12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20141105000
Qualification of new BOM and Assembly Site for Select Device(s)
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# 20141105000
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:	20141105000			**PCN Date:**	12/03/2014
Title:	Qualification of new BOM and Assembly Site for Select Device(s)				
Customer Contact:	PCN Manager	**Phone:**	+1(214)480-6037	**Dept:**	Quality Services
Proposed 1st Ship Date:	03/03/2015	**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:

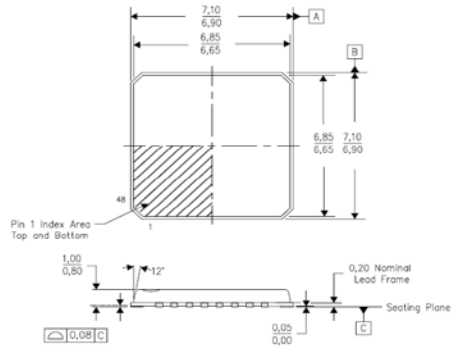
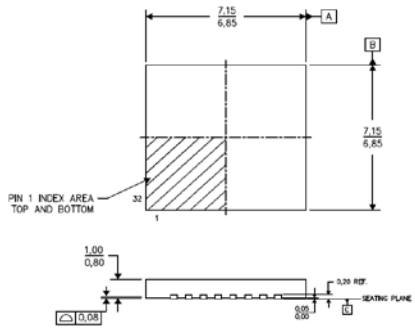
Texas Instruments is pleased to announce the qualification of new material set for the devices listed in Group 1 below and a new assembly site and material set for the devices listed in Group 2 listed below:

Group 1 will add Cu wire as a bond wire option. Devices will remain in current assembly facility. Group 2 will add a new assembly site and Cu wire as a bond wire option.

Group 1 Devices:

	Current	New
Bond Wire type	Au	Cu, Au

Group 2 Devices:

	Current	New
Assembly Site	SCSAT	TI Clark
Mount Compound	R008-0097X	4207123
Mold Compound	R003-0301X	4208625
Bond Wire Type	Au	Cu, Au
Package Singulation	Punch	Saw
		

Note: The sawn package is considered backwards compatible with the punched package, i.e. no PCB footprint change is necessary. Packing materials (shipping boxes, tape & reels, etc.) at the additional site will be consistent with materials currently in use at the current site.

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:

Group 1 Devices: None

Group 2 Devices:

Assembly Site		
STATS ChipPAC A/T	Assembly Site Origin (22L)	ASO: STS
TI Clark	Assembly Site Origin (22L)	ASO: QAB

Sample product shipping label (not actual product label)

ASSEMBLY SITE CODES: SCSAT =G, TI-Clark = I

Group 1 Product Affected: Cu wire change only

CD4051BM96G3	LM224DRG3	NE555DRG3	SN74LV4052ADRG3
CD4052BM96G3	LM239DRG3	RC4558DRG3	SN74LV595ADRG3
CD4052BPWRG3	LM258DRG3	SN74ACT08DRG3	SN74LV595APWRG3
CD4053BM96G3	LM2901DRG3	SN74AHC14DRG3	SN74LVC04ADRG3
CD4053BPWRG3	LM2901PWRG3	SN74AHC14PWRG3	SN74LVC04APWRG3
CD74HC4051M96G3	LM2902DRG3	SN74HC04DRG3	SN74LVC07ADRG3
CD74HC4052M96G3	LM2902PWRG3	SN74HC138DRG3	SN74LVC07APWRG3
CD74HC4053M96G3	LM2903DRG3	SN74HC14DRG3	SN74LVC08ADRG3
CD74HC4053PWRG3	LM2903PWRG3	SN74HC164DRG3	SN74LVC08APWRG3
CD74HC4094M96G3	LM2904DRG3	SN74HC165DRG3	SN74LVC125ADRG3
CDCM6208V1HRGZR	LM2904PWRG3	SN74HC166DRG3	SN74LVC125APWRG3
CDCM6208V1HRGZT	LM293DRG3	SN74HC595DRG3	SN74LVC14ADRG3
CDCM6208V1RGZR	LM324DRG3	SN74HCT14DRG3	SN74LVC14APWRG3
CDCM6208V1RGZT	LM324PWRG3	SN74LV07APWRG3	SN74LVC157ADRG3
CDCM6208V1YRGZR	LM339DRG3	SN74LV08APWRG3	SN74LVC244APWRG3
CDCM6208V1YRGZT	LM339PWRG3	SN74LV14APWRG3	SN74LVC245APWRG3
CDCM6208V1ZRGZR	LM358DRG3	SN74LV165ADRG3	SN74LVC32APWRG3
CDCM6208V1ZRGZT	LM358PWRG3	SN74LV165APWRG3	ULN2003ADRG3

CDCM6208V2RGZR	LM393DRG3	SN74LV244APWRG3	ULN2004ADRG3
CDCM6208V2RGZT	LM393PWRG3	SN74LV245APWRG3	

Group 2 Product Affected: Assembly Site and Cu wire change

CC1020RSS	CC1020RSST	CC1021RSSR	HPA00471RSSR
CC1020RSSR	CC1021RSS		

Group 1 Devices - 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: CDCM6208V1RGZ (MSL3-260C)

