



12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20230125001.1D

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

Date: April 13, 2023
To: PREMIER FARNELL PCN

Dear Customer:

Revision D is to update the Qualification report for PDIP devices.

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.

Texas Instruments requires acknowledgement of 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 samples or additional data are required, requests must be received within **30 days** of this notification.

The changes discussed within this PCN will not take effect any earlier than the proposed first ship date on Page 3 of this notification, unless customer agreement has been reached on an earlier implementation of the change.

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 or to provide acknowledgement of this PCN, you may contact your local Field Sales Representative or the PCN Team (PCN_ww_admin_team@list.ti.com). For sample requests or sample related questions, contact your local Field Sales Representative.

Sincerely,

PCN Team
SC Business Services

20230125001.1D
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

| DEVICE | CUSTOMER PART NUMBER |
|---------------|-----------------------------|
| INA117P | null |
| OPA2134PA | null |
| OPA241PA | null |
| PGA202KP | null |
| SE555P | null |
| UC2901N | null |
| UC3854AN | null |

Technical details of this Product Change follow on the next page(s).

| | | | |
|---|--|---|---|
| PCN Number: | 20230125001.1D | PCN Date: | April 13, 2023 |
| Title: | Add Cu as Alternative Wire Base Metal for Selected Device(s) | | |
| Customer Contact: | PCN Manager | Dept: | Quality Services |
| Proposed 1st Ship Date: | May 25, 2023 | Sample requests accepted until: | Mar. 26, 2023* |
| *Sample requests received after (Mar. 26, 2023) will not be supported. | | | |
| Change Type: | | | |
| <input type="checkbox"/> | Assembly Site | <input type="checkbox"/> | Design |
| <input checked="" type="checkbox"/> | Assembly Process | <input type="checkbox"/> | Data Sheet |
| <input checked="" type="checkbox"/> | Assembly Materials | <input type="checkbox"/> | Part number change |
| <input type="checkbox"/> | Mechanical Specification | <input type="checkbox"/> | Test Site |
| <input type="checkbox"/> | Packing/Shipping/Labeling | <input type="checkbox"/> | Test Process |
| <input type="checkbox"/> | | <input type="checkbox"/> | Wafer Bump Site |
| <input type="checkbox"/> | | <input type="checkbox"/> | Wafer Bump Material |
| <input type="checkbox"/> | | <input type="checkbox"/> | Wafer Bump Process |
| <input type="checkbox"/> | | <input type="checkbox"/> | Wafer Fab Site |
| <input type="checkbox"/> | | <input type="checkbox"/> | Wafer Fab Materials |
| <input type="checkbox"/> | | <input type="checkbox"/> | Wafer Fab Process |
| PCN Details | | | |
| Description of Change: | | | |
| Revision D is to update the Qualification report for PDIP devices. | | | |
| Texas Instruments is pleased to announce the qualification of new assembly material set to add Cu as an additional bond wire option for devices listed in "Product affected" section below. Devices will remain in current assembly facility and piece part changes as follows: | | | |
| | Material | Current | Proposed |
| | Wire type | 0.96mil, 1.15mil, 1.30mil, 2.0 mil Au | 0.96mil, 1.30mil, 2.0 mil Cu |
| 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. | | | |
| 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 |
| | <input checked="" type="checkbox"/> No Change | <input checked="" type="checkbox"/> No Change | <input checked="" type="checkbox"/> No Change |
| | | IEC 62474 | |
| | | <input checked="" type="checkbox"/> No Change | |
| Changes to product identification resulting from this PCN: | | | |
| None. | | | |
| Product Affected: | | | |

