



12500 TI Boulevard, MS 8640, Dallas, Texas 75243

**PCN# 20141121002**  
**Qualification of Additional Fab (UMC/DP1DM5) and Assembly Site (Amkor Philippines) for Select Devices**  
**Change Notification / Sample Request**

**Date:** 11/22/2014  
**To:** Newark/Farnell PCN

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

We request you acknowledge receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance of the change. If you require samples or additional data to support your evaluation, please request within 30 days.

The changes discussed within this PCN will not take effect any earlier than **90** days from the date of this notification, unless customer agreement has been reached on an earlier implementation of the change. This notification period is per TI's standard process.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice, contact your local Field Sales Representative or the PCN Manager ([PCN\\_ww\\_admin\\_team@list.ti.com](mailto:PCN_ww_admin_team@list.ti.com)).

Sincerely,

PCN Team  
SC Business Services  
Phone: +1(214) 480-6037  
Fax: +1(214) 480-6659

**20141121002**  
**Attachment: 1**

**Products Affected:**

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

| <b>DEVICE</b>  | <b>CUSTOMER PART NUMBER</b> |
|----------------|-----------------------------|
| CSD95378BQ5MCT | null                        |

Technical details of this Product Change follow on the next page(s).

|   |  |                                       |                           |                               |                          |
|---|--|---------------------------------------|---------------------------|-------------------------------|--------------------------|
| <b>PCN Number:</b>  | PCN20141121002   |                                       | <b>PCN Date:</b>          | 11/22/14                      |                          |
| <b>Title:</b>   | Qualification of Additional Fab Site (UMC/DP1DM5) and Assembly Site (Amkor Philippines) for Select Devices |                                       |                           |                               |                          |
| <b>Customer Contact:</b>  | <a href="#">PCN Manager</a>  | <b>Phone:</b>                         | +1(214)480-6037           | <b>Dept:</b> Quality Services |                          |
| <b>Proposed 1<sup>st</sup> Ship Date:</b>   | 02/23/2015   | <b>Estimated Sample Availability:</b> | Provided upon Request     |                               |                          |
| <b>Change Type:</b>   |  |                                       |                           |                               |                          |
| <input checked="" type="checkbox"/>   | Assembly Site  | <input type="checkbox"/>              | Assembly Process          | <input type="checkbox"/>      | Assembly Materials       |
| <input type="checkbox"/>  | Design   | <input type="checkbox"/>              | Electrical Specification  | <input type="checkbox"/>      | Mechanical Specification |
| <input type="checkbox"/>  | Test Site  | <input type="checkbox"/>              | Packing/Shipping/Labeling | <input type="checkbox"/>      | Test Process             |
| <input type="checkbox"/>  | Wafer Bump Site  | <input type="checkbox"/>              | Wafer Bump Material       | <input type="checkbox"/>      | Wafer Bump Process       |
| <input checked="" type="checkbox"/>   | Wafer Fab Site   | <input type="checkbox"/>              | Wafer Fab Materials       | <input type="checkbox"/>      | Wafer Fab Process        |
|   | <input type="checkbox"/>   |                                       | Part number change        |                               |                          |
| <b>PCN Details</b>  |  |                                       |                           |                               |                          |
| <b>Description of Change:</b>   |  |                                       |                           |                               |                          |
| <p>Texas Instruments is pleased to announce the qualification of an additional Fab and Assembly site for the devices listed in the Product Affected Section. For the devices listed in Group 1, UMC and DP1DM5 will be qualified as an additional fab site and Amkor Philippines as a new Assembly site. The devices listed in Group 2 will have only an additional Fab sites qualified (UMC and DP1DM5). There are no differences in wafer diameter or fab processes between current and new fab sites. There is no material differences between devices assembled at the 2 sites in either qualification group.</p> |  |                                       |                           |                               |                          |
| <b>Reason for Change:</b>   |  |                                       |                           |                               |                          |
| Continuity of Supply  |  |                                       |                           |                               |                          |
| <b>Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):</b>   |  |                                       |                           |                               |                          |
| None  |  |                                       |                           |                               |                          |
| <b>Changes to product identification resulting from this PCN:</b>   |  |                                       |                           |                               |                          |
| <b>Assembly Site</b>  |  |                                       |                           |                               |                          |
| PSI   | Assembly Site Origin (22L)   | ASO: PAC                              |                           |                               |                          |
| <b>Amkor Philippines</b>  | <b>Assembly Site Origin (22L)</b>  | <b>ASO: AP3</b>                       |                           |                               |                          |
| <b>Chip Site:</b>   |  |                                       |                           |                               |                          |
| <b>Current</b>  |  |                                       |                           |                               |                          |
| Chip Site   | Chip site code (20L)   | Chip country code (21L)               |                           |                               |                          |
| CFAB  | CU3  | CHN                                   |                           |                               |                          |
| MIHO8   | MH8  | JPN                                   |                           |                               |                          |
| <b>New</b>  |  |                                       |                           |                               |                          |
| <b>Chip Site</b>  | <b>Chip site code (20L)</b>  | <b>Chip country code (21L)</b>        |                           |                               |                          |
| DP1DM5  | DM5  | USA                                   |                           |                               |                          |
| UMC-F8AB  | UAB  | TWN                                   |                           |                               |                          |
| Sample product shipping label (not actual product label)  |  |                                       |                           |                               |                          |

