PCN Number:	20210210002.1	PCN Date:	Feb 12, 2021
Title:	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly options for select devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	May 12, 2021	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
		☐	Part number change		

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of a new fab using a qualified process technology (RFAB, LBC9) and assembly (TFME or TIPI) site options for selected devices as listed below in the product affected section:

Current Fab Site			New Fab Site		
Current Fab Site	**Process**	**Wafer Diameter**	**New Fab Site**	**Process**	**Wafer Diameter**
DL-LIN	LBC3S	150 mm	RFAB	LBC9	300 mm

The die was also changed as a result of the process change.

Construction differences are noted below:

	UTL2	TFME	TIPI
Lead finish	NiPdAu	Matte Sn	NiPdAu
Bond wire/diameter	Cu, 1.0 mil	Cu, 0.8 mil	Cu, 0.8 mil
Mold Compound	SID#CZ0096	SID#R-27	4222198
Mount Compound	SID#PZ0037	SID#A-03	4207123
Pin one identifier	Stripe	dot	Dot

Upon expiry of this PCN TI will combine lead free solutions in a single ***standard part number***, for example; ***TLV809J25DBZR*** – can ship with both Matte Sn and NiPdAu.

Example:

- Customer order for 7500units of TLV809J25DBZR with 2500 units SPQ (Standard Pack Quantity per Reel).

- TI can satisfy the above order in one of the following ways.
  - I. 3 Reels of NiPdAu finish.
  - II. 3 Reels of Matte Sn finish
  - III. 2 Reels of Matte Sn and 1 reel of NiPdAu finish.
  - IV. 2 Reels of NiPdAu and 1 reel of Matte Sn finish.

Reason for Change:

These changes are part of our multiyear plan to transition products from our 150-milimeter factories to newer, more efficient manufacturing processes and technologies, underscoring our commitment to product longevity and supply continuity.

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

None

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 website.

Changes to product identification resulting from this PCN:

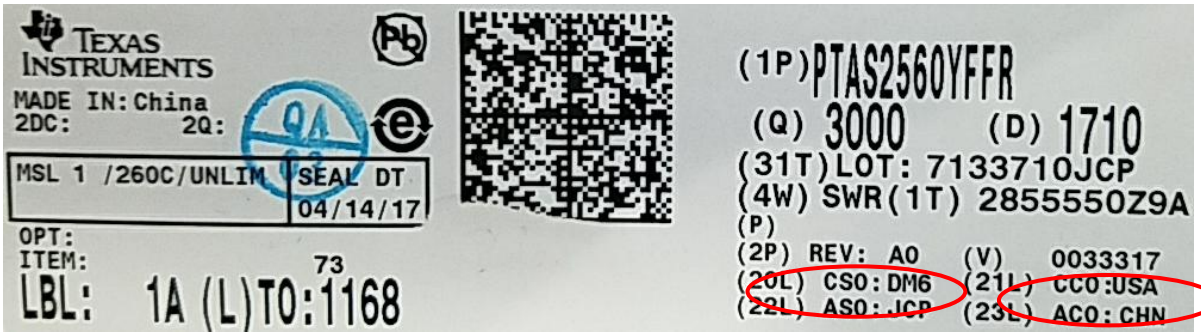
Fab Site Information:

Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
DL-LIN	DLN	USA	Dallas
RFAB	**RFB**	**USA**	**Richardson**

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
UTL2	NS2	THA	Bangkok
TFME	**NFM**	**CHN**	**Economic Development Zone**
TIPI	**PHI**	**PHL**	**Baguio City**

Sample product shipping label (not actual product label)



Product Affected:

Group 1 Device list (RFAB Fab + TFME alternate sites):

TLV803MDBZR	TLV809I50DBZR	TLV809K33DBZR	TLV853MDBZR
TLV803MDBZT	TLV809I50DBZT	TLV809K33DBZT	TLV853MDBZT
TLV803RDBZT	TLV809J25DBZR	TLV809L30DBZR	TLV863MDBZR
TLV803SDBZT	TLV809J25DBZT	TLV809L30DBZT	TLV863MDBZT
TLV803ZDBZT			

Group 2 Device list (RFAB Fab + TFME & TIPI alternate sites):

TLV803RDBZR	TLV803SDBZR	TLV803ZDBZR

Group 1 (RFAB Fab + TFME alternate sites) Qual Memo:

