| <b>PCN Number:</b> 20130401002 <b>PCN Date:</b> 04/08/2013   |   |       |                           |                      |                  |                          | <b>e:</b> 04/08/2013            |  |  |  |
|--|---|-------|---------------------------|----------------------|------------------|--------------------------|---------------------------------|--|--|--|
| Title: Qualification of TI Clark as Additional Assembly/Test Site for DRV8833RTY device  |   |       |                           |                      |                  |                          |                                 |  |  |  |
| Custome  | Customer Contact:   PCN Manager   Phone:   +1(214)480-6037   Dept:   Quality Services |       |                           |                      |                  |                          |                                 |  |  |  |
| Proposed 1 <sup>st</sup> Ship Date:  |   |       | 07/08/2013 Estimated Samp |                      | le Availability: |                          | Date Provided at Sample request |  |  |  |
|  | Change Type:  |       |                           |                      |                  |                          |                                 |  |  |  |
|  | Assembly Site   |       |                           | Assembly Process     |                  |                          | Assembly Materials              |  |  |  |
| Desi   |   |       | Electrical S              |                      |                  | Mechanical Specification |                                 |  |  |  |
| 🛛 Test   | Site  |       |                           | ipping/Labeling      |                  | Test Proce               | ess                             |  |  |  |
| Descripti  | on of Change  |       | P                         | CN Details           |                  |                          |                                 |  |  |  |
| Description of Change:   Qualification of TI Clark as additional assembly and test site for DRV8833RTY device. The device in the product affected list is being qualified by similarity (see Qualification Data).   Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.   |   |       |                           |                      |                  |                          |                                 |  |  |  |
| Reason fo  | or Change:  |       |                           |                      |                  |                          |                                 |  |  |  |
| Continuity   |   |       |                           |                      |                  |                          |                                 |  |  |  |
| Anticipat  | ed impact on  | Forn  | n, Fit, Functio           | on, Quality or Relia | abili            | ty (positiv              | e / negative):                  |  |  |  |
| None   |   |       |                           |                      |                  |                          |                                 |  |  |  |
| Changes  | to product id   | entif | ication result            | ing from this PCN    | :                |                          |                                 |  |  |  |
|  | -   |       |                           | -                    |                  |                          |                                 |  |  |  |
| Assemb   |   |       |                           |                      |                  |                          |                                 |  |  |  |
|  | TI MalaysiaAssembly Site Origin (22L)TI Clark PhilippinesAssembly Site Origin (22L)   |       |                           |                      | _                | ASO: MLA                 |                                 |  |  |  |
|  | Philippines   |       | Assemb                    | y Site Origin (22L)  |                  | AS                       | O: QAB                          |  |  |  |
| Sample p   | oroduct shippin   | g lab | el (not actual            | product label)       |                  |                          |                                 |  |  |  |
| TEXAS<br>INSTRUMENTS<br>2DC:Q4MADE IN: Malaysia<br>2DC:Q2MSL '2 /260C/1 YEAR SEAL DT<br>03/29/04Q2MSL '2 /260C/1 YEAR SEAL DT<br>03/29/04Q2OPT:<br>ITEM:39LBL: 5A (L)T0:1750Q2COLL COLLCOLLCOLL COL |   |       |                           |                      |                  |                          |                                 |  |  |  |
| Device Marking   0 TI = TI LETTERS   YM = YEAR MONTH DATE CODE   LLLL SEMBLY LOT CODE   S = ASSEMBLY SITE CODE   0 = PIN 1 INDICATOR   |   |       |                           |                      |                  |                          |                                 |  |  |  |

| Product Affected: |             |   |
|-------------------|-------------|---|
| DRV8833RTYR       | DRV8833RTYT |   |
|                   |             | 1 |

