| | | | |
|---|---|---|---|
| **PCN Number:** | 20241030002.1 | **PCN Date:** | October 31, 2024 |
| **Title:** | Qualification of RFAB & MIHO8 Fabs using qualified Process Technologies, Die Revisions, New Assembly site (MLA) & BOM options for select devices | | |
| **Customer Contact:** | Change Management Team | **Dept:** | Quality Services |
| **Proposed 1st Ship Date:** | January 29, 2025 | **Sample requests accepted until:** | November 30, 2024* |

***Sample requests received after November 30, 2024 will not be supported.**

**Change Type:**

| | | | | | |
|---|---|---|---|---|---|
| ☒ | Assembly Site | ☒ | Design | ☐ | Wafer Bump Material |
| ☒ | Assembly Process | ☒ | Data Sheet | ☐ | Wafer Bump Process |
| ☒ | Assembly Materials | ☐ | Part number change | ☒ | Wafer Fab Site |
| ☐ | Mechanical Specification | ☐ | Test Site | ☒ | Wafer Fab Material |
| ☒ | Packing/Shipping/Labeling | ☐ | Test Process | ☒ | Wafer Fab Process |

## PCN Details

**Description of Change:**

Texas Instruments is pleased to announce the addition of RFAB & MIHO8 Fabs using the LBC9 & ISOSAX qualified process technologies, Assembly site (MLA) and & BOM options for the devices listed below.

| Current Fab Site | | | Additional Fab Site | | |
|---|---|---|---|---|---|
| **Current Fab Site** | **Process** | **Wafer Diameter** | **Additional Fab Site** | **Process** | **Wafer Diameter** |
| DL-LIN (2 die) | LBC4 | 150 mm | RFAB (2 die)<br>MIHO8 (1 die) | LBC9<br>ISOSAX | 300 mm<br>200 mm |

The die were also changed as a result of the process change.

Construction differences are as follows:

**Group 1 Table - FAB/Process migration, die change, MLA as additional Assembly site plus BOM update (D packaged Devices):**

| | TI Taiwan | TI Malaysia |
|---|---|---|
| Bond wire composition, diamater | Au, 0.96 mil | Cu, 0.8 mil |
| Mold Compound | 4209640 | 4211880 |

**Group 2 Table - FAB/Process migration, die change, MLA as additional Assembly site plus BOM update (DW packaged Devices):**

| | TI Taiwan | TI Malaysia |
|---|---|---|
| Bond wire composition, diamater | Au, 1.3 mils | Cu, 0.8 mil |
| Mold Compound | 4209640 | 4221499 |

**Changes from Revision L (October 2015) to Revision M (October 2024)** **Page**

- Updated the numbering format for tables, figures, and cross-references throughout the document..... 1
- Updated reference from capacitive isolation to isolation barrier throughout the document.....1
- Changed the *Power Dissipation* table to *Power Ratings*. Combined the *Package Insulation Characteristics* table, *IEC 60664-1 Ratings Table* table, and *Insulation Characteristics* table in the *Insulation Specifications* table. Changed the *Regulatory Information* table to the *Safety-Related Certifications* table.....6
- Changed the L(I01) parameter name to external clearance (CLR) and L(I02) to external creepage (CPG). Also changed the input-to-output test voltage ($V_{PR}$) parameter name to apparent charge ($q_{pd}$).....7
- Changed Vpeak to $V_{PK}$ throughout the data sheet.....7
- Changed the CSA information in the *Safety-Related Certifications* table.....7
- Moved the *Insulation Characteristics Curves* section to the *Application Curves* section..... 24
- Changed the name of the *Application Curve* section to *Insulation Lifetime* and moved to the *Application Curves* section.....24

TEXAS INSTRUMENTS

**ISO7220A, ISO7220B, ISO7220C, ISO7220M, ISO7221A, ISO7221B, ISO7221C, ISO7221M**

SLLS755R – JULY 2006 – REVISED OCTOBER 2024

**Changes from Revision Q (August 2018) to Revision R (October 2024)** **Page**

- Updated reference from capacitive isolation to isolation barrier throughout the document.....1
- Updated the numbering format for tables, figures, and cross-references throughout the document..... 1
- Updated Thermal Characteristics, Safety Limiting Values, and Thermal Derating Curves to provide more accurate system-level thermal calculations.....4
- Updated electrical and switching characteristics to match device performance.....12

