



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

**PCN# 20240724002.1**

**Qualification of RFAB using qualified Process Technology, Die Revision and  
additional Assembly Site/BOM options for select devices  
Change Notification / Sample Request**

**Date:** July 25, 2024  
**To:** Mouser PCN

Dear Customer:

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.

Texas Instruments requires acknowledgement of receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance and approval of this change. If samples or additional data are required, requests must be received within **30 days** of this notification.

The changes discussed within this PCN will not take effect any earlier than the proposed first ship date on Page 3 of this notification, unless customer agreement has been reached on an earlier implementation of the change.

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 or to provide acknowledgement of this PCN, you may contact your local Field Sales Representative or the change management team.

For sample requests or sample related questions, contact your local Field Sales Representative.

Sincerely,

Change Management Team  
SC Business Services

**20240724002.1**  
**Attachment: 1**

**Products Affected:**

The devices listed on this page are a subset of the complete list of affected devices. According to our records, you have recently purchased these devices. The corresponding customer part number is also listed, if available.

| <b>DEVICE</b>  | <b>CUSTOMER PART NUMBER</b> |
|----------------|-----------------------------|
| TS3USB221ARSER | NULL                        |
| TS3USB221ERSER | NULL                        |
| TS3USB221RSER  | NULL                        |

Technical details of this Product Change follow on the next page(s).

| <b>PCN Number:</b>   | 20240724002.1   |   | <b>PCN Date:</b>                              | July 25, 2024                                 |                       |
|--|---|---|---|---|-----------------------|
| <b>Title:</b>  | Qualification of RFAB using qualified Process Technology, Die Revision, and additional Assembly Site/BOM options for select devices |   |   |   |                       |
| <b>Customer Contact:</b>   | Change Management Team  |   | <b>Dept:</b>                                  | Quality Services                              |                       |
| <b>Proposed 1<sup>st</sup> Ship Date:</b>  | October 23, 2024  |   | <b>Sample requests accepted until:</b>        | August 24, 2024*                              |                       |
| <b>*Sample requests received after August 24, 2024 will not be supported.</b>  |   |   |   |   |                       |
| <b>Change Type:</b>  |   |   |   |   |                       |
| <input checked="" type="checkbox"/> Assembly Site  | <input checked="" type="checkbox"/> Design  | <input type="checkbox"/>                      | Wafer Bump Material                           |   |                       |
| <input checked="" type="checkbox"/> Assembly Process   | <input type="checkbox"/> Data Sheet   | <input type="checkbox"/>                      | Wafer Bump Process                            |   |                       |
| <input checked="" type="checkbox"/> Assembly Materials   | <input type="checkbox"/> Part number change   | <input checked="" type="checkbox"/>           | Wafer Fab Site                                |   |                       |
| <input type="checkbox"/> Mechanical Specification  | <input type="checkbox"/> Test Site  | <input checked="" type="checkbox"/>           | Wafer Fab Material                            |   |                       |
| <input checked="" type="checkbox"/> Packing/Shipping/Labeling  | <input type="checkbox"/> Test Process   | <input checked="" type="checkbox"/>           | Wafer Fab Process                             |   |                       |
| <b>PCN Details</b>   |   |   |   |   |                       |
| <b>Description of Change:</b>  |   |   |   |   |                       |
| Texas Instruments is pleased to announce the qualification of RFAB as an additional Wafer Fab options in addition to Assembly Site/BOM options for the devices listed in the "Product Affected" section. |   |   |   |   |                       |
| <b>Current Fab Site</b>  |   |   | <b>Additional Fab Site</b>                    |   |                       |
| <b>Fab Site</b>  | <b>Process</b>  | <b>Wafer Diameter</b>                         | <b>Fab Site</b>                               | <b>Process</b>                                | <b>Wafer Diameter</b> |
| FFAB   | ASCL10  | 200 mm  | RFAB  | LBC7  | 300 mm                |
| The die was also changed as a result of the process change.  |   |   |   |   |                       |
| Construction differences are as follows:   |   |   |   |   |                       |
|  |   | ASEN  | UTL3  | CDAT  |                       |
| Bond Wire composition/diameter   |   | Au, 0.8 mil                                   | <b>Cu, 0.8 mil</b>                            | <b>Cu, 0.8 mil</b>                            |                       |
| Die attach material  |   | SID#1400238112                                | <b>SID#PZ0076</b>                             | <b>4226215</b>                                |                       |
| Mold Compound  |   | SID#1801512111                                | <b>SID#CZ0297</b>                             | <b>4222198</b>                                |                       |
| Qual details are provided in the Qual Data Section.  |   |   |   |   |                       |
| <b>Reason for Change:</b>  |   |   |   |   |                       |
| Continuity of Supply   |   |   |   |   |                       |
| <b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>  |   |   |   |   |                       |
| None   |   |   |   |   |                       |
| <b>Impact on Environmental Ratings:</b>  |   |   |   |   |                       |
| Checked boxes indicate the status of environmental ratings following implementation of this change. If below boxes are checked, there are no changes to the associated environmental ratings.            |   |   |   |   |                       |
| <b>RoHS</b>  |   | <b>REACH</b>                                  | <b>Green Status</b>                           | <b>IEC 62474</b>                              |                       |
| <input checked="" type="checkbox"/> No Change  |   | <input checked="" type="checkbox"/> No Change | <input checked="" type="checkbox"/> No Change | <input checked="" type="checkbox"/> No Change |                       |

