Texas Instruments 12500 TI Boulevard, MS 8640, Dallas, Texas 75243

# PCN# 20140304002B
# Qualification of HNT and JCET Chuzhou as Additional Assembly/Test Site for Select Devices
# Change Notification / Sample Request

Dear Customer:

Version B of this PCN is to notify that there will be no change on the wire type for Group 3 devices. Affected devices will use existing wire type during assembly process.

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).

Sincerely,

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

**PCN# 20140304002B**
**Attachment: 1**

## Products Affected:

According to our records, there are the affected device(s) that you have purchased within the past twenty-four (24) months. Technical details of this Product Change follow on the next page(s).

| | | | |
|---|---|---|---|
| **PCN Number:** | 20140304002B | **PCN Date:** | 04/03/2014 |

| | |
|---|---|
| **Title:** | Qualification of HNT and JCET Chuzhou as Additional Assembly/Test Site for Select Devices |

| | | | | | |
|---|---|---|---|---|---|
| **Customer Contact:** | PCN Manager | **Phone:** | +1(214)480-6037 | **Dept:** | Quality Services |

**Change Type:**

| | | | | | |
|---|---|---|---|---|---|
| ☒ | Assembly Site | ☐ | Assembly Process | ☒ | Assembly Materials |
| ☐ | Design | ☐ | Electrical Specification | ☐ | Mechanical Specification |
| ☒ | Test Site | ☐ | Packing/Shipping/Labeling | ☐ | Test Process |
| ☐ | Wafer Bump Site | ☐ | Wafer Bump Material | ☐ | Wafer Bump Process |
| ☐ | Wafer Fab Site | ☐ | Wafer Fab Materials | ☐ | Wafer Fab Process |
| | | ☐ | Part number change | | |

## PCN Details

**Description of Change:**

Version B of this PCN is to notify that there will be no change on the wire type for Group 3 devices. Affected devices will use existing wire type during assembly process.

Qualification of HNT and JCET Chuzhou as Additional Assembly/Test Site for Select Devices. Material differences between Assembly/Test sites as follows:

**Group 1 Devices: Assembly Site change only. No Assembly material differences.**

**Group 2 Devices:**

| | **NSE** | **HANA** |
|---|---|---|
| Mold Compound | CZ0140 | 450176 |

**Group 3 Devices :**

| | **NFME** | **JCETCZ** |
|---|---|---|
| Mold Compound | R-15 | 013102024401 |
| ~~Wire Type~~ | ~~Au~~ | ~~Cu~~ |

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.

**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:**

**Group1 and 2 Devices:**

| Assembly Site | | |
|---|---|---|
| NSE Thailand | Assembly Site Origin (22L) | ASO: NSE |
| Hana Thailand | Assembly Site Origin (22L) | ASO: HNT |

ASSEMBLY SITE CODES: NSE =J, HANA =H

**Group 3 Devices:**

| Assembly Site | | |
|---|---|---|
| NFME China | Assembly Site Origin (22L) | ASO: NFM |
| JCET Chuzhou China | Assembly Site Origin (22L) | ASO: GP6 |

ASSEMBLY SITE CODES: NFME =E, JCETCZ =F

Sample product shipping label (not actual product label)


TEXAS INSTRUMENTS
G4
MADE IN: Malaysia
2DC: 2Q:
MSL 2 /260C/1 YEAR SEAL DT
MSL 1 /235C/UNLIM 03/29/04
OPT:
ITEM: 39
LBL: 5A (L)TO: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

**Group 1 Product Affected:**

| | | | |
|---|---|---|---|
| TPS61040DDCR | TPS62240DDCT | TPS62260DDCT | TPS62561DDCR |
| TPS61040DDCT | TPS62240DDCTG4 | TPS62260DDCTG4 | TPS62561DDCT |
| TPS62240DDCR | TPS62260DDCR | TPS62262DDCR | |
| TPS62240DDCRG4 | TPS62260DDCRG4 | TPS62262DDCT | |

