12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20110608000
Qualification of an alternate material set for assembly with Au wire and add Cu as an Additional Wire Base Metal Option for select devices in the SOIC package – Group 1A
Change Notification / Sample Request

Dear Customer:

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
Phone: +1(214) 480-6037
Fax: +1(214) 480-6659

PCN Number:	20110608000	**PCN Date:**	06/14/2011
Title:	Qualification of an alternate material set for assembly with Au wire and add Cu as an additional wire base metal option for select devices in the SOIC package – Group 1A		
Customer Contact:	PCN_ww_admin_team@list.ti.com	**Phone:**	+1(214)480-6037
Dept:	Quality Services		
Proposed 1st Ship Date:	09/14/2011	**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

PCN Details

Description of Change:

Qualification of an alternate material set for assembly with Au wire and add Cu as an additional wire base metal option for select devices in the SOIC package – Group 1A. See table below:

	Current Assembly Au wire	Alternate Assembly Au wire	Cu Bond wire option
Material set 1			
Mold compound	4205694	4211880	4211880
Die attach	4042500	4211470	4211470
Wire dia. (Mils)	0.8, 0.9, 0.96, 1.0, 1.15	0.8, 0.9, 0.96, 1.0, 1.15	0.96
Material set 2			
Mold compound	4205694	4211880	4211880
Die attach	4147858	4147858, 4211470	4147858, 4211470
Wire dia. (Mils)	0.8, 0.9, 0.96, 1.0, 1.15	0.8, 0.9, 0.96, 1.0, 1.15	0.96

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:

Please see page two of this document for your list of PCN affected devices.

Qualification Plan:

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.

Qualification Schedule:	**Start:**	May 2011	**End:**	August 2011

Qual Vehicle 1 : MAX232DR (MSL 1-260C)

Package Construction Details

Assembly Site:	TI Malaysia	Mold Compound:	4211880
# Pins-Designator, Family:	16-D, SOIC	Mount Compound:	4211470
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.96 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size (PASS/FAIL)		
		Lot#1	Lot#2	Lot#3
Steady-state Life Test	150C (168, 300 hrs)	77/0	77/0	77/0
Electrical Characterization	-	30/0	-	-
**High Temp. Storage Bake	170C (420hrs)	77/0	77/0	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500, 1000* Cyc)	77/0	77/0	77/0
Visual / Mechanical	-	328/0	328/0	328/0
Lead Pull	# of leads to destruction, min. 3 units	22/0	22/0	22/0
Flammability	Method A - UL94-0	5/0	5/0	5/0
Flammability	Method B - IEC 695-2-2	5/0	5/0	5/0
Flammability	Method C - UL 1694	5/0	5/0	5/0
Bond Strength	76 ball bonds, min. 3 units	76/0	76/0	76/0
Die Shear	-	10/0	10/0	10/0
Manufacturability	(per mfg. Site specification)	1/0	1/0	1/0
**Thermal Shock	-65C/+150C (500, 1000* Cyc)	77/0	77/0	77/0
X-ray	(top side only)	5/0	5/0	5/0
Moisture Sensitivity	(level 1 @ 260C peak +5/-0C)	12/0	12/0	12/0

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

Qual Vehicle 2 : RC4558DR (MSL 1-260C)

Package Construction Details

Assembly Site:	TI Malaysia	Mold Compound:	4211880
# Pins-Designator, Family:	8-D, SOIC	Mount Compound:	4211470
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.96 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size (PASS/FAIL)		
		Lot#1	Lot#2	Lot#3
Steady-state Life Test	150C (168, 300 hrs)	77/0	-	-
Electrical Characterization	-	30/0	-	-
**High Temp. Storage Bake	170C (420hrs)	77/0	-	-
**Biased HAST	130C/85%RH (96 Hrs)	77/0	-	-
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	-	-
**T/C -65C/150C	-65C/+150C (500, 1000* Cyc)	77/0	77/0	77/0
Visual / Mechanical	-	328/0	-	-
Lead Pull	# of leads to destruction, min. 3 units	22/0	-	-

Flammability	Method A - UL94-0	5/0	-	-
Flammability	Method B - IEC 695-2-2	5/0	-	-
Flammability	Method C - UL 1694	5/0	-	-
Bond Strength	76 ball bonds, min. 3 units	76/0	-	-
Die Shear	-	10/0	-	-
Manufacturability	(per mfg. Site specification)	1/0	-	-
**Thermal Shock	-65C/+150C (500, 1000* Cyc)	77/0	77/0	77/0
X-ray	(top side only)	5/0	-	-
Moisture Sensitivity	(level 1 @ 260C peak +5/-0C)	12/0	12/0	12/0
Notes **- Preconditioning sequence: Level 1-260C.				

