| PCN Number:   |               |              | 20140304002B |            |     |                           |            | PCN Date:       |                  | 04/03/2014 |                          |      |                |  |
|---|---------------|--------------|--------------|------------|-----|---------------------------|------------|-----------------|------------------|------------|--------------------------|------|----------------|--|
| Title: Qualification of Devices   |               |              | of H         | ΗN⁻        | Т   | and JCE                   | T Chuzho   | u as Additional | Α                | sse        | embly/Test               | Site | for Select     |  |
| Cust  | omer          | Contact:     | PC           | N <i>N</i> | ۱aı | nager                     | Phone:     | +1(214)480-6    | 0                | 37         | Dept:                    | Qua  | ality Services |  |
| Char  | nge T         | ype:         |              |            |     |                           |            |                 |                  |            |                          |      |                |  |
| $\boxtimes$   | Assembly Site |              |              |            | ]   | Assembly Process          |            |                 | $\triangleright$ |            | Assembly Materials       |      |                |  |
|   | Desi          | gn           |              |            | ]   | Electrical Specification  |            |                 |                  |            | Mechanical Specification |      |                |  |
| $\boxtimes$   | Test          | Site         |              |            |     | Packing/Shipping/Labeling |            |                 |                  |            | Test Process             |      |                |  |
|   | Wafe          | er Bump Site |              |            |     | Wafer Bump Material       |            |                 |                  |            | Wafer Bump Process       |      |                |  |
| Wafer Fab Site  |               |              |              |            |     | Wafer Fab Materials       |            |                 |                  |            | Wafer Fab Process        |      |                |  |
|   |               |              |              |            |     | Part number change        |            |                 |                  |            |                          |      |                |  |
|   |               |              |              |            |     |                           | PCN D      | <b>Details</b>  |                  |            |                          |      |                |  |
| Desc  | riptio        | on of Change | :            |            |     |                           |            |                 |                  |            |                          |      |                |  |
| Version B of this PCN is to notify that there will be no change on the wire type for Gro<br>Affected devices will use existing wire type during assembly process. |               |              |              |            |     |                           |            |                 |                  |            |                          |      |                |  |
| Qualification of HNT and  |               |              |              | - I        | ( 1 | nuzhou                    | as Additio | nai Assembly/l  | 10               | ST !       | SITE FOR SE              | lect | Devices        |  |

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

### **Group 2 Devices:**

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

Material differences between Assembly/Test sites as follows:

#### **Group 3 Devices:**

|               | NFME            | JCETCZ        |
|---------------|-----------------|---------------|
| Mold Compound | R-15            | 013102024401  |
| Wire Type     | <mark>Au</mark> | <del>Cu</del> |

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 (1P) SN74LS07NSR MADE IN: Malaysia (a) 2000 (D) 0336 31T)LOT: 3959047MLA 4W) TKY(1T) 7523483SI2 MSL 2 /260C/1 YEAR SEAL DT MSL 1 /235C/UNLIM 03/29/04

(2P) REV: (V) 0033317 (2DL) CSO: SHE (21L) CCO:USA (22L) ASO: MLA (23L) ACO: MYS 5A (L)T0:1750

| 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.

## Oual Vehicle: TPS62260DDCR (MSL1-260C)

| Qual Vellicie : 11 50220055 (11522 2000) |            |                 |                 |  |  |  |  |  |  |
|--|------------|-----------------|-----------------|--|--|--|--|--|--|
| 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

|               | <u> </u>         |
|---------------|------------------|
| PATARANCA     | l lilalitication |
| IZCI CI CIICC | Qualification:   |