**Group 2 Product Affected:**

| | | | |
|---|---|---|---|
| TPS62230DRYR | TPS622314DRYR | TPS62231DRYR | TPS62236DRYR |
| TPS62230DRYT | TPS622314DRYT | TPS62231DRYT | TPS62236DRYT |
| TPS622310DRYR | TPS622315DRYR | TPS62232DRYR | TPS62237DRYR |
| TPS622310DRYT | TPS622315DRYT | TPS62232DRYT | TPS62237DRYT |
| TPS622311DRYR | TPS622316DRYR | TPS62233DRYR | TPS62238DRYR |
| TPS622311DRYT | TPS622316DRYT | TPS62233DRYT | TPS62238DRYT |
| TPS622312DRYR | TPS622317DRYR | TPS62234DRYR | TPS62239DRYR |
| TPS622312DRYT | TPS622317DRYT | TPS62234DRYT | TPS62239DRYT |
| TPS622313DRYR | TPS622318DRYR | TPS62235DRYR | |
| TPS622313DRYT | TPS622318DRYT | TPS62235DRYT | |

**Group 3 Product Affected:**

| | | | |
|---|---|---|---|
| CD4051BE | LM339N | LM393P | ULN2003AN |
| LM324N | LM358P | NE555P | |
| LM324NE3 | LM358PE3 | SN74HC164N | |

## Group 1 Qualification Data

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 : TPS62260DDCR (MSL1-260C)**

**Package Construction Details**

| | | | |
|---|---|---|---|
| Assembly Site: | HNT | Mold Compound: | 450207 |
| # Pins-Designator, Family: | 5-DDC, SOT | Mount Compound: | 400151 |
| Lead Finish, Base | NiPdAu, Cu | Bond Wire: | 1.3 Mil Dia. Au |

**Qualification:** ☐ **Plan** ☒ **Test Results**

| Reliability Test | Conditions | Sample Size / Fail |
|---|---|---|
| Electrical Characterization | - | 15/0 |
| Manufacturability (Assembly) | (per mfg. Site specification) | Pass |

## Reference Qualification:

### Qual Vehicle 1: TPS62220DDC (MSL1-260C)

**Package Construction Details**

| | | | |
|---|---|---|---|
| Assembly Site: | HNT | Mold Compound: | 450207 |
| # Pins-Designator, Family: | 5-DDC, SOT | Mount Compound: | 400151 |
| Lead Finish, Base | NiPdAu, Cu | Bond Wire: | 1.0 Mil Dia. Au |

**Qualification:** ☐ **Plan** ☒ **Test Results**

| Reliability Test | Conditions | Sample Size / Fail | | |
|---|---|---|---|---|
| | | Lot# 1 | Lot# 2 | Lot# 3 |
| **Autoclave | 121C, 2 atm (240 Hrs) | 77/0 | 77/0 | 77/0 |
| **Temperature Cycle | -65/150 (1000 cycles) | 77/0 | 77/0 | 77/0 |
| **Thermal Shock | -65/150 (1000 cycles) | 77/0 | 77/0 | 77/0 |
| X-ray | (top side only) | 5/0 | 5/0 | 5/0 |
| 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 |
| Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass |
| Moisture Sensitivity | (Level 1 @ 260C peak +5/-0C) | 12/0 | 12/0 | 12/0 |

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

### Qual Vehicle 2: TPS71533DCK (MSL1-260C)

**Package Construction Details**

| | | | |
|---|---|---|---|
| Assembly Site: | HNT | Mold Compound: | 450207 |
| # Pins-Designator, Family: | 5-DCK, SOT | Mount Compound: | 400151 |
| Lead Finish, Base | NiPdAu, Cu | Bond Wire: | 1.25 Mil Dia. Au |

**Qualification:** ☐ **Plan** ☒ **Test Results**

| Reliability Test | Conditions | Sample Size / Fail | | |
|---|---|---|---|---|
| | | Lot# 1 | Lot# 2 | Lot# 3 |
| **Autoclave | 121C, 2 atm (240 Hrs) | 77/0 | 77/0 | 77/0 |
| **Temperature Cycle | -65/150 (1000 cycles) | 77/0 | 77/0 | 77/0 |
| **Thermal Shock | -65/150 (1000 cycles) | 77/0 | 77/0 | 77/0 |
| **HAST | 130C/85%RH (96 Hrs) | 77/0 | 77/0 | 77/0 |
| **Life test | 155C (240 Hrs) | 116/0 | 116/0 | 116/0 |
| **High-Temp Storage Bake | 170C (420 Hrs) | 77/0 | 77/0 | 77/0 |
| Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass |

