ON Semiconductor is pleased to announce the Qualification and Process Certification of MOSAIC 35 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 4, test methodology improvements indicate prior limits for Clock to Q and Reset to Q propagation delays on the MC10EL33 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. Additional changes to released parts include MC100LVEL33, where Clock to Q differential and single ended changes are listed below. The final change will be for the MC10E111 vbb voltage at -40C, as listed below.

Old 10EL33 Limits:
Clock to Q (-40 C = 490 to 770 Ps, +25 C = 550 to 730 Ps and +85 C = 590 to 760 Ps)
Reset to Q (-40 C = 310 to 610 Ps, +25 C = 360 to 560 Ps and +85 C = 380 to 580 Ps)

New 10EL33 Limits:
Clock to Q (-40 C = 560 to 860 Ps, +25 C = 610 to 810 Ps and +85 C = 640 to 840 Ps)
Reset to Q (-40 C = 400 to 700 Ps, +25 C = 460 to 660 Ps and +85 C = 470 to 670 Ps)

Old 100LVEL33 Limits:
Clock to Q Diff (-40 C = 510 to 690 Ps, +25 C = 540 to 720 Ps and +85 C = 600 to 780 Ps)
Clock to Q SE (-40 C = 460 to 740 Ps, +25 C = 490 to 770 Ps and +85 C = 550 to 830 Ps)

New 100LVEL33 Limits:
Clock to Q Diff (-40 C = 530 to 730 Ps, +25 C = 570 to 770 Ps and +85 C = 650 to 850 Ps)
Clock to Q SE (-40 C = 530 to 780 Ps, +25 C = 570 to 820 Ps and +85 C = 650 to 900 Ps)

10E111 Vbb Limits @ -40C only:
Old -40 C was -1425 mV to -1300 mV
New -40 C was -1400 mV to -1270 mV

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 reliability results. 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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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

Technology	Qualification Device	Reason Chosen
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 WW04, 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 100LVEL05, 100LVEL12, 100LVEL13, 100LVEL31, 100EL13, 10E111and 12026A product marked after WW48, 2003 will contain COM1 die.

AFFECTED DEVICE LIST(WITHOUT SPECIALS):

PART
M C100EL04D
MC100EL04DR2
MC100EL04DT
MC100EL04DTR2
MC100EL13DW
MC100EL13DWR2
MC100EL16D
MC100EL16DG
MC100EL16DR2
MC100EL16DR2G
MC100EL16DT
MC100EL16DTR2
MC100LVEL01D
MC100LVEL01DR2
MC100LVEL01DT
MC100LVEL01DTR2
MC100LVEL05D
MC100LVEL05DR2
MC100LVEL05DT
MC100LVEL05DTR2

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MC100LVEL12D
MC100LVEL12DR2
MC100LVEL12DT
MC100LVEL12DTR2
MC100LVEL13DW
MC100LVEL13DWR2
MC100LVEL16D
MC100LVEL16DR2
MC100LVEL16DT
MC100LVEL16DTR2
MC100LVEL31D
MC100LVEL31DR2
MC100LVEL31DT
MC100LVEL31DTR2
MC100LVEL33D
MC100LVEL33DR2
MC100LVEL33DT
MC100LVEL33DTR2
MC10E111FN
MC10E111FNR2
MC10E111SFN
MC10E111SFNR2
MC10EL01D
MC10EL01DR2
MC10EL01DT
MC10EL01DTR2
MC10EL04D
MC10EL04DR2
MC10EL04DT
MC10EL04DTR2
MC10EL33D
MC10EL33DR2
MC10EL33DT
MC10EL33DTR2
MC12026AD
MC12026ADR2
MCW100EL04
MCW100EL16
MCW10EL01
MCW10EL04
MCW12026A