PRODUCT/PROCESS CHANGE NOTIFICATION

PCN MMS-SNV/07/2327
Notification Date 02/22/2007

STMicroelectronics AMK (Singapore) new and additional Wafer diffusion plant for the 64Kbit I2C Bus Based Serial EEPROM Memories (replaces PCN 1663)

SNV - MEMORY

Table 1. Change Identification

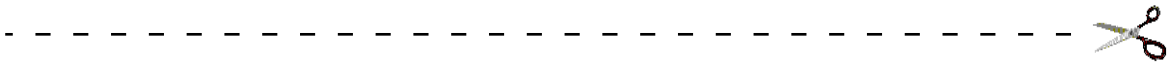
Product Identification (Product Family/Commercial Product)	M24C64 Product family
Type of change	Waferfab location change
Reason for change	Second source and production capacity increase
Description of the change	ST AMK (Singapore) new and additional wafer diffusion plant
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	Process and fab ID
Manufacturing Location(s)	

Table 2. Change Implementation Schedule

Forecasted implementation date for change	15-Feb-2007
Forecasted availabillity date of samples for customer	15-Feb-2007
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	15-Feb-2007
Estimated date of changed product first shipment	24-May-2007

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt	**PCN MMS-SNV/07/2327**
Please sign and return to STMicroelectronics Sales Office	**Notification Date 02/22/2007**

☐ Qualification Plan Denied	Name:
☐ Qualification Plan Approved	Title:
	Company:
☐ Change Denied	Date:
☐ Change Approved	Signature:

Remark

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DOCUMENT APPROVAL

Name	Function
Poli, Christian	Division Marketing Manager
Rodrigues, Benoit	Division Product Manager
Yackowlew, Nicolas	Division Q.A. Manager

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This PCN replaces NVM06/1663 from March 2006

What is the change?
The M24C64, I²C bus based EEPROM, will now also be diffused in the ST AMK (Singapore) 6 inch wafer diffusion plant using the same CMOSF6DP 26% DM Process Technology already in production in the Chartered (Singapore) 8 inch wafer diffusion plant.

Why?
The strategy of the STMicroelectronics Memories division is to support the growth of our customers on a long-term basis. In line with this commitment, the qualification of the ST AMK (Singapore) 6 inch wafer diffusion plant will secure a second source. It will also increase the Serial EEPROM memory production capacity and throughput, reduce the lead-time and consequently improve the service to our customers.

When?
The production of the M24C64 in the ST AMK (Singapore) 6 inch wafer diffusion plant will ramp up in February 2007 and shipments could start from May 2007 onward.

How will the change be qualified?
The M24C64 family is qualified using the standard STMicroelectronics Corporate Procedures for Quality and Reliability, the Qualification Report QREE0604 is now available.