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

## Group 2 Qualification Data

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 : TPS62234DRYT (MSL1-260C)

**Package Construction Details**

| | | | |
|---|---|---|---|
| Assembly Site: | HNT | Mold Compound: | 450176 |
| # Pins-Designator, Family: | 6-DRY, SON | Mount Compound: | 400173 |
| Lead Finish, Base | NiPdAu, Cu | Bond Wire: | 1.0 Mil Dia. Au |

**Qualification:** ☐ **Plan** ☒ **Test Results**

| Reliability Test | Conditions | Sample Size / Fail |
|---|---|---|
| Electrical Characterization | - | 15/0 |
| Manufacturability (Assembly) | (per mfg. Site specification) | Pass |

## Reference Qualification:

| Qual Vehicle 1: TPD4S014DRY (MSL1-260C) | | | |
|---|---|---|---|
| **Package Construction Details** | | | |
| Assembly Site: | HNT | Mold Compound: | 450176 |
| # Pins-Designator, Family: | 6-DRY, SON | Mount Compound: | 400173 |
| Lead Finish, Base | NiPdAu, Cu | Bond Wire: | 1.0 Mil Dia. Au |

**Qualification:** ☐ **Plan** ☒ **Test Results**

| Reliability Test | Conditions | Sample Size / Fail | | |
|---|---|---|---|---|
| | | Lot# 1 | Lot# 2 | Lot# 3 |
| X-ray | (top side only) | 5/0 | 5/0 | 5/0 |
| Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass |
| Moisture Sensitivity | (Level 1 @ 260C peak +5/-0C) | 12/0 | 12/0 | 12/0 |

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

| Qual Vehicle 2: TS3A44159RSV (MSL1-260C) | | | |
|---|---|---|---|
| **Package Construction Details** | | | |
| Assembly Site: | HNT | Mold Compound: | 450176 |
| # Pins-Designator, Family: | 16-RSV, QFN | Mount Compound: | 400173 |
| Lead Finish, Base | NiPdAu, Cu | Bond Wire: | 0.8 Mil Dia. Au |

**Qualification:** ☐ **Plan** ☒ **Test Results**

| Reliability Test | Conditions | Sample Size / Fail | | |
|---|---|---|---|---|
| | | Lot# 1 | Lot# 2 | Lot# 3 |
| **Life Test | 150C (300 Hrs) | 116/0 | 116/0 | 116/0 |
| **Biased HAST | 130C/85%RH (96 Hrs) | 77/0 | 77/0 | 77/0 |
| **Autoclave | 121C, 2 atm (96 Hrs) | 77/0 | 77/0 | 77/0 |
| **Temperature Cycle | -65/150 (1000 cycles) | 77/0 | 77/0 | 77/0 |
| **High-Temp Storage Bake | 150C (1000 Hrs) | 77/0 | 77/0 | 77/0 |
| Flammability | Method UL94-V0 | 5/0 | 5/0 | 5/0 |
| Flammability | Method IEC 695-2-2 | 5/0 | 5/0 | 5/0 |
| Flammability | Method UL-1694 | 5/0 | 5/0 | 5/0 |
| X-ray | (top side only) | 5/0 | 5/0 | 5/0 |
| Salt Atmosphere | - | 22/0 | 22/0 | 22/0 |
| Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass |
| Moisture Sensitivity | (Level 1 @ 260C peak +5/-0C) | 12/0 | 12/0 | 12/0 |

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

## Group 3 Qualification Data

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 1: LM358P | | | |
|---|---|---|---|
| **Package Construction Details** | | | |
| Assembly Site: | JCET CHUZHOU | Mold Compound: | 013102024401 |
| # Pins-Designator, Family: | 8-N, PDIP | Mount Compound: | 011204001701 |
| Lead Finish, Base | Matte Sn, Cu | Bond Wire: | 1.0 Mil Dia. Cu |

