

| | | | | | |
|---|--|--------------------------|---------------------------------------|-------------------------------------|--------------------------|
| PCN Number: | 20130903003 | | PCN Date: | 09/12/2013 | |
| Title: | Qualification of ASES, TITL and JCAP as Additional Assembly / Test Site for Select Devices | | | | |
| Customer Contact: | PCN_ww_admin_team@list.ti.com | | Phone: | +1(214)480-6037 | |
| Dept: | Quality Services | | | | |
| Proposed 1st Ship Date: | 12/12/2013 | | Estimated Sample Availability: | Date Provided at Sample request | |
| Change Type: | | | | | |
| <input checked="" type="checkbox"/> | Assembly Site | <input type="checkbox"/> | Assembly Process | <input checked="" 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 checked="" type="checkbox"/> | Wafer Bump Site | <input type="checkbox"/> | Wafer Bump Material | <input type="checkbox"/> | Wafer Bump Process |
| <input 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: | | | | | |
| <p>Texas Instruments Incorporated is announcing the qualification of ASES, TITL and JCAP as additional assembly/test site for select devices listed in the "Product Affected" Section. Current assembly sites are indicated in the "Changes to Product Identification" tables below. Assembly differences are as follows:</p> | | | | | |
| Group 1 Device: HNT to ASES | | | | | |
| | | HNT | | ASES | |
| Wire type | | 1.0 Mil Au | | 1.0 Mil Cu | |
| Mold Compound | | 450179 | | EN2000515 | |
| Group 2 Device: AMKOR K1 to TITL | | | | | |
| | | AMKOR K1 | | TITL | |
| Lead finish | | Matte Sn | | NiPdAu | |
| Mold Compound | | 101319570 | | 4205442 | |
| Group 3 Device: STS to JCAP | | | | | |
| | | STS-AT | | JCAP-AT | |
| Bump Site | | STS-BP | | JCAP-FAB | |
| <p>Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.</p> | | | | | |
| Reason for Change: | | | | | |
| Continuity of Supply | | | | | |
| Anticipated Impact on Fit, Form, Function, Quality or Reliability (Positive / Negative): | | | | | |
| None | | | | | |

Changes to Product Identification Resulting from this PCN:

Group 1 Device: HNT to AESH

| Assembly Site | | |
|------------------------------|----------------------------|--------------------------|
| Hana Thailand | Assembly Site Origin (22L) | ASO: HNT |
| ASE Shanghai | Assembly Site Origin (22L) | ASO: ASH |

ASSEMBLY SITE CODES: HNT =H, [AESH](#) = A

Group 2 Device: AMKOR K1 to TITL

| Assembly Site | | |
|---------------------------|----------------------------|--------------------------|
| AMKOR Korea K1 | Assembly Site Origin (22L) | ASO: AMN |
| TI Taiwan | Assembly Site Origin (22L) | ASO: TAI |

ASSEMBLY SITE CODES: AMN =7, [TITL](#) = T

Group 3 Device: SCS to JCAP

| Assembly Site | | |
|-------------------------|----------------------------|--------------------------|
| STATS ChipPAC-AT | Assembly Site Origin (22L) | ASO: STS |
| JCAP-AT | Assembly Site Origin (22L) | ASO: JCP |

ASSEMBLY SITE CODES: STS =G, [JCAP](#) = P

Sample product shipping label (not actual product label)

TEXAS INSTRUMENTS
 MADE IN: Malaysia
 2DC: 2d
 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) CSO: SHE (21L) CCO:USA
 (22L) ASO: MLA (23L) ACO: MYS

Product Affected: Group 1 Device

| | | | |
|-----------------|-----------------|-----------------|-----------------|
| OPA1632DGN | THS3202DGNG4 | THS4121IDGN | THS4150CDGNG4 |
| OPA1632DGNG4 | THS3202DGNR | THS4121IDGNG4 | THS4150CDGNR |
| OPA1632DGNR | THS3202DGNRG4 | THS4121IDGNR | THS4150CDGNGRG4 |
| OPA1632DGNRG4 | THS4011CDGN | THS4121IDGNGRG4 | THS4150IDGN |
| THS3001CDGN | THS4011CDGNG4 | THS4130CDGK | THS4150IDGNG4 |
| THS3001CDGNG4 | THS4011CDGNR | THS4130CDGKRG4 | THS4150IDGNR |
| THS3001CDGNR | THS4011CDGNGRG4 | THS4130CDGN | THS4150IDGNGRG4 |
| THS3001CDGNGRG4 | THS4011IDGN | THS4130CDGNG4 | THS4151CDGK |
| THS3001HVCDGN | THS4011IDGNG4 | THS4130CDGNR | THS4151CDGKRG4 |
| THS3001HVCDGNG4 | THS4011IDGNR | THS4130CDGNGRG4 | THS4211DGK |
| THS3001HVIDGN | THS4011IDGNGRG4 | THS4130IDGK | THS4211DGKRG4 |
| THS3001HVIDGNG4 | THS4022IDGN | THS4130IDGKRG4 | THS4211DGN |
| THS3001IDGN | THS4022IDGNG4 | THS4130IDGKR | THS4211DGNRG4 |
| THS3001IDGNG4 | THS4022IDGNR | THS4130IDGKRG4 | THS4211DGNR |
| THS3001IDGNR | THS4022IDGNGRG4 | THS4130IDGN | THS4211DGNRG4 |
| THS3001IDGNGRG4 | THS4031CDGN | THS4130IDGNG4 | THS4222DGK |
| THS3062DGN | THS4031CDGNG4 | THS4130IDGNR | THS4222DGKRG4 |
| THS3062DGNG4 | THS4031CDGNR | THS4130IDGNGRG4 | THS4222DGN |
| THS3110IDGN | THS4031CDGNGRG4 | THS4131CDGK | THS4222DGNRG4 |
| THS3110IDGNG4 | THS4031IDGN | THS4131CDGKRG4 | THS4222DGNR |

