

PCN Number: 20170629002 **PCN Date:** July 5, 2017

Title: Transfer of select SLM devices from GFAB to FFAB Wafer Fab site

Customer Contact: [PCN Manager](#) **Dept:** Quality Services

Proposed 1st Ship Date: Oct. 5, 2017 **Estimated Sample Availability:** Date provided at sample request.

Change Type:

| | | |
|--|--|---|
| <input 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 | |

PCN Details

Description of Change:

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

| Current Fab Site | | | New Fab Site | | |
|------------------|---------|----------------|--------------|---------|----------------|
| Current Fab Site | Process | Wafer Diameter | New Fab Site | Process | Wafer Diameter |
| GFAB6 | SLM | 150 mm | FFAB | SLM | 200 mm |
| GFAB8 | SLM | 200 mm | FFAB | SLM | 200 mm |

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 |
|---------------|-----------------------------|------------------------------|----------------|
| FR-BIP-1 | TID | DEU | Freising |

Sample product shipping label (not actual product label)

TEXAS INSTRUMENTS
MADE IN: Malaysia
2DC: 20:



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

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

(1P) SN74LS07NSR
(Q) 2000 (D) 0336
(31T) LOT: 3959047MLA
(4W) TKY (1T) 7523483S12
(P)
(2P) REV: (V) 003317
(20L) CS0: SHE (21L) CCO: USA
(22L) AS0: MLA (23L) ACO: MYS

Product Affected:

| | | | |
|--------------|------------------|-------------------|------------------|
| LM10CLN/NOPB | LM2585S-ADJ | LM2586SX-ADJ | LM2587T-5.0/NOPB |
| LM10CN/NOPB | LM2585S-ADJ/NOPB | LM2586SX-ADJ/NOPB | LM2587T-ADJ |
| LM10CWM | LM2585SX-12/NOPB | LM2586T-3.3/NOPB | LM2587T-ADJ/NOPB |

| | | | |
|-----------------------|-----------------------|-------------------|----------------------|
| LM10CWM/NOPB | LM2585SX-5.0 | LM2586T-5.0/NOPB | LM2587T-ADJ/SL110726 |
| LM10CWMX/NOPB | LM2585SX-5.0/NOPB | LM2586T-ADJ | LM2588-5.0-MWC |
| LM2577S-ADJ | LM2585SX-ADJ/NOPB | LM2586T-ADJ/NOPB | LM2588S-12/NOPB |
| LM2577S-ADJ/NOPB | LM2585T-12/NOPB | LM2587S-12/NOPB | LM2588S-3.3/NOPB |
| LM2577SX-ADJ | LM2585T-3.3/NOPB | LM2587S-3.3/NOPB | LM2588S-5.0/NOPB |
| LM2577SX-ADJ/NOPB | LM2585T-5.0/NOPB | LM2587S-5.0 | LM2588S-ADJ |
| LM2577SX-ADJ/S5001344 | LM2585T-ADJ | LM2587S-5.0/NOPB | LM2588S-ADJ/NOPB |
| LM2577SX-ADJ/S5001804 | LM2585T-ADJ/NOPB | LM2587S-ADJ | LM2588SX-12/NOPB |
| LM2577T-ADJ | LM2586S-12/NOPB | LM2587S-ADJ/NOPB | LM2588SX-3.3/NOPB |
| LM2577T-ADJ/J7002816 | LM2586S-3.3/NOPB | LM2587SX-12/NOPB | LM2588SX-5.0/NOPB |
| LM2577T-ADJ/LB03 | LM2586S-5.0/NOPB | LM2587SX-5.0/NOPB | LM2588SX-ADJ/NOPB |
| LM2577T-ADJ/LF03 | LM2586S-ADJ | LM2587SX-ADJ | LM2588T-3.3/NOPB |
| LM2577T-ADJ/NOPB | LM2586S-ADJ/NOPB | LM2587SX-ADJ/NOPB | LM2588T-5.0/NOPB |
| LM2585S-12/NOPB | LM2586SX-3.3/NOPB | LM2587T-12/NOPB | LM2588T-ADJ |
| LM2585S-3.3/NOPB | LM2586SX-5.0/E7001891 | LM2587T-3.3/NOPB | LM2588T-ADJ/NOPB |
| LM2585S-5.0/NOPB | LM2586SX-5.0/NOPB | | |

**Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)**

**New process qualification in FFAB on SLM process - LM2587T-ADJ/NOPB (Implant Resistor Module)
Approved 27-Jun-2017**

Product Attributes

| Attributes | Qual Device: LM2587T-ADJ/NOPB | QBS Process Reference: LM2576HVT-5.0/NOPB |
|--------------------|----------------------------------|--|
| Assembly Site | TIEM-AT | TIEM-AT |
| Package Type | TO-220 | TO-220 |
| Wafer Fab Supplier | FFAB | FFAB |
| Wafer Fab Process | SLM | SLM |