## Changes to product identification resulting from this PCN:

### Fab Site Information:

| Chip Site   | Chip Site Origin Code (20L) | Chip Site Country Code (21L) | Chip Site City    |
|-------------|-----------------------------|------------------------------|-------------------|
| FR-BIP-1    | TID                         | DEU                          | Freising          |
| <b>RFAB</b> | <b>RFB</b>                  | <b>USA</b>                   | <b>Richardson</b> |

### Die Rev:

#### Current

| Die Rev [2P] | <b>Die Rev [2P]</b> |
|--------------|---------------------|
| A, B, -      | <b>A</b>            |

#### New

### Assembly Site Information:

| Assembly Site | Assembly Site Origin (22L) | Assembly Country Code (23L) | Assembly City     |
|---------------|----------------------------|-----------------------------|-------------------|
| ASEN          | ASN                        | CHN                         | Suzhou            |
| <b>CDAT</b>   | <b>CDA</b>                 | <b>CHN</b>                  | <b>Chengdu</b>    |
| <b>UTL3</b>   | <b>UT3</b>                 | <b>THA</b>                  | <b>Bangpakong</b> |

Sample product shipping label (not actual product label):



### Product Affected:

| TS3USB221ARSER | TS3USB221ERSER | TS3USB221RSER |
|----------------|----------------|---------------|
|                |                |               |

