12500 TI Boulevard, MS 8640, Dallas, Texas 75243

**PCN# 20150225000**
**Add Cu as Alternative Wire Base Metal for Selected Device(s)**
**Change Notification / Sample Request**

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

We request you acknowledge receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance of the change. If you require samples or additional data to support your evaluation, please request within 30 days.

The changes discussed within this PCN will not take effect any earlier than **90** days from the date of this notification, unless customer agreement has been reached on an earlier implementation of the change. This notification period is per TI's standard process.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice, contact your local Field Sales Representative or the PCN Manager (PCN_ww_admin_team@list.ti.com).

Sincerely,

PCN Team
SC Business Services

**PCN# 20150225000**
**Attachment: 1**

## Products Affected:

According to our records, there are the affected device(s) that you have purchased within the past twenty-four (24) months. Technical details of this Product Change follow on the next page(s).

| PCN Number: | 20150225000 | PCN Date: | 03/16/2015 |
|---|---|---|---|
| Title: | Add Cu as Alternative Wire Base Metal for Selected Device(s) | | |
| Customer Contact: | PCN Manager | Phone: +1(214)480-6037 | Dept.: Quality Services |
| Proposed 1st Ship Date: | 06/16/2015 | Estimated Sample Availability: | Date provided at sample request |

**Change Type:**

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

## PCN Details

**Description of Change:**

Texas Instruments is pleased to announce the Qualification of Cu wire as Alternative Wire Base Metal for Selected Device(s). Devices will remain in current assembly facility.

**Group 1 Device: Wire material change only**

**Group 2 Device: Wire material and diam change**

| | Au wire | Cu wire |
|---|---|---|
| Wire diam (mils) | 0.96mil, 1.0mil | 0.8mil |

**Reason for Change:**

Continuity of supply.

1) To align with world technology trends and use wiring with enhanced mechanical and electrical properties
2) Maximize flexibility within our Assembly/Test production sites.
3) Cu is easier to obtain and stock

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

None.

**Changes to product identification resulting from this PCN:**

None.

**Product Affected: Group 1 Devices**

| | | | |
|---|---|---|---|
| BQ500211ARGZR | DAC088S085CIMT/NOPB | LMV344MT/NOPB | LMV934MTX/NOPB |
| BQ500211ARGZT | DAC088S085CIMTX/NOPB | LMV344MTX/NOPB | SM72442MT/NOPB |
| BQ500212ARGZR | DAC108S085CIMT | LMV604MT/NOPB | SM72442MTE/NOPB |
| BQ500212ARGZT | DAC108S085CIMT/NOPB | LMV604MTX/NOPB | SM72442MTX/NOPB |
| BQ500212MRGZR | DAC108S085CIMTX/NOPB | LMV614MT/NOPB | SM72445MT/NOPB |
| BQ500212NRGZR | DAC128S085CIMT/NOPB | LMV614MTX/NOPB | SM72445MTX/NOPB |
| BQ500410ARGZR | DAC128S085CIMTX/NOPB | LMV774MT/NOPB | TPS65633BRTER |
| BQ500410ARGZT | LMH6644MT/NOPB | LMV774MTX/NOPB | UCD9224ERGZR |
| BQ500410NRGZR | LMH6644MTX/NOPB | LMV824MT/NOPB | UCD9224ERGZT |
| BQ500410NRGZT | LMH6683MT/NOPB | LMV824MTX/E7000973 | UCD9244ARGCT |
| BQ500410RGZR | LMH6683MTX/NOPB | LMV824MTX/NOPB | |
| BQ500412RGZR | LMV324MT/NOPB | LMV824MTX/S7001910 | |
| BQ500412RGZT | LMV324MTX/NOPB | LMV934MT/NOPB | |

| Product Affected: Group 2 Devices | | | |
|---|---|---|---|
| DS125BR111RTWR | DS125BR810NJYR | DS125BR820NJYR | CC1100ERGPT |
| DS125BR111RTWT | DS125BR810NJYT | DS80PCI810NJYR | |
| DS125BR820NJYT | DS80PCI810NJYT | CC1100ERGPR | |

