

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

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disdaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale (www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.