| PCN Number:   |   | 20161215003  |   |                     |                     |                         |                      | P            | <b>PCN Date:</b> Dec 16 2016 |                              |            |     |  |
|---|---|--|---|---------------------|---------------------|-------------------------|----------------------|--------------|------------------------------|------------------------------|------------|-----|--|
| Title:  | ion of  | on of new Assembly site and Material Set for the LM97937RMER/T |   |                     |                     |                         |                      |              |                              |                              |            |     |  |
| Customer<br>Contact:  |   | PCN A  | PCN Manager   |                     |                     | ept:                    | pt: Quality Services |              |                              |                              |            |     |  |
| Proposed 1 <sup>st</sup> Ship Date:   |   |  | March 16 2017   |                     |                     | Estimated Sample Av     |                      |              | vaila                        | ailability: Provided Request |            | oon |  |
| Change Type:  |   |  |   |                     |                     |                         |                      |              |                              |                              |            |     |  |
|   | embly Site  |  |   | Assembly Process    |                     |                         |                      |              | X                            | Assembly Materials           |            |     |  |
| Desi  |   |  |   |                     |                     | l Specification         |                      |              | Mechanical Specifica         |                              |            | n . |  |
|   | Site  |  |   | Packing/Shipping    |                     |                         |                      |              |                              | Test Process                 |            |     |  |
|   | er Bump Si  | ite  |   | Wafer Bump Material |                     |                         |                      |              | П                            |                              | mp Process |     |  |
|   | er Fab Site   |  |   |                     | Wafer Fab Materials |                         |                      |              | П                            | Wafer Fab                    |            |     |  |
|   | <u> </u>  |  |   | Part number change  |                     |                         |                      |              |                              |                              |            |     |  |
|   |   |  |   |                     |                     | CN Det                  |                      |              |                              |                              |            |     |  |
| Description   | on of Cha   | nge:   |   |                     | _                   |                         |                      |              |                              |                              |            |     |  |
| Texas Instruments is pleased to announce the qualification of UTAC as a new Assembly site for the LM97937RMER/T. Construction differences are as follows: |   |  |   |                     |                     |                         |                      |              |                              |                              |            |     |  |
| Wha   |   |  |   |                     |                     | Melaka                  |                      |              | UTAC                         |                              |            |     |  |
|   | nt Compou   |  |   | 8001111             |                     |                         |                      |              | SID#PZ0035                   |                              |            |     |  |
|   | d Compour   |  |   | 8095387             |                     |                         |                      |              | SID#CZ0288                   |                              |            |     |  |
| Bon   | d Wire, dia   | meter  |   | Au, 1.0 mils        |                     |                         |                      | Cu, 0.8 mils |                              |                              |            |     |  |
| Reason fo   | or Change   | :  |   |                     |                     |                         |                      |              |                              |                              |            |     |  |
| Continuity  | of Supply   |  |   |                     |                     |                         |                      |              |                              |                              |            |     |  |
| Anticipat   | ed impact   | on Fi  | t, F  | orm, Fu             | nctio               | n, Qualit               | y or Reli            | abilit       | y (po                        | ositive / n                  | egative):  |     |  |
| None  |   |  |   |                     |                     |                         |                      |              |                              |                              |            |     |  |
| Anticipat   | ed impact   | on M   | ate   | rial Dec            | larati              | on                      |                      |              |                              |                              |            |     |  |
| No I  | □ No Impact to □ Material Declarations or Product Content reports are driven from |  |   |                     |                     |                         |                      |              |                              |                              |            |     |  |
| the Material  |   |  | production data and will be available following the production release. |                     |                     |                         |                      |              |                              |                              |            |     |  |
| Decl  | Upon production release the revised reports can be obtained from the              |  |   |                     |                     |                         |                      |              |                              |                              |            |     |  |
|   |   |  | TI ECO website.   |                     |                     |                         |                      |              |                              |                              |            |     |  |
| Changes   | to produc   | t iden   | tifi  | cation re           | esulti              | ng from                 | this PCN             | <b>l</b> :   |                              |                              |            |     |  |
|   |   |  |   |                     | · · ·               |                         |                      | · · ·        |                              | ·                            |            |     |  |
| Assem   | Assembly Site Assembly S  |  | Site Origi  | n (22L)             | Assemb              | Assembly Country Code ( |                      |              | Asse                         | embly City                   |            |     |  |
| TI Melaka   |   | CU6  |   |                     | MYS                 |                         |                      |              | Melaka                       |                              |            |     |  |
| UTAC  |   | NSE  |   |                     | THA                 |                         | Bangkok              |              |                              |                              |            |     |  |
| Sample product shipping label (not actual product label)  |   |  |   |                     |                     |                         |                      |              |                              |                              |            |     |  |



