| PCN Number: 202   |                   | 20220627000.2                  | 220627000.2                                |                         | PCN Date:      |                          | June 29, 2022          |  |
|---|-------------------|--------------------------------|--|-------------------------|----------------|--------------------------|------------------------|--|
| Title: Qualification of Cl  |                   | f CFAB as an additio           | FAB as an additional Fab site optic        |                         | ons for select |                          | BC3S devices           |  |
| Customer Contact:   |                   | PCN Manager                    | PCN Manager                                |                         | Dept:          |                          | Quality Services       |  |
| Proposed 1 <sup>st</sup>  | Shin Date:        | Dec 29, 2022                   |  | mple                    |                |                          | July 29, 2022*         |  |
| -   | -                 |                                | accepted until:                            |                         |                |                          |                        |  |
|   |                   | ved after July 29,             | after July 29, 2022 will not be supported. |                         |                |                          |                        |  |
| Change Type<br>Assembly   |                   | Assembly                       | Assembly Process Assembly Materials        |                         |                |                          | mhly Materials         |  |
| Design  | 5100              | =                              | Electrical Specification                   |                         |                | Mechanical Specification |                        |  |
| Test Site   |                   |                                | Packing/Shipping/Labeling                  |                         |                | Test Process             |                        |  |
| Wafer Bu  | Wafer Bump Site   |                                | Wafer Bump Material                        |                         |                | Wafer Bump Process       |                        |  |
| 🛛 🛛 Wafer Fa  | b Site            | = =                            | Wafer Fab Materials                        |                         |                | Wafer Fab Process        |                        |  |
|   |                   |                                | Part number change                         |                         |                |                          |                        |  |
| Description   | f Changes         | PC                             | N Details                                  |                         |                |                          |                        |  |
| Description of  |                   | and to appound the             | qualification                              | of ite (                |                | fabric                   | ation facilities as an |  |
|   |                   | n for the devices lis          |  |                         |                |                          |                        |  |
|   | <b>Current Fa</b> | b Site                         |  | New Fab S               |                |                          | Site                   |  |
| Fab Site  | Process           | Wafer Diameter                 | Fab Site                                   | Pr                      | oces           | S                        | Wafer Diameter         |  |
| DL-LIN  | LBC3S             | 150 mm                         | СЕАР                                       |                         |                |                          | 200 mm                 |  |
| DL-LIN  | LBC3S             | 200 mm                         | CFAB                                       | LBC3S                   |                |                          | 200 mm                 |  |
| Qual details are provided in the Qual Data Section.   |                   |                                |  |                         |                |                          |                        |  |
| Reason for C  |                   |                                |  |                         |                |                          |                        |  |
| These changes are part of our multiyear plan to transition products from our 150-milimeter factories to newer, more efficient manufacturing processes and technologies, underscoring our commitment to product longevity and supply continuity. |                   |                                |  |                         |                |                          |                        |  |
|   |                   | orm, Fit, Function             |  | Reliab                  | ility (        | (posit                   | tive / negative):      |  |
| None  |                   |                                |  |                         |                |                          |                        |  |
| Changes to product identification resulting from this PCN:  |                   |                                |  |                         |                |                          |                        |  |
|   |                   |                                |  |                         |                |                          |                        |  |
| Fab Site Information:   |                   |                                |  |                         |                |                          |                        |  |
| Chip Site   |                   | Chip Site Origin<br>Code (20L) | Chip Sit                                   | Chip Site Coun<br>(21L) |                | Code                     | Chip Site City         |  |
| DL-LIN  |                   | DLN                            |  | USA                     |                |                          | Dallas                 |  |
| CFAB  |                   | CU3                            | CH   |                         | CHN            |                          | Chengdu                |  |
| Sample product shipping label (not actual product label):   |                   |                                |  |                         |                |                          |                        |  |
| INSTRUMENTS   G4     MADE IN: Malaysia   G4     MSL 2 /260C/1 YEAR SEAL DT   03/29/04     MSL 1 /235C/UNLIM 03/29/04   03/29/04     OPT:   39     ITEM:   39     IBL: 5A (L)T0:1750   000000000000000000000000000000000000                      |                   |                                |  |                         |                |                          |                        |  |