| | | | |
|---------------|----------------|----------------|---------------|
| THS3110IDGNR | THS4031IDGNG4 | THS4131CDGKR | THS4222DGNRG4 |
| THS3110IDGNG4 | THS4031IDGNR | THS4131CDGKRG4 | THS4500IDGK |
| THS3111CDGNR | THS4031IDGNG4 | THS4131CDGN | THS4500IDGKG4 |
| THS3111CDGNG4 | THS4032CDGN | THS4131CDGNG4 | THS4500IDGN |
| THS3111IDGN | THS4032CDGNG4 | THS4131CDGNR | THS4500IDGNG4 |
| THS3111IDGNG4 | THS4032IDGN | THS4131CDGNG4 | THS4500IDGNR |
| THS3111IDGNR | THS4032IDGNG4 | THS4131IDGK | THS4500IDGNG4 |
| THS3111IDGNG4 | THS4032IDGNR | THS4131IDGKG4 | THS4504DGK |
| THS3120CDGN | THS4032IDGNG4 | THS4131IDGKR | THS4504DGKG4 |
| THS3120CDGNG4 | THS4121CDGK | THS4131IDGKRG4 | THS4504DGN |
| THS3120CDGNR | THS4121CDGKG4 | THS4131IDGN | THS4504DNG4 |
| THS3120CDGNG4 | THS4121CDGKR | THS4131IDGNG4 | THS4504DGNR |
| THS3120IDGN | THS4121CDGKRG4 | THS4131IDGNR | THS4504DGNRG4 |
| THS3120IDGNG4 | THS4121CDGN | THS4131IDGNG4 | THS4505DGK |
| THS3121IDGN | THS4121CDGNG4 | THS4140CDGN | THS4505DGKG4 |
| THS3121IDGNG4 | THS4121CDGNR | THS4140CDGNG4 | THS4505DGN |
| THS3202DGK | THS4121CDGNG4 | THS4140IDGN | THS4505DNG4 |
| THS3202DGKG4 | THS4121IDGK | THS4140IDGNG4 | THS4505DGNR |
| THS3202DGKR | THS4121IDGKG4 | THS4140IDGNR | THS4505DGNRG4 |
| THS3202DGKRG4 | THS4121IDGKR | THS4140IDGNG4 | THS6072IDGNR |
| THS3202DGN | THS4121IDGKRG4 | THS4150CDGN | THS6072IDGNG4 |

Product Affected: Group 2 Device

MSP430V250IPZ

Product Affected: Group 3 Device

CDC3RL02YFPR

TPS22932BYFPR

TPS22932BYFPT

Qualification Data: Group 1

This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

Qual Vehicle : THS3202DGK (MSL1-260C)

Package Construction Details

| | | | |
|----------------------------|-------------|-----------------|-----------------|
| Assembly Site: | ASESH | Mold Compound: | EN2000515 |
| # Pins-Designator, Family: | 8-DGK, MSOP | Mount Compound: | EY1000063 |
| Lead Finish, Base | NiPdAu, Cu | Bond Wire: | 1.0 Mil Dia. Cu |

Qualification: Plan **Test Results**

| Reliability Test | Conditions | Sample Size / Fail |
|-----------------------------|-------------------------------|--------------------|
| Electrical Characterization | - | Pass |
| **Temperature Cycle | -65C/+150C (500 Cyc) | 77/0 |
| Manufacturability (MQ) | (per mfg. Site specification) | Pass |
| Moisture Sensitivity | L1-260C | 12/0 |

Notes ** - Preconditioning sequence: Level 1-260C.