| | | | |
|----------------|---------------------|--------------------------|-----------------|
| AM26LS31CN-NG | TL064CN-NG | MPY634KP | UC3823N |
| BQ2004EPN | TL072CP-NG | NE5532P-NG | UC3824N |
| BQ2004HPN | TL074IDR-NG | NE555P-NG | UC3825AN |
| BQ2004PN | TL075IDR | OPA2134PA | UC3825BN |
| CD14538BE-NG | TL082ACP-NG | OPA2241PA | UC3825N |
| CD4001BE-NG | TL082BCP-NG | OPA2244PA | UC3852N |
| CD4002BE-NG | TL084ACN-NG | OPA2251PA | UC3853N |
| CD40106BE-NG | TL084IDR-NG | OPA2337PA | UC3854AN |
| CD4011BE-NG | TLC339MN | OPA241PA | UC3854BN |
| CD4013BE-NG | TLC372MP | OPA2705PA | UC3854N |
| CD40174BE-NG | TLC372QDRG4 | OPA27GP | UC3856N |
| CD4023BE-NG | TLC555QDRNS | OPA340PA | UC3861N |
| CD40257BE-NG | TLC556MDR | OPA344PA | UC3867N |
| CD4025BE-NG | TLV2313IDR | OPA347PA | UC3901N |
| CD4043BE-NG | TLV2432AQD | OPA37GP | UC3902N |
| CD4044BE-NG | TLV2432AQDG4 | OPA404KP | UC3906N |
| CD4046BE-NG | TLV2432AQDRG4 | OPA4131PA | UC3907N |
| CD4049UBE-NG | TLV2432QD | OPA4131PJ | UC80851N |
| CD4051BE-NG | TLV2772QD | OPA4227PA | UC81185N |
| CD4053BE-NG | TLV4316IDR | OPA4228PA | UC81186N |
| CD4068BE-NG | TLV6002IDR | OPA4277PA | UC81500AN |
| CD4072BE-NG | TPS2012D | OPA4316ID | UC81501AN |
| CD4073BE-NG | TPS2012DR | OPA4316IDR | UC81502AN |
| CD4077BE-NG | TPS2014D | OPA703PA | UC81521P |
| CD4078BE-NG | TPS2014DR | OPA705PA | UC81522P |
| CD4081BE-NG | TPS2015D | PGA202KP | UCC25701N |
| CD4082BE-NG | TPS2015DR | PGA203KP | UCC27282D |
| CD4093BE-NG | TPS2030P | PGA206PA | UCC27282DR |
| CD4098BE-NG | TPS40200GDR | PGA2310PA | UCC27288D |
| CD4502BE-NG | TPS40200HDR | RC4580IDR- NF | UCC27288DR |
| CD4532BE-NG | TPS54331GDR | SE555P | UCC27289D |
| CD74AC00E-NG | UC2524AN | SN1011013D | UCC27289DR |
| CD74AC02E-NG | UC2525AN | SN1011013DR | UCC2810N |
| CD74AC04E-NG | UC2525BN | SN1102050DR | UCC2817AN |
| CD74AC157E-NG | UC2527AN | SN1605019DR | UCC2817N |
| CD74AC163E-NG | UC2705N | SN2903DR | UCC2818AN |
| CD74AC74E-NG | UC2706N | SN65HVD265D | UCC2818N |
| CD74ACT32E-NG | UC2707N | SN65HVD265DR | UCC281DP-5 |
| CD74HC132E-NG | UC2708N | SN65HVD266D | UCC281DP-ADJ |
| CD74HC14E-NG | UC2709N | SN65HVD266DR | UCC284DP-12 |
| CD74HC4051E-NG | UC2710N | SN65HVD267D | UCC284DP-5 |
| CD74HC73E-NG | UC28025N | SN65HVD267DR | UCC284DP-ADJ |
| CD74HC74E-NG | UC2823N | SN7406N-NG | UCC284DPT R-5 |
| CD74HCT14E-NG | UC2824N | SN74ACT00N-NG | UCC284DPT R-ADJ |
| DAC714P | UC2825AN | SN74ACT08N-NG | UCC29950D |
| DAC716PK | UC2825BN | SN74ACT32N-NG | UCC29950DR |
| INA101HP | UC2825N | SN74F112N-NG | UCC35701N |
| INA103KP | UC2846N | SN74HC00N-NG | UCC3806N |