TEXAS  
INSTRUMENTS  
MADE IN: Malaysia  
2DC: 2Q:

G4



|                    |          |
|--------------------|----------|
| MSL 2 /260C/1 YEAR | SEAL DT  |
| MSL 1 /235C/UNLIM  | 03/29/04 |

OPT:  
ITEM: 39  
LBL: 5A (L)T0:1750

(1P) SN74LS07NSR  
(Q) 2000 (D) 0336  
(31T) LOT: 3959047MLA  
(4W) TKY (1T) 7523483SI2  
(P)  
(2P) REV: (V) 0033317  
(20L) CS0: SHE (21L) CCO: USA  
(22L) AS0: MLA (23L) ACO: MYS

**Topside Device marking:**

Assembly site code for PAC= E

**Assembly site code for AP3= 3**

**Product Affected**

**Group 1 Devices (Assembly/Adding Amkor & Fab/Adding UMC-F8AB and DP1DM5):**

|                |                |                |                |
|----------------|----------------|----------------|----------------|
| CSD59972BQ5MC  | CSD59974BQ5MC  | CSD95372BQ5MC  | CSD95378BQ5MC  |
| CSD59973BQ5MC  | CSD59974BQ5MCT | CSD95372BQ5MCT | CSD95378BQ5MCT |
| CSD59973BQ5MCT |                |                |                |

**Group 2 Devices (Fab Only/Adding UMC-F8AB/DP1DM5):**

|              |               |               |               |
|--------------|---------------|---------------|---------------|
| CSD59962Q5M  | CSD95372BQ5MT | CSD95373BQ5MT | CSD95378BQ5MT |
| CSD95372BQ5M | CSD95373BQ5M  | CSD95378BQ5M  |               |

**Amkor Philippines Qualification Data:**



**5x6 QFN Q5MC Power Stage Qualification Summary at AMKOR-P3**  
**NCH MOSFET – Gen 2.1 25-10**

| <b>CSD95372BQ5MC Miho, CFAB and Amkor-P3 Qualification Test Summary</b> |  |                      |                    |                |
|---|--|----------------------|--------------------|----------------|
| <b>Stress</b>   | <b>Conditions</b>                      | <b>Test Duration</b> | <b>Sample Size</b> | <b>Results</b> |
| HTS   | 150°C, unbiased Bake                   | 1K hrs               | 3 lots x 77 units  | Pass           |
| Autoclave   | 121°C/100% RH                          | 96 hrs               | 3 lots x 77 units  | Pass           |
| Temp Cycle  | -55°C to +125°C                        | 1K cycles            | 3 lots x 77 units  | Pass           |
| HTOL**  | 125°C/100% Rated Vin                   | 1K hrs               | 3 lots x 77 units  | Pass           |
| Intermittent Op Life  | Delta Tj = 100°C<br>2 min on/3 min off | 10K cycles           | 3 lot x 77 units   | Pass           |
| Biased HAST   | 130°C/85% RH<br>80% Rated Vds          | 96 hrs               | 3 lots x 77 units  | Pass           |
| HTRB*   | 150°C/80% Rated Vds                    | 1K hrs               | 3 lots x 77 units  | Pass           |
| HTGB*   | 150°C/80% Rated Vgs                    | 1K hrs               | 3 lots x 77 units  | Pass           |