TEXAS INSTRUMENTS

**ISO7230C, ISO7231C, ISO7231M**

SLLS867L – SEPTEMBER 2007 – REVISED OCTOBER 2024

**Changes from Revision K (October 2015) to Revision L (October 2024)** **Page**

- Updated the numbering format for tables, figures, and cross-references throughout the document..... 1
- Updated VDE V 0884-11 to DIN VDE 0884-17 throughout the document..... 1
- Updated references from capacitive isolation to isolation barrier throughout the document..... 1
- Updated Thermal Characteristics, Safety Limiting Values, and Thermal Derating Curves to provide more accurate system-level thermal calculations.....4
- Updated the *Regulatory Information* table.....6
- Updated electrical and switching characteristics to match device performance.....6
- Moved the *Insulation Characteristics Curves* to the *Application Curves* section.....19

TEXAS INSTRUMENTS

**ISO7240CF, ISO7240C, ISO7240M, ISO7241C, ISO7241M, ISO7242C, ISO7242M**

SLLS868U – SEPTEMBER 2007 – REVISED OCTOBER 2024

**Changes from Revision T (March 2017) to Revision U (October 2024)** **Page**

- Updated reference from capacitive isolation to isolation barrier throughout the document.....1
- Updated VDE V 0884-11 to DIN VDE 0884-17 throughout the document..... 1
- Updated the numbering format for tables, figures, and cross-references throughout the document..... 1
- Updated Thermal Characteristics, Safety Limiting Values, and Thermal Derating Curves to provide more accurate system-level thermal calculations.....6
- Updated electrical and switching characteristics to match device performance.....8

The datasheet number will be changing.

| Device Family | Change From: | Change To: |
|---|---|---|
| ISO72x | SLLS629L | **SLLS629M** |
| ISO722x | SLLS755Q | **SLLS755R** |
| ISO723xx | SLLS867K | **SLLS867L** |
| ISO724x | SLLS868T | **SLLS868U** |

These changes may be reviewed at the datasheet links provided.

http://www.ti.com/product/ISO721
http://www.ti.com/product/ISO7220A
http://www.ti.com/product/ISO7230C
http://www.ti.com/product/ISO7240M

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 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 |
|---|---|---|---|
| ☒ No Change | ☒ No Change | ☒ No Change | ☒ 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 |
|---|---|---|---|
| DL-LIN | DLN | USA | Dallas |
| **RFAB** | **RFB** | **USA** | **Richardson** |
| **MIHO8** | **MH8** | **JPN** | **Ibaraki** |

**Die Rev:**

| Current | New |
|---|---|
| Die Rev [2P] | **Die Rev [2P]** |
| C,D,E | **-,A** |

**Assembly Site Information:**

| Assembly Site | Assembly Site Origin (22L) | Assembly Country Code (23L) | Assembly City |
|---|---|---|---|
| TI Taiwan | TAI | TWN | Chung Ho, New Taipei City |
| **MLA** | **MLA** | **MYS** | **Kuala Lumpur** |

Sample product shipping label (not actual product label):

**Product Affected:**

**Group 1 Device list - FAB/Process migration, die changes, MLA as additional Assembly site plus BOM update (D packaged Devices):**

| | | | |
|---|---|---|---|
| ISO721DR | ISO7220CDR | ISO7221BDR | ISO7221MDR |
| ISO721MDR | ISO7220MDR | ISO7221BDRG4 | ISO722DR |
| ISO7220ADR | ISO7220MDRG4 | ISO7221CDR | ISO722MDR |
| ISO7220ADRG4 | ISO7221ADR | ISO7221CDRG4 | ISO722MDRG4 |
| ISO7220BDR | ISO7221ADRG4 | | |

**Group 2 Device list - FAB/Process migration, die changes, MLA as additional Assembly site plus BOM update (DW packaged Devices):**

| | | | |
|---|---|---|---|
| ISO7230CDWR | ISO7231MDWRG4 | ISO7240MDWRG4 | ISO7241MDWRG4 |
| ISO7231CDWR | ISO7240CDWR | ISO7241CDWR | ISO7242CDWR |
| ISO7231CDWRG4 | ISO7240CFDWR | ISO7241CDWRG4 | ISO7242MDWR |
| ISO7231MDWR | ISO7240MDWR | ISO7241MDWR | ISO7242MDWRG4 |

For alternate parts with similar or improved performance, please visit the product page on TI.com