# Group 1 Qualification Data

## TPS65633ARTE & TPS65633BRTE Au to Cu wire conversion

Product Attributes

| Attributes | Qual Device: TPS65633ARTE | Qual Device: TPS65633BRTE | QBS Package: TPS65635KRSN | QBS Package: MSP430FR5969IRGZ |
|---|---|---|---|---|
| **Assembly Site** | CLARK-AT | CLARK-AT | CLARK-AT | CLARK-AT |
| **Package Family** | QFN | QFN | QFN | QFN |
| **Flammability Rating** | - | - | UL 94 V-0 | UL 94 V-0 |
| **Die Attributes** | **Qual Device: TPS65633ARTE** | **Qual Device: TPS65633BRTE** | **QBS Package: TPS65635KRSN** | **QBS Package: MSP430FR5969IRGZ** |
| **Die Revision** | A0 | B0 | A01 | E |
| **Wafer Fab Site** | RFAB | RFAB | RFAB | DM5-DALLAS |
| **Wafer Fab Process** | LBC7 | LBC7 | LBX7X | HPE035 |
| **Passivation** | - | - | OXYNITRIDE | Po-nitride |
| **Package Attributes** | | | | |
| **Assembly Site** | CLARK-AT | CLARK-AT | CLARK-AT | CLARK-AT |
| **Package Family** | QFN | QFN | QFN | QFN |
| **Package Designator** | RTE | RTE | RSN | RGZ |
| **Package Size (mils)** | 118.11 X 118.11 | 118.11 X 118.11 | 157.48 X 157.48 | 275.59 X 275.59 |
| **Body Thickness (mils)** | 29.53 | 29.53 | 29.53 | 35.43 |
| **Pin Count** | 16 | 16 | 32 | 48 |
| **Lead Frame Material** | Cu | Cu | Cu | Cu |
| **Lead Finish** | NiPdAu | NiPdAu | NiPdAu | NiPdAu |
| **Lead Pitch (mils)** | 19.68 | 19.68 | 15.74 | 19.68 |
| **Mount Compound** | 4207123 | 4207123 | 4207123 | 4207768 |
| **Mold Compound** | 4208625 | 4208625 | 4208625 | 4208625 |
| **Bond Wire Composition** | Cu | Cu | Cu | Cu |
| **Bond Wire Diameter (mils)** | 1.0 | 1.0 | 1.3 | 0.8 |
| **Flammability Rating** | - | - | UL 94 V-0 | UL 94 V-0 |

- QBS: Qual By Similarity
- Qual Devices is qualified at LEVEL2-260C: TPS65633ARTER, TPS65633BRTER

## Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: TPS65633ARTER | Qual Device: TPS65633BRTER | QBS Package: TPS65635KRSN | QBS Package: MSP430FR5969IRGZ Cu |
|---|---|---|---|---|---|---|
| HAST | Biased HAST 130C/85%RH | 264 Hours | - | - | - | 3/231/0 |
| AC | Autoclave 121C | 96 Hours | - | - | 3/231/0 | 3/231/0 |
| TC | Temperature Cycle, -65/150C | 500 Cycles | 1/77/0 | 2/154/0 | 3/231/0 | 3/231/0 |
| HTSL | High Temp. Storage Bake, 150C | 1000 Hours | - | - | - | 3/231/0 |
| HTSL | High Temp. Storage Bake, 170C | 420 Hours | - | - | 3/231/0 | - |
| HTOL | Life Test, 125C | 1000 Hours | - | - | - | 3/231/0 |
| ELFR | Early Life Failure Rate, 125C | 24 Hours | - | - | - | 3/2400/0 |
| WBS | Ball Bond Shear | Wires | 1/76/0 | 1/76/0 | - | - |
| WBP | Bond Pull | Wires | 1/76/0 | 1/76/0 | - | - |
| ED | Electrical Characterization | Per Datasheet Parameters | - | - | 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