| Qual Vehicle 1: TPS62220DDC (MSL1-260C) |                |                               |                             |        |    |                  |        |  |
|---|----------------|-------------------------------|-----------------------------|--------|----|------------------|--------|--|
| Package Construction Details            |                |                               |                             |        |    |                  |        |  |
| Assembly Site:                          | HNT            | Mold Compo                    |                             |        | 45 | 50207            |        |  |
| # Pins-Designator, Family:              | 5-DDC, SOT     |                               | Mount Compound:             |        |    |                  |        |  |
| Lead Finish, Base                       | NiPdAu, Cu     |                               | Bond                        |        |    | 0 Mil Dia.       | Au     |  |
| •                                       | X Test Results |                               | 200                         |        |    |                  | 7.0    |  |
| Reliability Test                        | Conditio       |                               |                             | S      | am | ple Size /       | Fail   |  |
| , |                |                               |                             | Lot#   |    | Lot# 2           | Lot# 3 |  |
| **Autoclave                             | 121C, 2        | atm (2                        | 40 Hrs)                     | 77/C   | )  | 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      | e only)                       |                             | 5/0    |    | 5/0              | 5/0    |  |
| Flammability                            | Method /       |                               |                             | 5/0    |    | 5/0              | 5/0    |  |
| Flammability                            | Method I       | B - IEC                       | 695-2-2                     | 5/0    |    | 5/0              | 5/0    |  |
| Flammability                            |                | Method C - UL 1694            |                             |        |    | 5/0              | 5/0    |  |
| Manufacturability (Assembly)            |                | (per mfg. Site specification) |                             |        | 3  | Pass             | Pass   |  |
| Moisture Sensitivity                    |                | (Level 1 @ 260C peak +5/-0C)  |                             |        | )  | 12/0             | 12/0   |  |
| **- Preconditioning sequence:           |                |                               |                             |        |    |                  |        |  |
| Qua                                     | Vehicle 2: TPS | 71533                         | DCK (MSL1-260               | C)     |    |                  |        |  |
|   | Package Co     | nstruct                       | ion Details                 |        |    |                  |        |  |
| Assembly Site:                          | HNT            |                               | Mold Compound:              |        |    | 50207            |        |  |
| # Pins-Designator, Family:              | 5-DCK, SOT     |                               | Mount Compound: 4           |        |    | 00151            |        |  |
| Lead Finish, Base                       | NiPdAu, Cu     |                               | Bond Wire: 1.25 Mil Dia. Au |        |    | a. Au            |        |  |
| Qualification:  Plan                    | X Test Results |                               |                             |        |    |                  |        |  |
| Reliability Test                        | Conditio       | ns                            |                             | Sam    |    | nple Size / Fail |        |  |
|   |                |                               |                             | Lot# 1 |    | Lot# 2           | Lot# 3 |  |
| **Autoclave                             | 121C, 2        | 121C, 2 atm (240 Hrs)         |                             | 77/0   |    | 77/0             | 77/0   |  |
| **Temperature Cycle                     | -65/150        |                               |                             | 77/0   |    | 77/0             | 77/0   |  |
| **Thermal Shock                         | -65/150        |                               |                             | 77/0   |    | 77/0             | 77/0   |  |
| **HAST                                  | 130C/85        |                               |                             | 77/0   |    | 77/0             | 77/0   |  |
| **Life test                             |                | 155C (240 Hrs)                |                             |        | 0  | 116/0            | 116/0  |  |
| **High-Temp Storage Bake                |                | 170C (420 Hrs)                |                             |        | )  | 77/0             | 77/0   |  |
| Manufacturability (Assembly)            | ```            | g. Site s                     | pecification)               | Pass   | 5  | Pass             | Pass   |  |
| **- Preconditioning sequence:           | Level 1-260C.  |                               |                             |        |    |                  |        |  |
| Group 2 Qualification Data              |                |                               |                             |        |    |                  |        |  |

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.

| validates that the proposed change meets the applicable released technical specifications. |                                    |                           |             |                    |                 |  |
|--|------------------------------------|---------------------------|-------------|--------------------|-----------------|--|
| Qual Vehicle: TPS62234DRYT (MSL1-260C)   |                                    |                           |             |                    |                 |  |
| Package Construction Details   |                                    |                           |             |                    |                 |  |
| Assembly Site:   | HNT                                | HNT Mold Compound: 450176 |             |                    |                 |  |
| # Pins-Designator, Family:   | 6-DRY,                             | SON                       | Mount Compo | ound:              | 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   |                                    |                           | 15/0        |                    |                 |  |
| Manufacturability (Assembly)   | (per mfg. Site specification) Pass |                           | Pass        |                    |                 |  |

