

<b>PCN Number:</b>	20170804000C	<b>PCN Date:</b>	Oct 17, 2017												
<b>Title:</b>	Qualification of UTAC Thailand as additional Assembly and Test Site for Select Devices														
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services												
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Nov 09, 2017	<b>Estimated Sample Availability:</b>	Date Provided at Sample request												
<b>Change Type:</b>															
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design												
<input 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 checked="" type="checkbox"/>	Test Site												
<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process												
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Site												
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Material												
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Process												
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Site												
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Materials												
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Process												
<b>PCN Details</b>															
<b>Description of Change:</b>															
Revision C is to update the description of change to include Cu wire change for devices under <b>Group 2</b> . We apologize for any inconvenience this may have caused.															
Texas Instruments is pleased to announce the qualification of UTAC Thailand as additional Assembly and Test Site for Select Devices listed in the "Product Affected" Section. Current assembly sites and Material differences are as follows.															
<table border="1"> <thead> <tr> <th>Assembly Site</th> <th>Assembly Site Origin</th> <th>Assembly Country Code</th> <th>Assembly Site City</th> </tr> </thead> <tbody> <tr> <td>TI Clark</td> <td>QAB</td> <td>PHL</td> <td>Angeles City, Pampanga</td> </tr> <tr> <td><b>UTAC Thailand</b></td> <td><b>NSE</b></td> <td><b>THA</b></td> <td><b>Bangkok</b></td> </tr> </tbody> </table>				Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City	TI Clark	QAB	PHL	Angeles City, Pampanga	<b>UTAC Thailand</b>	<b>NSE</b>	<b>THA</b>	<b>Bangkok</b>
Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City												
TI Clark	QAB	PHL	Angeles City, Pampanga												
<b>UTAC Thailand</b>	<b>NSE</b>	<b>THA</b>	<b>Bangkok</b>												
<b>Material Differences Group 1:</b>															
	<b>TI Clark</b>	<b>UTAC Thailand</b>													
Lead finish	NiPdAu	Matte Sn													
Mount compound	4207123	PZ0138													
Mold compound	4208625	CZ0351													
<b>Material Differences Group 2:</b>															
	<b>TI Clark</b>	<b>UTAC Thailand</b>													
Lead finish	NiPdAu	Matte Sn													
Wire type	Au	Cu													
Mount compound	4207123	PZ0138													
Mold compound	4208625	CZ0351													
Upon expiration of this PCN, TI will combine lead finish solutions in a single <b><u>standard part number</u></b> , for example; <b><u>TPS51362RVER</u></b> – can ship with both Matte Sn and NiPdAu. When available customers may specify NiPdAu finish by ordering the part with the <b>E4</b> suffix, e.g. <b>"TPS51362RVERE4."</b>															
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.															
<b>Reason for Change:</b>															
Continuity of Supply															
<b>Anticipated impact on Material Declaration</b>															
<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 <a href="#">TI Eco-Info website</a> . There is no impact to the material meeting current regulatory compliance requirements												

with this PCN change.

**Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):**

None

**Changes to product identification resulting from this PCN:**

Assembly Site			
TI Clark Philippines	Assembly Site Origin (22L)	ASO: QAB	ECAT: <b>E4</b>
UTAC Thailand	Assembly Site Origin (22L)	ASO: NSE	ECAT: <b>E3</b>

Sample product shipping label (not actual product label)

ECAT: **E4** = NiPdAu  
 ECAT: **E3** = Matte Sn

ASSEMBLY SITE CODES: TI-Clark = I, UTAC Thailand = J

**Group 1 Product Affected:**

CSD59930Q4M	CSD97396Q4M	SN1402065RVER	TPS53915RVER
CSD59935Q4M	CSD97396Q4MT	SN1402065RVET	TPS53915RVET
CSD59998Q4M	FX021	TPS53513RVER	TPS548A20RVER
CSD95377Q4M	FX026	TPS53513RVET	TPS548A20RVET
CSD95377Q4MT	FX033	TPS53515RVER	TPS549A20RVER
CSD97374Q4M	FX033Z	TPS53515RVET	TPS549A20RVET
CSD97395Q4M	HPA02240RVER	TPS53913RVER	
CSD97395Q4MT	SN1401043RVER	TPS53913RVET	