## Qualification Results

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

| Type | # | Test Name | Condition | Duration | Qual Device: ISO1050DUBR | QBS Reference: AMC1200STDUBRQ1 | QBS Reference: ISO6763QDWRQ1 |
|---|---|---|---|---|---|---|---|
| HAST | A2 | Biased HAST | 130C/85%RH | 96 Hours | - | 3/231/0 | 3/231/0 |
| UHAST | A3 | Autoclave | 121C/15psig | 96 Hours | 3/231/0 | 3/231/0 | 3/231/0 |
| TC | A4 | Temperature Cycle | -65C/150C | 500 Cycles | 3/231/0 | 3/231/0 | 3/231/0 |
| HTSL | A6 | High Temperature Storage Life | 150C | 1000 Hours | 3/231/0 | 1/45/0 | 3/135/0 |
| WBS | C1 | Ball Shear | 76 balls, 3 units min | Wires | 3/228/0 | - | - |
| WBP | C2 | Bond Pull | 76 Wires, 3 units min | Wires | 3/228/0 | - | - |
| SD | C3 | PB Solderability | Precondition w.155C Dry Bake (4 hrs +/- 15 minutes) | - | - | 1/15/0 | - |
| SD | C3 | PB-Free Solderability | Precondition w.155C Dry Bake (4 hrs +/- 15 minutes) | - | - | 1/15/0 | - |
| PD | C4 | Physical Dimensions | Cpk>1.67 | - | - | 3/30/0 | - |
| ESD | E2 | ESD CDM | - | 1500 Volts | 1/3/0 | - | - |
| ESD | E2 | ESD HBM | - | 4000 Volts | 1/3/0 | - | - |
| LU | E4 | Latch-Up | Per JESD78 | - | 1/3/0 | - | - |
| CHAR | E5 | Electrical Characterization | Per Datasheet Parameters | - | 1/30/0 | - | - |

| Type | # | Test Name | Condition | Duration | Qual Device: ISO1050DUBR | QBS Reference: AMC1200STDUBRQ1 | QBS Reference: ISO6763QDWRQ1 |
|---|---|---|---|---|---|---|---|
| CHAR | E5 | Electrical Distributions | Cpk>1.67 Room, hot, and cold | - | - | 3/90/0 | 3/90/0 |

- QBS: Qual By Similarity
- Qual Device ISO1050DUBR is qualified at MSL3 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/

TI Qualification ID: R-CHG-2202-050



## Qualification Results

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

| Type | # | Test Name | Condition | Duration | Qual Device: ISO3082DWR | Qual Device: ISO1176DWR | QBS Reference: ISO1176TDWR | QBS Reference: ISO6763QDWRQ1 |
|---|---|---|---|---|---|---|---|---|
| HAST | A2 | Biased HAST | 130C/85%RH | 96 Hours | - | - | - | 3/231/0 |
| UHAST | A3 | Autoclave | 121C/15psig | 96 Hours | - | - | 1/77/0 | 3/231/0 |
| TC | A4 | Temperature Cycle | -65C/150C | 500 Cycles | 1/77/0 | 1/77/0 | 1/77/0 | 3/231/0 |
| HTSL | A6 | High Temperature Storage Life | 150C | 1000 Hours | - | - | 1/77/0 | 3/135/0 |
| ESD | E2 | ESD CDM | - | 1000 Volts | 1/3/0 | 1/3/0 | - | - |
| ESD | E2 | ESD CDM | - | 1500 Volts | - | - | 1/3/0 | - |
| ESD | E2 | ESD HBM | - | 4000 Volts | 1/3/0 | 1/3/0 | 1/3/0 | - |
| LU | E4 | Latch-Up | Per JESD78 | - | 1/3/0 | 1/3/0 | 1/3/0 | - |
| CHAR | E5 | Electrical Characterization | Per Datasheet Parameters | - | 1/30/0 | 1/30/0 | 1/30/0 | - |
| CHAR | E5 | Electrical Distributions | Cpk>1.67 Room, hot, and cold | - | - | - | - | 3/90/0 |

- QBS: Qual By Similarity
- Qual Device ISO3082DWR is qualified at MSL2 260C
- Qual Device ISO1176DWR is qualified at MSL2 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/

TI Qualification ID: R-CHG-2303-070

**TI Information**
**Selective Disclosure**

**Qualification Results**

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

| Type | # | Test Name | Condition | Duration | Qual Device: ISO15DWR | Qual Device: ISO35DWR | Qual Device: ISO3080DWR | Qual Device: ISO3086DWR | Qual Device: ISO3088DWR | QBS Reference: ISO1050DWR | QBS Reference: ISO1176TDWR | QBS Reference: ISO6763QDWRQ1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HAST | A2 | Biased HAST | 130C/85%RH | 96 Hours | - | - | - | - | - | - | - | 3/231/0 |
| UHAST | A3 | Autoclave | 121C/15psig | 96 Hours | - | - | - | - | - | - | 1/77/0 | 3/231/0 |
| TC | A4 | Temperature Cycle | -65C/150C | 500 Cycles | - | - | - | - | - | 1/77/0 | 1/77/0 | 3/231/0 |
| HTSL | A6 | High Temperature Storage Life | 150C | 1000 Hours | - | - | - | - | - | - | 1/77/0 | 3/135/0 |
| ESD | E2 | ESD CDM | - | 1000 Volts | - | 1/3/0 | 1/3/0 | - | 1/3/0 | - | - | - |
| ESD | E2 | ESD CDM | - | 1500 Volts | - | - | - | - | - | 1/3/0 | 1/3/0 | - |
| ESD | E2 | ESD HBM | - | 4000 Volts | - | 1/3/0 | 1/3/0 | - | 1/3/0 | - | 1/3/0 | - |
| LU | E4 | Latch-Up | Per JESD78 | - | - | 1/3/0 | 1/3/0 | - | 1/3/0 | 1/3/0 | 1/3/0 | - |
| CHAR | E5 | Electrical Characterization | Per Datasheet Parameters | - | 1/30/0 | 1/30/0 | 1/30/0 | 1/30/0 | 1/30/0 | 1/30/0 | 1/30/0 | - |
| CHAR | E5 | Electrical Distributions | Cpk>1.67 Room, hot, and cold | - | - | - | - | - | - | - | - | 3/90/0 |