| | | | |
|-------------|----------|----------------|-----------------|
| INA105KP | UC2852N | SN74HC02N-NG | UCC3810N |
| INA106KP | UC2854AN | SN74HC04N-NG | UCC3817AN |
| INA111AP | UC2854BN | SN74HC08N-NG | UCC3817N |
| INA111BP | UC2854N | SN74HC10N-P2 | UCC3818AN |
| INA114AP | UC2856N | SN74HC125N-NG | UCC3818N |
| INA114BP | UC2901N | SN74HC132N-NG | UCC381DP-3 |
| INA117P | UC2902N | SN74HC139N-NG | UCC381DP-5 |
| INA2134PA | UC2906N | SN74HC14N-NG | UCC381DP-ADJ |
| INA2137PA | UC2907N | SN74HC32N-NG | UCC381DPT R-5 |
| INA240A1D | UC3524AN | SN74HC368N-NG | UCC381DPT R-ADJ |
| INA240A1DR | UC3525AN | SN74HC4066N-NG | UCC384DP-12 |
| INA240A2D | UC3525BN | SN74HC590AN-NG | UCC384DP-5 |
| INA240A2DR | UC3527AN | SN74HC595N-NG | UCC384DP-ADJ |
| INA240A3D | UC3610N | SN74HC74N-NG | UCC384DPT R-12 |
| INA240A3DR | UC3611N | SN74LS00N-NG | UCC384DPT R-5 |
| INA240A4D | UC3705N | SN74LS08N-NG | UCC384DPT R-ADJ |
| INA240A4DR | UC3706N | SN74LS14N-NG | ULN2003AN-NG |
| LM2903DR-NG | UC3708N | SN74LS161AN-NG | ULN2004AN-NG |
| LM293P-NG | UC3709N | SN74LS32N-NG | VFC110AP |
| LM311P-NG | UC3710N | SN74LS595N-NG | VFC32KP |
| LM339N-NG | UC3717AN | SN74LS74AN-NG | XTR101AP |
| LM393P-NG | UC3770AN | SN75176BP-NG | XTR110KP |
| LP1763DR | UC3770BN | SN75452BP-P | |
| LT1014CN-NG | UC3823AN | TL054IDR-NG | |

Qualification Report

Approve Date 17-Oct-2011

Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: CD4053BM96 | Qual Device: LM358DR | Qual Device: TL494IDR | Qual Device: ULN2003ADR |
|------|---|-------------------------------|--|---|--|--|
| AC | Autoclave 121C | 96 Hours | 1/77/0 | 1/77/0 | 3/231/0 | 3/231/0 |
| ED | Electrical Characterization, side by side | Per Datasheet Parameters | Pass | Pass | Pass | Pass |
| FLAM | Flammability (IEC 695-2-2) | -- | - | - | 3/15/0 | - |
| FLAM | Flammability (UL 94V-0) | -- | - | - | 3/15/0 | - |
| FLAM | Flammability (UL-1694) | -- | - | - | 3/15/0 | - |
| HAST | Biased HAST, 130C/85%RH | 96 Hours | 1/77/0 | 1/77/0 | 3/229/0 | 1/77/0 |
| HTOL | Life Test, 150C | 300 Hours | 1/77/0 | 1/77/0 | 3/231/0 | 1/77/0 |
| HTSL | High Temp Storage Bake 170C | 600 Hours | 1/77/0 | 1/77/0 | 3/231/0 | 3/231/0 |
| LI | Lead Pull | Leads | 1/22/0 | 1/22/0 | 3/66/0 | 3/66/0 |
| MQ | Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass | Pass |
| MSL | Moisture Sensitivity, JEDEC | Level 1-260C | - | 3/36/0 | 3/36/0 | 3/36/0 |
| TC | Temperature Cycle, -65/150C | 500 Cycles | 1/77/0 | 3/231/0 | 3/231/0 | 3/231/0 |