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

| Type  | #  | Test Name                     | Condition   | Duration    | Qual Device: TS3USB221ARSER | Qual Device: TS3USB221ERSER | Qual Device: TS3USB221RSER | QBS Reference: SN3257QYYRQ1 |
|-------|----|-------------------------------|---|-------------|-----------------------------|-----------------------------|----------------------------|-----------------------------|
| HAST  | A2 | Biased HAST                   | 130°C/5%RH  | 96 Hours    | 1/77/0                      | 1/77/0                      | 1/77/0                     | 3/231/0                     |
| UHAST | A3 | Autobias                      | 121°C/5%RH  | 96 Hours    | -                           | -                           | -                          | -                           |
| UHAST | A3 | Unbiased HAST                 | 130°C/5%RH  | 96 Hours    | 1/77/0                      | 1/77/0                      | 1/77/0                     | -                           |
| TC    | A4 | Temperature Cycle             | -45°C/55°C  | 500 Cycles  | 1/77/0                      | 1/77/0                      | 1/77/0                     | 3/231/0                     |
| HTSL  | A6 | High Temperature Storage Life | 150°C   | 1000 Hours  | 1/77/0                      | 1/77/0                      | 1/77/0                     | 3/35/0                      |
| HTOL  | B1 | Life Test                     | 150°C   | 300 Hours   | -                           | -                           | -                          | 3/231/0                     |
| ELPR  | B2 | Early Life Failure Rate       | 150°C   | 24 Hours    | -                           | -                           | -                          | 3/2400/0                    |
| SD    | C3 | Pb Solderability              | Precondition w.155°C Dry Bake (4 hrs >= 15 minutes)                 | -           | -                           | -                           | -                          | 1/15/0                      |
| SD    | C3 | Pb-Free Solderability         | Precondition w.155°C Dry Bake (4 hrs >= 15 minutes)                 | -           | -                           | -                           | -                          | 1/15/0                      |
| SD    | C3 | Pb-Free Solderability         | Precondition w.155°C Dry Bake (4 hrs >= 15 minutes); Pb-Free Solder | -           | 1/22/0                      | -                           | -                          | -                           |
| PD    | C4 | Physical Dimensions           | Caps1.67  | -           | -                           | -                           | -                          | 3/20/0                      |
| ESD   | E2 | ESD CDM                       | -   | 1000 Volts  | 1/3/0                       | -                           | -                          | -                           |
| ESD   | E2 | ESD CDM                       | -   | 1500 Volts  | -                           | -                           | -                          | 1/3/0                       |
| ESD   | E2 | ESD HBM                       | -   | 12000 Volts | 1/3/0                       | -                           | -                          | -                           |
| ESD   | E2 | ESD HBM                       | -   | 20000 Volts | -                           | -                           | -                          | 1/3/0                       |
| LU    | E4 | Latch-Up                      | Per JEDEC78   | -           | 1/3/0                       | -                           | -                          | 1/6/0                       |
| CHAR  | E5 | Electrical Characterization   | Per Datasheet Parameters  | -           | 1/30/0                      | -                           | -                          | -                           |
| CHAR  | E5 | Electrical Distributions      | Caps1.67 Room, hot and cold   | -           | -                           | -                           | -                          | 3/9/0                       |

- QBS: Qual By Similarity
- Qual Device TS3USB221ERSER is qualified at MSL1 260C
- Qual Device TS3USB221ERSER is qualified at MSL1 260C
- Qual Device TS3USB221ERSER is qualified at MSL1 260C
- Preconditioning was performed for Autobias, 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, 125°C/10 Hours, 140°C/40 Hours, 150°C/300 Hours, and 155°C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV, 150°C/10 Hours, and 170°C/40 Hours
- The following are equivalent Temp Cycle options per JEDEC78, -55°C/155°C/100 Cycles and -65°C/150°C/600 Cycles

