

| | | | |
|---|---|---------------------------------------|----------------------------------|
| PCN Number: | 20170727000A | PCN Date: | Jan 31, 2018 |
| Title: | Transfer of select CS150 devices from GFAB to MAINEFAB Wafer Fab site | | |
| Customer Contact: | PCN Manager | Dept: | Quality Services |
| Proposed 1st Ship Date: | Nov 1, 2017 | Estimated Sample Availability: | Date provided at sample request. |
| Change Type: | | | |
| <input type="checkbox"/> | Assembly Site | <input type="checkbox"/> | Assembly Process |
| <input type="checkbox"/> | Design | <input type="checkbox"/> | Assembly Materials |
| <input type="checkbox"/> | Test Site | <input type="checkbox"/> | Electrical Specification |
| <input type="checkbox"/> | Wafer Bump Site | <input type="checkbox"/> | Mechanical Specification |
| <input checked="" type="checkbox"/> | Wafer Fab Site | <input checked="" type="checkbox"/> | Packing/Shipping/Labeling |
| <input type="checkbox"/> | | <input type="checkbox"/> | Test Process |
| <input type="checkbox"/> | | <input type="checkbox"/> | Wafer Bump Material |
| <input type="checkbox"/> | | <input type="checkbox"/> | Wafer Bump Process |
| <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> | Wafer Fab Materials |
| <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> | Wafer Fab Process |
| <input type="checkbox"/> | | <input type="checkbox"/> | Part number change |

PCN Details

Description of Change:

The purpose of **PCN Revision A** is to announce the **retraction** of select devices. Retracted devices are identified with a **strikethrough** and are highlighted in yellow in the Product Affected Section. These devices will not transfer to MAINEFAB as they are impacted by the Amkor P1 assembly discontinuance communicated in PCN 20171214001, sent December 19, 2017.

This change notification is to announce the transfer of select CS150 devices from GFAB to the MAINEFAB Wafer Fab site for the selected devices listed in the "Product Affected" section of this document.

| Current | | | | New | | | |
|-----------|---------|----------------|---|-----------|---------|----------------|-----------------------|
| Chip Site | Process | Wafer Diameter | Interlayer Dielectric | Chip Site | Process | Wafer Diameter | Interlayer Dielectric |
| GFAB6 | CS150 | 150mm | TEOS Base ILD TEOS SOG/ SOG etchback | MAINEFAB* | CS150 | 200mm | TEOS CMP |
| GFAB8 | CS150 | 200mm | TEOS Base ILD TEOS SOG/ SOG etchback | MAINEFAB* | CS150 | 200mm | TEOS CMP |
| Chip Site | Process | Wafer Diameter | Contact Plug | Chip Site | Process | Wafer Diameter | Contact Plug |
| GFAB6 | CS150 | 150mm | Part of metallization | MAINEFAB* | CS150 | 200mm | W plug |
| GFAB8 | CS150 | 200mm | Part of metallization | MAINEFAB* | CS150 | 200mm | W plug |

*Interlayer Dielectric (ILD) and Contact plug processes will be upgraded to MaineFab's standardized Chemical-Mechanical Planarization (CMP) ILD and Tungsten (W) Contact plug processes.

Qual details are provided in the Qual Data Section.

Reason for Change:

GFAB closure

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

None

Changes to product identification resulting from this PCN:

Current:

| Current Chip Site | Chip Site Origin Code (20L) | Chip Site Country Code (21L) | Chip Site City |
|-------------------|-----------------------------|------------------------------|----------------|
| GFAB6 | GF6 | GBR | Greenock |
| GFAB8 | GF8 | GBR | Greenock |

New Fab Site:

| New Chip Site | Chip Site Origin Code (20L) | Chip Site Country Code (21L) | Chip Site City |
|-----------------|-----------------------------|------------------------------|-----------------------|
| MAINEFAB | CUA | USA | South Portland |

Sample product shipping label (not actual product label)


TEXAS INSTRUMENTS
 MADE IN: Malaysia
 2DC: 20:


 G4



(1P) SN74LS07NSR
 (Q) 2000 (D) 0336
 (31T) LOT: 3959047MLA
 (4W) TKY (1T) 7523483SI2
 (P)
 (2P) REV: (V) 0033317
 (20L) CSO: SHE (21L) CCO:USA
 (22L) ASO:MLA (23L) ACO:MY5

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

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

Product Affected:

| | | | |
|---------------------------|----------------------------|---------------------------|-------------------------|
| ADC12038CIWM/NOPB | ADC12130CIWMX/NOPB | ADC12138CIWM/NOPB | COPCG-AMD/V-MPC/MPGE725 |
| ADC12038CIWMX/NOPB | ADC12138CIMSAX/NOPB | ADC12138CIWMX/NOPB | COPCG-AQQ/V-MPC/MPGE724 |
| ADC12130CIWM/NOPB | ADC12138CIMSAX/NOPB | | |

Qualification Report
CS150 Technology Qualification - MFAB

Approve Date 21-July-2017

Product Attributes

| Attributes | Qual Device: ADC12138CIMSAX/NOPB |
|--------------------|-------------------------------------|
| Assembly Site | AMKOR AP1 |
| Package Family | SSOP |
| Wafer Fab Supplier | MAINEFAB |
| Wafer Fab Process | CS150 |

- QBS: Qual By Similarity

- Qual Device ADC12138CIMSAX/NOPB is qualified at LEVEL3-260C

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

| Type | Test Name / Condition | Duration | Qual Device: ADC12138CIMS/NOPB |
|------|-------------------------------|-------------------------------|-----------------------------------|
| AC | Autoclave 121C | 96 Hours | 3/231/0 |
| HAST | Biased HAST, 130C/85%RH | 96 Hours | 3/231/0 |
| TC | Temperature Cycle, -65/150C | 500 Cycles | 3/231/0 |
| ELFR | Early Life Failure Rate, 125C | 48HRS | 3/2400/0 |
| HTOL | Life Test, 125C | 1000 Hours | 3/231/0 |
| HTSL | High Temp Storage Bake 150C | 1000 Hours | 3/231/0 |
| HBM | ESD - HBM - Q100 | 1500 V | 3/9/0 |
| CDM | ESD - CDM - Q100 | 500 V | 3/9/0 |
| LU | Latch-up | (Per JESD78) | 3/18/0 |
| ED | Electrical Characterization | Per Datasheet Parameters | 3/90/0 |
| MQ | Manufacturability (Assembly) | (per mfg. Site specification) | Pass |
| MQ | Manufacturability (Wafer Fab) | (per mfg. Site specification) | Pass |

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

- 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: -65C/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 |