Package Construction Details

Assembly Site:	TI Clark AT	Mold Compound:	4208625
# Pins-Designator, Family:	48-RGZ, VQFN	Mount Compound:	4207768
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.8 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail
ESD - HBM	3000V	3/0
ESD - CDM	1500V	3/0
Manufacturability	(per mfg. Site specification)	Pass

Qual Vehicle 2: CDCM6208V2RGZ (MSL3-260C)

Package Construction Details

Assembly Site:	TI Clark AT	Mold Compound:	4208625
# Pins-Designator, Family:	48-RGZ, VQFN	Mount Compound:	4207768
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.80 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail
**Autoclave	121C (96 hrs)	77/0
**High Temp. Storage Bake	170C (420hrs)	77/0
**Life Test	105C (1000hrs)	77/0
**Temperature Cycle	-65C/+150C (500 Cyc)	77/0
ESD - HBM	1000V	3/0
ESD - MM	100V	3/0
ESD - CDM	500V	3/0
Manufacturability	(per mfg. Site specification)	Pass

Notes **- Preconditioning sequence: Level 3-260C.

Qual Vehicle 3: CD4053BM96 (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000506
# Pins-Designator, Family:	16-D, SOIC	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	1.0 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail
**Life Test	150C (300 Hrs)	77/0
Electrical Characterization	-	Pass

**High Temp. Storage Bake	150C (1000 Hrs)	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0
**Unbiased HAST	130C/85%RH/33.3 psia (96 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
Bond Strength	76 ball bonds, min. 3 units	76/0
Manufacturability	(per mfg. Site specification)	Pass
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)		

Qual Vehicle 4: LM358DR (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000506
# Pins-Designator, Family:	8-D, SOIC	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	1.0 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail
**Life Test	150C (300 Hrs)	77/0
Electrical Characterization	-	Pass
**High Temp. Storage Bake	150C (1000 Hrs)	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0
**Unbiased HAST	130C/85%RH/33.3 psia (96 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
Bond Strength	76 ball bonds, min. 3 units	76/0
Manufacturability	(per mfg. Site specification)	Pass
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)		

Qual Vehicle 5: RC4558DR (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000506
# Pins-Designator, Family:	8-D, SOIC	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	1.0 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail
**Life Test	150C (300 Hrs)	77/0
Electrical Characterization	-	Pass
**High Temp. Storage Bake	150C (1000 Hrs)	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0
**Unbiased HAST	130C/85%RH/33.3 psia (96 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
Bond Strength	76 ball bonds, min. 3 units	76/0
Manufacturability	(per mfg. Site specification)	Pass
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)		

Qual Vehicle 6: LMV358IDR (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000506
# Pins-Designator, Family:	8-D, SOIC	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	0.8 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail	
		Lot# 1	Lot# 2

**Life Test	150C (300 Hrs)	77/0	77/0
**High Temp. Storage Bake	150C (1000 Hrs)	77/0	-
**Biased HAST	130C/85%RH (192 Hrs)	80/0	80/0
**Unbiased HAST	130C/85%RH/33.3 psia (96 Hrs)	77/0	-
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	-
Bond Strength	76 ball bonds, min. 3 units	80/0	-
Manufacturability	(per mfg. Site specification)	Pass	-
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)			

Qual Vehicle 7: SN74HC4851DR (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000506
# Pins-Designator, Family:	16-D, SOIC	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	0.8 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail	
		Lot# 1	Lot# 2
**Life Test	150C (300 Hrs)	77/0	77/0
**High Temp. Storage Bake	170C (600 Hrs)	77/0	77/0
**Biased HAST	130C/85%RH (192 Hrs)	80/0	80/0
**Unbiased HAST	130C/85%RH/33.3 psia (192 Hrs)	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0
Bond Strength	76 ball bonds, min. 3 units	80/0	80/0
Manufacturability	(per mfg. Site specification)	Pass	Pass
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)			

Qual Vehicle 8: SN74LVC08ADR (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000506
# Pins-Designator, Family:	14-D, SOIC	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	0.8 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail
**Life Test	150C (300 Hrs)	77/0
Electrical Characterization	-	Pass
**High Temp. Storage Bake	170C (600 Hrs)	77/0
**Biased HAST	130C/85%RH (192 Hrs)	77/0
**Unbiased HAST	130C/85%RH/33.3 psia (192 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
Bond Strength	76 ball bonds, min. 3 units	80/0
Manufacturability	(per mfg. Site specification)	Pass
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)		

Qual Vehicle 9: SN74LV14ADR (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000506
# Pins-Designator, Family:	14-D, SOIC	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	1.0 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail

**Life Test	150C (300 Hrs)	77/0
Electrical Characterization	-	Pass
**High Temp. Storage Bake	150C (1000 Hrs)	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0
**Unbiased HAST	130C/85%RH/33.3 psia (96 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
Bond Strength	76 ball bonds, min. 3 units	76/0
Manufacturability	(per mfg. Site specification)	Pass
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)		

