

PCN Number:	20190506000.1	PCN Date:	May 15, 2019
Title:	Add Cu as Alternative Wire Base Metal for Selected Device(s)		
Proposed 1st Ship Date:	Aug 15, 2019	Estimated Sample Availability:	Date provided at sample request
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"/>	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 type="checkbox"/>	Wafer Fab Process
PCN Details			
Description of Change:			
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:			
Group 1 Devices:			
	Material	Current	Proposed
	Wire	Au	Cu
Note: Devices highlighted in Yellow will continue to use Au wire for Die to Die bonding			
Group 2 Devices:			
	Material	Current	Proposed
	Protective Overcoat	BCB	PI
	Wire	Au	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.			
Anticipated impact on Material Declaration			
<input type="checkbox"/>	No Impact to the Material Declaration	<input checked="" type="checkbox"/>	Material Declarations or Product Content reports are driven from production data and will be available following the production release. Upon production release the revised reports can be obtained from the TI Eco-Info website . There is no impact to the material meeting current regulatory compliance requirements with this PCN change.
Changes to product identification resulting from this PCN:			
None.			
Group 1 Product Affected:			

ADC16V130CISQ/NOPB	LM5101ASDX-1/NOPB	LMK01020ISQ/NOPB	LMK04031BISQX/S7002381
ADC16V130CISQE/NOPB	LM5102SD/NOPB	LMK01020ISQE/NOPB	LMK04033BISQ/NOPB
ADC16V130CISQX/NOPB	LM5102SDX/NOPB	LMK01020ISQX/NOPB	LMK04033BISQE/NOPB
ADC31JB68RTAT	LM5104SD/NOPB	LMK02000ISQ/NOPB	LMK04033BISQE/S7002427
DS110DF111SQ/NOPB	LM5104SDX/NOPB	LMK02002ISQ/NOPB	LMK04033BISQX/NOPB
DS110DF111SQE/NOPB	LM5105SD/NOPB	LMK02002ISQX/NOPB	LMK04100SQ/NOPB
DS125DF111SQ	LM5105SDX/NOPB	LMK03000CISQ/NOPB	LMK04100SQE/NOPB
DS125DF111SQE	LM5107SD/NOPB	LMK03000CISQX/NOPB	LMK04100SQX/NOPB
LDC6996AIME/NOPB	LM5109ASDX/NOPB	LMK03000DISQ/NOPB	LMK04101SQ/NOPB
LDC6996AIMX/NOPB	LM5109BSDX/NOPB	LMK03000DISQE/NOPB	LMK04101SQE/NOPB
LM10000SD/NOPB	LM5115SD/NOPB	LMK03000DISQX/NOPB	LMK04101SQX/NOPB
LM10000SDE/NOPB	LM5115SDX/NOPB	LMK03000ISQ/NOPB	LMK04102SQ/NOPB
LM10000SDX/NOPB	LM5161PWPR	LMK03001CISQ/NOPB	LMK04102SQE/NOPB
LM10515SQ/NOPB	LM5161PWPT	LMK03001CISQX/NOPB	LMK04102SQX/NOPB
LM10515SQ-A/NOPB	LMC6024IM/NOPB	LMK03001DISQ/NOPB	LMK04110SQ/NOPB
LM10515SQE/NOPB	LMC6024IMX/NOPB	LMK03001DISQE/NOPB	LMK04110SQE/NOPB
LM10515SQE-A/NOPB	LMC6034IM	LMK03001DISQX/NOPB	LMK04110SQX/NOPB
LM10515SQE-B/NOPB	LMC6034IM/NOPB	LMK03001ISQ/NOPB	LMK04111SQ/NOPB
LM10515SQX/NOPB	LMC6034IMX/NOPB	LMK03002CISQ/NOPB	LMK04111SQE/NOPB
LM10515SQX-A/NOPB	LMC6036IM/NOPB	LMK03002CISQ/S7002367	LMK04111SQX/NOPB
LM10515SQX-B/NOPB	LMC6036IMX/NOPB	LMK03002CISQX/NOPB	LMK04131SQ/NOPB
LM25085ASDX/NOPB	LMC6044AIM	LMK03002ISQ/NOPB	LMK04131SQE/NOPB
LM25101ASD-1/NOPB	LMC6044AIM/NOPB	LMK03002ISQX/NOPB	LMK04131SQX/NOPB
LM25101ASDX/NOPB	LMC6044AIMX/NOPB	LMK03033CISQ/NOPB	LMK04133SQ/NOPB
LM25101CSD/NOPB	LMC6044IM/NOPB	LMK03033CISQE/NOPB	LMK04133SQE/NOPB
LM25115SDX/NOPB	LMC6044IMX/NOPB	LMK03033CISQX/NOPB	LMK04133SQX/NOPB
LM2647LQ/NOPB	LMC6484AIMX	LMK03033ISQ/NOPB	LP3972SQ-0514/NOPB
LM5001SDX/NOPB	LMC6484AIMX/SL163019	LMK03033ISQE/NOPB	LP3972SQ-5810/NOPB
LM5002SDX/NOPB	LMC660AIM	LMK03033ISQX/NOPB	LP3972SQ-A413/NOPB
LM5025ASD/NOPB	LMC660AIM/NOPB	LMK03200ISQ/NOPB	LP3972SQ-A514/NOPB
LM5025ASDX/NOPB	LMC660AIMX	LMK03200ISQE/NOPB	LP3972SQ-E514/NOPB
LM5025BSD/NOPB	LMC660AIMX/NOPB	LMK03200ISQX/NOPB	LP3972SQ-I414/NOPB
LM5025SD/NOPB	LMC660CM	LMK04000BISQ/NOPB	LP3972SQ-I514/NOPB
LM5027SQ-1/NOPB	LMC660CM/ELLI518	LMK04000BISQE/NOPB	LPC660AIM/NOPB
LM5035BSQX/NOPB	LMC660CM/NOPB	LMK04000BISQX/NOPB	LPC660AIMX/NOPB
LM5035CSQ/NOPB	LMC660CMX/NOPB	LMK04001BISQ/NOPB	LPC660IM/NOPB
LM5035CSQX/NOPB	LMH0318RTWR	LMK04001BISQE/NOPB	LPC660IMX/NOPB
LM5039SQ/NOPB	LMH0318RTWT	LMK04001BISQX/NOPB	SM74104SDE/NOPB
LM5039SQX/NOPB	LMH0346SQ/NOPB	LMK04001BISQX/S7002440	SM74104SDX/NOPB
LM5041ASD/NOPB	LMH0346SQE/NOPB	LMK04002BISQ/NOPB	UCC20520DW
LM5041SD	LMH0356SQ-40/NOPB	LMK04002BISQE/NOPB	UCC20520DWR
LM5041SD/NOPB	LMH0356SQE-40/NOPB	LMK04002BISQX/NOPB	UCC21520ADW
LM5041SDX/NOPB	LMH1218RTWR	LMK04010BISQ/NOPB	UCC21520ADWR