## TSMC 0.18um node Analog Cu wire enterprise qualification

Product Attributes

| Attributes | Qual Device: UCD9246FRGCR |
|---|---|
| **Assembly Site** | CLARK-AT |
| **Package Family** | VQFN |
| **Flammability Rating** | UL 94 V-0 |
| | **Qual Device: UCD9246FRGCR** |
| **Die Attributes** | |
| **Die Revision** | E |
| **Wafer Fab Supplier** | TSMC 11 |
| **Wafer Fab Process** | 0.18UM-TSMC |
| **Passivation** | 10kAOX/1.5kA-SRO/6kA-SiN |
| **Package Attributes** | |
| **Assembly Site** | CLARK-AT |
| **Package Family** | VQFN |
| **Package Designator** | RGC |
| **Package Size (mils)** | 354.33x354.33 |
| **Body Thickness (mils)** | 34.65 |
| **Pin Count** | 64 |
| **Lead Frame Type** | Cu |

| | |
|---|---|
| **Lead Finish** | NiPdAu |
| **Lead Pitch (mils)** | 19.68 |
| **Mount Compound** | 4205846 |
| **Mold Compound** | 4208625 |
| **Bond Wire Composition** | Cu |
| **Bond Wire Diameter (mils)** | 0.8 |
| **Flammability Rating** | UL 94 V-0 |

## Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: UCD9246FRGCR |
|---|---|---|---|
| AC | Autoclave 121C | 96 Hours | 3/231/0 |
| UHAST | Unbiased HAST 110C/85%RH | 96 Hours | 3/231/0 |
| TC | Temperature Cycle, -65/+150C | 500 Cycles | 3/231/0 |
| HTSL | High Temp Storage Bake 170C | 420 Hours | 3/231/0 |
| MQ | Manufacturability | (per mfg Site specification) | 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

## CMOS7 PR Tech Cu wire qualification

Product Attributes

| Attributes | Qual Device: LM3657MH/NOPB | Qual Device: SCANSTA111MTX |
|---|---|---|
| **Assembly Site** | TIEM-MALACCA | TIEM-MALACCA |
| **Package Family** | TSSOP | TSSOP |
| **Flammability Rating** | UL 94 V-0 | UL 94 V-0 |
| **Die Attributes** | | |
| **Die Revision** | D | C |
| **Wafer Fab Site** | MAINE | MAINE |
| **Wafer Fab Process** | CMOS7.5 | CMOS7.4 |
| **Passivation** | - | - |
| **Package Attributes** | | |
| **Assembly Site** | TIEM-MALACCA | TIEM-MALACCA |
| **Package Family** | TSSOP | TSSOP |
| **Package Designator** | PWP | DGG |
| **Package Size (mils)** | 173.2 x 196.8 | 492.1 x 240.2 |
| **Body Thickness (mils)** | 39.37 | 45.28 |
| **Pin Count** | 14 | 48 |
| **Lead Frame Material** | CU | CU |
| **Lead Finish** | POST-PLATE | POST-PLATE |
| **Lead Pitch (mils)** | 25.59 | 19.68 |
| **Mount Compound** | 8075531 | 8075531 |
| **Mold Compound** | 8095178 | 8095178 |
| **Bond Wire Composition** | Cu | Cu |
| **Bond Wire Diameter (mils)** | 0.96 | 0.96 |
| **Flammability Rating** | UL 94 V-0 | UL 94 V-0 |

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL1-260CG: LM3657MH/NOPB
- Qual Devices qualified at LEVEL2-235CL: SCANSTA111MTX

## Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: LM3657MH/NOPB | Qual Device: SCANSTA111MTX |
|---|---|---|---|---|
| AC | Autoclave 121C | 96 Hours | 3/231/0 | 3/231/0 |
| TC | Temperature Cycle, -65/150C | 500 Cycles | 3/231/0 | 3/231/0 |
| MQ | Manufacturability (Assembly) | (per mfg. Site specification) | 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