MSL2 preconditioning performed on devices prior to Autoclave, biased HAST & Temp Cycle stresses

- Bake: 24 hours @ 125°C
- Damp Heat: 168 hours @ 85°C/60% RH (Level 2)
- 3X reflow + flux + rinse, 260°C Pb free reflow temp

Assembly Qual Lot Matrix:

**REBUILD**

| ILN   | Device      | Batch      | Lot 1 | Lot 2 | Lot 3 |
|-------|-------------|------------|-------|-------|-------|
| Die 1 | G5N35304SA0 | 3344013CU3 | #12   |       | #11   |
|       |             | 3276001CU3 |       | #2    |       |
| Die 2 | G5N36333SB1 | 3276003CU3 | #1    | #2    | #1    |
| Die 3 | LCSD32000G1 | 4010917PHX | #21   | #21   | #21   |

\* HTRB & HTGB were performed on the CSD86360Q5D product qualification

\*\* HTOL was performed on the CSD95372AQ5M product qualification

**UMC Fab Qualification Data:**

**UMC Fab 8E Qualification Summary  
NCH 25N16 & 30N10 MOSFET**

| <b>CSD16404Q5A &amp; CSD17310Q5A Qualification Test Summary</b> |  |                      |                    |                |
|---|--|----------------------|--------------------|----------------|
| <b>Stress</b>   | <b>Conditions</b>                      | <b>Test Duration</b> | <b>Sample Size</b> | <b>Results</b> |
| HTRB  | 150°C/80% Rated Vds                    | 1K hrs               | 3 lots x 77 units  | Pass           |
| HTGB  | 150°C/80% Rated Vgs                    | 1K hrs               | 3 lots x 77 units  | Pass           |
| THB   | 85°C/85%R.H./80% Rated Vds             | 1K hrs               | 3 lots x 77 units  | Pass           |
| Autoclave   | 121C/100% RH                           | 96 hrs               | 3 lots x 77 units  | Pass           |
| Intermittent Op Life  | Delta Tj = 100°C<br>2 min on/2 min off | 10K cycles           | 3 lots x 77 units  | Pass           |
| Temp Cycle  | -40°C to 125°C                         | 1K cycles            | 3 lots x 77 units  | Pass           |