**Group 2 Product Affected:**

CSD59924Q4M	TPS51362RVER	TPS51367RVER	TPS59367RVER
DPA02259RVER	TPS51362RVET	TPS51367RVET	TPS59367RVET
SN1409027RVER	TPS51363RVER	TPS53515ARVER	
SN1607023RVER	TPS51363RVET	TPS53515ARVET	

# Qualification Plan

## Offload of Power Stage Clip QFN Devices from TI Clark to UTL1 (UTAC)

### Phase 1

(Qual target date: Oct 30, 2017)

#### Product Attributes

Attributes	Qual Device: CSD97374Q4M	Qual Device: TPS51362RVER
<b>Assembly Site</b>	UTAC1 THAILAND	UTAC1 THAILAND
<b>Package Family</b>	VSON 3.5 X 4.5 (MM)	QFN 4.5 X 3.5 (MM)
<b>Flammability Rating</b>	UL 94 V-0	UL 94 V-0
<b>Wafer Fab Supplier</b>	CFAB, MIHO8	CFAB, MIHO 8
<b>Wafer Fab Process</b>	FET, LBC7	FET, LBC7

- Qual Device CSD97374Q4M is qualified at LEVEL2-260C
- Qual Device TPS51362RVER is qualified at LEVEL2-260CX
- Device CSD97374Q4M contains multiple dies.
- Device TPS51362RVER contains multiple dies.

#### Qualification Results expected Oct 30, 2017

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

Type	Test Name / Condition	Duration	Qual Device: CSD97374Q4M	Qual Device: TPS51362RVER
AC	Autoclave, 121C	96 Hours	3/231 - TBD	3/231 - TBD
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231 - TBD	3/231 - TBD
BLR	BLR - Temperature Cycle, -40C / +125C	1000 Cycles	1/32 - TBD	-
ED	Electrical Characterization	Per datasheet parameters	TBD	TBD
CDM	ESD CDM	+/- 500V	3/9 - TBD	3/9 - TBD
HBM	ESD HBM	+/- 2000V	3/9 - TBD	3/9 - TBD
IOL	Intermittent Operating Life	2500, 5000, 10,000 Cycles	3/231 - TBD	-
HTSL	High Temperature Storage Bake, 170C	420 Hours	3/231 - TBD	3/231 - TBD
MSL	Thermal Integrity Sequence (Cu Wire)	Level 2 at 260C	3/36 - TBD	-
MSL	Thermal Integrity Sequence	Level 2 at 260C	-	3/36 - TBD
MQ	Manufacturability (Assembly)	Per Mfg. Site specification	TBD	TBD
PD	Physical Dimensions	Per mechanical drawing	3/15 - TBD	3/15 - TBD
SD	Solderability	Steam age, 8 hours; Pb-Free	3/66 - TBD	3/66 - TBD
SD	Solderability	Steam age, 8 hours; Pb	3/66 - TBD	3/66 - TBD
TC	Temperature Cycle, -55C/125C	700 Cycles	3/231 - TBD	3/231 - TBD

- Preconditioning 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/1000 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/1000 Hours, and 170C/420 Hours.
- The following are equivalent Temperature 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/>

For questions regarding this notice, e-mails can be sent to the regional contacts shown below or your local Field Sales Representative.

<b>Location</b>	<b>E-Mail</b>
USA	<a href="mailto:PCNAmericasContact@list.ti.com">PCNAmericasContact@list.ti.com</a>
Europe	<a href="mailto:PCNEuropeContact@list.ti.com">PCNEuropeContact@list.ti.com</a>
Asia Pacific	<a href="mailto:PCNAsiaContact@list.ti.com">PCNAsiaContact@list.ti.com</a>
Japan	<a href="mailto:PCNJapanContact@list.ti.com">PCNJapanContact@list.ti.com</a>