- QBS: Qual By Similarity

- Qual Device LM2587T-ADJ/NOPB is qualified at LEVEL1- 260CG

Qualification Results

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

| Type | # | Test Spec | Min Lot Qty | SS/Lot | Test Name / Condition | Duration | Qual Device: LM2587T-ADJ/NOPB | QBS Process Reference: LM2576HVT-5.0/NOPB |
|--|----|----------------------------------|-------------|--------|-----------------------------|-------------|----------------------------------|--|
| Test Group A – Accelerated Environment Stress Tests | | | | | | | | |
| HAST | A2 | JEDEC JESD22-A110 | 3 | 77 | Biased HAST, 130C/85%RH | 96 Hours | - | 3/231/0 |
| AC | A3 | JEDEC JESD22-A102 | 3 | 77 | Autoclave 121C | 96 Hours | - | 3/231/0 |
| TC | A4 | JEDEC JESD22-A104 and Appendix 3 | 3 | 77 | Temperature Cycle, -55/150C | 1000 Cycles | - | 3/231/0 |
| TC-BP | A4 | MIL-STD883 Method 2011 | 1 | 30 | Post Temp. Cycle Bond Pull | Wires | - | 3/30/0 |
| PTC | A5 | JEDEC JESD22-A105 | 1 | 45 | Power Temperature Cycle | 1000 Cycles | - | N/A |
| HTSL | A6 | JEDEC JESD22-A103 | 1 | 45 | High Temp Storage Bake 150C | 1000 Hours | - | 3/231/0 |

| Test Group B – Accelerated Lifetime Simulation Tests | | | | | | | | |
|--|----|----------------------------|---|-----|---|-----------------------------------|--------|----------|
| HTOL | B1 | JEDEC JESD22-A108 | 3 | 77 | Life Test, 125C | 1000 Hours | 1/77/0 | 3/231/0 |
| ELFR | B2 | AEC Q100-008 | 3 | 800 | Early Life Failure Rate, 125C | 48 Hours | - | 3/2400/0 |
| EDR | B3 | AEC Q100-005 | 3 | 77 | NVM Endurance, Data Retention, and Operational Life | - | N/A | N/A |
| Test Group C – Package Assembly Integrity Tests | | | | | | | | |
| WBS | C1 | AEC Q100-001 | 1 | 30 | Wire Bond Shear (Cpk>1.67) | Wires | 1/30/0 | 1/30/0 |
| WBP | C2 | MIL-STD883 Method 2011 | 1 | 30 | Wire Bond Pull (Cpk>1.67) | Wires | 1/30/0 | 1/30/0 |
| SD | C3 | JEDEC JESD22-B102 | 1 | 15 | Solderability >95% Lead Coverage | Pb Free | - | 1/15/0 |
| SD | C3 | JEDEC JESD22-B102 | 1 | 15 | Solderability >95% Lead Coverage | Pb | - | 1/15/0 |
| PD | C4 | JEDEC JESD22-B100 and B108 | 3 | 10 | Physical Dimensions (Cpk>1.67) | - | - | 3/30/0 |
| Test Group D – Die Fabrication Reliability Tests | | | | | | | | |
| EM | D1 | JESD61 | - | - | Electromigration | - | - | - |
| TDDB | D2 | JESD35 | - | - | Time Dependant Dielectric Breakdown | - | - | - |
| HCI | D3 | JESD60 & 28 | - | - | Hot Injection Carrier | - | - | - |
| NBTI | D4 | - | - | - | Negative Bias Temperature Instability | - | - | - |
| SM | D5 | - | - | - | Stress Migration | - | - | - |
| Test Group E – Electrical Verification Tests | | | | | | | | |
| HBM | E2 | AEC Q100-002 | 1 | 3 | ESD - HBM | 2500V | 1/3/0 | 3/9/0 |
| CDM | E3 | AEC Q100-011 | 1 | 3 | ESD - CDM | 750V | 1/3/0 | 3/9/0 |
| LU | E4 | AEC Q100-004 | 1 | 6 | Latch-up | (Per AEC-Q100-004) | 1/6/0 | 3/18/0 |
| ED | E5 | AEC Q100-009 | 3 | 30 | Electrical Distributions | Cpk>1.67 Room, hot, and cold test | 1/30/0 | 3/90/0 |

Ambient Operating Temperature by Automotive Grade Level:

Grade 0 (or E): -40°C to +150°C
Grade 1 (or Q): -40°C to +125°C
Grade 2 (or T): -40°C to +105°C
Grade 3 (or I): -40°C to +85°C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):

Room/Hot/Cold: HTOL, ED
Room/Hot: THB/HAST, TC/PTC, HTSL, ELFR, ESD & LU
Room: AC/uHAST

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 |