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|--|--|--|----------------------------------|-------------------------------------|--------------------------|
| PCN Number: | 20180927003.2A | | PCN Date: | Jan. 4, 2019 | |
| Title: | LBC7 change total PO thickness from 24kA to 39kA | | | | |
| Customer Contact: | PCN Manager | | Dept: | Quality Services | |
| Proposed 1st Ship Date: | Apr. 15, 2019 | Estimated Sample Availability: | Date provided at sample request. | | |
| Change Type: | | | | | |
| <input type="checkbox"/> | Assembly Site | <input type="checkbox"/> | Assembly Process | <input type="checkbox"/> | Assembly Materials |
| <input type="checkbox"/> | Design | <input type="checkbox"/> | Electrical Specification | <input type="checkbox"/> | Mechanical Specification |
| <input type="checkbox"/> | Test Site | <input type="checkbox"/> | Packing/Shipping/Labeling | <input type="checkbox"/> | Test Process |
| <input type="checkbox"/> | Wafer Bump Site | <input type="checkbox"/> | Wafer Bump Material | <input type="checkbox"/> | Wafer Bump Process |
| <input type="checkbox"/> | Wafer Fab Site | <input type="checkbox"/> | Wafer Fab Materials | <input checked="" type="checkbox"/> | Wafer Fab Process |
| | <input type="checkbox"/> | Part number change | | | |
| PCN Details | | | | | |
| Description of Change: | | | | | |
| The purpose of PCN Revision A is to announce the retraction of select devices. Retracted devices are identified with a strikethrough and are highlighted in yellow in the Product Affected Section. The retracted devices will not be affected by this PCN. | | | | | |
| This change notification is to announce a total PO Thickness change from 24kA to 39kA by increasing the 2 nd Oxide Teos thickness from 3kA to 18kA on the LBC7 process node for the selected devices listed in the "Product Affected" section. | | | | | |
| Change From | | Change To | | | |
| 13kA HDP Oxide + 3kA Teos Oxide + 8kA Nitride passivation | | 13kA HDP Oxide + 18kA Teos Oxide + 8kA Nitride passivation | | | |
| 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: | | | | | |
| None | | | | | |
| Product Affected: | | | | | |
| LM74610QDGKRQ1 | LP5912Q1.8DRVRQ1 | PLP5912Q1.25DRVTQ1 | TPS62160QDSGRQ1 | | |
| LM74610QDGKTQ1 | LP5912Q1.8DRVTQ1 | PLP5912Q1.2DRVTQ1 | TPS62160QDSGTQ1 | | |
| LM74670QDGKRQ1 | LP5912Q2.5DRVRQ1 | PLP5912Q1.5DRVTQ1 | TPS62162QDSGRQ1 | | |
| LM74670QDGKTQ1 | LP5912Q2.5DRVTQ1 | PLP5912Q1.8DRVTQ1 | TPS62162QDSGTQ1 | | |
| LP5912Q0.9DRVRQ1 | LP5912Q2.8DRVRQ1 | PLP5912Q2.7DRVTQ1 | TPS62170QDSGRQ1 | | |
| LP5912Q0.9DRVTQ1 | LP5912Q2.8DRVTQ1 | PLP5912Q2.8DRVTQ1 | TPS62170QDSGTQ1 | | |
| LP5912Q1.1DRVRQ1 | LP5912Q3.0DRVRQ1 | PLP5912Q3.0DRVTQ1 | TPS62171QDSGRQ1 | | |
| LP5912Q1.1DRVTQ1 | LP5912Q3.0DRVTQ1 | PLP5912Q3.3DRVTQ1 | TPS62171QDSGTQ1 | | |
| LP5912Q1.2DRVRQ1 | LP5912Q3.3DRVRQ1 | PLP5912Q5.5DRVTQ1 | TPS62172QDSGRQ1 | | |
| LP5912Q1.2DRVTQ1 | LP5912Q3.3DRVTQ1 | PTPL7407LQPWRQ1 | TPS62172QDSGTQ1 | | |
| LP5912Q1.5DRVRQ1 | P74610QDGKTQ1 | TPL7407LQPWRQ1 | TPS7A8801QRTJRQ1 | | |
| LP5912Q1.5DRVTQ1 | PLP5912Q1.1DRVTQ1 | | | | |

Qualification Report

Miho: LBC7 - Thick TEOS at PO 2nd OX DEP

Approve Date 6-September-2018

Product Attributes

| Attributes | Qual Device: TPS563201DDCR |
|---------------------|----------------------------|
| Assembly Site | JCET |
| Package Family | SOT-23-T |
| Wafer Fab Supplier | Miho |
| Wafer Process | LBC7 |
| Flammability Rating | UL 94 V-0 |

- Qual Devices qualified at LEVEL 1-NACG: Devices TPS563201DDCR

Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: TPS563201DDCR |
|------|-------------------------------|-------------------------------|----------------------------|
| HAST | Biased HAST, 130C/85%RH | 192 Hours | 3/231/0 |
| HTSL | High Temp. Storage Bake, 170C | 420 Hours | 3/231/0 |
| MQ | Manufacturability (Assembly) | (per mfg. Site specification) | 3/Pass |
| TC | Temperature Cycle, -65/150C | 750 Cycles | 3/231/0 |

- 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

FFAB: LBC7 - Thick TEOS at PO 2nd OX DEP

Approve Date 10-September-2018

Product Attributes

| Attributes | Qual Device: TPS62175DQCR | Qual Device: TPS62177DQCR |
|---------------------|---------------------------|---------------------------|
| Assembly Site | CLARK | CLARK |
| Package Family | WSON | WSON |
| Wafer Fab Supplier | FFAB | FFAB |
| Wafer Process | LBC7 | LBC7 |
| Flammability Rating | UL 94 V-0 | UL 94 V-0 |

- Qual Devices qualified at LEVEL 2-NACG: Devices TPS62175DQCR and TPS62177DQCR

Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: TPS62175DQCR | Qual Device: TPS62177DQCR |
|------|-------------------------------|-------------------------------|------------------------------|------------------------------|
| HAST | Biased HAST, 130C/85%RH | 192 Hours | 3/231/0 | 3/231/0 |
| HTSL | High Temp. Storage Bake, 170C | 420 Hours | 3/231/0 | 3/231/0 |
| MQ | Manufacturability (Assembly) | (per mfg. Site specification) | 3/Pass | 3/Pass |
| TC | Temperature Cycle, -65/150C | 750 Cycles | 3/231/0 | 3/231/0 |

- 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 |