

<b>PCN Number:</b>	20181106001.1.A	<b>PCN Date:</b>	Dec 13, 2018
<b>Title:</b>	Qualification of TI Philippines as an 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>	Mar 07, 2019	<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 checked="" type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process
		<input type="checkbox"/>	Wafer Bump Site
		<input type="checkbox"/>	Wafer Bump Material
		<input type="checkbox"/>	Wafer Bump Process
		<input type="checkbox"/>	Wafer Fab Site
		<input type="checkbox"/>	Wafer Fab Materials
		<input type="checkbox"/>	Wafer Fab Process

### PCN Details

**Description of Change:**  
Revision A is to update the description of change to include Cu wire in the Material Differences table. We apologize for any inconvenience this may have caused.

Texas Instruments Incorporated is announcing the qualification TI Philippines as Additional Assembly and Test Site for select devices listed in the "Product Affected" Section. Current assembly sites and Material differences are as follows.

Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City
Lingsen	LIN	TWN	Taichung
<a href="#">TI Philippines</a>	<a href="#">PHI</a>	<a href="#">PHL</a>	<a href="#">Baguio City</a>

**Material Differences:**

	LIN	PHI
Mount Compound	0003C10332	4207123
Mold compound	0011G60007	4222198
<b>Wire type</b>	<b>1mil Au</b>	<b>1mil Cu</b>

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

**Reason for Change:**

Continuity of supply.

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

None

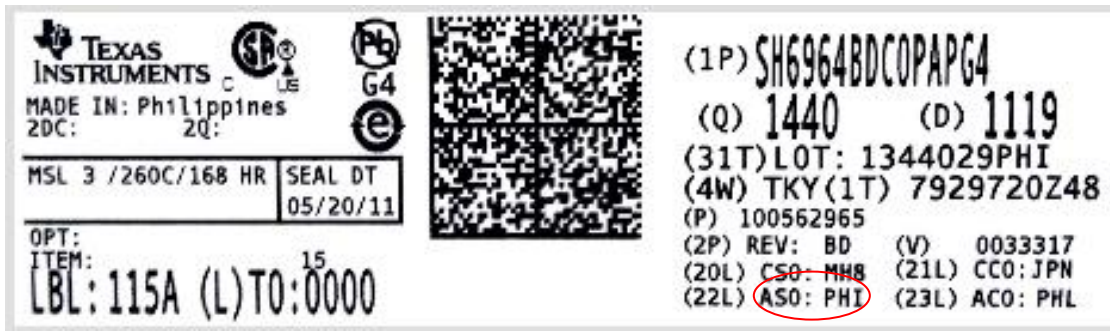
**Anticipated impact on Material Declaration**

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

Assembly Site		
Lingsen	Assembly Site Origin (22L)	ASO: LIN
<a href="#">TI Philippines</a>	Assembly Site Origin (22L)	ASO: <a href="#">PHI</a>

Sample product shipping label (not actual product label)



**Product Affected:**

TLV2241IDBVR	TLV2401CDBVR	TLV2401IDBVRG4
TLV2241IDBVRG4	TLV2401CDBVT	TLV2401IDBVT
TLV2241IDBVT	TLV2401IDBVR	TLV2401IDBVTG4

**Qualification Report**  
**TIPI SOT: Phase-1 (5pin DBV)**  
**Approve Date 25-Sep-2015**

**Product Attributes**

Attributes	Qual Device: TPS76933DBVR
Assembly Site	TIPI
Package Family	SOT
Flammability Rating	UL 94 V-0
Wafer Fab Supplier	DL-LIN
Wafer Fab Process	LBC3S

- QBS: Qual By Similarity
- Qual Device TPS76933DBVR is qualified at LEVEL1-260CG

**Qualification Results**

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

Type	Test Name / Condition	Duration	Qual Device: TPS76933DBVR
AC	Autoclave 121C	96 Hours	3/231/0
CDM	ESD - CDM	1500 V	3/9/0
DS	Die Shear	-	3/30/0
ED	Electrical Characterization, side by side	Per Datasheet Parameters	Pass
FLAM	Flammability (UL 94V-0)	--	3/15/0
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0
HBM	ESD - HBM	4000 V	3/9/0
HTOL	Life Test, 150C	300 Hours	3/230/0
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0
LI	Lead Fatigue	Leads	3/66/0
LI	Lead Pull to Destruction	Leads	3/66/0
MISC	Salt Atmosphere	24 Hours	3/66/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	3/36/0
PD	Physical Dimensions	(per mechanical drawing)	3/15/0

Type	Test Name / Condition	Duration	Qual Device: TPS76933DBVR
PKG	Lead Finish Adhesion	Leads	3/45/0
SD	Solderability	8 Hours Steam Age	3/66/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0
VM	Visual / Mechanical	(per mfg. Site specification)	3/984/0
VM	Visual Quality Reliability Inspection	Post Autoclave	3/6/0
VM	Visual Quality Reliability Inspection	Post Biased HAST	3/6/0
VM	Visual Quality Reliability Inspection	Post Temperature Cycle	3/6/0
WBP	Bond Pull	Wires	3/228/0
WBS	Ball Bond Shear	Wires	3/228/0
XRAY	X-ray	(top side only)	3/15/0

- Preconditioning was 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/1k 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/1k Hours, and 170C/420 Hours

- The following are equivalent Temp Cycle options per JEDEC : -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/>

**Green/Pb-free Status:**

Qualified Pb-Free(SMT) and Green

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## Qualification Report

### SOT Etched to Stamped Qualification

Approve Date 16-Mar-2017

### Product Attributes

Attributes	Qual Device: TPS2051CDBVR	Qual Device: TPS76933DBVR
Assembly Site	TIPI	TIPI
Package Family	SOT-23	SOT
Flammability Rating	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	DL-LIN-2
Wafer Fab Process	LBC7XDCU	LBC3S

- Qual Device TPS2051CDBVR is qualified at LEVEL2-260C

- Qual Device TPS76933DBVR is qualified at LEVEL1-260CG

### Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: TPS2051CDBVR	Qual Device: TPS76933DBVR
DS	Die Shear	-	3/30/0	3/30/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	-	3/36/0
MSL	Moisture Sensitivity, JEDEC	Level 2-260C	3/36/0	-
SD	Solderability	8 Hours Steam Age	3/66/0	3/66/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0
WBP	Bond Pull	Wires	3/228/0	3/228/0

Type	Test Name / Condition	Duration	Qual Device: TPS2051CDBVR	Qual Device: TPS76933DBVR
WBS	Ball Bond Shear	Wires	3/228/0	3/228/0
XRAY	X-ray	(top side only)	3/15/0	3/15/0

- Preconditioning was 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/1k 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/1k Hours, and 170C/420 Hours
  - The following are equivalent Temp 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/>  
Green/Pb-free Status:  
Qualified Pb-Free(SMT) and Green

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