| PCN Number:                           |             | 20:      | 20150824000 |   |                          | F                         | CN Da                            | ite:                     | 08/26/2015         |       |              |  |
|---------------------------------------|-------------|----------|-------------|---|--------------------------|---------------------------|----------------------------------|--------------------------|--------------------|-------|--------------|--|
| Title: Qualification of process techn |             |          |             | as an addi                              | tion                     | al wafer fab site o       | ptio                             | n fo                     | r selec            | t dev | ices in LBC5 |  |
| <b>Customer Contact:</b>              |             |          |             | PCN Manager Dep                         |                          |                           | ot:                              | Quality Services         |                    |       |              |  |
| Proposed 1 <sup>st</sup> Ship Date    |             | :        | 11/2        | /26/2015 Estimated Sample Availability: |                          |                           | Date provided at sample request. |                          |                    |       |              |  |
| Change Type:                          |             |          |             |   |                          |                           |                                  |                          |                    |       |              |  |
| Assembly Site                         |             | bly Site |             |   | Assemb                   | Assembly Process          |                                  |                          | Assembly Materials |       |              |  |
| Design                                |             |          |             | Electrica                               | Electrical Specification |                           |                                  | Mechanical Specification |                    |       |              |  |
| Test Site                             |             | ite      |             |   | Packing,                 | Packing/Shipping/Labeling |                                  |                          | Test               | Proce | ess          |  |
| Wafer Bump Site                       |             |          |             | Wafer B                                 | Wafer Bump Material      |                           |                                  |                          | Wafer Bump Process |       |              |  |
|                                       |             |          |             |   | Wafer F                  | Wafer Fab Materials       |                                  |                          | Wafe               | r Fab | Process      |  |
|                                       |             |          |             |   | Part nur                 | nbe                       | r change                         |                          |                    |       |              |  |
|                                       | PCN Details |          |             |   |                          |                           |                                  |                          |                    |       |              |  |

## **Description of Change:**

This change notification is to announce the qualification of CFAB as an additional wafer fab site option for the LBC5 devices listed in the product affected section of this document.

|                     | Current |                   | Additional          |         |                   |
|---------------------|---------|-------------------|---------------------|---------|-------------------|
| Current Fab<br>Site | Process | Wafer<br>Diameter | Additional Fab Site | Process | Wafer<br>Diameter |
| DP1DM5              | LBC5    | 200 mm            | CFAB                | LBC5    | 200 mm            |

The LBC5 process technology has been running successfully in production at CFAB since 2012.

### **Reason for Change:**

Continuity of Supply

### Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):

None

## Changes to product identification resulting from this PCN:

#### Current

| Chip Sites | Chip Site Origin Code (20L) | Chip Site Country<br>Code (21L) | Chip Site City |
|------------|-----------------------------|---------------------------------|----------------|
| DP1DM5     | DM5                         | USA                             | Dallas         |
| New        |                             |                                 |                |
| Chip Site  | Chip Site Origin Code (20L) | Chip Site Country<br>Code (21L) | Chip Site City |

| CFAB      | CU3   | CHN                             | Chengdu        |
|-----------|-------|---------------------------------|----------------|
| Chip Site | (20L) | Chip Site Country<br>Code (21L) | Chip Site City |

Sample product shipping label (not actual product label)





(1P) \$N74L\$07N\$R

(Q) 2000 (D) 0336

(31T)LOT: 3959047MLA

(4W) TKY(1T) 7523483\$12

(P)

(2P) REV: (V) 0033317

(20L) CSO: SHE (21L) CCO:USA

(22L) ASO: HLA (23L) AGO: MYS

| Product Affected: |               |              |             |  |  |
|-------------------|---------------|--------------|-------------|--|--|
| SN9A040DWR        | TAS5612LDDV   | TAS5622ADDV  | TAS5624DDV  |  |  |
| SN9A041DWR        | TAS5612LDDVR  | TAS5622ADDVR | TAS5624DDVR |  |  |
| TAS5612LADDV      | TAS5614LADDV  | TAS5624ADDV  |             |  |  |
| TAS5612LADDVR     | TAS5614LADDVR | TAS5624ADDVR |             |  |  |

#### **Qualification Report**

# Qualification of LBC5 Process Technology at CFAB Approved 03/02/2012

#### **Die Attributes**

| Attributes        | Process QBS:<br>TAS5613APHD<br>Approved:<br>3/2/2012 | Process QBS:<br>DRV8813A0PWP<br>Approved:<br>3/2/2012 | Process QBS:<br>SN8C0183PWP<br>Approved:<br>3/2/2012 |
|-------------------|--|---|--|
| Wafer Fab Site    | CFAB   | CFAB  | CFAB   |
| Wafer Fab Process | LBC5   | LBC5  | LBC5   |
| Wafer Diameter    | 200mm  | 200mm   | 200mm  |

<sup>-</sup> QBS: Qual By Similarity

# Qualification Results Data Displayed as: Number of lots / Total sample size / Total failed

| Туре | Test Name /<br>Condition          | Duration                       | Qual Device:<br>TAS5613APHD | Qual Device:<br>DRV8813A0PWP | Qual Device: SN8C0183PWP |
|------|-----------------------------------|--------------------------------|-----------------------------|------------------------------|--------------------------|
| AC   | Autoclave 121C                    | 96 Hours                       | 3/77/0                      | 3/77/0                       | -                        |
| ED   | Electrical<br>Characterization    | Per<br>Datasheet<br>Parameters | 3/Pass                      | 3/Pass                       | 3/3/0                    |
| HAST | Biased HAST,<br>130C/85%RH        | 96 Hours                       | 3/77/0                      | -                            | -                        |
| HBM  | ESD - HBM                         | 1500 V                         | 3/21/0                      | 1/3/0                        | -                        |
| CDM  | ESD - CDM                         | 250 V                          | 3/15/0                      | 1/3/0                        | -                        |
| HTOL | Life Test, 155C                   | 240 Hours                      | 3/77/0                      |                              | 3/77/0                   |
| HTSL | High Temp<br>Storage Bake<br>170C | 420 Hours                      | 3/77/0                      | -                            | -                        |
| LU   | Latch-up                          | (per JESD78)                   | 3/6/0                       | 1/6/0                        | -                        |
| TC   | Temperature<br>Cycle, -65/150C    | 500 Cycles                     | 3/77/0                      | 3/77/0                       | -                        |

<sup>-</sup> Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

<sup>-</sup> Qual Device TAS5613APHD and SN8C0183PWP are qualified at LEVEL3-260C

<sup>-</sup> Qual Device DRV8813A0PWP is qualified at LEVEL1-260C

<sup>-</sup> The following are equivalent HTOL options based on an activation energy of 0.7eV: 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours

- The following are equivalent HTSL options based on an activation energy of 0.7eV: 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47: -55C/125C/700 Cycles and -65C/150C/500 Cycles Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

## Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

For questions regarding this notice, e-mails can be sent to the regional contacts shown below, or you can contact your local Field Sales Representative.

| Location     | E-Mail                         |
|--------------|--------------------------------|
| USA          | PCNAmericasContact@list.ti.com |
| Europe       | PCNEuropeContact@list.ti.com   |
| Asia Pacific | PCNAsiaContact@list.ti.com     |
| Japan        | PCNJapanContact@list.ti.com    |