## Reference Qualification: QFN Package at TI-Clark

## Qualification Data: Approved 08/24/2010

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 : TPA2017D2RTJ (MSL 2-260C)

| Package Construction Details                |  |                             |                               |                    |       |      |  |
|---|--|-----------------------------|-------------------------------|--------------------|-------|------|--|
| Assembly Site: TI Clark                     |  | Mold Compound:              |                               | 4208625            |       |      |  |
| # Pins-Designator, Family: 20-RTJ, QFN      |  | Mount Compound:             |                               | 4207768            |       |      |  |
| Leadframe (Finish, Base): NiPdAu            |  |                             | Bond Wire: 0.96 Mil Dia., Cu  |                    |       |      |  |
| Qualification: 🗌 Plan 🛛 Test Results        |  |                             |                               |                    |       |      |  |
| Dell'shilles Test                           |  | Conditions                  |                               | Sample Size / Fail |       |      |  |
| Reliability Test                            |  | Conditions                  |                               | Lot 1              | Lot 2 | Lot3 |  |
| **High Temp Storage Bake                    |  |                             | 170C (420 Hrs)                |                    | 77/0  | 77/0 |  |
| **Autoclave                                 |  | 121C, 2 atm (96 Hrs)        |                               | 77/0               | 77/0  | 77/0 |  |
| **Temp Cycle, -65C/150C                     |  | 500 Cycles                  |                               | 77/0               | 77/0  | 77/0 |  |
| **Thermal Shock, -65C/150C                  |  | 500 Cycles                  |                               | 77/0               | 77/0  | 77/0 |  |
| Bond Pull                                   |  | 76 ball bonds, min. 3 units |                               | 76/0               | 76/0  | 76/0 |  |
| Bond Shear                                  |  | 76 ball bonds, min. 3 units |                               | 76/0               | 76/0  | 76/0 |  |
| Salt Atmosphere                             |  | -                           |                               | 22/0               | 22/0  | 22/0 |  |
| Surface Mount Solderability                 |  |                             | Pb Free Solder                |                    | 22/0  | 22/0 |  |
| Manufacturability Qualification (MQ)        |  |                             | (per mfg. Site specification) |                    | Pass  | Pass |  |
| Moisture Sensitivity                        |  |                             | l 2-260C                      | 12/0               | 12/0  | 12/0 |  |
| X-ray                                       |  |                             | (top side only)               |                    | 5/0   | 5/0  |  |
| **- Preconditioning sequence: Level 2-260C. |  |                             |                               |                    |       |      |  |

| Qual Vehicle 2 : TPS61202DSC (MSL 2-260C)   |  |                      |                               |                    |       |      |  |
|---|--|----------------------|-------------------------------|--------------------|-------|------|--|
| Package Construction Details                |  |                      |                               |                    |       |      |  |
| Assembly Site: TI Clark                     |  |                      | Mold Compound:                | 4208625            |       |      |  |
| # Pins-Designator, Family: 10-DSC, QFN      |  | Mount Compound:      |                               | 4207768            |       |      |  |
| Leadframe (Finish, Base): NiPdAu            |  |                      | Bond Wire:                    | 2.0 Mil Dia., Cu   |       |      |  |
| Qualification: 🗌 Plan 🛛 Test Results        |  |                      |                               |                    |       |      |  |
| Reliability Test                            |  | Conditions           |                               | Sample Size / Fail |       |      |  |
|   |  |                      |                               | Lot 1              | Lot 2 | Lot3 |  |
| **High Temp Storage Bake                    |  |                      | 170C (420 Hrs)                |                    | 77/0  | 77/0 |  |
| **Autoclave                                 |  | 121C, 2 atm (96 Hrs) |                               | 77/0               | 77/0  | 77/0 |  |
| **Temp Cycle, -65C/150C                     |  | 500 Cycles           |                               | 77/0               | 77/0  | 77/0 |  |
| **Thermal Shock, -65C/150C                  |  | 500 Cycles           |                               | 77/0               | 77/0  | 77/0 |  |
| Bond Pull                                   |  |                      | 76 ball bonds, min. 3 units   |                    | 76/0  | 76/0 |  |
| Bond Shear                                  |  |                      | 76 ball bonds, min. 3 units   |                    | 76/0  | 76/0 |  |
| Salt Atmosphere                             |  |                      | -                             |                    | 22/0  | 22/0 |  |
| Surface Mount Solderability                 |  |                      | Pb Free Solder                |                    | 22/0  | 22/0 |  |
| Manufacturability Qualification (MQ)        |  |                      | (per mfg. Site specification) |                    | Pass  | Pass |  |
| Moisture Sensitivity                        |  |                      | I 2-260C                      | 12/0               | 12/0  | 12/0 |  |
| X-ray                                       |  |                      | (top side only)               |                    | 5/0   | 5/0  |  |
| **- Preconditioning sequence: Level 2-260C. |  |                      |                               |                    |       |      |  |

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    |