12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20210811000.1
Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, Datasheet update and additional Assembly site/BOM options for select devices
Change Notification / Sample Request

Date: August 13, 2021
To: TOKYO ELECTRON DEVICE (DSTR) PCN

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments (TI). The details of this change are on the following pages, and are in alignment with our standard product change notification (PCN) process.

TI requires acknowledgement of 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 samples or additional data are required, requests must be received within 30 days of this notification, given that samples are not built ahead of the change.

The Proposed First Ship date in this PCN letter is the earliest possible date that customers could receive the changed material. It is our commitment that the changed device will not ship before that date. If samples are requested within the 30 day sample request window, customers will still have 30-days to complete their evaluation regardless of the proposed 1st ship date.

This particular PCN is related to TI's previous announcement to close our two remaining factories with 150-millimeter production (DFAB in Dallas, Texas, and SFAB in Sherman, Texas). As referenced in the "reason for change" below, these changes are part of our multiyear plan to transition these products to newer, more efficient manufacturing processes and technologies, underscoring our commitment to product longevity and supply continuity.

For questions regarding this notice or to provide acknowledgement of this PCN, you may contact your local Field Sales Representative or the PCN Team (PCN_ww_admin_team@list.ti.com). For sample requests or sample related questions, contact your local Field Sales Representative. As always, we thank you for your continued business.

PCN Team
SC Business Services

20210811000.1
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
SN65HVD3082EDR	null
SN75176BP	null
SN75176BDR	null
SN65HVD3082EDGKR	null
SN65176BDR	null
SN75176BPSR	null
SN75176BDRG4	null
SN65HVD3082EP	null
SN75HVD3082EDR	null
SN65176BP	null

Technical details of this Product Change follow on the next page(s).

PCN Number:	20210811000.1	**PCN Date:**	August 13, 2021
Title:	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, Datasheet update and additional Assembly site/BOM options for select devices		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Nov 13, 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 & process technology (RFAB, LBC7) updated BOMs, and assembly (MLA, HFT) site options for selected devices as listed below in the product affected section.

Current Fab Site			New Fab Site		
Fab Site	**Process**	**Wafer Diameter**	**Fab Site**	**Process**	**Wafer Diameter**
DL-LIN	LBC3S	200 mm	RFAB	LBC7	300 mm
SFAB	JI1	150 mm			

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

Material Differences between Assembly sites as follows:

Group 1 Devices:

	HANA	**ASESH**	**HFTF**
Lead Finish	NiPdAu	NiPdAuAg	NiPdAu
Wire Type	Au	Cu	Cu
Mount Compound	400180	EY1000063	A-18
Mold Compound	450179	EN2000515	R-30

Group 2 Devices: No Construction differences

The datasheets will be changing as a result of the above mentioned changes. The datasheet change details can be reviewed in the datasheet revision history. The link to the revised datasheet is available in the table below.

Product Family	Current Datasheet Number	New Datasheet Number	Link to full datasheet
SNx5176B	SLLS101F	SLLS101G	http://www.ti.com/product/SN75176B
SNx5HVD308xE	SLLS562J	SLLS562K	http://www.ti.com/product/SN65HVD3082E

Changes from Revision F (January 2015) to Revision G (July 2021) **Page**

- Changed the *Thermal Information* table 4
- Changed the V_O Output voltage MAX value from: 6 V to: V_{CC} in the *Electrical Characteristics – Driver* 5
- Changed the V_{ODI} Differential output voltage MAX value from: 6 V to: V_{CC} in the *Electrical Characteristics – Driver* 5

Changes from Revision J (October 2017) to Revision K (July 2021) **Page**

- Changed the *Thermal Information* section 4

Tube versions of the devices are included in EOL notice PDN# 20210811001.3.

Qual details are provided in the Qual Data Section.

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

Impact on Environmental Ratings:

Checked boxes indicate the status of environmental ratings following implementation of this change. If below boxes are checked, there are no changes to the associated environmental ratings.