| Type | Test Name / Condition | Duration | Qual Device: <u>CD4053BM96</u> | Qual Device: <u>LM358DR</u> | Qual Device: <u>TL494IDR</u> | Qual Device: <u>ULN2003ADR</u> |
|------|------------------------|-------------------------------|-----------------------------------|--------------------------------|---------------------------------|-----------------------------------|
| TS | Thermal Shock -65/150C | 500 Cycles | 1/77/0 | 3/231/0 | 3/231/0 | 3/231/0 |
| VM | Visual / Mechanical | (per mfg. Site specification) | Pass | Pass | Pass | Pass |
| WBP | Bond Strength | Wires | 1/76/0 | 1/76/0 | 3/228/0 | 1/76/0 |
| XRAY | X-ray | (top side only) | 1/5/0 | 1/5/0 | 3/15/0 | 3/15/0 |

- QBS: Qual By Similarity

- Qual Device CD4053BM96, LM358DR, TL494IDR, ULN2003ADR are qualified at LEVEL1-260C

- 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/>

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Qualification Report

Approve Date 30-Aug-2013

Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: <u>ADS1131IDR</u> | Qual Device: <u>RC4558DR</u> | Qual Device: <u>SN65MLVD207DR</u> | Qual Device: <u>SN74AHC138DR</u> | Qual Device: <u>UCC28061DR</u> |
|------|------------------------------|-------------------------------|-----------------------------------|---------------------------------|--------------------------------------|-------------------------------------|-----------------------------------|
| AC | Autoclave 121C | 96 Hours | 3/231/0 | 3/231/0 | 3/231/0 | 3/231/0 | 3/227/0 |
| HTSL | High Temp Storage Bake 170C | 420 Hours | 3/231/0 | 3/231/0 | 3/231/0 | 3/231/0 | 3/231/0 |
| MQ | Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass | Pass | Pass |
| TC | Temperature Cycle, -65/150C | 500 Cycles | 3/231/0 | 3/231/0 | 3/231/0 | 3/231/0 | 3/227/0 |

- QBS: Qual By Similarity

- Qual Device ADS1131IDR is qualified at LEVEL2-260C

- Qual Device RC4558DR, SN65MLVD207DR, SN74AHC138DR, UCC28061DR are qualified at LEVEL1-260C

- 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/>

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Qualification Report

Approve Date 05-May-2017

Product Attributes

| Attributes | Qual Device: L293DNE | Qual Device: LT1013CP | Qual Device: MSP430F2013IN | Qual Device: NE5532P | Qual Device: SN74HC595N | Qual Device: SN74HCT540N |
|---------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|--------------------------|
| Assembly Site | FMX | FMX | MLA | FMX | MLA | MLA |
| Package Family | PDIP | PDIP | PDIP | PDIP | PDIP | PDIP |
| Flammability Rating | UL 94 V-0 | UL 94 V0 | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 |
| Wafer Fab Supplier | SFAB | SFAB | TSMC-10 | SFAB | SFAB | SFAB |
| Wafer Process | J11 | J11 | TSMC EMB FLASH | J11 | 74HC | 74HC-NONEPI |

| Attributes | Qual Device: SN74LS03N | Qual Device: TLC339IN | Qual Device: TPA3122D2N | Qual Device: TP52041P | Qual Device: TS12A4514P | Qual Device: UCC37322P |
|---------------------|------------------------|-----------------------|-------------------------|-----------------------|-------------------------|------------------------|
| Assembly Site | MLA | FMX | MLA | FMX | FMX | FMX |
| Package Family | PDIP | PDIP | PDIP | PDIP | PDIP | PDIP |
| 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 | SFAB | DFAB | UMC FAB8AB | DFAB | DFAB | DFAB |
| Wafer Process | J11 | LINCOS_5/5 | LBC5X | LBC3S | LBC3S | LBC3S |

- Qual Devices SN74LS03N, TPA3122D2N, L293DNE, LT1013CP, TLC339IN, UCC37322P, NE5532P, SN74HCT540N, SN74HC595N, TPS2041P, TS12A4514P, MSP430F2013IN are qualified at Not Classified Moisture Sensitivity Level

