



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION
Generic Copy

25-MAR-2004

SUBJECT: ON Semiconductor Final Product/Process Change Notification #13381

TITLE: Final Notification for IPCN#11335, Wafer Capacity Addition for MOSAIC5 Technology – Group 7

EFFECTIVE DATE: 25-May-2004

AFFECTED CHANGE CATEGORY: ON Semiconductor Fab Site

AFFECTED PRODUCT DIVISION: ECL Products

ADDITIONAL RELIABILITY DATA: Available
Contact your local ON Semiconductor Sales Office or Keith Stapley <RXNN90@onsemi.com>

SAMPLES: Contact your local ON Semiconductor Sales Office

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:
Contact Sales Office or Clarence Rebello <FFBWPN@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 Notification for Group 7 of devices related to IPCN 11335. ON Semiconductor is pleased to announce the Qualification and Process Certification of the COM1 wafer fabrication facility located in Phoenix, Arizona to manufacture MOSAIC5 Bipolar technology products. MOSAIC5 products were previously fabricated in the Motorola MOS6 wafer fabrication facility in Mesa, Arizona. This is the Final PCN only for the selected devices. 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.

In the course of reviewing the electrical data for the parts released in group 7, test methodology improvements indicate prior limits 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.



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MC10EP90:

Change VIL NECL Upper Limit at -40 C, to -1610 (was -1690) mV

MC100EP14:

Change IEE Limits at -40 C, to 45 to 65 (was 55 to 75) mA

Change IEE Limits at 25 C, to 48 to 68 (was 58 to 78) mA

Change IEE Limits at 85 C, to 52 to 72 (was 62 to 82) mA

Change Tpd Limits at 85 C, to 280 to 480 (was 400 to 600) ps

Change Tr/Tf Limits at -40 C, to 105 to 205 (was 140 to 240) ps

MC100EP32:

Change IEE Limits at 25 C, to 26 to 40 (was 23 to 37) mA

Change IEE Limits at 85 C, to 28 to 42 (was 26 to 40) mA

MC100EP446:

Change VBB NECL Limits at all temperatures to -1525 to -1325

(was -1575 to -1375) mV

MC100LVEP14:

Change VOL NECL Upper Limit at all temperatures to -1600 (was -1695) mV

MCW10EP05 (released with Group 4, PCN 13257):

Change Jitter RMS UL at 85 C to 1.5 (was 1.0) ps

MC10EP139DW(DT version released with Group 3, PCN 12774):

Change TRR Lower Limit at 85 C, to 165 (was 200) ps

MCW100EP40 (released with Group 4, PCN 13257):

Change Tr/Tf Lower Limit at 25 C to 60 (was 75) ps

Change Tr/Tf Upper Limit at 85 C to 70 (was 80) ps

MCW100EP139 (released with Group 6, PCN 13295):

Change Jitter_RMS UL at 85 C to 1.5 (was 1.0) ps

MC100LVEP11 (released with Group 3, PCN 12774): Delete VBB Limits

Add VIL NECL Limits at all Temperatures: -1945 to -1625 mV

Change VIH NECL Lower Limit at all temperatures to -1165 (was -1225) mV

Change VOL NECL Upper Limit at all temperatures to -1600 (was -1695) mV

MC100LVEP111 (released with Group 1, PCN 12595):

Change VIL NECL Lower Limit at all temperatures to -1945 (was -1810) mV

MC100LVEP210 (released with Group 3, PCN 12774):

Change VIL NECL Lower Limit at all temperatures to -1945 (was -1810) mV

RELIABILITY DATA SUMMARY:

RELIABILITY WILL CONTINUE TO MEET OR EXCEED ON SEMICONDUCTOR STANDARDS.

Test	Conditions	Results
High Temp Op Life (HTOL)	Tj =150DegC for 504 hours	0/479
High Temp Bake (HTB)	150DegC for 1008 hours	0/480
	175DegC for 504 hours	0/480



