

| | | | |
|---|--|---------------------------------------|----------------------------------|
| PCN Number: | 20180918000.1 | PCN Date: | Sep 20, 2018 |
| Title: | Qualification of MIHO8 as an additional Fab site option for select devices | | |
| Customer Contact: | PCN Manager | Dept: | Quality Services |
| Proposed 1st Ship Date: | Dec 20, 2018 | Estimated Sample Availability: | Date provided at sample request. |
| Change Type: | | | |
| <input type="checkbox"/> | Assembly Site | <input type="checkbox"/> | Assembly Process |
| <input type="checkbox"/> | Design | <input type="checkbox"/> | Electrical Specification |
| <input type="checkbox"/> | Test Site | <input type="checkbox"/> | Packing/Shipping/Labeling |
| <input type="checkbox"/> | Wafer Bump Site | <input type="checkbox"/> | Wafer Bump Material |
| <input checked="" type="checkbox"/> | Wafer Fab Site | <input checked="" type="checkbox"/> | Wafer Fab Materials |
| | | <input type="checkbox"/> | Part number change |
| <input type="checkbox"/> | | <input type="checkbox"/> | Assembly Materials |
| <input type="checkbox"/> | | <input type="checkbox"/> | Mechanical Specification |
| <input type="checkbox"/> | | <input type="checkbox"/> | Test Process |
| <input type="checkbox"/> | | <input type="checkbox"/> | Wafer Bump Process |
| <input type="checkbox"/> | | <input type="checkbox"/> | Wafer Fab Process |

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of its MIHO8 fabrication facility as an additional Wafer Fab source for the selected devices listed in the "Product Affected" section.

| Current Fab Site | | | Additional Fab Site | | |
|------------------|---------|----------------|---------------------|---------|----------------|
| Current Fab Site | Process | Wafer Diameter | Additional Fab Site | Process | Wafer Diameter |
| RFAB | LBC7 | 300 mm | MIHO8 | LBC7 | 200 mm |

Qual details are provided in the Qual Data Section.

Reason for Change:

Continuity of Supply

Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):

None

Changes to product identification resulting from this PCN:

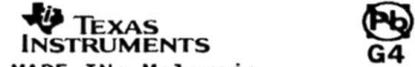
Current:

| Chip Site | Chip Site Origin Code (20L) | Chip Site Country Code (21L) | Chip Site City |
|-----------|-----------------------------|------------------------------|----------------|
| RFAB | RFB | USA | Richardson |

New Fab Site:

| Chip Site | Chip Site Origin Code (20L) | Chip Site Country Code (21L) | Chip Site City |
|--------------|-----------------------------|------------------------------|----------------|
| MIHO8 | MH8 | JPN | Ibaraki |

Sample product shipping label (not actual product label)



MADE IN: Malaysia
2DC: 2d:

| | |
|------------------------|----------|
| MSL '2 / 260C / 1 YEAR | SEAL DT |
| MSL 1 / 235C / UNLIM | 03/29/04 |

OPT:
ITEM: 39
LBL: 5A (L)T0:1750



(1P) SN74LS07NSR
(Q) 2000 (D) 0336
(31T) LOT: 3959047MLA
(4W) TKY (1T) 7523483SI2
(P)
(2P) REV: (V) 0033317
(20L) CSO: SHE (21L) CCO: USA
(22L) ASO: MLA (23L) ACO: MYS

Product Affected:

| | | | |
|--------------|--------------|--------------|--------------|
| TPS53622RSBR | TPS53659RSBR | TPS53679RSBR | TPS53679RSBT |
| TPS53622RSBT | TPS53659RSBT | | |

Qualification Report

TPS53659 TPS53658 TPS53679 TPS53622 - Dual Fab Source (MIHO/CARZ Qual)
Approve Date 26-Oct-2017

Product Attributes

| Attributes | Qual Device: TPS53622 PG2.1 | Qual Device: TPS53658 PG2.1 | Qual Device: TPS53659 PG2.1 | Qual Device: TPS53679 PG2.1 | QBS Product Reference1: TPS53658 PG1.2 | QBS Product Reference1: TPS53658 PG2.1 |
|---------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--|--|
| Assembly Site | CARZ | CARZ | CARZ | CARZ | CARZ | CARZ |
| Package Family | QFN/SON | QFN/SON | QFN/SON | QFN/SON | QFN/SON | QFN/SON |
| Flammability Rating | UL 94 V-0 | UL 94 V-0 |
| Wafer Fab Supplier | MIHO | MIHO | MIHO | MIHO | RFAB | RFAB |
| Wafer Process | LBC7 | LBC7 | LBC7 | LBC7 | LBC7 | LBC7 |

- QBS: Qual By Similarity

- Qual Devices qualified at LEVEL2-260CG: TPS53659 PG2.1, TPS53622 PG2.1, TPS53658 PG2.1, TPS53679 PG2.1

Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: TPS53622 PG2.1 | Qual Device: TPS53658 PG2.1 | Qual Device: TPS53659 PG2.1 | Qual Device: TPS53679 PG2.1 | QBS Product Reference1: TPS53658 PG1.2 | QBS Product Reference1: TPS53658 PG2.1 |
|------|----------------------------------|-----------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--|--|
| AC | Autoclave 121C | 96 Hours | - | - | - | - | 1/77/0 | - |
| ED | Electrical Characterization | Per Datasheet Parameters | - | - | - | Pass | - | Pass |
| ELFR | Early Life Failure Rate, 140C | 48 Hours | - | - | - | - | - | - |
| HAST | Biased HAST, 110C/85%RH | 264 Hours | - | - | - | - | - | - |
| HAST | Biased HAST, 130C/85%RH | 96 Hours | - | - | - | - | - | - |
| HAST | Biased HAST, 130C/85%RH | 96 Hours | - | - | - | - | - | - |
| HBM | ESD - HBM | 3000 V | - | 1/3/0 | 1/3/0 | - | - | 1/3/0 |
| CDM | ESD - CDM | 1500 V | - | 1/3/0 | 1/3/0 | - | - | 1/3/0 |
| HTOL | Life Test, 125C | 1000 Hours | - | - | 1/79/0 | - | - | - |
| HTOL | Life Test, 140C | 480 Hours | - | - | - | - | - | - |
| HTOL | Life Test, 150C | 300 Hours | - | - | - | - | - | - |
| HTSL | High Temp. Storage Bake, 170C | 420 Hours | - | - | - | - | - | - |
| LU | Latch-up | (per JESD78) | - | 1/6/0 | 1/6/0 | - | - | 1/6/0 |
| TC | Temperature Cycle, -65/150C | 500 Cycles | - | - | - | - | 1/77/0 | - |
| TS | Thermal Shock, -65/150C | 500 Cycles | - | - | - | - | - | - |
| WBP | Bond Pull | Wires | - | - | - | - | - | - |
| YLD | FTY and Bin Summary | -- | Pass | Pass | Pass | Pass | - | Pass |

- 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

TPS53659 TPS53658 TPS53679 TPS53622 - Dual Fab Source (MIHO/CARZ Qual)

Approve Date 26-Oct-2017

Product Attributes

| Attributes | QBS Product Reference 1: TPS53659 PG1.2 | QBS Product Reference 1: TPS53659 PG2.1 | QBS Product Reference 1: TPS53679 PG1.2 | QBS Product Reference 1: TPS53679 PG2.1 | QBS Process Reference 1: TPS62110RSA | QBS Package Reference 1: TP561225CRUKR |
|---------------------|---|---|---|---|--------------------------------------|--|
| Assembly Site | CARZ | CARZ | CARZ | CARZ | CAR | CARZ |
| Package Family | QFN/SON | QFN/SON | QFN/SON | QFN/SON | QFN/SON | QFN/SON |
| Flammability Rating | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 |
| Wafer Fab Supplier | RFAB | RFAB | RFAB | RFAB | MIHO | RFAB |
| Wafer Process | LBC7 | LBC7 | LBC7 | LBC7 | LBC7 | LBC7 |

- QBS: Qual By Similarity

- Qual Devices qualified at LEVEL2-260C: TPS53659 PG2.1, TPS53622 PG2.1, TPS53658 PG2.1, TPS53679 PG2.1

Qualification Results

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

| Type | Test Name / Condition | Duration | QBS Product Reference 1: TPS53659 PG1.2 | QBS Product Reference 1: TPS53659 PG2.1 | QBS Product Reference 1: TPS53679 PG1.2 | QBS Product Reference 1: TPS53679 PG2.1 | QBS Process Reference 1: TPS62110RSA | QBS Package Reference 1: TP561225CRUKR |
|------|-------------------------------|--------------------------|---|---|---|---|--------------------------------------|--|
| AC | Autoclave 121C | 96 Hours | 1/77/0 | - | 1/77/0 | - | 3/231/0 | 3/240/0 |
| ED | Electrical Characterization | Per Datasheet Parameters | - | - | - | Pass | - | - |
| ELFR | Early Life Failure Rate, 140C | 48 Hours | - | - | - | - | 3/1881/0 | - |
| HAST | Biased HAST, 110C/85%RH | 264 Hours | 1/77/0 | - | 2/153/0 | - | - | - |
| HAST | Biased HAST, 130C/85%RH | 96 Hours | - | - | - | - | - | - |
| HAST | Biased HAST, 130C/85%RH | 96 Hours | - | - | - | - | 3/231/0 | - |
| HBM | ESD-HBM | 3000 V | - | - | 1/3/0 | 1/3/0 | - | - |
| CDM | ESD-CDM | 1500 V | - | - | - | 1/3/0 | - | - |
| HTOL | Life Test, 125C | 1000 Hours | - | - | - | - | - | - |
| HTOL | Life Test, 140C | 480 Hours | - | - | - | - | 3/231/0 | - |
| HTOL | Life Test, 150C | 300 Hours | 1/77/0 | - | 2/154/0 | - | - | - |
| HTSL | High Temp. Storage Bake, 170C | 420 Hours | - | - | - | - | 3/231/0 | 3/231/0 |
| LU | Latch-up (per JESD78) | - | - | - | 1/6/0 | 1/6/0 | - | - |
| TC | Temperature Cycle, -65/150C | 500 Cycles | 1/77/0 | - | 1/77/0 | - | 3/231/0 | 3/231/0 |
| TS | Thermal Shock, -65/150C | 500 Cycles | - | - | - | - | 3/231/0 | - |
| WBP | Bond Pull | Wires | 1/5/0 | - | 1/5/0 | - | - | - |
| YLD | FTY and Bin Summary | - | - | Pass | - | Pass | - | - |

- 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

For questions regarding this notice, e-mails can be sent to the regional contacts shown below, or you can contact 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 |