## CS080, VIP010 GFAB and MFAB Cu wire Qualification for 14/16PW TSSOP devices

Product Attributes

| Attributes | Qual Device: LMH6683MTX/NOPB | Qual Device: LMV934MTX/NOPB |
|---|---|---|
| **Assembly Site** | MLA | MLA |
| **Package Family** | TSSOP | TSSOP |
| **Flammability Rating** | UL 94 V-0 | UL 94 V-0 |
| **Die Attributes** | | |
| **Die Revision** | B | A |
| **Wafer Fab Site** | MFAB | MFAB |
| **Wafer Fab Process** | VIP010 | CS080 |
| **Passivation** | Nitride | 4KA SiN |
| **Package Attributes** | | |
| **Assembly Site** | MLA | MLA |
| **Package Family** | TSSOP | TSSOP |
| **Package Designator** | PW | PW |
| **Package Size (mils)** | 173.23 X 196.85 | 196.85 X 173.23 |
| **Body Thickness (mils)** | 43.31 | 43.31 |
| **Pin Count** | 14 | 14 |
| **Lead Frame Material** | Cu | Cu |
| **Lead Finish** | NiPdAu | NiPdAu |
| **Lead Pitch (mils)** | 25.59 | 25.59 |
| **Mount Compound** | 4042500 | 4042500 |
| **Mold Compound** | 4206193 | 4206193 |
| **Bond Wire Composition** | Cu | Cu |
| **Bond Wire Diameter (mils)** | 1.0 | 0.96 |
| **Flammability Rating** | UL 94 V-0 | UL 94 V-0 |

- QBS: Qual By Similarity
- Qualified Device at LEVEL1-260C: LMH6683MTX/NOPB

## Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: LMH6683MTX/NOPB | Qual Device: LMV934MTX/NOPB |
|---|---|---|---|---|
| AC | Autoclave 121C | 96 Hours | 3/231/0 | 3/231/0 |
| TC | Temperature Cycle, -65/150C | 500 Cycles | 3/231/0 | 3/231/0 |
| HTSL | High Temp Storage Bake 170C | 420 Hours | 3/231/0 | 3/231/0 |
| ED | Electrical Characterization, side by side | - | Pass | Pass |
| MQ | Manufacturability | (per mfg Site specification) | Pass | Pass |
| MSL | Moisture Sensitivity, JEDEC | Level1-260C | 3/36/0 | 3/36/0 |

- 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

# Group 2 Qualification Data

## Qualification of 0.8 mils Cu wire on BICMOS13 in WQFN and WSON Packages assembled in TIEM

Product Attributes

| Attributes | Qual Device: DS100DX410EL16 | Qual Device: DS80PCI402A2TT | Qual Device: LMH0366SQENOPB | Qual Device: LMH0394SQ/NOPB |
|---|---|---|---|---|
| **Assembly Site** | TIEM-AT | TIEM-AT | TIEM-AT | TIEM-AT |
| **Package Family** | WQFN | WQFN | WQFN | QFN |
| **Flammability Rating** | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 |
| **Die Attributes** | | | | |
| **Die Revision** | A | - | - | A |
| **Wafer Fab Supplier** | MAINEFAB | MAINEFAB | MAINEFAB | MAINE |
| **Wafer Fab Process** | BICMOS13 | BICMOS13 | BICMOS13 | BICMOS13 |
| **Package Attributes** | | | | |
| **Assembly Site** | TIEM-AT | TIEM-AT | TIEM-AT | TIEM-AT |
| **Package Family** | WQFN | WQFN | WQFN | WQFN |
| **Package Designator** | RHS | NJY | RTW | RUM |
| **Package Size (mils)** | 275.59 X 275.59 | 216.54 X 393.7 | 157.48 X 157.48 | 157.48 X 157.48 |
| **Body Thickness (mils)** | 31.5 | 31.5 | 31.5 | 31.5 |
| **Pin Count** | 48 | 54 | 24 | 16 |
| **Lead Frame Type** | Cu | Cu | Cu | Cu |
| **Lead Finish** | Matte SN | Matte SN | Matte SN | Matte SN |
| **Lead Pitch (mils)** | 19.68 | 19.68 | 19.68 | 25.59 |
| **Mount Compound** | 4207123 | 4207123 | 4207123 | 4207123 |
| **Mold Compound** | 4208625 | 4208625 | 4208625 | 4208625 |
| **Bond Wire Composition** | Cu | Cu | Cu | Cu |
| **Bond Wire Diameter (mils)** | 0.8 | 0.8 | 0.8 | 0.8 |
| **Flammability Rating** | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 |