Qual Vehicle 3 : SN74LV14ADR (MSL 1-260C)

Package Construction Details			
Assembly Site:	TI Malaysia	Mold Compound:	4211880
# Pins-Designator, Family:	14-D, SOIC	Mount Compound:	4211470
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.96 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size (PASS/FAIL)		
		Lot#1	Lot#2	Lot#3
Steady-state Life Test	150C (168, 300 hrs)	77/0	-	-
Electrical Characterization	-	30/0	-	-
**High Temp. Storage Bake	170C (420hrs)	77/0	-	-
**Biased HAST	130C/85%RH (96 Hrs)	77/0	-	-
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	-	-
**T/C -65C/150C	-65C/+150C (500, 1000* Cyc)	77/0	77/0	77/0
Visual / Mechanical	-	328/0	-	-
Lead Pull	# of leads to destruction, min. 3 units	22/0	-	-
Flammability	Method A - UL94-0	5/0	-	-
Flammability	Method B - IEC 695-2-2	5/0	-	-
Flammability	Method C - UL 1694	5/0	-	-
Bond Strength	76 ball bonds, min. 3 units	76/0	-	-
Die Shear	-	10/0	-	-
Manufacturability	(per mfg. Site specification)	1/0	-	-
**Thermal Shock	-65C/+150C (500, 1000* Cyc)	77/0	77/0	77/0
X-ray	(top side only)	5/0	-	-
Moisture Sensitivity	(level 1 @ 260C peak +5/-0C)	12/0	12/0	12/0
Notes **- Preconditioning sequence: Level 1-260C.				

Qual Vehicle 4 : ULN2003ADR (MSL 1-260C)

Package Construction Details			
Assembly Site:	TI Malaysia	Mold Compound:	4211880
# Pins-Designator, Family:	16-D, SOIC	Mount Compound:	4211470
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.96 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size (PASS/FAIL)		
		Lot#1	Lot#2	Lot#3
Steady-state Life Test	150C (168, 300 hrs)	77/0	-	-
Electrical Characterization	-	30/0	-	-
**High Temp. Storage Bake	170C (420hrs)	77/0	-	-

**Biased HAST	130C/85%RH (96 Hrs)	77/0	-	-
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	-	-
**T/C -65C/150C	-65C/+150C (500, 1000* Cyc)	77/0	-	-
Visual / Mechanical	-	328/0	-	-
Lead Pull	# of leads to destruction, min. 3 units	22/0	-	-
Bond Strength	76 ball bonds, min. 3 units	76/0	-	-
Die Shear	-	10/0	-	-
Manufacturability	(per mfg. Site specification)	1/0	-	-
**Thermal Shock	-65C/+150C (500, 1000* Cyc)	77/0	-	-
X-ray	(top side only)	5/0	-	-
Notes **- Preconditioning sequence: Level 1-260C.				

Qualification Data:

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

Qualification Schedule:	**Start:**	May 2011	**End:**	August 2011

Qual Vehicle 1 : CD4053BM96 (MSL 1-260C)

Package / Die Construction Details

Assembly Site:	TI Mexico	Mold Compound:	4211880
# Pins-Designator, Family:	16-D, SOIC	Mount Compound:	4147858
Leadframe (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.96 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size Pass/Fail
**Steady-state Life Test	150C (168, 300 Hrs)	77/0
Electrical Characterization	-	30/0
**High Temp. Storage Bake	150C (500, 1000 Hrs)	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
Visual / Mechanical	-	328/0
Lead Pull	# of leads to destruction, min. 3 units	22/0
Flammability	Method A - UL94-0	5/0
Flammability	Method B - IEC 695-2-2	5/0
Flammability	Method C - UL 1694	5/0
Bond Strength	76 ball bonds, min. 3 units	76/0
Manufacturability	(per mfg. Site specification)	1/0
**Thermal Shock	-65C/+150C (500, 1000* Cyc)	77/0
X-ray	(Top-side only)	5/0
Moisture Sensitivity	(level 1 @ 260C peak +0/-5C)	12/0
Notes **- Preconditioning sequence: Level 1-260C.		