**DP1DM5 Fab Qualification Data:**

| <b>DMOS5 LBC7 Qualification Data: (Approved 2/16/2007)</b>  |                               |                         |                    |       |      |
|---|-------------------------------|-------------------------|--------------------|-------|------|
| <b>This qualification has been developed for the validation of this change. The qualification data will validate that the proposed change meets the applicable released technical specifications.</b> |                               |                         |                    |       |      |
| <b>Qualification Device: BQ24721RHB</b>   |                               |                         |                    |       |      |
| Wafer Fab Site:   |                               | DMOS5                   | Wafer Fab Process: |       | LBC7 |
| <b>Qualification:</b> <input type="checkbox"/> <b>Plan</b> <input checked="" type="checkbox"/> <b>Test Results</b>  |                               |                         |                    |       |      |
| Reliability Test  | Conditions                    | Sample Size             |                    |       |      |
|   |                               | Lot#1                   | Lot#2              | Lot#3 |      |
| **High Temp. Storage  | 170C (420hrs)                 | 77/0                    | 77/0               | 77/0  |      |
| **Autoclave 121C  | 240 Hrs                       | 77/0                    | 77/0               | 77/0  |      |
| **Temp Cycle  | -65C/+150C (1000 Cyc)         | 77/0                    | 77/0               | 77/0  |      |
| **Thermal Shock   | -65C/+150C (1000 Cyc)         | 77/0                    | 77/0               | 77/0  |      |
| ESD HBM   | +/- 2000V                     | 3/0                     | 3/0                | 3/0   |      |
| ESD CDM   | +/- 500V                      | 3/0                     | 3/0                | 3/0   |      |
| ESD MM  | +/- 100V                      | 3/0                     | 3/0                | 3/0   |      |
| Latch-up  | 100mA                         | 5/0                     | 5/0                | 5/0   |      |
| Electrical Char   | Per datasheet spec            | Pass                    | Pass               | Pass  |      |
| Wafer level Reliability   | Approved                      | Pass                    | Pass               | Pass  |      |
| Manufacturability (Assembly)  | (per mfg. Site specification) | Pass                    | Pass               | Pass  |      |
| Manufacturability (Wafer Fab)   | (per mfg. Site specification) | Pass                    | Pass               | Pass  |      |
| ** Preconditioning sequence: Level 3-260C   |                               |                         |                    |       |      |
| <b>Qualification Device: SH6964BBA0G4</b>   |                               |                         |                    |       |      |
| Wafer Fab Site:   |                               | DMOS5                   | Wafer Fab Process: |       | LBC7 |
| <b>Qualification:</b> <input type="checkbox"/> <b>Plan</b> <input checked="" type="checkbox"/> <b>Test Results</b>  |                               |                         |                    |       |      |
| Reliability Test  | Conditions                    | Sample Size (PASS/FAIL) |                    |       |      |
| **Biased HAST   | 130C/85%RH (96 Hrs)           | 77/0                    | 77/0               | 77/0  |      |
| Manufacturability (Wafer Fab)   | (per mfg. Site specification) | Pass                    |                    |       |      |
| Wafer level Reliability   | Approved                      | Pass                    | Pass               | Pass  |      |
| ** Preconditioning sequence: Level 3-260C   |                               |                         |                    |       |      |

|  |  |                               |                    |                         |       |
|--|--|-------------------------------|--------------------|-------------------------|-------|
| Qualification Device: SH6964BBA0G4   |  |                               |                    |                         |       |
| <b>Qualification Device: BQ24730RGF</b>  |  |                               |                    |                         |       |
| Wafer Fab Site:  |  | DMOS5                         | Wafer Fab Process: |                         | LBC7  |
| <b>Qualification:</b> <input type="checkbox"/> <b>Plan</b> <input checked="" type="checkbox"/> <b>Test Results</b> |  |                               |                    |                         |       |
| Reliability Test   |  | Conditions                    |                    | Sample Size (PASS/FAIL) |       |
| **Life Test 155C   |  | 240 Hrs                       |                    | 116/0                   | 116/0 |
| Electrical Char  |  | Per datasheet spec            |                    | Pass                    | Pass  |
| Manufacturability (Wafer Fab)  |  | (per mfg. Site specification) |                    | Pass                    |       |
| Manufacturability (Assembly)   |  | (per mfg. Site specification) |                    | Pass                    |       |
| Wafer level Reliability  |  | Approved                      |                    | Pass                    | Pass  |
| ** Preconditioning sequence: Level 3-260C  |  |                               |                    |                         |       |

**Addendum to:**

**5x6 QFN Q5MC Power Stage Qualification Summary  
NCH MOSFET – Gen 2.1 25-10**

**Second 42<sup>nd</sup> Fab Sourcing Qualification Summary (DMOS-5, UMC and Amkor-P3):  
CSD95372BQ5MC DMOS-5, UMC and Amkor-P3 Qualification Test Summary**

| Stress | Conditions              | Test Duration | Sample Size       | Results |
|--------|-------------------------|---------------|-------------------|---------|
| HTOL   | 125°C/100%<br>Rated Vin | 1K hrs        | 3 lots x 77 units | Pass    |

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

| Location     | E-Mail   |
|--------------|--|
| USA          | <a href="mailto:PCNAmericasContact@list.ti.com">PCNAmericasContact@list.ti.com</a> |
| Europe       | <a href="mailto:PCNEuropeContact@list.ti.com">PCNEuropeContact@list.ti.com</a>     |
| Asia Pacific | <a href="mailto:PCNAsiaContact@list.ti.com">PCNAsiaContact@list.ti.com</a>         |
| Japan        | <a href="mailto:PCNJapanContact@list.ti.com">PCNJapanContact@list.ti.com</a>       |