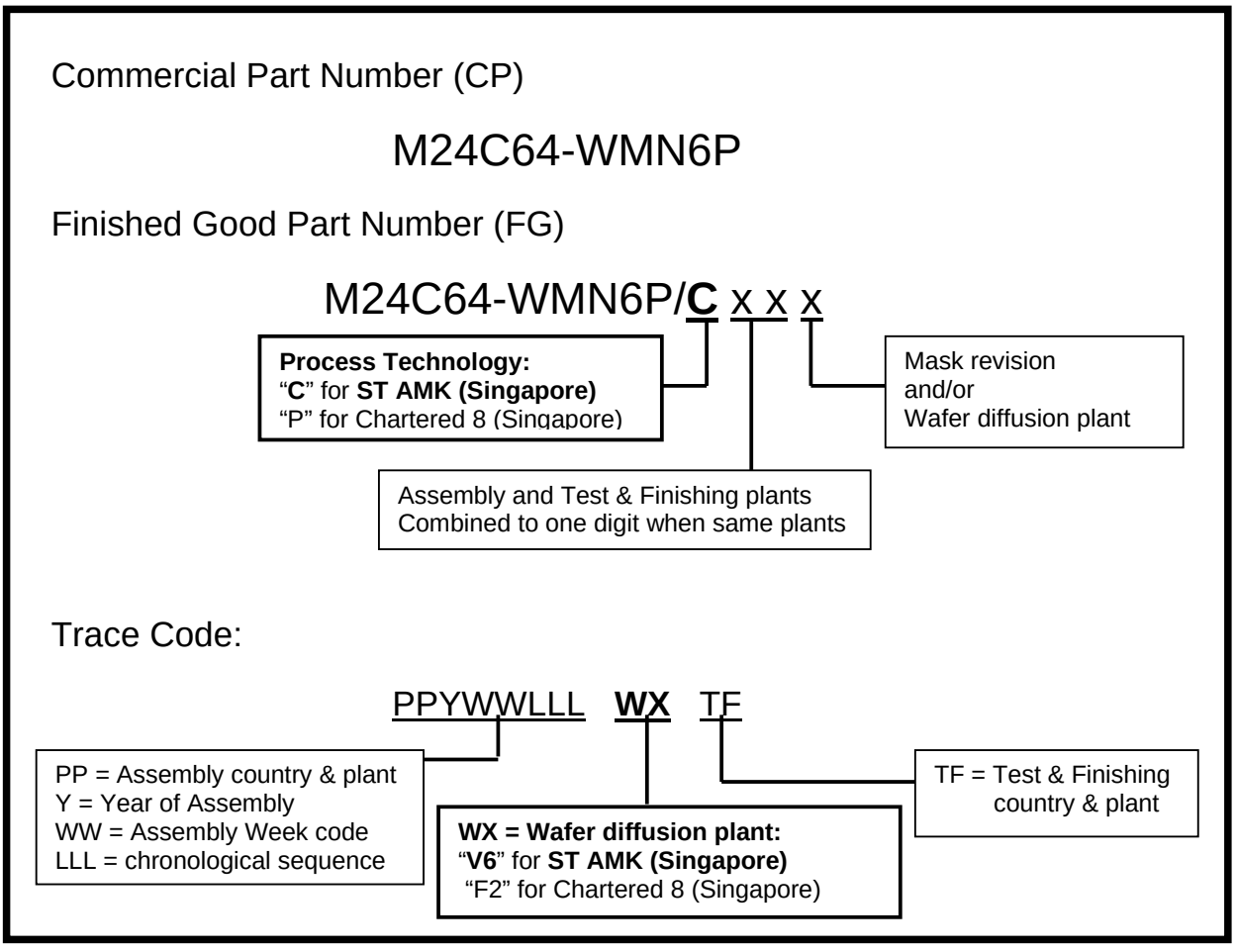
How can the change be seen?

- BOX LABEL MARKING

On the BOX LABEL MARKING, the change is visible inside the Finished Good Part Number:
The **Process Technology** identifier is "**C**" for **ST AMK (Singapore)**, the identifier being "P" for Chartered 8 (Singapore).

The change is also visible inside the Trace Code:
The **Wafer diffusion plant** identifier is "**V6**" for **ST AMK (Singapore)**, the identifier being "F2" for Chartered 8 (Singapore).

➔ *Example for M24C64-WMN6P (64Kbit, 2.5V to 5.5V Vcc range, SO8 RoHS* compliant package)*



*RoHS: Restriction of the use of certain Hazardous Substances in electrical and electronic equipments

How can the change be seen?

- DEVICE MARKING

On the DEVICE MARKING, the change is visible on the top side marking, inside the second line of the trace code (COO YWWT):

The **Process Technology** identifier is "**C**" for **ST AMK (Singapore)**, the identifier being "P" for Chartered 8 (Singapore).

	Chartered 8" (Singapore)	**ST AMK 6" (Singapore)**
SO8 Example: M24C64-RMN6TP	24C64RP PYWW**P**	24C64RP PYWW**C**
PDIL8 M24C64-WBN6P	E COO **P** 24C64WP PLLYWW	E COO **C** 24C64WP PLLYWW
TSSOP8 (Amkor) Example: M24C64-WDW6TP TOP SIDE	2464 WP	2464 WP
BACK SIDE	PPYWW LLL **P**	PPYWW LLL **C**

The traceability for each device is as follows:

P (or PP) = Assembly country and plant
Y = Last digit of the Year of Assembly
WW = Assembly Week code
T = **Process Technology code/ Wafer fab ID:**
"**C**" for **ST AMK (Singapore)**
"P" for Chartered 8 (Singapore)
LLL = Chronological sequence
COO = Country-of-Origin
E = ECOPACK® identifier