Qual Vehicle 10: RC4558PWR (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000508
# Pins-Designator, Family:	8-PW, TSSOP	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	1.0 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail
Electrical Characterization	-	Pass
**Life Test	150C (300 Hrs)	77/0
**High Temp. Storage Bake	150C (1000 Hrs)	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0
**Unbiased HAST	130C/85%RH/33.3 psia (96 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
Bond Strength	76 ball bonds, min. 3 units	76/0
Manufacturability	(per mfg. Site specification)	Pass
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)		

Qual Vehicle 11: SN74LV14APWR (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000508
# Pins-Designator, Family:	14-PW, TSSOP	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	1.0 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail
Electrical Characterization	-	Pass
**Life Test	150C (300 Hrs)	77/0
**High Temp. Storage Bake	150C (1000 Hrs)	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0
**Unbiased HAST	130C/85%RH/33.3 psia (96 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
Bond Strength	76 ball bonds, min. 3 units	76/0
Manufacturability	(per mfg. Site specification)	Pass
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)		

Qual Vehicle 12: ULN2003APW (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000508
# Pins-Designator, Family:	16-PW, TSSOP	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	1.0 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail
Electrical Characterization	-	Pass
**Life Test	150C (300 Hrs)	77/0
**High Temp. Storage Bake	150C (1000 Hrs)	77/0
**Biased HAST	130C/85%RH (96 Hrs)	77/0
**Unbiased HAST	130C/85%RH/33.3 psia (96 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
Bond Strength	76 ball bonds, min. 3 units	76/0
Manufacturability	(per mfg. Site specification)	Pass
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)		

Qual Vehicle 13: TPL7407LPWR (MSL1-260C)

Package Construction Details

Assembly Site:	ASESH	Mold Compound:	EN2000508
# Pins-Designator, Family:	16-PW, TSSOP	Mount Compound:	EY1000063
Lead frame (Finish, Base):	Matte Tin, Cu	Bond Wire:	1.0 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail
**Biased HAST	130C/85%RH (96 Hrs)	77/0
**Unbiased HAST	130C/85%RH/33.3 psia (96 Hrs)	77/0
**Autoclave	121C (96 Hrs)	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0
**High Temp. Storage Bake	150C (420 Hrs)	77/0
Notes: ** Preconditioning sequence: (Level 1-260C +5/-0C)		

Group 2 Devices - 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: CC1020 (MSL3-260C)

Package Construction Details

Assembly Site:	TI Clark AT	Mold Compound:	4208625
# Pins-Designator, Family:	32-RSS, VQFN	Mount Compound:	4207123
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	150C (600hrs)	77/0	77/0	77/0
**Unbiased HAST	110C/85%RH (264hrs)	77/0	77/0	77/0
**Biased Temp Humidity	85C/85%RH (634 Hrs)	26/0	26/0	26/0
**Temperature Cycle	-55C/+125C (500 Cyc)	77/0	77/0	77/0
ESD - CDM	250V/250V	1/0	1/0	1/0
ESD - CDM	500V/500V	1/0	1/0	1/0
ESD - CDM	750V/750V	1/0	1/0	1/0
Manufacturability	(per mfg. Site specification)	Pass	Pass	Pass
Notes **- Preconditioning sequence: Level 3-260C.				

Qual Vehicle # 2: CC1150 (MSL3-260C)

Package Construction Details

Assembly Site:	TI Clark AT	Mold Compound:	4208625

# Pins-Designator, Family:	16-RGV, VQFN	Mount Compound:	4207123
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.80 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	150C (600hrs)	77/0	77/0	77/0
**Unbiased HAST	110C/85%RH (264hrs)	78/0	78/0	78/0
**Temperature Cycle	-55C/+125C (500 Cyc)	78/0	78/0	78/0
ESD - CDM	250V/250V	1/0	1/0	1/0
ESD - CDM	500V/500V	1/0	1/0	1/0
Manufacturability	(per mfg. Site specification)	Pass	Pass	Pass

Notes **- Preconditioning sequence: Level 3-260C.

Supporting QBS : CC1101 (MSL3-260C)

Package Construction Details

Assembly Site:	TI Clark AT	Mold Compound:	4208625
# Pins-Designator, Family:	20-RGP, VQFN	Mount Compound:	4207123
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.8 Mil Dia., Cu

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

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	150C (600hrs)	77/0	77/0	77/0
**Biased Temp Humidity	85C/85%RH (600 Hrs)	25/0	25/0	27/0
**Unbiased HAST	110C/85%RH (264hrs)	77/0	77/0	77/0
**Temperature Cycle	-55C/+125C (500 Cyc)	77/0	77/0	77/0
ESD - HBM	1500V/1500V	3/0	3/0	3/0
ESD - CDM	250V/250V	3/0	3/0	3/0
ESD - CDM	500V/500V	3/0	3/0	3/0
Manufacturability	(per mfg. Site specification)	Pass	-	-

Notes **- Preconditioning sequence: Level 3-260C.

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