Texas Instruments Incorporated

TLC2254AIPWR

TLV2264IPWR

# **Qualification Report**

## Approve Date 23-May-2022

#### Qualification Results

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

|      | Data Displayed as. Number of fots / Total sample size / Total failed |                          |                                |   |   |  |  |  |  |
|------|--|--------------------------|--------------------------------|---|---|--|--|--|--|
| Туре | Test Name / Condition  | Duration                 | Qual Device:<br>TLC2264AQPWRQ1 | QBS Process<br>Reference:<br>CD3301RHHR | QBS Package Reference:<br>TLV9064QPWRQ1 |  |  |  |  |
| HTOL | Life Test, 150C  | 300 Hours                | -                              | 3/231/0                                 | -                                       |  |  |  |  |
| HTSL | High Temp Storage Bake 170C  | 420 Hours                | -                              | 3/231/0                                 | 1/45/0                                  |  |  |  |  |
| HAST | Biased HAST, 130C/85%RH  | 96 Hours                 | -                              | 3/231/0                                 | -                                       |  |  |  |  |
| AC   | Autoclave 121C   | 96 Hours                 | -                              | 3/231/0                                 | 3/231/0                                 |  |  |  |  |
| TC   | Temperature Cycle, -65/150C  | 500 Cycles               | -                              | 3/231/0                                 | 3/231/0                                 |  |  |  |  |
| HBM  | ESD - HBM  | 2000 V                   | 1/3/0                          | 1/3/0                                   | -                                       |  |  |  |  |
| CDM  | ESD - CDM  | 750 V                    | 1/3/0                          | 1/3/0                                   | -                                       |  |  |  |  |
| LU   | Latch-up   | (per JESD78)             | 1/6/0                          | 1/6/0                                   | -                                       |  |  |  |  |
| ED   | Electrical Characterization  | Per Datasheet Parameters | 1/30/0                         | 1/30/0                                  | -                                       |  |  |  |  |
| MQ   | Assembly MQ  | Per Site Specifications  | Pass                           | Pass                                    | Pass                                    |  |  |  |  |

- QBS: Qual By Similarity

- Qual Device TLC2264AQPWRQ1is qualified at LEVEL1-260C

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k 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/1k Hours, and 170C/420 Hours

- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/ Green/Pb-free Status:

Qualified Pb-Free (SMT) and Green

### Qualification Report

## Approve Date 13-Sept-2021

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed Qual Device: TLV2464CPWR QBS Process QBS Package Reference: TPS2042BD QBS Package Reference TPS2419DR Test Name / Condition Reference: Duration Туре CD3301RHHR 300 Hours HTOL Life Test, 150C 3/231/0 HTSL High Temp Storage Bake 170C 420 Hours 3/231/0 3/231/0 3/231/0 Biased HAST, 130C/85%RH HAST 96 Hours 3/231/0 3/231/0 3/231/0 AC Autoclave 1210 96 Hours 3/231/0 3/231/0 тс Temperature Cycle, -65/150C 500 Cycles 3/231/0 3/231/0 3/231/0 HBM ESD - HBM 4000 V 1/3/0 1/3/0 CDM ESD - CDM 1000 V 1/3/0 1/3/0 Latch-up (per JESD78) LU 1/6/0 1/6/0

1/30/0

Pass

1/30/0

Pass

Pass

Pass

- QBS: Qual By Similarity
- Qual Device TLV2464CPWR is qualified at LEVEL1-260C

Electrical Characterization

Assembly MQ

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k 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/1k Hours, and 170C/420 Hours

Per Datasheet Parameters

Per Site Specifications

- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

Green/Pb-free Status:

FD

MQ

Qualified Pb-Free (SMT) and Green

For questions regarding this notice, e-mails can be sent to the contact shown below or your local Field Sales Representative.

| Location                  | E-Mail                        |  |  |  |  |
|---------------------------|-------------------------------|--|--|--|--|
| WW Change Management Team | PCN ww admin team@list.ti.com |  |  |  |  |

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