TI Information
Selective Disclosure

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: TLV803XDBZR TLV809XDBZR TLV810XDBZR	QBS Product Reference: TLV809EA46 DBZR	QBS Product Reference: TPS3840DBVR Q1	QBS Process Reference: TLV62568 DBVR	QBS Package Reference: TL431LIBQ DBZR
ACLV	Autoclave 121C	96 Hours	-	-	-	3/231/0	3/231/0
DPA	Destructive Physical Analysis	Post TMCL	-	-	-	-	3/90/0
ED	Electrical Characterization	Per Datasheet Parameters	-	3/90/0	3/90/0	3/90/0	3/90/0
ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	-	3/3000/0	3/2400/0
HBM	ESD - HBM	2500 V	-	1/3/0	1/3/0	-	3/9/0
HBM	ESD - HBM	4000 V	-	1/3/0	1/3/0	-	-
CDM	ESD - CDM	1500 V	-	1/3/0	1/3/0	-	3/9/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0	3/231/0	3/231/0
HTOL	Life Test, 150C	300 Hours	-	-	-	3/231/0	3/231/0
HTOL	Life Test, 125C	1000 Hours	-	1/77/0	3/231/0	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	-	3/231/0	-
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	3/231/0	3/231/0	-	3/231/0
LU	Latch-up	(per JESD78) 25C	-	1/6/0	1/6/0	2/12/0	3/18/0
LU	Latch-up	(per JESD78) 125C	-	1/6/0	1/6/0	-	3/18/0
TC	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	3/231/0	-
TC	Temperature Cycle, -65/150C	1000 Cycles	-	3/231/0	-	-	3/231/0
SD	Solderability	Pb-Free	-	-	1/15/0	-	3/66/0
UHAST	UnBiased HAST, 130C/85%RH	96 Hours	-	3/231/0	2/231/0	-	-
WBP	Bond Pull	Wires	-	-	1/30/0	-	3/228/0
WBS	Bond Shear	Wires	-	-	1/30/0	-	3/228/0
MQ	Manufacturing (Assembly)	Per Mfg Site Specification	-	3/Pass	-	-	3/3/0
MSL	Moisture Sensitivity	MSL 1 @ 260C	-	-	-	-	3/36/0

- QBS: Qual By Similarity
- Qual Device TLV80XXDBZR is qualified at LEVEL1-260C
- The TLV803, TLV853, and TLV863 are functionally equivalent. The TLV853 and TLV863 provide an alternate pinout of the TLV803.
- TLV803 is Open-Drain, RESET Output, TLV809 Push-pull, Not/RESET Output, TLV810 Push-pull, RESET Output
- Concurrent products to be qualified are TLV803MDBZR, TLV803RDBZR, TLV803SDBZR, TLV803ZDBZR, TLV853MDBZR, TLV863MDBZR, TLV809I50DBZR, TLV809J25DBZR, TLV809K33DBZR, TLV809L30DBZR
  Where X: Z=2.25V, R=2.64V, S=2.93V, M=4.38V

- 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

Group 2 (RFAB Fab + TFME & TIPI alternate sites) Qual Memo:

TI Information
Selective Disclosure

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: TLV809EA46DBZR	QBS Product Reference: TLV809EA46DBZR	QBS Product Reference: TPS3840DBVRQ1	QBS Process Reference: TLV62568DBVR	QBS Package Reference: TPS3840DBVRQ1
ACLV	Autoclave 121C	96 Hours	3/231/0	-	-	3/231/0	-
ED	Electrical Characterization	Per Datasheet Parameters	-	3/90/0	3/90/0	3/90/0	3/90/0
ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	-	3/3000/0	-
HBM	ESD - HBM	2500 V	-	1/3/0	1/3/0	-	1/3/0
HBM	ESD - HBM	4000 V	-	1/3/0	1/3/0	-	1/3/0
CDM	ESD - CDM	1500 V	1/3/0	1/3/0	1/3/0	-	1/3/0
HAST	Biased HAST, 130C/85%RH	96 Hours	1/77/0	3/231/0	3/231/0	3/231/0	3/231/0
HTOL	Life Test, 150C	300 Hours	-	-	-	3/231/0	-
HTOL	Life Test, 125C	1000 Hours	-	1/77/0	3/231/0	-	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/231/0	-	-	3/231/0	-
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	3/231/0	3/231/0	-	3/231/0
LU	Latch-up, 25C	(per JESD78)	-	1/6/0	1/6/0	2/12/0	1/6/0
LU	Latch-up, 125C	(per JESD78)	-	1/6/0	1/6/0	-	1/6/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
SD	Solderability	Pb-Free	-	-	1/15/0	-	1/15/0
UHAST	UnBiased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0	-	3/231/0
WBP	Bond Pull	Wires	-	-	1/30/0	-	1/30/0
WBS	Bond Shear	Wires	-	-	1/30/0	-	1/30/0
MQ	Manufacturing (Assembly)	Per Mfg Site Specification	3/Pass	3/Pass	-	-	-

- QBS: Qual By Similarity
- Qual Device TLV809EA46DBZR is qualified at LEVEL1-260C
- Products to be concurrently qualified are voltage options from 1.7 to 4.63V with 3 output configurations namely:
  TLV80X is any of TLV803EXYYDBZR, TLV809EXYYDBZR, TLV810EXYYDBZR.
  Where: X = delay options from A thru F; YY = Vth options from 17 thru 46. If an additional R character is in front of the package designator, this represents reversed pinout for the package. (Ex. RDBZR)

- 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 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 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:

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