Qual Vehicle 2 : LM358DR (MSL 1-260C)			
Package / Die Construction Details			
Assembly Site:	TI Mexico	Mold Compound:	4211880
# Pins-Designator, Family:	8-D, SOIC	Mount Compound:	4147858
Leadframe (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.96 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size (PASS/FAIL)		
		Lot#1	Lot#2	Lot#3
Steady-state Life Test	150C (168, 300 hrs)	77/0	-	-
Electrical Characterization	-	30/0	-	-
**High Temp. Storage Bake	170C (420hrs)	77/0	-	-
**Biased HAST	130C/85%RH (96 Hrs)	77/0	-	-
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	-	-
**T/C -65C/150C	-65C/+150C (500, 1000* Cyc)	77/0	77/0	77/0
Visual / Mechanical	-	328/0	-	-
Lead Pull	# of leads to destruction, min. 3 units	22/0	-	-
Flammability	Method A - UL94-0	5/0	-	-
Flammability	Method B - IEC 695-2-2	5/0	-	-
Flammability	Method C - UL 1694	5/0	-	-
Bond Strength	76 ball bonds, min. 3 units	76/0	-	-
Die Shear	-	10/0	-	-
Manufacturability	(per mfg. Site specification)	1/0	-	-
**Thermal Shock	-65C/+150C (500, 1000* Cyc)	77/0	77/0	77/0
X-ray	(top side only)	5/0	-	-
Moisture Sensitivity	(level 1 @ 260C peak +5/-0C)	12/0	12/0	12/0

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

Qual Vehicle 3 : TL494IDR (MSL 1-260C)			
Package / Die Construction Details			
Assembly Site:	TI Mexico	Mold Compound:	4211880
# Pins-Designator, Family:	16-D, SOIC	Mount Compound:	4147858
Leadframe (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.96 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size (PASS/FAIL)		
		Lot#1	Lot#2	Lot#3
Steady-state Life Test	150C (168, 300 hrs)	77/0	77/0	77/0
Electrical Characterization	-	30/0	-	-
**High Temp. Storage Bake	170C (420hrs)	77/0	77/0	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500, 1000* Cyc)	77/0	77/0	77/0
Visual / Mechanical	-	328/0	328/0	328/0
Lead Pull	# of leads to destruction, min. 3 units	22/0	22/0	22/0
Flammability	Method A - UL94-0	5/0	5/0	5/0
Flammability	Method B - IEC 695-2-2	5/0	5/0	5/0
Flammability	Method C - UL 1694	5/0	5/0	5/0
Bond Strength	76 ball bonds, min. 3 units	76/0	76/0	76/0

Die Shear	-	10/0	10/0	10/0
Manufacturability	(per mfg. Site specification)	1/0	1/0	1/0
**Thermal Shock	-65C/+150C (500, 1000* Cyc)	77/0	77/0	77/0
X-ray	(top side only)	5/0	5/0	5/0
Moisture Sensitivity	(level 1 @ 260C peak +5/-0C)	12/0	12/0	12/0
Notes **- Preconditioning sequence: Level 1-260C.				

Qual Vehicle 4 : ULN2003ADR (MSL 1-260C)

Package / Die Construction Details

Assembly Site:	TI Mexico	Mold Compound:	4211880
# Pins-Designator, Family:	16-D, SOIC	Mount Compound:	4147858
Leadframe (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.96 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size Pass/Fail
**Steady-state Life Test	150C (168, 300 Hrs)	77/0
Electrical Characterization	-	30/0
**High Temp. Storage Bake	150C (500, 1000 Hrs)	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
Visual / Mechanical	-	328/0
Lead Pull	# of leads to destruction, min. 3 units	22/0
Flammability	Method A - UL94-0	5/0
Flammability	Method B - IEC 695-2-2	5/0
Flammability	Method C - UL 1694	5/0
Bond Strength	76 ball bonds, min. 3 units	76/0
Manufacturability	(per mfg. Site specification)	1/0
**Thermal Shock	-65C/+150C (500, 1000* Cyc)	77/0
X-ray	(Top-side only)	5/0
Moisture Sensitivity	(level 1 @ 260C peak +0/-5C)	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