12500 TI Boulevard, MS 8640, Dallas, Texas 75243

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

Dear Customer:

The purpose of this version A is to retract devices from this change notification. The retraction is for select devices that were previously included on an earlier PCN and converted to Cu wire. We apologize for any inconvenience this may have caused.

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# 20150225000A
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:	20150225000A	PCN Date:	07/30/2015
Title:	Add Cu as Alternative Wire Base Metal for Selected Device(s)		
Customer Contact:	PCN Manager	Dept.:	Quality Services

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:

Revisions A is to remove select devices in the Product Affected Section (with ~~strikethrough~~) and are highlighted in yellow. These devices were previously included on an earlier PCN and converted to Cu wire.

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	0.8	0.8	0.8	0.8

(mils)				
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