PCN Number:	20131119002	**PCN Date:**	11/21/2013
Title:	Add Cu as Alternative Wire Base Metal for Selected Device(s) on SOT and TSSOP packages		
Customer Contact:	PCN Manager	**Phone:**	+1(214)480-6037
Dept:	Quality Services		
Proposed 1st Ship Date:	02/21/2014	**Estimated Sample Availability:**	Date provided at sample request

Change Type:

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

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of Cu as an additional bond wire option for devices listed in "Product affected" section below. Material differences are shown in the following table:

• Group 1 – Devices that will have Au wire to Cu wire change only and will remain in their current assembly facility.

• Group 2 – Devices that will have the following change

	From	To
Assembly/Test site	NFME	ASEWH
Wire	Au	Cu

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.

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 for Group 2 devices:

Assembly Site		
NFME	Assembly Site Origin (22L)	ASO: NFM
ASEWH	Assembly Site Origin (22L)	ASO: AWH

Sample product shipping label (not actual product label)

ASSEMBLY SITE CODES: NFME = E, ASEWH = I

Product Affected: Group 1 – Devices that will have Au wire to Cu wire change only

TPD13S523PWR	TPD4E1U06DCKR

Product Affected: Group 2 – Devices that will have wire, and Assembly site change

TPD4E1U06DCKR

Group 1 : Qualification Data

This qualification has been developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

Qual Vehicle 1 : TPD4E1U06DCKR (MSL 1-260C)

Package Construction Details

Assembly Site:	NFME	**Mold Compound:**	R-21
# Pins-Designator, Family:	6-DCK, SOT	**Mount Compound:**	A-16
Lead frame (Finish, Base):	NiPdAu	**Bond Wire:**	0.8 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size/Fail		
		Lot 1	Lot 2	Lot 3
Electrical Characterization	-	Pass	Pass	Pass
** Life Test	150C (300 Hrs)	78/0	78/0	78/0
**High Temp. Storage Bake	170C (600 Hrs)	80/0	81/0	81/0
**Biased HAST	130C/85%RH (192 Hrs)	78/0	77/0	75/0
**T/C -65C/150C	-65C/+150C (1000 Cyc)	77/0	77/0	78/0
**Autoclave	121C (192 Hrs)	77/0	78/0	78/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 1 @ 260C peak +5/-0C)	12/0	12/0	12/0

Notes ** Preconditioning sequence: Level 1-260C.

Qual Vehicle 2 : TPD13S523PWR (MSL 1-260C)			
Package Construction Details			
Assembly Site:	MLA	**Mold Compound:**	4206193
# Pins-Designator, Family:	16-PW, TSSOP	**Mount Compound:**	4042500
Lead frame (Finish, Base):	NiPdAu	**Bond Wire:**	0.96 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size/Fail
Electrical Characterization	-	Pass
**Autoclave	121C (96 Hrs)	80/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	80/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass
Notes ** Preconditioning sequence: Level 1-260C.		

Reference Qualification Data:

Qual Vehicle 1 : CDCVF2505PW (MSL 1-260C)			
Package Construction Details			
Assembly Site:	MLA	**Mold Compound:**	4206193
# Pins-Designator, Family:	8-PW, TSSOP	**Mount Compound:**	4042500
Lead frame (Finish, Base):	NiPdAu	**Bond Wire:**	0.96 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size/Fail		
		Lot 1	Lot 2	Lot 3
**Autoclave	121C (192 Hrs)	77/0	77/0	77/0
**High Temp. Storage Bake	170C (420 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (1000 Cyc)	77/0	77/0	78/0
**Thermal Shock	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 1 @ 260C peak +5/-0C)	12/0	12/0	12/0
Notes ** Preconditioning sequence: Level 1-260C.				

Qual Vehicle 2 : THS7303PW (MSL 2-260C)			
Package Construction Details			
Assembly Site:	TAI	**Mold Compound:**	4206193
# Pins-Designator, Family:	20-PW, TSSOP	**Mount Compound:**	4042500
Lead frame (Finish, Base):	NiPdAu	**Bond Wire:**	0.96 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size/Fail		
		Lot 1	Lot 2	Lot 3
**Autoclave	121C (384 Hrs)	77/0	77/0	77/0
**High Temp. Storage Bake	170C (1000 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (1000 Cyc)	77/0	77/0	78/0
**Thermal Shock	-65C/+150C (1000 Cyc)	77/0	77/0	77/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	12/0	12/0
Notes ** Preconditioning sequence: Level 2-260C.				

Qual Vehicle 3 : ADS1230IPW (MSL 2-260C)			
Package Construction Details			
Assembly Site:	TAI	**Mold Compound:**	4206193
# Pins-Designator, Family:	16-PW, TSSOP	**Mount Compound:**	4042500
Lead frame (Finish, Base):	NiPdAu	**Bond Wire:**	0.96 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	**Conditions**	**Sample Size/Fail**		
		Lot 1	**Lot 2**	**Lot 3**
**Autoclave	121C (384 Hrs)	77/0	77/0	77/0
**High Temp. Storage Bake	170C (420 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (1000 Cyc)	77/0	77/0	78/0
**Thermal Shock	-65C/+150C (1000 Cyc)	77/0	77/0	77/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	12/0	12/0
Notes ** Preconditioning sequence: Level 2-260C.				

Group 2 : Qualification Data

Qual Vehicle 1 : TPD4E1U06DCK (MSL 1-260C)			
Package Construction Details			
Assembly Site:	ASEWH	**Mold Compound:**	4020039A1
# Pins-Designator, Family:	6-DCK, SOT	**Mount Compound:**	1120999A2
Lead frame (Finish, Base):	NiPdAu, Cu	**Bond Wire:**	0.8Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	**Conditions**	**Sample Size/Fail**		
		Lot 1	**Lot 2**	**Lot 3**
Electrical Characterization	-	Pass	-	-
**High Temp. Storage Bake	170C (600 Hrs)	76/0	80/0	78/0
**Biased HAST	130C/85%RH/33.3 psia (192 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (1000 Cyc)	77/0	77/0	77/0
**Thermal Shock	-65C/+150C (500 Cyc)	77/0	77/0	77/0
**Autoclave	121C (192 Hrs)	77/0	77/0	77/0
** Life Test	150C (300Hrs)	77/0	77/0	77/0
Flammability (UL 94V-0)	(UL 94V-0)	5/0	5/0	5/0
Flammability (UL 94V-0)	(UL 94V-0)	5/0	5/0	5/0
Flammability (IEC 695-2-2)	(IEC 695-2-2)	5/0	5/0	5/0
Solderability	Steam age, 8 hours; PB-Free solder	22/0	22/0	22/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 1 @ 260C peak +5/-0C)	12/0	12/0	12/0
Notes ** Preconditioning sequence: Level 1-260C.				

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