LM5085SDX/NOPB	LMH1218RTWT	LMK04010BISQE/NOPB	UCC21520DW
LM5100ASD/NOPB	LMK01000ISQ/NOPB	LMK04010BISQX/NOPB	UCC21520DWR
LM5100BSD/NOPB	LMK01000ISQE/NOPB	LMK04011BISQ/NOPB	UCC21521ADW
LM5101ASD	LMK01000ISQE/S7002207	LMK04011BISQE/NOPB	UCC21521ADWR
LM5101ASD/NOPB	LMK01000ISQX/NOPB	LMK04011BISQX/NOPB	UCC21521CDW
LM5101ASD-1/NOPB	LMK01010ISQ/NOPB	LMK04031BISQ/NOPB	UCC21521CDWR
LM5101ASDX	LMK01010ISQE/NOPB	LMK04031BISQE/NOPB	UCC21521DW
LM5101ASDX/NOPB	LMK01010ISQX/NOPB	LMK04031BISQX/NOPB	UCC21521DWR
Group 2 Product Affected:			
LMP92066PWP	LMP92066PWPR		

Group 1 Qualification Report

Qualification Report

Approved on 11-Nov-2013

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: DS90CP22MXA1CL	Qual Device: LMV324MX	Qual Device: LP2995MXNOPB	Qual Device: LMC6482AIM/NOPB
PC	PreCon Level 1	Level 1-260C	3/462/0	-	3/462/0	3/693/0
HAST	Biased HAST, 130C/85%RH	96/hrs. @130C	-	-	-	3/231/0
AC	Autoclave 121C	96HRS	3/231/0	-	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	TMCL500X	3/231/0	-	3/231/0	3/231/0
HTSL	High Temp Storage Bake 150C	1000 hrs. @150C	-	-	-	1/77/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	-	Pass	Pass	Pass
DPA	Destructive Physical Analysis Post 500 Temp Cycle	x-section and de process to examine assembly robustness, Check for stich bond and bond pad integrity	3/15/0	-	3/15/0	3/15/0
YLD	FTY and Bin Summary	Compare against baseline	-	Pass	Pass	Pass