MSL 1 /235C/UNLIM 03/29/04

OPT: ITEM: 5A (L)T0:3750 LBL:



(1P) SN74LS07NSR (a) 2000 (D) 0336 (31T)LOT: 3959047MLA (4W) TKY(1T) 7523483S12

(2P) REV: (V) 0033317 (20L) CSO: SHE (21L) CCO:USA (22L) ASO: MLA (23L) ACO: MYS

# Topside Device marking (if included):

Assembly site code for CU6= U

Assembly site code for NSE = J

**Product Affected** 

LM97937RMER LM97937RMET



Selective Disclosure

## **Qualification Report**

## Qualification of LM97937 product family at UTAC with Cu wirebond Approve Date 07-Dec-2016

#### **Product Attributes**

| Attributes          | Qual Device:<br>LM97937RME_Cu | QBS Product Reference:<br>LM97937RME | QBS Process Reference:<br>QEVOPT2A | QBS Package Reference:<br>ADC14X250 | QBS Package Reference:<br>DAC5682ZIRGCR |
|---------------------|-------------------------------|--------------------------------------|------------------------------------|-------------------------------------|---|
| Assembly Site       | UTAC                          | TIEM-AT                              | A7                                 | UTAC                                | UTAC                                    |
| Package Family      | QFN                           | QFN                                  | PLCC                               | QFN                                 | QFN                                     |
| Flammability Rating | UL 94 V-0                     | UL 94 V-0                            | -                                  | UL 94 V-0                           | UL 94 V-0                               |
| Wafer Fab Supplier  | MFAB                          | MFAB                                 | MFAB                               | MFAB                                | RFAB                                    |
| Wafer Process       | BICMOS13                      | BICMOS13                             | BICMOS13                           | BICMOS13                            | C05                                     |

QBS: Qual By Similarity
 Qual Devices qualified at LEVEL3-260C: LM97937RME\_PCC, LM97937RME\_AU

## Qualification Results

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

| Type  | Test Name / Condition         | Duration                 | Qual Device:<br>LM97937RME_Cu | QBS Product Reference:<br>LM97937RME | QBS Process Reference:<br>QEVOPT2A | QBS Package Reference:<br>ADC14X250 | QBS Package Reference:<br>DAC5682ZIRGCR |
|-------|-------------------------------|--------------------------|-------------------------------|--------------------------------------|------------------------------------|-------------------------------------|---|
| AC    | Autoclave 121C                | 96 Hours                 | 3/231/0                       | 2/77/0                               | -                                  | -                                   | 3/231/0                                 |
| ED    | Electrical Characterization   | Per Datasheet Parameters |                               | Pass                                 | -                                  | Pass                                | -                                       |
| ELFR  | Early Life Failure Rate, 125C | 48 Hours                 |                               | -                                    | 3/231/0                            | -                                   | -                                       |
| HAST  | Biased HAST, 130C/85%RH       | 96 Hours                 | -                             | -                                    | 1/77/0                             | 3/231/0                             | -                                       |
| HBM   | ESD - HBM                     | 4000 V                   | •                             | 1/3/0                                | -                                  | -                                   | -                                       |
| CDM   | ESD - CDM                     | 1500 V                   | •                             | 1/3/0                                | -                                  | -                                   | -                                       |
| HTOL  | Life Test, 125C               | 1000 Hours               | •                             | -                                    | 3/231/0                            | -                                   | -                                       |
| HTOL  | Life Test, 80C                | 952 Hours                | •                             | 1/77/0                               | -                                  | -                                   | -                                       |
| HTSL  | High Temp. Storage Bake, 170C | 420 Hours                | 3/231/0                       | -                                    | -                                  | 3/231/0                             | -                                       |
| LU    | Latch-Up                      | (per JESD78)             | -                             | 2/12/0                               | 3/18/0                             | 3/18/0                              | -                                       |
| TC    | Temperature Cycle, -40/125C   | 1000 Cycles              | -                             | -                                    | 1/77/0                             | -                                   | -                                       |
| TC    | Temperature Cycle, -65/150C   | 500 Cycles               | 3/231/0                       | 1/77/0                               | -                                  | 3/231/0                             | 3/231/0                                 |
| UHAST | Unbiased HAST 130C/85%RH      | 96 Hours                 | -                             | -                                    | -                                  | 3/231/0                             | 3/231/0                                 |

<sup>-</sup> Preconditioning was performed for Autoclave, Unbiased HAST, THB/Blased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTSL options based on an activation energy of 0.7eV: 150C/14 Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV: 150C/14 Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47: -55C/125C/700 Cycles and -55C/150C/500 Cycles
- Quality and Environmental data is available at T1's external Web site: http://www.ti.com/
- 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 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    |