| PCN Number: | PCN#20250303001.0 | PCN Date: | March 04, 2025 |
|---|---|---|---|
| Title: | MSL Update for select devices | | |
| Customer Contact: | Change Management Team | Dept: | Quality Services |

| | | | | | |
|---|---|---|---|---|---|
| ☐ | 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:**

This Notification is to inform of a change to the MSL ratings for the devises listed below as follows:

| What | Current | New |
|---|---|---|
| MSL | 2 or 3 | 1 |

**Reason for Change:**

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:**

None

**Product Affected:**

| | | | |
|---|---|---|---|
| OPA170AQDBVRQ1 | OPA314AQDBVTQ1 | OPA316QDBVRQ1 | OPA316QDBVTQ1 |
| OPA314AQDBVRQ1 | | | |

# Automotive New Product Qualification Summary
## (As per AEC-Q100 and JEDEC Guidelines)

### TPS3840PH30DBVRQ1 (Q100, Grade 1, -40 to 125C)

### Approved 02-Jun-2022

**Product Attributes**

| Attributes | Qual Device: TMS3840PH30DBVRQ1 |
|---|---|
| Automotive Grade Level | Grade 1 |
| Operating Temp Range | -40 to +125 C |
| Product Function | Power Management |
| Wafer Fab Supplier | RFAB |
| Die Revision | A |
| Assembly Site | CDAT |
| Package Type | SOT-23 |
| Package Designator | DBV |
| Ball/Lead Count | 5 |

- QBS: Qual By Similarity
- Qual Device 3840PH30DBVRQ1 is qualified at LEVEL1-260CG

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

| | Type | # | Test Spec | Min Lot Qty | SS/Lot | Test Name / Condition | Duration | Qual Device: 3840PH30DBVRQ1 |
|---|---|---|---|---|---|---|---|---|
| | | | **Test Group A – Accelerated Environment Stress Tests** | | | | | |
| | PC | A1 | JEDEC J-STD-020 JESD22-A113 | 3 | 77 | Preconditioning | Level 1-260C | No Fails |
| | HAST | A2 | JEDEC JESD22-A110 | 3 | 77 | Biased HAST, 130C/85%RH | 96 Hours | 3/231/0 |
| | UHAST | A3 | JEDEC JESD22-A102 | 3 | 77 | Unbiased HAST 130C/85%RH | 96 Hours | 3/231/0 |
| | TC | A4 | JEDEC JESD22-A104 and Appendix 3 | 3 | 77 | Temperature Cycle, -65/150C | 500 Cycles | 3/231/0 |
| | TC-WBP | A4 | MIL-STD883 Method 2011 | 1 | 60 | Post Temp Cycle Bond Pull | Wires | 3/108/0 |
| | PTC | A5 | JEDEC JESD22-A105 | 1 | 45 | Power Temperature Cycle | 1000 Cycles | N/A |
| | HTSL | A6 | JEDEC JESD22-A103 | 1 | 45 | High Temp Storage Bake 150C | 1000 Hours | 3/231/0 |
| | | | **Test Group B – Accelerated Lifetime Simulation Tests** | | | | | |
| | HTOL | B1 | JEDEC JESD22-A108 | 3 | 77 | Life Test, 125C | 1000 Hours | 3/231/0 |
| | EDR | B3 | AEC Q100-005 | 3 | 77 | NVM Endurance, Data Retention, and Operational Life | - | N/A |
| | | | **Test Group C – Package Assembly Integrity Tests** | | | | | |
| | WBS | C1 | AEC Q100-001 | 1 | 30 | Wire Bond Shear, Cpk>1.67 | Wires | 3/90/0 |
| | WBP | C2 | MIL-STD883 Method 2011 | 1 | 30 | Bond Pull, Cpk>1.67 | Wires | 3/90/0 |
| | SD | C3 | JEDEC JESD22-B102 | 1 | 15 | Surface Mount Solderability | Pb Free Solder | 3/45/0 |
| | SD | C3 | JEDEC JESD22-B102 | 1 | 15 | Surface Mount Solderability | Pb Solder | 3/45/0 |
| | PD | C4 | JEDEC JESD22-B100 and B108 | 3 | 10 | Physical Dimensions | Cpk>1.67 | 3/30/0 |
| | LI | C6 | JEDEC JESD22-B105 | 1 | 50 | Lead Fatigue | Leads | 3/66/0 |
| | LI | C6 | JEDEC JESD22-B105 | 1 | 50 | Lead Pull to Destruction | Leads | 3/66/0 |
| | | | **Test Group D – Die Fabrication Reliability Tests** | | | | | |
| | EM | D1 | JESD61 | - | - | Electromigration | - | Completed Per Process Technology Requirements |
| | TDDB | D2 | JESD35 | - | - | Time Dependant Dielectric Breakdown | - | Completed Per Process Technology Requirements |

| | Type | # | Test Spec | Min Lot Qty | SS/Lot | Test Name / Condition | Duration | Qual Device: 3840PH30DBVRQ1 |
|---|---|---|---|---|---|---|---|---|
| | HCI | D3 | JESD60 & 28 | - | - | Hot Injection Carrier | - | Completed Per Process Technology Requirements |
| | NBTI | D4 | - | - | - | Negative Bias Temperature Instability | - | Completed Per Process Technology Requirements |
| | SM | D5 | - | - | - | Stress Migration | - | Completed Per Process Technology Requirements |
| **Test Group E – Electrical Verification Tests** | | | | | | | | |
| | ED | E5 | AEC Q100-009 | 3 | 30 | Auto Electrical Distributions | Cpk>1.67 Room, hot, and cold test | 3/90/0 |

**A1 (PC): Preconditioning:**
Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable.

**Ambient Operating Temperature by Automotive Grade Level:**
Grade 0 (or E): -40°C to +150°C
Grade 1 (or Q): -40°C to +125°C
Grade 2 (or T): -40°C to +105°C
Grade 3 (or I): -40°C to +85°C

**E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):**
Room/Hot/Cold: HTOL, ED
Room/Hot: THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU
Room: AC/uHAST

**Green/Pb-free Status:**
Qualified Pb-Free(SMT) and Green

TI Qualification ID: 20201126-137339

ZVEI Id: SEM-PS-02

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

## IMPORTANT NOTICE AND DISCLAIMER