

PCN Number:	20180807002.1		PCN Date:	Aug 9, 2018																												
Title:	Qualification of UTAC Thailand as additional Assembly and Test Site for Select Devices																															
Customer Contact:	PCN Manager		Dept:	Quality Services																												
Proposed 1st Ship Date:	Nov 9, 2018		Estimated Sample Availability:	Date Provided at Sample request																												
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:																																
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" style="width: 100%;"> <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>UTAC Thailand</td> <td>NSE</td> <td>THA</td> <td>Bangkok</td> </tr> </tbody> </table> Material Differences: <table border="1" style="width: 100%;"> <thead> <tr> <th></th> <th>TI Clark</th> <th>UTAC Thailand</th> </tr> </thead> <tbody> <tr> <td>Lead finish</td> <td>NiPdAu</td> <td>Matte Sn</td> </tr> <tr> <td>Wire type</td> <td>Au</td> <td>Cu</td> </tr> <tr> <td>Mount compound</td> <td>4207123</td> <td>PZ0138</td> </tr> <tr> <td>Mold compound</td> <td>4208625</td> <td>CZ0351</td> </tr> </tbody> </table> Upon expiration of this PCN, TI will combine lead free solutions in a single standard part number, for example; SN1602018RVFR– can ship with both Matte Sn and NiPdAu. When available customers may specify NiPdAu finish by ordering the part with the E4 suffix, e.g. SN1602018RVFRE4." Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.						Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City	TI Clark	QAB	PHL	Angeles City, Pampanga	UTAC Thailand	NSE	THA	Bangkok		TI Clark	UTAC Thailand	Lead finish	NiPdAu	Matte Sn	Wire type	Au	Cu	Mount compound	4207123	PZ0138	Mold compound	4208625	CZ0351
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Reason for Change:																																
Continuity of Supply																																
Anticipated impact on Material Declaration																																
☐	No Impact to the Material Declaration	☒	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 TI Eco-Info website . 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: E4
UTAC Thailand	Assembly Site Origin (22L)	ASO: NSE	ECAT: E3

Sample product shipping label (not actual product label)

ECAT: E4 = NiPdAu
ECAT: E3 = Matte Sn

(1P) SN74LS07NSR
(Q) 2000 (D) 0336
(31T) LOT: 3959047MLA
(4W) TKY (1T) 7523483SI2
(P)
(2P) REV: (V) 0033317
(20L) CSO: SHE (21L) CCO:USA
(22L) ASO: MLA (23L) ACO: MYS

Product Affected:			
SN1602018RVFR	TPS544C24RVFR	TPS546C20RVFR	TPS548B22RVFR
SN1602018RVFT	TPS544C24RVFT	TPS546C20RVFT	TPS548B22RVFT
TPS544B24RVFR	TPS546C20ARVFR	TPS546C23RVFR	TPS549B22RVFR
TPS544B24RVFT	TPS546C20ARVFT	TPS546C23RVFT	TPS549B22RVFT

Qualification Report

Offload of Power Stage Clip QFN Devices from TI Clark to UTL1 (UTAC) - Phase 2

Approve Date 31-Jul-2018

Product Attributes

Attributes	Qual Device: <u>TPS544C24RVFR</u>
Assembly Site	UTAC 1 THAILAND
Package Family	LQFN-CLIP; 7 X 5 (MM)
Flammability Rating	UL 94 V-0
Wafer Fab Supplier	CFAB, CFAB, MIHO 8
Wafer Process	HS FET, LS FET, LBC7

- Qual Device TPS544C24RVFR is qualified at LEVEL2-260CX.
- Device TPS544C24RVFR contains multiple dies.

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>TPS544C24RVFR</u>
-	Drift Analysis, 25C	--	Pass
AC	Autoclave, 121C	96 Hours	3/231/0
BLR	BLR - Temp Cycle (QFN), -40C/125C	1000 Cycles	Pass
BHAST	Biased HAST, 110C/85%RH	264 Hours	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	Pass

CDM	ESD CDM	1000V	3/9/0
HBM	ESD HBM	2500V	3/9/0
HTSL	High Temp. Storage Life, 170C	420 Hours	3/231/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass
MSL	Thermal Integrity Sequence	Level 2 - 260C	3/36/0
PC	Preconditioning	Level 2 - 260C	3/924/0
SD	Solderability	Pb-Free	Pass
TC	Temperature Cycle, -55C/125C	700 Cycles	3/231/0

- 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/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/>

THIS INFORMATION RELATING TO QUALITY AND RELIABILITY IS PROVIDED "AS IS." Product information detailed in this report may not accurately reflect TI's current product materials, processes and testing used in the construction of the TI products. Customers are solely responsible to conduct sufficient engineering and additional qualification testing to determine whether a device is suitable for use in their applications. Using TI products outside limits stated in TI's datasheet may void TI's warranty. See TI's Terms of Sale at "<http://www.ti.com/lscds/ti/legal/termsforsale.page>"

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

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