| Reference Qualification | | | | |
|---|-------------------------------|--------------------|------------------|-------|
| Qual Vehicle : LM358ADGKR (MSL1-260C) | | | | |
| Package Construction Details | | | | |
| Assembly Site: | ASESH | Mold Compound: | EN2000515 | |
| # Pins-Designator, Family: | 8-DGK, MSOP | Mount Compound: | EY1000063 | |
| Lead Finish, Base | NiPdAu, Cu | Bond Wire: | 1.0 Mil Dia. Cu | |
| Qualification: <input type="checkbox"/> Plan <input checked="" type="checkbox"/> Test Results | | | | |
| Reliability Test | Conditions | Sample Size / Fail | | |
| | | Lot#1 | Lot#2 | Lot#3 |
| **Steady-state Life Test | 150C (168 Hours) | 77/0 | 77/0 | 77/0 |
| **High Temp. Storage Bake | 150C (500 Hours) | 77/0 | 77/0 | 77/0 |
| **Biased HAST | 130C/85%RH (96 Hours) | 77/0 | 77/0 | 77/0 |
| **Autoclave 121C | 121C, 2 atm (96 Hours) | 77/0 | 77/0 | 77/0 |
| **Temperature Cycle | -65C/+150C (500 Cyc) | 77/0 | 77/0 | 77/0 |
| Solderability | Steam age, 8 Hours | 22/0 | 22/0 | 22/0 |
| Flammability | Method A - UL94-0 | 5/0 | 5/0 | 5/0 |
| Flammability | Method B - IEC 695-2-2 | 5/0 | 5/0 | 5/0 |
| Flammability | Method C - UL 1694 | 5/0 | 5/0 | 5/0 |
| Salt Atmosphere | 24 Hours | 5/0 | 5/0 | 5/0 |
| Manufacturability (MQ) | (per mfg. Site specification) | Pass | Pass | Pass |
| Moisture Sensitivity | L1-260C | 12/0 | 12/0 | 12/0 |
| Notes ** - Preconditioning sequence: Level 1-260C. | | | | |
| Qualification Data: Group 2 | | | | |
| This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications. | | | | |
| Qual Vehicle : MSP430F4794IPZ (MSL1-260C) | | | | |
| Package Construction Details | | | | |
| Assembly Site: | TITL | Mold Compound: | 4205442 | |
| # Pins-Designator, Family: | 100-PZ, LQFP | Mount Compound: | 4042504 | |
| Lead Finish, Base | NiPdAu, Cu | Bond Wire: | 0.95 Mil Dia. Au | |
| Qualification: <input type="checkbox"/> Plan <input checked="" type="checkbox"/> Test Results | | | | |
| Reliability Test | Conditions | Sample Size / Fail | | |
| | | Lot#1 | Lot#2 | Lot#3 |
| Electrical Characterization | - | Pass | | |
| **Operating Life Test | 150C (300 Hours) | 120/0 | | |
| **Temperature Cycle | -65C/+150C (1000 Cyc) | 77/0 | | |
| **High Temp. Storage Bake | 170C (420 Hours) | 77/0 | | |
| ESD CDM | +/- 500V | 3/0 | | |
| ESD HBM | +/- 2KV | 3/0 | | |
| ESD MM | +/- 500V | 3/0 | | |
| X-ray | Top side only | 5/0 | | |
| Manufacturability (MQ) | (per mfg. Site specification) | Pass | | |
| Notes ** - Preconditioning sequence: Level 1-260C. | | | | |

Qualification Data: Group 3

This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

Qual Vehicle : CD3239 (MSL1-260C)

Package Construction Details

| | | | |
|----------------------------|--------------|-------------------|--------|
| Assembly & Bump Site: | JCAP | Bump Composition: | SnAgCu |
| # Pins-Designator, Family: | 25-YFP, WCSP | Bump Diameter: | 0.23mm |

Qualification: Plan **Test Results**

| Reliability Test | Conditions | Sample Size / Fail | | |
|---------------------------|-------------------------------|--------------------|--------|--------|
| | | Lot #1 | Lot #2 | Lot #3 |
| **Steady-state Life Test | 150C (300 Hours) | 116/0 | 116/0 | 116/0 |
| **High Temp. Storage Bake | 150C (1000 Hours) | 77/0 | 77/0 | 77/0 |
| **Biased HAST | 130C/85%RH (96 Hours) | 77/0 | 77/0 | 77/0 |
| **Unbiased HAST | 130C/85%RH (96 Hours) | 77/0 | 77/0 | 77/0 |
| **Temperature Cycle | -55C/+125C (1000 Cyc) | 77/0 | 77/0 | 77/0 |
| Manufacturability (MQ) | (per mfg. Site specification) | Pass | Pass | Pass |
| Moisture Sensitivity | L1-260C | 12/0 | 12/0 | 12/0 |

Notes **- Preconditioning sequence: Level 1-260C.

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 | PCNAmericasContact@list.ti.com |
| Europe | PCNEuropeContact@list.ti.com |
| Asia Pacific | PCNAsiaContact@list.ti.com |
| Japan | PCNJapanContact@list.ti.com |