



INITIAL PRODUCT/PROCESS CHANGE NOTIFICATION
Generic Copy

24-MAR-2001

SUBJECT: Product/Process Change Notification #11096

TITLE: Intital Notification Of High Speed Logic Family Migration

EFFECTIVE DATE: 21-Jul-2001

AFFECTED CHANGE CATEGORY: ON Semiconductor Fab Site

AFFECTED PRODUCT DIVISION: Logic Products

ADDITIONAL RELIABILITY DATA: None

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SAMPLES: No

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FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:

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DESCRIPTION AND PURPOSE:

120 Day Process Change Notice for initial notification to be followed with a Final Process Change Notice with supporting data a minimum of 60 days prior to implementation.

ON Semiconductor is pleased to announce the introduction of a new manufacturing site for the High Speed CMOS Logic Product Family. (MC74HCxxx and MC74HCTxxx) All device types listed below will be converted from the existing 2um, single poly, single metal process to a 1.2um, single poly, double metal process. The new manufacturing site is Aizu-6, an existing 6-inch ON Semiconductor wafer process area located in Aizu, Japan that currently produces 1.2 um FACT Logic devices. The existing High Speed CMOS Logic wafer fab areas are Phenitec Semiconductor (a 5-inch ON External Foundry) and Aizu-4 (a 4-inch ON Internal factory).

In the pursuit of continual improvement, all devices were redesigned to comply with the new process and to improve manufacturing stability. No parametric specifications will be changed. However, the new designs, in conjunction with the 63% LCD process, have improved typical AC propagation delays by 20%-30% for most devices. DC parametric performance will remain unchanged.

Due to the conversion from a p-well to a twin-well process, the die substrate is now at Ground potential instead of Vcc. The new HC designs will use the same wafer process flow as the ON Semiconductor FACT product family. The FACT qualification will be used for this HC Qual.



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QUALIFICATION PLAN:

See Data Summary

RELIABILITY DATA SUMMARY

High Temp Op-life; Ta=145; Vcc=5.5V

Device	WL#	Results/Sample Size	# of Hours
AC151	J71596	0/80	504
ACT257	J71696	0/80	504
AC244	J71796	0/80	504
ACT244	J52097	0/80	504
AC04	J72697	0/80	504

Low Temp Op-life; Ta=-10; Vcc=5.5V

Device	WL#	Results/Sample Size	# of Hours
AC151	J71596	0/80	504
ACT257	J71696	0/80	504
AC244	J71796	0/80	504

Temp cycles; Ta= -65 to +150; air to air

Device	WL#	Results/Sample Size	# of cycles
ACT244	J52097	0/200	500
AC04	J72697	0/200	500
AC00	J72797	0/200	500

HAST; Ta=130, 19 psig, 85% RH, Vcc=5.0V

Device	WL#	Results/Sample Size	# of Hours
AC151	J71596	0/45	144
ACT257	J71696	0/45	144
AC244	J71796	0/45	144

Precond + PTH (w/Oil Immersion Preconditioning)

Device	WL#	Results/Sample Size	# of Hours
AC151	J71596	0/45	48
ACT257	J71696	0/45	48
AC244	J71796	0/45	48

Precond + TC (w/Oil Immersion Preconditioning)

Device	WL#	Results/Sample Size	# of Cycles
AC151	J71596	0/45	1000
ACT257	J71696	0/45	1000
AC244	J71796	0/45	1000

**Product/Process Change Notification #11096****ELECTRICAL CHARACTERISTIC SUMMARY:**

Electrical characterization will be completed on every device. This characterization will include:

- 1) ESD performance (HBM,CDM,MM)
- 2) Latch-up
- 3) Full electrical characterization of AC/DC performance
- 4) Ground bounce is less than or equal to the previous design.

CHANGED PART IDENTIFICATION:

Devices with date codes after 0130 may have the new designs manufactured in Aizu-6. There will be significant overlap of manufacturing with Phenitec and Aizu-4, both versions may be in production through 4Q01.

**Product/Process Change Notification #11096****AFFECTED DEVICE LIST:**PART

FMC74HC138ADR2
JMC74HCU04AW
MC74HC00AD
MC74HC00ADR2
MC74HC00ADT
MC74HC00ADTEL
MC74HC00ADTR2
MC74HC00AF
MC74HC00AFEL
MC74HC00AN
MC74HC02AD
MC74HC02ADR2
MC74HC02ADT
MC74HC02ADTEL
MC74HC02ADTR2
MC74HC02AF
MC74HC02AFEL
MC74HC02AN
MC74HC03AD
MC74HC03ADR2
MC74HC03ADT
MC74HC03ADTEL
MC74HC03ADTR2
MC74HC03AF
MC74HC03AFEL
MC74HC03AN
MC74HC04AD
MC74HC04ADR2
MC74HC04ADT
MC74HC04ADTEL
MC74HC04ADTR2
MC74HC04AF
MC74HC04AFEL
MC74HC04AN
MC74HC08AD
MC74HC08ADR2
MC74HC08ADT
MC74HC08ADTEL
MC74HC08ADTR2
MC74HC08AF
MC74HC08AFEL
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MC74HC126ADR2



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MC74HC240ADWR2
MC74HC240AF
MC74HC240AFEL
MC74HC240AH



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MC74HC244ADTR2
MC74HC244ADW
MC74HC244ADWR2
MC74HC244AF
MC74HC244AFEL
MC74HC244AH
MC74HC244AN
MC74HC245ADT
MC74HC245ADTEL
MC74HC245ADTR2
MC74HC245ADW
MC74HC245ADWR2
MC74HC245AF
MC74HC245AFEL
MC74HC245AH
MC74HC245AN
MC74HC273ADT
MC74HC273ADTR2
MC74HC273ADW
MC74HC273ADWR2
MC74HC273AF
MC74HC273AFEL
MC74HC273AH
MC74HC273AN
MC74HC32AD
MC74HC32ADR2
MC74HC32ADT
MC74HC32ADTEL
MC74HC32ADTR2
MC74HC32AF
MC74HC32AFEL
MC74HC32AN
MC74HC373ADT
MC74HC373ADTEL
MC74HC373ADTR2
MC74HC373ADW
MC74HC373ADWR2
MC74HC373AF
MC74HC373AFEL
MC74HC373AH
MC74HC373AN
MC74HC374ADT
MC74HC374ADTEL
MC74HC374ADTR2
MC74HC374ADW
MC74HC374ADWR2
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SC022HC245AH



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SC30595ADR2