

| PCN Number: | 20240306002.1 | | PCN Date: | March 06, 2024 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|-------------------------------------|---------------------|---------------------|--|--|------------------|---------|----------------|---------------------|---------|----------------|------|---------|--------|------|----------|--------|--|--|--|
| Title: | Qualification of FFAB using qualified Process Technology, Die Revision and additional Assembly BOM options for select devices | | | | | | | | | | | | | | | | | | | | | | |
| Customer Contact: | Change Management Team | | Dept: | Quality Services | | | | | | | | | | | | | | | | | | | |
| Proposed 1st Ship Date: | June 04, 2024 | | Sample requests accepted until: | April 05, 2024* | | | | | | | | | | | | | | | | | | | |
| *Sample requests received after April 05, 2024 will not be supported. | | | | | | | | | | | | | | | | | | | | | | | |
| Change Type: | | | | | | | | | | | | | | | | | | | | | | | |
| <input 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 | | | | | | | | | | | | | | | | | | |
| PCN Details | | | | | | | | | | | | | | | | | | | | | | | |
| Description of Change: | | | | | | | | | | | | | | | | | | | | | | | |
| Texas Instruments is pleased to announce the qualification of its FFAB fabrication facility as an additional Wafer Fab option in addition to a BOM option for the devices listed below. | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th colspan="3">Current Fab Site</th> <th colspan="3">Additional Fab Site</th> </tr> <tr> <th>Current Fab Site</th> <th>Process</th> <th>Wafer Diameter</th> <th>Additional Fab Site</th> <th>Process</th> <th>Wafer Diameter</th> </tr> </thead> <tbody> <tr> <td>SFAB</td> <td>BIPOLAR</td> <td>150 mm</td> <td>FFAB</td> <td>BICOM3HV</td> <td>200 mm</td> </tr> </tbody> </table> | | | Current Fab Site | | | Additional Fab Site | | | Current Fab Site | Process | Wafer Diameter | Additional Fab Site | Process | Wafer Diameter | SFAB | BIPOLAR | 150 mm | FFAB | BICOM3HV | 200 mm | | | |
| Current Fab Site | | | Additional Fab Site | | | | | | | | | | | | | | | | | | | | |
| Current Fab Site | Process | Wafer Diameter | Additional Fab Site | Process | Wafer Diameter | | | | | | | | | | | | | | | | | | |
| SFAB | BIPOLAR | 150 mm | FFAB | BICOM3HV | 200 mm | | | | | | | | | | | | | | | | | | |
| The die was also changed as a result of the process change. | | | | | | | | | | | | | | | | | | | | | | | |
| Construction differences are as follows: | | | | | | | | | | | | | | | | | | | | | | | |
| | Current | Proposed | | | | | | | | | | | | | | | | | | | | | |
| Bond Wire diam/type | 1.3mil Au | 1.0mil Cu | | | | | | | | | | | | | | | | | | | | | |
| Die Coat | PI-2579C | PI | | | | | | | | | | | | | | | | | | | | | |
| Qual details are provided in the Qual Data Section. | | | | | | | | | | | | | | | | | | | | | | | |
| Reason for Change: | | | | | | | | | | | | | | | | | | | | | | | |
| These changes are part of our multiyear plan to transition products from our 150-millimeter and 200-millimeter factories to newer, more efficient manufacturing processes and technologies, underscoring our commitment to product longevity and supply continuity. | | | | | | | | | | | | | | | | | | | | | | | |
| Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative): | | | | | | | | | | | | | | | | | | | | | | | |
| None | | | | | | | | | | | | | | | | | | | | | | | |
| Impact on Environmental Ratings: | | | | | | | | | | | | | | | | | | | | | | | |
| 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. | | | | | | | | | | | | | | | | | | | | | | | |
| RoHS | REACH | Green Status | IEC 62474 | | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> No Change | <input checked="" type="checkbox"/> No Change | <input checked="" type="checkbox"/> No Change | <input checked="" type="checkbox"/> No Change | | | | | | | | | | | | | | | | | | | | |

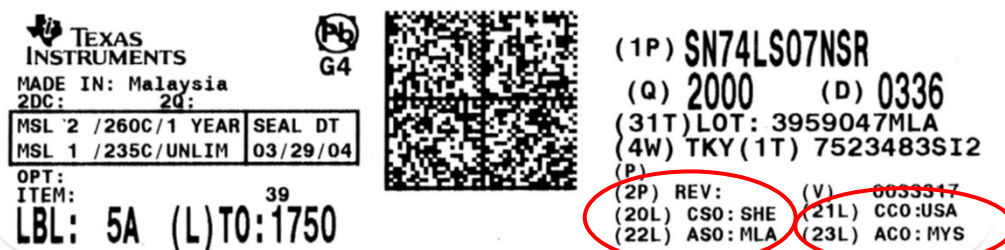
Changes to product identification resulting from this PCN:**Fab Site Information:**

| Chip Site | Chip Site Origin Code (20L) | Chip Site Country Code (21L) | Chip Site City |
|-----------------|-----------------------------|------------------------------|-----------------|
| SH-BIP-1 | SHE | USA | Sherman |
| FR-BIP-1 | TID | DEU | Freising |