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

TI Qualification ID: R-CHG-2312-024

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

| Type  | #  | Test Name                     | Condition   | Duration    | Qual Device: PTS3USB221ERSER | QBS Reference: SN1227QDYYRQ1 | QBS Reference: MA198ASR5WR-S | QBS Reference: MA198ASR5WR-S | QBS Reference: MA198ASR5WR-S | QBS Reference: PTS3USB221ERSER | QBS Reference: PTS3USB221ERSER | QBS Reference: PTS3USB221ERSER |
|-------|----|-------------------------------|---|-------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------------------------|--------------------------------|--------------------------------|
| HAST  | A2 | Biased HAST                   | 110°C/85NRH   | 264 Hours   | -                            | -                            | 1/77/0                       | 1/77/0                       | 1/77/0                       | -                              | -                              | -                              |
| HAST  | A2 | Biased HAST                   | 130°C/85NRH   | 96 Hours    | -                            | 3/23/0                       | -                            | -                            | -                            | 1/77/0                         | 1/77/0                         | 1/77/0                         |
| UHAST | A3 | Autoclave                     | 111°C/15psi   | 96 Hours    | -                            | 3/23/0                       | -                            | -                            | -                            | -                              | -                              | -                              |
| UHAST | A3 | Unbiased HAST                 | 110°C/85NRH   | 264 Hours   | -                            | -                            | 1/77/0                       | 1/77/0                       | 1/77/0                       | -                              | -                              | -                              |
| UHAST | A3 | Unbiased HAST                 | 130°C/85NRH   | 96 Hours    | -                            | -                            | 1/77/0                       | 1/77/0                       | 1/77/0                       | -                              | -                              | -                              |
| TC    | A4 | Temperature Cycle             | -55°C/125°C   | 700 Cycles  | -                            | -                            | 1/77/0                       | 1/77/0                       | 1/77/0                       | -                              | -                              | -                              |
| TC    | A4 | Temperature Cycle             | -45°C/150°C   | 500 Cycles  | -                            | 3/23/0                       | -                            | -                            | -                            | 1/77/0                         | 1/77/0                         | 1/77/0                         |
| HTSL  | A5 | High Temperature Storage Life | 150°C   | 1000 Hours  | -                            | 3/13/0                       | 1/77/0                       | 1/77/0                       | 1/77/0                       | 1/77/0                         | 1/77/0                         | 1/77/0                         |
| HTOL  | B1 | Life Test                     | 125°C   | 1000 Hours  | -                            | -                            | 1/77/0                       | 1/77/0                       | 1/77/0                       | -                              | -                              | -                              |
| HTOL  | B1 | Life Test                     | 150°C   | 300 Hours   | -                            | 3/23/0                       | -                            | -                            | -                            | -                              | -                              | -                              |
| ELFR  | E2 | Early Life Failure Rate       | 150°C   | 24 Hours    | -                            | 3/24/00                      | -                            | -                            | -                            | -                              | -                              | -                              |
| SD    | C3 | PB Solderability              | Precondition w/155°C Dry Bake (4 hrs ~1.15 minutes)                 | -           | -                            | 1/15/0                       | -                            | -                            | -                            | -                              | -                              | -                              |
| SD    | C3 | PB-Free Solderability         | Precondition w/155°C Dry Bake (4 hrs ~1.15 minutes)                 | -           | -                            | 1/15/0                       | -                            | -                            | -                            | -                              | -                              | -                              |
| SD    | C3 | PB-Free Solderability         | Precondition w/155°C Dry Bake (4 hrs ~1.15 minutes); PB-Free Solder | -           | -                            | -                            | 1/5/0                        | 1/5/0                        | 1/5/0                        | 1/22/0                         | -                              | -                              |
| PD    | C4 | Physical Dimensions           | (per mechanical drawing)  | -           | -                            | -                            | 1/5/0                        | 1/5/0                        | 1/5/0                        | -                              | -                              | -                              |
| PD    | C4 | Physical Dimensions           | Cpk>1.67  | -           | -                            | 3/20/0                       | -                            | -                            | -                            | -                              | -                              | -                              |
| ESD   | E2 | ESD COM                       | -   | 1000 Volts  | -                            | -                            | -                            | -                            | -                            | 1/3/0                          | -                              | -                              |
| ESD   | E2 | ESD COM                       | -   | 1500 Volts  | -                            | 1/3/0                        | -                            | -                            | -                            | -                              | -                              | -                              |
| ESD   | E2 | ESD HBM                       | -   | 12000 Volts | -                            | -                            | -                            | -                            | -                            | 1/3/0                          | -                              | -                              |
| ESD   | E2 | ESD HBM                       | -   | 2000 Volts  | -                            | 1/3/0                        | -                            | -                            | -                            | -                              | -                              | -                              |
| LU    | E4 | Latch-Up                      | Per JESD78  | -           | -                            | 1/6/0                        | -                            | -                            | -                            | 1/3/0                          | -                              | -                              |
| CHAR  | E5 | Electrical Characterization   | Per Datasheet Parameters  | -           | 1/20/0                       | -                            | 1/20/0                       | 1/20/0                       | 1/20/0                       | 1/20/0                         | -                              | -                              |
| CHAR  | E5 | Electrical Distributions      | Cpk>1.67 Room, hot and cold   | -           | -                            | 3/20/0                       | -                            | -                            | -                            | -                              | -                              | -                              |
| FTY   | E6 | Final Test Yield              | -   | -           | -                            | -                            | 1/1/0                        | 1/1/0                        | 1/1/0                        | -                              | -                              | -                              |

- QBS: Qual By Similarity
- Our Device PTS3USB221ERSER is qualified at MSL1 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: 125°C/1K Hours, 140°C/480 Hours, 150°C/300 Hours, and 155°C/40 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV: 150°C/1K Hours, and 170°C/420 Hours
- The following are equivalent Temp Cycle options per JESD47: -55°C/125°C/700 Cycles and -45°C/150°C/500 Cycles

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

TI Qualification ID: R-CHG-2312-021

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