# **Reference Qualification:**

| Qual Vehicle 1: TPD4S014DRY (MSL1-260C)     |                 |                                    |                       |                    |     |                 |        |
|---|-----------------|------------------------------------|-----------------------|--------------------|-----|-----------------|--------|
| Package Construction Details                |                 |                                    |                       |                    |     |                 |        |
| Assembly Site:                              | HNT             |                                    |                       | oound: 4           |     | 450176          |        |
| # Pins-Designator, Family:                  | 6-DRY           | , SON                              | Mount Comp            |                    |     |                 |        |
| Lead Finish, Base                           |                 | •                                  | Bond                  | Wire:              | 1.  | 0 Mil Dia.      | Au     |
|   |                 | Results                            |                       |                    |     |                 |        |
| Reliability Test                            |                 | Conditions                         |                       | Sample Size / Fail |     |                 | Fail   |
| ,   |                 |                                    |                       | Lot#               | 1   | Lot# 2          | Lot# 3 |
| X-ray                                       |                 | (top side only)                    |                       | 5/0                |     | 5/0             | 5/0    |
| Manufacturability (Assembly)                |                 | (per mfg. Site s                   | pecification)         | Pass               |     | Pass            | Pass   |
| Moisture Sensitivity                        |                 | (Level 1 @ 260                     | C peak +5/-0C)        | 12/0               |     | 12/0            | 12/0   |
| **- Preconditioning sequence:               |                 |                                    |                       |                    |     |                 |        |
| Qual Vehicle 2: TS3A44159RSV (MSL1-260C)    |                 |                                    |                       |                    |     |                 |        |
| Package Construction Details                |                 |                                    |                       |                    |     |                 |        |
| Assembly Site:                              | HNT             |                                    | Mold Comp             | ound: 450176       |     |                 |        |
| # Pins-Designator, Family:                  | 16-RS           | 16-RSV, QFN Mount Compound: 400173 |                       |                    |     |                 |        |
| Lead Finish, Base                           | NiPdAu, Cu Bond |                                    | Wire: 0.8 Mil Dia. Au |                    |     | Au              |        |
| Qualification:  Plan  Test Results          |                 |                                    |                       |                    |     |                 |        |
| Reliability Test                            |                 | Conditions                         |                       |                    |     | ple Size / Fail |        |
|   |                 |                                    |                       | Lot#               | 1   | Lot# 2          | Lot# 3 |
| **Life Test                                 |                 | 150C (300 Hrs)                     |                       | 116/               |     | 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    |
| ,   |                 | Method IEC 695-2-2                 |                       | 5/0                |     | 5/0             | 5/0    |
| Flammability Method UL-1694                 |                 | 4                                  | 5/0                   |                    | 5/0 | 5/0             |        |
| ,   |                 | (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.

| Tanadas and proposed analysis mode approach received a position of the contract of the contrac |              |                 |                 |  |  |  |
|--|--------------|-----------------|-----------------|--|--|--|
| 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 |  |  |  |

