# PRODUCT/PROCESS CHANGE NOTIFICATION

PCN APM-IPC/07/2731
Notification Date 09/27/2007

## MULTIWATT & HEPTAWATT BACK-END TRANSFER FROM ST TOA PAYOH TO BOUSKOURA 2000 PLANT

### IPC - IND.& POWER CONV.

## Table 1. Change Identification

| | |
|---|---|
| Product Identification (Product Family/Commercial Product) | see attachment |
| Type of change | Package assembly location change |
| Reason for change | Corporate back-end roadmap & capacity increase |
| Description of the change | Multiwatt & Heptawatt Back-end transfer from Toa Payoh to Bouskoura 2000 plant |
| Product Line(s) and/or Part Number(s) | See attached |
| Description of the Qualification Plan | See attached |
| Change Product Identification | assy plant digit "CZ" inside traceability code |
| Manufacturing Location(s) | |

## Table 2. Change Implementation Schedule

| | |
|---|---|
| Forecasted implementation date for change | 20-Nov-2007 |
| Forecasted availabillity date of samples for customer | 15-Dec-2007 |
| Forecasted date for **STMicroelectronics** change Qualification Plan results availability | 31-Dec-2007 |
| Estimated date of changed product first shipment | 31-Jan-2008 |

**Table 3. List of Attachments**

| | |
|---|---|
| Customer Part numbers list | |
| Qualification Plan results | |

Customer Acknowledgement of Receipt **PCN APM-IPC/07/2731**

Please sign and return to STMicroelectronics Sales Office **Notification Date 09/27/2007**

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

Remark

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# DOCUMENT APPROVAL

| Name | Function |
|---|---|
| Menniti, Pietro | Division Marketing Manager |
| Pulicelli, Fulvio | Division Product Manager |
| Motta, Antonino | Division Q.A. Manager |

# MULTIWATT & HEPTAWATT BACK-END TRANSFER
# FROM ST TOA PAYOH TO BOUSKOURA 2000 PLANT

## WHAT:

Following the Corporate decision to move the Multiwatt and Heptawatt packages from Toa Payoh to Bouskoura 2000 plant (Marocco), we are going to complete the movement process by transferring the following devices.

During the transfer some material changes will occur to the below devices:

| Device | Line | Package | Material change |
|---|---|---|---|
| L4960H | L74003 | HEPTAWATT | **Wire:** from Au to Cu. **Frame:** from Cu Ag plated to Cu |
| L4962EH/A | L84303 | HEPTAWATT | as above |
| L296 | L29603 | MULTIWATT | as above |
| L4964 | L29603 | MULTIWATT | as above |
| L296HT | L29603 | MULTIWATT | as above |
| L4964HT | L29603 | MULTIWATT | as above |
| IL13464 | L69303 | MULTIWATT | as above |
| L298N | L69303 | MULTIWATT | as above |
| L298HN | L69303 | MULTIWATT | as above |
| IL13485 | L75603 | MULTIWATT | as above |
| L296P | L75603 | MULTIWATT | as above |

As regards the below devices no material change will occur during the transfer:

| Device | Line | Package |
|---|---|---|
| L4970A | U01003 | MULTIWATT |
| L4975A | U01903 | MULTIWATT |
| L4977A | U02103 | MULTIWATT |

## WHY:

Corporate package roadmap & capacity increase

## HOW:

IPC Heptawatt package qualification in Bouskoura is done by extension of formerly CMG Heptawatt reliability plan here following plus a construction analysis done on an HPC product TDA2030AV.
IPC Multiwatt package qualification is in progress and the reliability report will be available by the end of 2007 and can be provided upon customer’s request

## WHEN:

The production of the new devices could start in Q1, 2008. The relevant samples could be available starting from mid December 2007.

# HEPTAWATT LINE TRANSFER
# BOUSKOURA QUALITY ACTION PLAN

- The transferred line will be integrated in the Quality System already in place at Bouskoura
- ST Bouskoura is certified ISO-TS 16949
- All major steps of the qualification will be defined in a Time Action Profile.

- **Quality System:**
    - **All equipment recorded in a calibration DB**
    - **SPC insertion in computer system**
    - **Daily QA audit + Anti-mixing audit**
    - **Line will be integrated in construction analysis roadmap**
    - **Reliability monitoring implementation**

- **People:**
    - **Line Operators training and certification scheme**
    - **Maintenance Technicians and QA Operators training and certification scheme**

- **Equipment:**
    - **Each equipment efficiency controlled through centralized computer system**
    - **Formal buy-off performed for each equipment**
    - **All necessary spares codified and recorded in Spare library**

- **Process:**
    - **Flow chart and Control Plan documented in Document Control System**
    - **FMEA's & OCAP's done and documented in Document Control System**
    - **Anti-mixing Risk assessment performed**
    - **Input/Output checklist on each eqpt**
    - **Anti-mixing Check List with travelog for each lot**
    - **Manufacturing and Maintenance Recording books**

- **Materials:**
    - **Procurement recording in computer systems**
    - **Local Qualified Material List updated**
    - **Incoming procedures implementation**

# HEPTAWATT LINE TRANSFER
# CMG QUALITY PLAN

✍ In addition to Bouskoura action plan, CMG Group will complement the line transfer qualification with the following:

- Package Qualification plan (see next page)
- Application level qualification plan
- Assembly line Technical Audit
- Package Reliability Monitoring after production start, with a plan revised quarterly

# HEPTAWATT – ASSEMBLY TRANSFER QUALIFICATION PLAN

- **Qualification purpose:**

Assembly transfer from ST Toa Payoh (Singapore) plan to ST Bouskoura plant (Morocco).

- **Test vehicles:**

| | Line | Comm. Prod. | Assy lots | Final test | Rel. plant | Particular points |
|---|---|---|---|---|---|---|
| TV1 | L559 | STV9302A | 1 | TPY | TPY | Highest CMG volume in HW – Gnd wire |
| TV2 | L079 | STV9379 | 1 | TPY | TPY | Largest CMG die in HW – Gnd wire |
| TV3 | L368 | STV8131 | 1 | TPY | TPY | Smallest CMG die in HW - Polyimide |

- **Assembly materials for Bouskoura assembly:**

Strictly identical to actual Toa Payoh production.

# HEPTAWATT – ASSEMBLY TRANSFER QUALIFICATION PLAN

## Reliability test conditions and qualification plan

| TEST | CONDITIONS | TV1 | TV2 | TV3 |
|---|---|---|---|---|
| *Thermal cycles (*)* | *-40/+150°C*, 1000 cy* | *43* | *43* | *43* |
| *Pressure Pot* | *121°C, 2 atm* | *43* | *43* | *43* |
| *High Temperature Storage* | *175°C, 1000h* | *76* | *76* | *76* |

*(*) SAM (top + through) at time 0 and after 500 TC on 10 parts per lot*

## Construction analysis

| Line | *Lab* | Particular points |
|---|---|---|
| L079 | *Toa Payoh* | *Complete package construction analysis.* |

## Solderability tests

| Line | *Lab* | Particular points |
|---|---|---|
| L559 | *Toa Payoh* | *Dry and steam aging* |
| L079 | *Toa Payoh* | *Dry and steam aging* |
| L368 | *Toa Payoh* | *Dry and steam aging* |

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