Qualification Results

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

| Type | Test Name / Condition | Duration | Qual Device: L293DNE | Qual Device: LT1013CP | Qual Device: MSP430F2013IN | Qual Device: NE5532P | Qual Device: SN74HC595N | Qual Device: SN74HCT540N |
|------|-------------------------------|-------------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|--------------------------|
| AC | Autoclave 121C | 96 Hours | 3/231/0 | - | 3/231/0 | - | 3/225/0 | 3/231/0 |
| ED | Electrical Characterization | Per Datasheet Parameters | - | - | - | - | Pass | - |
| FLAM | Flammability (UL 94V-0) | - | - | - | - | - | - | 3/15/0 |
| HAST | Biased HAST, 130C/85%RH | 96 Hours | - | - | - | 3/231/0 | - | - |
| HTOL | Life Test, 150C | 300 Hours | - | - | - | 3/231/0 | - | - |
| HTSL | High Temp. Storage Bake, 170C | 420 Hours | 3/231/0 | - | 3/231/0 | - | 3/231/0 | 3/231/0 |
| LI | Lead Fatigue | Leads | 3/66/0 | - | 3/45/0 | 3/66/0 | 3/45/0 | 3/45/0 |
| LI | Lead Pull to Destruction | Leads | 3/144/0 | - | 3/126/0 | 3/72/0 | 3/144/0 | 3/180/0 |
| MQ | Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass | Pass | Pass | Pass |
| PKG | Lead Finish Adhesion | Leads | 3/45/0 | - | 3/45/0 | 3/45/0 | 3/45/0 | 2/30/0 |
| SD | Solderability | 8 Hours Steam Age | 3/66/0 | - | 3/66/0 | 3/66/0 | 3/66/0 | 3/66/0 |
| TC | Temperature Cycle, -65/150C | 500 Cycles | 3/225/0 | 3/231/0 | 3/231/0 | - | 3/231/0 | 3/231/0 |

| Type | Test Name / Condition | Duration | Qual Device: SN74LS03N | Qual Device: TLC339IN | Qual Device: TPA3122D2N | Qual Device: TP52041P | Qual Device: TS12A4514P | Qual Device: UCC37322P |
|------|-------------------------------|-------------------------------|------------------------|-----------------------|-------------------------|-----------------------|-------------------------|------------------------|
| AC | Autoclave 121C | 96 Hours | 3/231/0 | 3/231/0 | 3/231/0 | - | 1/77/0 | 3/231/0 |
| ED | Electrical Characterization | Per Datasheet Parameters | - | - | - | - | - | - |
| FLAM | Flammability (UL 94V-0) | - | - | - | - | - | - | 3/15/0 |
| HAST | Biased HAST, 130C/85%RH | 96 Hours | - | - | - | - | - | - |
| HTOL | Life Test, 150C | 300 Hours | - | - | - | - | - | - |
| HTSL | High Temp. Storage Bake, 170C | 420 Hours | 3/231/0 | 3/231/0 | 3/231/0 | - | 1/77/0 | 3/231/0 |
| LI | Lead Fatigue | Leads | 3/45/0 | 3/45/0 | 3/45/0 | - | - | 3/45/0 |
| LI | Lead Pull to Destruction | Leads | 3/126/0 | 3/126/0 | 3/180/0 | - | - | 3/70/0 |
| MQ | Manufacturability (Assembly) | (per mfg. Site specification) | Pass | Pass | Pass | Pass | Pass | Pass |
| PKG | Lead Finish Adhesion | Leads | 3/45/0 | 3/45/0 | 3/45/0 | - | - | 3/45/0 |
| SD | Solderability | 8 Hours Steam Age | 3/66/0 | 3/66/0 | 3/66/0 | - | - | 3/66/0 |
| TC | Temperature Cycle, -65/150C | 500 Cycles | 3/231/0 | 3/231/0 | 3/231/0 | 3/231/0 | 1/77/0 | 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 your local Field Sales Representative.

| Location | E-Mail |
|-----------------|--|
| WW PCN Team | PCN_ww_admin_team@list.ti.com |

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