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL3-260C: DS100DX410EL16, LMH0394SQ/NOPB
- Qual Device DS80PCI402A2TT is qualified at LEVEL2-260C
- Qual Device LMH0366SQENOPB is qualified a LEVEL1-260C

## Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: DS100DX410EL16 | Qual Device: DS80PCI402A2TT | Qual Device: LMH0366SQENOPB | Qual Device: LMH0394SQ/NOPB |
|---|---|---|---|---|---|---|
| HAST | Biased HAST, 130C/85%RH | 96 Hours | - | - | - | 3/231/0 |
| AC | Autoclave 121C | 96 Hours | 3/231/0 | 3/231/0 | 3/231/0 | - |
| UHAST | Unbiased HAST 130C/85%RH | 96 Hours | 3/231/0 | 3/231/0 | 3/231/0 | - |
| TC | Temperature Cycle, -65/150C | 500 Cycles | 3/231/0 | 3/231/0 | 3/231/0 | - |
| HTSL | High Temp Storage Bake 170C | 420 Hours | - | 3/231/0 | - | - |
| ED | Side By Side Electrical Characterization. | Per Datasheet Parameters | 1/30/0 | 1/30/0 | 1/30/0 | - |
| MQ | Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass | Pass |
| MSL | Thermal Path Integrity | Level 2-260C | 3/66/0 | 3/66/0 | 3/66/0 | - |

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- 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

## CC1101RGP Cu Wire Qualification

Product Attributes

| Attributes | QBS Device: CC1101RGP |
|---|---|
| **Assembly Site** | CLARK AT |
| **Package Family** | VQFN |
| **Flammability Rating** | UL 94 V-0 |
| **Die Attributes** | |
| **Die Revision** | - |
| **Wafer Fab Supplier** | TSMC F4 |
| **Wafer Fab Process** | 0.18um |
| **Package Attributes** | |
| **Assembly Site** | CLARK AT |
| **Package Family** | VQFN |
| **Package Designator** | RGP |
| **Package Size (mils)** | 157.48 X 157.48 |
| **Body Thickness (mils)** | 35.43 |
| **Pin Count** | 20 |
| **Lead Finish** | NiPdAu |

| | |
|---|---|
| **Lead Pitch (mils)** | 19.68 |
| **Mount Compound** | 4207123 |
| **Mold Compound** | 4208625 |
| **Bond Wire Composition** | CU |
| **Bond Wire Diameter (mils)** | 0.8mil |
| **Flammability Rating** | UL 94 V-0 |

- CC1100ERGP is Qual by Similarity to CC1101RGP
- Qual Device CC1101RGP is qualified at LEVEL3-260C

## Qualification Results

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

| Type | Test Name / Condition | Duration | QBS Device: CC1101RGP |
|---|---|---|---|
| PC | PreCon Level 3 | 3 Cyc/260C +5 / -0C | 3/2701/0 |
| THB | Biased Temperature and Humidity, 85C/85%RH | 1000 Hr | 3/77/0 |
| UHAST | Unbiased HAST 110C/85%RH | 96 Hr | 3/1171/0 |
| UHAST | Unbiased HAST 110C/85%RH | 264 Hr | 3/231/0 |
| TC | Temperature Cycle, -55/125C | 1000 Cyc | 3/244/0 |
| HTSL | High Temp Storage Bake 150C | 1000 Hr | 3/231/0 |
| HBM | ESD - HBM | 500V/500V | 3/9/0 |
| HBM | ESD - HBM | 750V/750V | 3/9/0 |
| HBM | ESD - HBM | 1000V/1000V | 3/9/0 |
| HBM | ESD - HBM | 1500V/1500V | 3/9/0 |
| CDM | ESD - CDM | 100V/100V | 3/9/0 |
| CDM | ESD - CDM | 250V/250V | 3/9/0 |
| CDM | ESD - CDM | 500V/500V | 3/9/0 |
| LU | Latch-up | +/- 100mA/90C/1.5xVcc | 3/18/0 |
| MQ | Manufacturability (Assembly) | per mfg. Site specification) | 3/Pass |
| ED | Electrical Characterization | Limit Verification | 1/30/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 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 |