- 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

THIS INFORMATION RELATING TO QUALITY AND RELIABILITY IS PROVIDED "AS IS." Product information detailed in this report may not accurately reflect TI's current product materials, processes and testing used in the construction of the TI products. Customers are solely responsible to conduct sufficient engineering and additional qualification testing to determine whether a device is suitable for use in their applications. Using TI products outside limits stated in TI's datasheet may void TI's warranty. See TI's Terms of Sale at "http://www.ti.com/lscs/ti/legal/termsofsale.page"

Qualification Report

Approved on 23-Sep-2014

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: DP83848T SQ	Qual Device: DS91M040TSQ AW	Qual Device: DS100DX410E L16	Qual Device: DS80PCI402A 2TT	Qual Device: LMH0366SQEN OPB	Qual Device: LMH0394SQ/N OPB
PC	PreCon Level 1	Level 1-260C					3/720/0	
PC	PreCon Level 2	Level 2-260C	3/1079/0		-	3/720/0	-	-
PC	PreCon Level 3	Level 3-260C	-	1/255/0	3/720/0	-	-	3/231/0
HAST	Biased HAST, 130C/85%RH	96hrs. @130C	-	-	-	-	-	3/231/0
AC	Autoclave 121C	96HRS	3/231/0	1/77/0	3/231/0	3/231/0	3/231/0	-
UHAST	Unbiased HAST 130C/85%RH	unHAST-96 HRS/-	3/231/0	1/77/0	3/231/0	3/231/0	3/231/0	-
TC	Temperature Cycle, -65/150C	TMCL500 X	3/231/0	1/77/0	3/231/0	3/231/0	3/231/0	-
HTSL	High Temp Storage Bake 170C	420 hrs. @170C	3/231/0	-	-	3/231/0	-	-
ED	Side By Side Electrical Characterization.	Per Datasheet Parameters	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass	Pass	Pass	Pass
MSL	Thermal Path Integrity	Level 2-260C	3/30/0	1/22/0	3/66/0	3/66/0	3/66/0	-
DPA	Destructive Physical Analysis Post 500 Temp Cycle	x-section and de process to examine assembly robustness, Check for stitch bond and bond pad integrity	3/3/0	-	3/15/0	3/15/0	3/15/0	1/5/0 Post 96 hours HAST
YLD	FTY and Bin Summary	Compare against baseline	Pass	Pass	Pass	Pass	Pass	Pass

- QBS: Qual By Similarity
- Qual Device DS100DX410EL16 is qualified at LEVEL3-260C

- Qual Device DS80PCI402A2TT is qualified at LEVEL2-260C
- Qual Device LMH0366SQENOPB is qualified at LEVEL1-260C
- Qual Device LMH0394SQ/NOPB is qualified at -
- Qual Device LMH0394SQ/NOPB REV A is qualified at LEVEL3-260C

- 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

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Qualification Report

Approved on 27-Dec-2018

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>UCC21520QDWR</u>
AC	Autoclave 121C	96 Hours	3/231/0
HAST	Biased HAST, 130C/85%RH	96 Hours	3/77/0
HTOL	Life Test, 125C	1000 Hours	1/77/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0

- Qual Device UCC21520QDWR is qualified at LEVEL2-260C
 - Device UCC21520QDWR contains multiple dies.
 - 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

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Qualification Report

Approved on 25-Apr-2019

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>LMX2581ESQJTY</u>	Qual Device: <u>LP3971SQ2GZ85K</u>
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Type	Test Name / Condition	Duration	Qual Device: <u>LMX2581ESQJTYT</u>	Qual Device: <u>LP3971SQ2GZ85K</u>
HAST	Biased HAST, 110C/85%RH	264 Hours	3/231/0	3/231/0
HAST	Biased HAST, 110C/85%RH	528 Hours (for info only)	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0
UHAST	Unbiased HAST 110C/85%RH	264 Hours	-	3/231/0
WBP	Bond Pull	Wires	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	3/228/0	3/228/0

- Qual Device LMX2581ESQJTYT is qualified at LEVEL3-260CG

- Qual Device LP3971SQ2GZ85K is qualified at LEVEL1-260CG

- 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

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Group 2 Qualification Report

Approved on 26-Mar-2019

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>LMP92066PWPR</u>
AC	Autoclave 121C	96 Hours	3/231/0
HTOL	Life Test, 125C	1000 Hours	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass

- QBS: Qual By Similarity

- Qual Device LMP92066PWPR is qualified at LEVEL1-260CG

- 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

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