Die Rev:**Current****New**

| Die Rev [2P] | Die Rev [2P] |
|--------------|--------------|
| C | A |

Sample product shipping label (not actual product label):

**Product Affected:**

INA117P

For alternate parts with similar or improved performance, please visit the product page on [TI.com](https://www.ti.com)**Qualification Results**

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

| Type | # | Test Name | Condition | Duration | Qual Device: INA117P | QBS Process Reference: INA828ID | QBS Process Reference: INA821ID | QBS Product Reference: INA149AID | QBS Product Reference: INA117KU/2K5 | QBS Package Reference: LM231AN/NOPB | QBS Package Reference: LM2594HVN-ADJ/NOPB | QBS Package Reference: LMC6482IN/NOPB |
|-------|----|-------------------------------|-------------|------------|-------------------------|------------------------------------|------------------------------------|-------------------------------------|--|--|--|--|
| HAST | A2 | Biased HAST | 130C | 96 Hours | - | 3/231/0 | 3/231/0 | - | - | - | - | - |
| HAST | A2 | Biased HAST | 130C/85%RH | 96 Hours | - | 3/231/0 | 3/231/0 | - | - | - | 3/231/0 | - |
| UHAST | A3 | Autoclave | 121C/15psig | 96 Hours | - | - | - | - | - | 3/231/0 | 3/231/0 | 3/231/0 |
| UHAST | A3 | Unbiased HAST | 130C | 96 Hours | - | 3/231/0 | 3/231/0 | - | - | - | - | - |
| UHAST | A3 | Unbiased HAST | 130C/85%RH | 96 Hours | - | 3/231/0 | 3/231/0 | - | - | - | - | - |
| TC | A4 | Temperature Cycle | -65/150C | 500 Cycles | - | 3/231/0 | 3/231/0 | 1/77/0 | - | - | - | - |
| TC | A4 | Temperature Cycle | -65C/150C | 500 Cycles | - | 3/231/0 | 3/231/0 | 1/77/0 | - | 3/231/0 | 3/231/0 | 3/231/0 |
| HTSL | A6 | High Temperature Storage Life | 150C | 1000 Hours | - | 3/231/0 | - | - | - | - | - | - |
| HTSL | A6 | High Temperature Storage Life | 170C | 420 Hours | - | - | 3/231/0 | - | - | 3/231/0 | 3/231/0 | 3/231/0 |

| Type | # | Test Name | Condition | Duration | Qual Device: INA117P | QBS Process Reference: INA828ID | QBS Process Reference: INA821ID | QBS Product Reference: INA149AID | QBS Product Reference: INA117KU/2K5 | QBS Package Reference: LM231AN/NOPB | QBS Package Reference: LM2594HVN- ADJ/NOPB | QBS Package Reference: LMC6482IN/NOPB |
|------|----|-----------------------------|--|------------|-------------------------|---------------------------------------|---------------------------------------|--|---|---|---|---|
| HTOL | B1 | Life Test | 125C | 1000 Hours | - | 3/231/0 | - | - | - | - | - | - |
| HTOL | B1 | Life Test | 150C | 300 Hours | - | - | 3/231/0 | - | - | - | - | - |
| HTOL | B1 | Life Test | 90C ¹ | 300 Hours | - | - | - | 1/77/0 | - | - | - | - |
| SD | C3 | PB-Free Solderability | Precondition w.155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder; | - | - | - | - | - | - | 3/66/0 | - | - |
| PD | C4 | Physical Dimensions | (per mechanical drawing) | - | - | - | - | - | - | 3/15/0 | 3/15/0 | 3/15/0 |
| ESD | E2 | ESD CDM | - | 250 Volts | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | - | - | - |
| ESD | E2 | ESD HBM | - | 1000 Volts | - | 1/3/0 | 1/3/0 | 1/3/0 | - | - | - | - |
| LU | E4 | Latch-Up | Per JESD78 | - | - | 1/6/0 | 1/6/0 | 1/6/0 | 1/3/0 | - | - | - |
| CHAR | E5 | Electrical Characterization | Per Datasheet Parameters | - | 1/5/0 | 3/90/0 | 3/90/0 | 1/30/0 | 1/30/0 | 1/30/0 | 1/30/0 | 1/30/0 |

- QBS: Qual By Similarity
- Qual Device INA117P is qualified at NOT CLASSIFIED NOT CLASSIFIED

- 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/>

TI Qualification ID: R-CHG-2303-110

¹T_J = 150C

For questions regarding this notice, e-mails can be sent to the Change Management team or your local Field Sales Representative.

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