- QBS: Qual By Similarity

- Qual Device ISO15DWR is qualified at MSL2 260C
- Qual Device ISO35DWR is qualified at MSL2 260C
- Qual Device ISO3080DWR is qualified at MSL2 260C
- Qual Device ISO3086DWR is qualified at MSL2 260C
- Qual Device ISO3088DWR is qualified at MSL2 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/

TI Qualification ID: R-CHG-2202-060

**TI Information**
**Selective Disclosure**

## Qualification Results

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

| Type | # | Test Name | Condition | Duration | Qual Device: ISO1050DWR | QBS Reference: ISO1176TDWR | QBS Reference: ISO6763QDWRQ1 |
|---|---|---|---|---|---|---|---|
| HAST | A2 | Biased HAST | 130C/85%RH | 96 Hours | - | - | 3/231/0 |
| UHAST | A3 | Autoclave | 121C/15psig | 96 Hours | - | 1/77/0 | 3/231/0 |
| TC | A4 | Temperature Cycle | -65C/150C | 500 Cycles | 1/77/0 | 1/77/0 | 3/231/0 |
| HTSL | A6 | High Temperature Storage Life | 150C | 1000 Hours | - | 1/77/0 | 3/135/0 |
| ESD | E2 | ESD CDM | - | 1500 Volts | 1/3/0 | 1/3/0 | - |
| ESD | E2 | ESD HBM | - | 4000 Volts | 1/3/0 | 1/3/0 | - |
| LU | E4 | Latch-Up | Per JESD78 | - | 1/3/0 | 1/3/0 | - |
| CHAR | E5 | Electrical Characterization | Per Datasheet Parameters | - | 1/30/0 | 1/30/0 | - |
| CHAR | E5 | Electrical Distributions | Cpk>1.67 Room, hot, and cold | - | - | - | 3/90/0 |

- QBS: Qual By Similarity
- Qual Device ISO1050DWR is qualified at MSL2 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

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TI Qualification ID: R-CHG-2202-049



## Qualification Results

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

| Type | # | Test Name | Condition | Duration | Qual Device: ISO3086TDWR | Qual Device: ISO35TDWR | Qual Device: ISO1176TDWR | QBS Reference: ISO6763QDWRQ1 |
|---|---|---|---|---|---|---|---|---|
| HAST | A2 | Biased HAST | 130C/85%RH | 96 Hours | - | - | - | 3/231/0 |
| UHAST | A3 | Autoclave | 121C/15psig | 96 Hours | - | - | 1/77/0 | 3/231/0 |
| TC | A4 | Temperature Cycle | -65C/150C | 500 Cycles | - | - | 1/77/0 | 3/231/0 |
| HTSL | A6 | High Temperature Storage Life | 150C | 1000 Hours | - | - | 1/77/0 | 3/135/0 |
| ESD | E2 | ESD CDM | - | 1500 Volts | - | - | 1/3/0 | - |
| ESD | E2 | ESD HBM (Bus pins to GND2) | - | 10000 Volts | - | - | 1/3/0 | - |
| ESD | E2 | ESD HBM | - | 4000 Volts | - | - | 1/3/0 | - |
| ESD | E2 | ESD HBM (Bus pins to GND1) | - | 6000 Volts | - | - | 1/3/0 | - |
| LU | E4 | Latch-Up | Per JESD78 | - | - | - | 1/3/0 | - |
| CHAR | E5 | Electrical Characterization | Per Datasheet Parameters | - | 1/30/0 | 1/30/0 | 1/30/0 | - |
| CHAR | E5 | Electrical Distributions | Cpk>1.67 Room, hot, and cold | - | - | - | - | 3/90/0 |

- QBS: Qual By Similarity
- Qual Device ISO3086TDWR is qualified at MSL2 260C

- Qual Device ISO35TDWR is qualified at MSL2 260C
- Qual Device ISO1176TDWR is qualified at MSL2 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

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