APPENDIX A - Product / Process Change Notification

Product family / Commercial products:	M24C64 Product family
Customer(s):	All
Type of change:	Additional wafer diffusion plant
Reason for the change:	Second source and production capacity increase
Description of the change:	ST AMK (Singapore) new and additional wafer diffusion plant
Forecast date of the change:	February 2007
Forecast availability date of qualification sample for the customer(s):	Available
Forecast date for the internal STMicroelectronics change, Qualification report availability:	Available
Marking to identify the changed product:	Process and fab ID
Description of the qualification program:	Standard ST Microelectronics Corporate Procedures for Quality and Reliability
Product Line(s) and/or Part Number(s):	See appendix B
Manufacturing location:	STMicroelectronics AMK (Singapore) 6 inch wafer diffusion plant
Estimated date of first shipment:	May 2007 (or earlier upon customer approval)
Division Product Manager: B. RODRIGUES	Date:
Group QA Manager: N. YACKOWLEW	Date:

APPENDIX B: Concerned Products

M24C64 Commercial sales types
M24C64-RDW6TP
M24C64-RMN6P
M24C64-RMN6TP
M24C64-WBN6P
M24C64-WDW6TP
M24C64-WMN6P
M24C64-WMN6TP

APPENDIX C: Qualification Plan

PRODUCT DESCRIPTION

	Device to qualify	Qualified similar device
Product name	M24C64 (C24641CA)	none
Memory size	64K	none
Bus protocol	I2C	none
Process	CMOSF6DP26% DM	none

SIMILARITY

The CMOSF6DP26% Process Technology is already qualified in ST Rousset (France) 6" wafer diffusion plant for standard products and being transferred to AMK 6" fab.

CHARACTERIZATION

Table 1. Characterization requirements.

Number of lots	Parameters	Vcc range	Temperature range
3	All	According to Datasheet	-40°C/85°C

RELIABILITY

Table 2. Product qualification. Die-related reliability tests

Sub group	Test Procedure	Method	Test Conditions	Num of lots	Criteria
1	High Temperature Operating Life	AEC-Q100-005	1 Million cycles at 25°C or 100K cycles at 125°C, then HTOL 150°C, 6V (V_{CC} + 20%), 1000 hrs	3	0/77
2	Low Temperature Operating Life	JESD22 - A 108	–40°C, 6V (V_{CC} + 20%), 504 hrs	3	0/77
3	High Temperature Bake	AEC-Q100-005	1 Million cycles at 25°C or 100K cycles at 125°C, then Bake 150°C, 1000 hrs	3	0/77
4	Erase/Write Cycles and Bake		1,000,000 E/W cycles Bake: 150°C, 168 hrs or 200°C, 48 hrs	3	0/77
5	High Temperature Bake	JESD22-A103	Retention bake 200°C, 1,000 hrs	3	0/77
6	Electrostatic Discharge	AEC – Q100 - 002 & 003	Human body model: 1.5k∧, 100pF Machine Model 0∧, 200pF	1	0/9
7	Latch-Up	AEC – Q100 -004	Max. operating temperature	1	0/6

Table 3. Product qualification. Package-related reliability tests

Test Procedure	Method	Test Conditions	Num of lots	Criteria
Preconditioning	AEC - Q100 - J–STD-020C	Level 1	3	0 fail
Pressure Pot	AEC – Q100 - JA 102	121°C, 2atm, 100% RH, 96hr	3	0/77
Temperature and Humidity Biase	AEC – Q100 - JA 101	85°C, 85% RH, 5.5V, 1008hr	3	0/77
Temperature Cycling	AEC – Q100 - JA 104	-65°C / 150°C, 1000 cycles	3	0/77
Thermal Shock	JESD22-A106B	-55°C / 125°C, 500 shocks	3	0/25
Electrostatic Discharge CDM	AEC- Q100-011	Charge Device Model (Field Induced Charge CDM)	1	0/9
High Temperature Bake	AEC – Q100 - JA 103	150°C, 1000hrs	3	0/77

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Document Revision History

Document Revision History		
Date	Rev.	Description of the Revision
Dec. 19, 2006	1.00	Draft Document creation (C. POLI)

Used Source Documents		
Source document Title	Rev.:	Date:

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