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Preconditioning for MSL-1 (PC)	IR at 235DegC, TC, HAST, AC (Only for EP16 device)	0/957
Preconditioning for MSL-2 (PC)	IR at 235DegC, TC, THB, AC (Only for EP111 device)	0/720
PC-HAST	130DegC/85% RH/18.8 PSIG for 96 Hrs (Only for EP16 device)	0/240
PC-THB	85DegC/85% RH/18.8 PSIG for 1008 Hrs (Only for EP111 device)	0/240
PC-Autoclave (AC)	121DegC/100% RH/15 PSIG for 96 hours	0/480
PC-Temp Cycling (TC)	-65DegC to +150DegC; for 500 cycles	0/635
Bond Pull Strength (BPS)	Per Factory Testing with CpK>= 1.33	MEETS OR EXCEEDS CRITERIA
Bond Shear Test (BS)	Per Factory Testing with CpK>= 1.33	MEETS OR EXCEEDS CRITERIA
ESD per JEDEC Standard	Human Body Model (HBM) Machine Model (MM) Charge Device Model (CDM)	MEETS OR EXCEEDS CRITERIA
Destructive Physical Analysis (DPA)	Analysis done after PC-Temp Cycling	MEETS OR EXCEEDS CRITERIA
Intrinsic Reliability (IR)	Compare to MOS6 results for Stress migration, Electromigration & Hot Carrier Injection	MEETS OR EXCEEDS CRITERIA
Critical Parameter Shifts Analysis (CPA)	Datalog units and examine VOH and VOL before and after test on all HTOL and Temp cycled units	MEETS OR EXCEEDS CRITERIA
Skew Analysis (SA)	Examine 5 units from each group for tskew before and after HTOL and Temp Cycle tests	MEETS OR EXCEEDS CRITERIA
Construction Analysis (CA)	Compare to MOS6 results	MEETS OR EXCEEDS CRITERIA
Parameter Verification	Electrical Characterization/distribution summary of Critical Parameters	AVAIL

Qualification Vehicle Justification

<u>Technology</u>	<u>Qualification Device</u>	<u>Reason Chosen</u>
MOSAIC5	MC10EP16DT	Smallest Array Base, TSOP8
	MC100LVEP111FA	Largest Array Base, 32 pin TQFP



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ELECTRICAL CHARACTERISTIC SUMMARY:

Available upon request. Electrical Performance has not changed.

CHANGED PART IDENTIFICATION:

Devices with date code of WW20, 2004 and forward may be manufactured in COM1.

AFFECTED DEVICE LIST(WITHOUT SPECIALS):

PART

MC100EP08D
MC100EP08DR2
MC100EP08DT
MC100EP08DTR2
MC100EP131FA
MC100EP131FAR2
MC100EP14DT
MC100EP14DTR2
MC100EP16TD
MC100EP16TDR2
MC100EP16TDT
MC100EP16TDTR2
MC100EP17DT
MC100EP17DTR2
MC100EP17DW
MC100EP17DWR2
MC100EP17DWR2G
MC100EP29DT
MC100EP29DTR2
MC100EP31D
MC100EP31DR2
MC100EP31DT
MC100EP31DTR2
MC100EP32D
MC100EP32DR2
MC100EP32DT
MC100EP32DTG
MC100EP32DTR2
MC100EP446FA
MC100EP446FAR2
MC100EP51D
MC100EP51DR2
MC100EP51DT
MC100EP51DTR2
MC100EP52D
MC100EP52DR2
MC100EP52DT
MC100EP52DTR2
MC100EP58D
MC100EP58DR2
MC100EP58DT
MC100EP58DTG
MC100EP58DTR2
MC100LVEP111FA
MC100LVEP111FAG



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MC100LVEP111FAR2
MC100LVEP111FARG
MC100LVEP11D
MC100LVEP11DR2
MC100LVEP11DT
MC100LVEP11DTR2
MC100LVEP14DT
MC100LVEP14DTR2
MC100LVEP210FA
MC100LVEP210FAR2
MC100LVEP210FARG
MC10EP01D
MC10EP01DG
MC10EP01DR2
MC10EP01DT
MC10EP01DTR2
MC10EP05DG
MC10EP08D
MC10EP08DG
MC10EP08DR2
MC10EP08DT
MC10EP08DTR2
MC10EP139DW
MC10EP16TD
MC10EP16TDR2
MC10EP16TDR2G
MC10EP16TDT
MC10EP16TDTR2
MC10EP17DT
MC10EP17DTR2
MC10EP17DW
MC10EP17DWR2
MC10EP29DT
MC10EP29DTR2
MC10EP31D
MC10EP31DG
MC10EP31DR2
MC10EP31DT
MC10EP31DTR2
MC10EP451FA
MC10EP451FAG
MC10EP451FAR2
MC10EP51D
MC10EP51DR2
MC10EP51DT
MC10EP51DTR2
MC10EP51DTR2G
MC10EP58D
MC10EP58DG
MC10EP58DR2
MC10EP58DT
MC10EP58DTR2
MC10EP90DT
MC10EP90DTR2
MC10EPT20D
MC10EPT20DR2



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MC10EPT20DT
MC10EPT20DTR2
MCW100EP139
MCW100EP16T
MCW100EP31
MCW100EP40
MCW100EP446
MCW100LVEP111
MCW100LVEP14
MCW100LVEP210
MCW10EP01
MCW10EP05
MCW10EP08
MCW10EP16T
MCW10EP31
MCW10EP451
MCW10EP56
MCW10EP58
MCW10EPT20