| Reliability Test   | Qualification:  Plan  Test Results |                               |                      |                       |              |                 |  |
|--|------------------------------------|-------------------------------|----------------------|-----------------------|--------------|-----------------|--|
| Pass   | Reliability Test                   | Conditions                    |                      | Si                    | ample Size / | ple Size / Fail |  |
| Autoclave  |                                    |                               |                      |                       | 1 Lot# 2     | Lot# 3          |  |
| Temperature Cycle  | Electrical Characterization        | -                             |                      | Pass                  | -            | -               |  |
| Biased HAST  | Autoclave                          | 121C, 2 atm (1                | 92 Hrs)              | 77/0                  | -            | -               |  |
| High Temp. Storage Bake  |                                    |                               | -65/150 (500 cycles) |                       |              |                 |  |
| Life Test       150C (300 hrs)       77/0       -       -         Salt Atmosphere       24 Hrs       22/0       22/0       22/0       22/0         X-ray       (top side only)       5/0   | Biased HAST                        | 130C/85%RH (                  | 130C/85%RH (192 Hrs) |                       |              | 77/0            |  |
| Salt Atmosphere   24 Hrs   22/0   22/0   22/0   22/0   X-ray   (top side only)   5/0     | High Temp. Storage Bake            | 170C (600 Hrs)                |                      | 77/0                  | -            | -               |  |
| X-ray  | Life Test                          | 150C (300 hrs)                | 150C (300 hrs)       |                       | _            | -               |  |
| Solderability  | Salt Atmosphere                    | 24 Hrs                        |                      | 22/0                  | 22/0         | 22/0            |  |
| Flammability   |                                    | (top side only)               |                      | 5/0                   | 5/0          | 5/0             |  |
| Flammability   | Solderability                      | 8 Hours Steam                 | Age                  | 22/0                  | 22/0         | 22/0            |  |
| Method C - UL 1694   5/0   5/0   5/0   5/0   Manufacturability (Assembly)   (per mfg. Site specification)   Pass   Pass | Flammability                       | Method A - UL9                | 4-0                  | 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           Solderability   | Flammability                       | Method B - IEC                | 695-2-2              | 5/0                   | 5/0          | 5/0             |  |
| 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         - </td <td>Flammability</td> <td>Method C - UL :</td> <td colspan="2">Method C - UL 1694</td> <td>5/0</td> <td>5/0</td>   | Flammability                       | Method C - UL :               | Method C - UL 1694   |                       | 5/0          | 5/0             |  |
| 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         X 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            |  |
| 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           Solderability         Pb Free/Solder         22/0         22/0         22/0   |                                    |                               |                      |                       |              |                 |  |
| # 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   | Pa                                 | ckage Construct               | tion Details         |                       |              |                 |  |
| 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           Solderability         Pb Free/Solder         22/0 22/0   | Assembly Site: JCET                | CHUZHOU                       | Mold Comp            | ound:                 | 013102024    | 401             |  |
| 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           Solderability         Pb Free/Solder         22/0         22/0         22/0  | # Pins-Designator, Family: 14-N    | , PDIP                        | Mount Comp           | ound:                 | 011204001    | 701             |  |
| 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           Solderability         Pb Free/Solder         22/0         22/0         22/0   | Lead Finish, Base Matte            | e Sn, Cu                      | Bond                 | Wire: 1.0 Mil Dia. Cu |              | Cu              |  |
| Lot# 1   Lot# 2   Lot# 3   | Qualification:  Plan  Test Results |                               |                      |                       |              |                 |  |
| 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           Solderability         Pb Free/Solder         22/0         22/0         22/0   | Reliability Test                   | Conditions                    | Conditions           |                       |              |                 |  |
| 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  |                                    |                               |                      | Lot#                  | 1 Lot# 2     | Lot# 3          |  |
| 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   | Electrical Characterization        | -                             |                      | Pass                  | -            | -               |  |
| 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   | Autoclave                          | 121C, 2 atm (240 Hrs)         |                      | 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  | Life Test                          | 150C (300 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  | Temperature Cycle                  | -65/150 (1000 cycles)         |                      | 77/0                  | -            | -               |  |
| X-ray         (top side only)         5/0         5/0         5/0           Solderability         Pb Free/Solder         22/0         22/0         22/0  | Biased HAST                        | 130C/85%RH (192 Hrs)          |                      | 77/0                  | -            | -               |  |
| Solderability Pb Free/Solder 22/0 22/0 22/0  | High Temp. Storage Bake            | 170C (600 Hrs)                |                      |                       |              | -               |  |
|  |                                    | (top side only)               |                      | 5/0                   | 5/0          | 5/0             |  |
| Manufacturability (Assembly) (per mfg. Site specification) Pass Pass Pass  | 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    |                  | 701    |
| Lead Finish, Base                | Matte                         | Sn, Cu                        | Bond                       | Wire:             | 1.0 Mil Dia. Cu |                  | Cu     |
| Qualification:  Plan             | X Test                        | Results                       |                            |                   |                 |                  |        |
| Reliability Test                 |                               | Conditions                    |                            | Sample Size / Fai |                 | Fail             |        |
|                                  |                               |                               |                            | Lot#              | 1 Lot#          | ± 2              | Lot# 3 |
| Electrical Characterization      |                               | -                             |                            | Pass              |                 |                  | -      |
| Autoclave                        |                               | 121C, 2 atm (2                |                            | 77/0              |                 |                  | 77/0   |
| Temperature Cycle                |                               | -65/150 (1000                 |                            | 77/0              |                 |                  | 77/0   |
| Biased HAST                      |                               | 130C/85%RH (                  | 192 Hrs)                   | 77/0              |                 |                  | 77/0   |
|                                  |                               | 170C (600 Hrs)                |                            | 77/0              |                 |                  | 77/0   |
| X-ray                            | (top side only)               |                               |                            | 5/0               |                 |                  | 5/0    |
| Solderability                    | 8 Hours Steam                 |                               |                            | 22/0              |                 |                  | 22/0   |
| Flammability                     | Method A - UL9                |                               |                            | 5/0               | 5/0             |                  | 5/0    |
| Flammability                     |                               | Method B - IEC                |                            | 5/0               |                 |                  | 5/0    |
| Flammability                     |                               | Method C - UL :               |                            | 5/0               |                 |                  | 5/0    |
| Manufacturability (Assembly)     |                               | (per mfg. Site specification) |                            | Pass F            |                 | SS               | Pass   |
| Qual Vehicle 4: ULN2003AN        |                               |                               |                            |                   |                 |                  |        |
| Package Construction Details     |                               |                               |                            |                   |                 |                  |        |
| Assembly Site:                   |                               |                               | Mold Comp                  |                   |                 | 013102024401     |        |
| # Pins-Designator, Family:       | 16-N, PDIP Mount Co           |                               | Mount Comp                 | ound:             | 011204          | 011204001701     |        |
| Lead Finish, Base   Matte Sn, Cu |                               | Sn, Cu                        | Bond Wire: 1.0 Mil Dia. Cu |                   |                 | Cu               |        |
| Qualification:                   |                               |                               |                            |                   |                 |                  |        |
| Reliability Test                 |                               | Conditions                    |                            | S                 | ample Si        | nple Size / Fail |        |
|                                  |                               |                               |                            | Lot#              |                 |                  | Lot# 3 |
| Biased HAST                      |                               | 130C/85%RH (192 Hrs)          |                            | 77/0              |                 |                  | 77/0   |
| Manufacturability (Assembly)     | (per mfg. Site specification) |                               | Pass                       | Pas               | SS              | 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    |