**Qualification: ☐ Plan ☒ Test Results**

| Reliability Test | Conditions | Sample Size / Fail | | |
|---|---|---|---|---|
| | | Lot# 1 | Lot# 2 | Lot# 3 |
| Electrical Characterization | - | Pass | - | - |
| Autoclave | 121C, 2 atm (192 Hrs) | 77/0 | - | - |
| Temperature Cycle | -65/150 (500 cycles) | 77/0 | - | - |
| Biased HAST | 130C/85%RH (192 Hrs) | 77/0 | 77/0 | 77/0 |
| High Temp. Storage Bake | 170C (600 Hrs) | 77/0 | - | - |
| Life Test | 150C (300 hrs) | 77/0 | - | - |
| Salt Atmosphere | 24 Hrs | 22/0 | 22/0 | 22/0 |
| X-ray | (top side only) | 5/0 | 5/0 | 5/0 |
| Solderability | 8 Hours Steam Age | 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 |
| Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass |

**Qual Vehicle 2: SN74HC164N**

**Package Construction Details**

| | | | |
|---|---|---|---|
| Assembly Site: | JCET CHUZHOU | Mold Compound: | 013102024401 |
| # Pins-Designator, Family: | 14-N, PDIP | Mount Compound: | 011204001701 |
| Lead Finish, Base | Matte Sn, Cu | Bond Wire: | 1.0 Mil Dia. Cu |

**Qualification: ☐ Plan ☒ Test Results**

| Reliability Test | Conditions | Sample Size / Fail | | |
|---|---|---|---|---|
| | | Lot# 1 | Lot# 2 | Lot# 3 |
| Electrical Characterization | - | Pass | - | - |
| Autoclave | 121C, 2 atm (240 Hrs) | 77/0 | - | - |
| Life Test | 150C (300 hrs) | 77/0 | - | - |
| Temperature Cycle | -65/150 (1000 cycles) | 77/0 | - | - |
| Biased HAST | 130C/85%RH (192 Hrs) | 77/0 | - | - |
| High Temp. Storage Bake | 170C (600 Hrs) | 77/0 | - | - |
| X-ray | (top side only) | 5/0 | 5/0 | 5/0 |
| Solderability | Pb Free/Solder | 22/0 | 22/0 | 22/0 |
| Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass |

**Qual Vehicle 3: CD4051BE**

**Package Construction Details**

| | | | |
|---|---|---|---|
| Assembly Site: | JCET CHUZHOU | Mold Compound: | 013102024401 |
| # Pins-Designator, Family: | 16-N, PDIP | Mount Compound: | 011204001701 |
| Lead Finish, Base | Matte Sn, Cu | Bond Wire: | 1.0 Mil Dia. Cu |

**Qualification:** ☐ **Plan** ☒ **Test Results**

| Reliability Test | Conditions | Sample Size / Fail | | |
|---|---|---|---|---|
| | | Lot# 1 | Lot# 2 | Lot# 3 |
| Electrical Characterization | - | Pass | - | - |
| Autoclave | 121C, 2 atm (240 Hrs) | 77/0 | 77/0 | 77/0 |
| Temperature Cycle | -65/150 (1000 cycles) | 77/0 | 77/0 | 77/0 |
| Biased HAST | 130C/85%RH (192 Hrs) | 77/0 | 77/0 | 77/0 |
| High Temp. Storage Bake | 170C (600 Hrs) | 77/0 | 77/0 | 77/0 |
| X-ray | (top side only) | 5/0 | 5/0 | 5/0 |
| Solderability | 8 Hours Steam Age | 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 |
| Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass |

**Qual Vehicle 4: ULN2003AN**

**Package Construction Details**

| | | | |
|---|---|---|---|
| Assembly Site: | JCET CHUZHOU | Mold Compound: | 013102024401 |
| # Pins-Designator, Family: | 16-N, PDIP | Mount Compound: | 011204001701 |
| Lead Finish, Base | Matte Sn, Cu | Bond Wire: | 1.0 Mil Dia. Cu |

**Qualification:** ☐ **Plan** ☒ **Test Results**

| Reliability Test | Conditions | Sample Size / Fail | | |
|---|---|---|---|---|
| | | Lot# 1 | Lot# 2 | Lot# 3 |
| Biased HAST | 130C/85%RH (192 Hrs) | 77/0 | 77/0 | 77/0 |
| Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | 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 | PCNAmericasContact@list.ti.com |
| Europe | PCNEuropeContact@list.ti.com |
| Asia Pacific | PCNAsiaContact@list.ti.com |
| Japan | PCNJapanContact@list.ti.com |