RoHS	REACH	Green Status	IEC 62474
☒ No Change	☒ No Change	☒ No Change	☒ No Change

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
SH-BIP-1	SHE	USA	Sherman
RFAB	**RFB**	**USA**	**Richardson**

Die Rev:

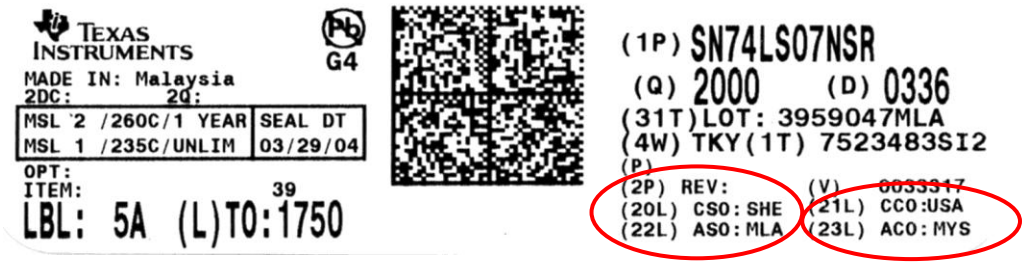
Current	**New**
Die Rev [2P]	**Die Rev [2P]**
A, F	-

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
FMX	MEX	MEX	Aguascalientes
HANA	HNT	THA	Ayutthaya

ASESH	ASH	CHN	Shanghai
TI Malaysia	**MLA**	**MYS**	**Kuala Lumpur**
HFTF	**HFT**	**CHN**	**Hefei**

Sample product shipping label (not actual product label)



Product Affected:

Group 1 - RFAB/Process migration, Die Rev, Datasheet & HFTF A/T Site + BOM updates:	
SN65HVD3082EDGKR	SN75HVD3082EDGKR

Group 2 - RFAB/Process migration, Die Rev, Datasheet and MLA A/T site:			
SN65176BDR	SN65HVD3082EDR	SN75176BDR	SN75HVD3082EDR
SN65176BDRE4	SN65HVD3082EDRG4	SN75176BDRG4	SN75HVD3082EDRG4
SN65176BDRG4			

Group 3 - RFAB/Process migration, Die Rev, Datasheet update:			
SN65176BP	SN65HVD3082EPE4	SN75176BPE4	SN75HVD3082EP
SN65HVD3082EP	SN75176BP	SN75176BPSR	

Qualification Report

Approve Date 21-Jul-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: SN65HVD3082EDR	QBS Process Reference: TPS51217DSC	QBS Package Reference: TCAN1044VDQ1 (PG2.0)	QBS Package Reference: TCAN1044VDQ1 (PG1.1/PG1.0)
AC	Autoclave 121C	96 Hours	-	3/231/0	1/77/0	2/154/0
CDM	ESD - CDM	1500 V	1/3/0	-	-	-
ED	Electrical Characterization	Per Datasheet Parameters	Pass	-	-	-
HAST	Biased HAST 130C/85%RH	96 Hours	-	3/231/0	1/77/0	2/154/0
HBM	ESD - HBM (All Pins)	4000 V	1/3/0	-	-	-
HBM	ESD - HBM (Pins 6,7 only)	15000 V	1/3/0	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	1/77/0	2/154/0
HTOL	Life Test, 135C	635 Hours	-	3/231/0	-	-
HTSL	High Temp Storage Bake 175C	500 Hours	-	-	1/45/0	2/90/0
HTSL	High Temp Storage Bake, 170C	420 Hours	-	3/231/0	-	-
LU	Latch-up	(Per JESD78)	1/6/0	-	-	-
TC	Temperature Cycle - 65/150C	500 Cycles	-	3/231/0	1/77/0	2/154/0
WBP	Bond Pull	Wires	1/76/0	-	1/30/0	2/60/0
WBS	Ball Bond Shear	Wires	1/76/0	-	1/30/0	2/60/0

- QBS: Qual By Similarity
- Qual Device SN65HVD3082EDR is qualified at LEVEL1-260C

- 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

Qualification Report

Approve Date 21-Jul-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: SN65HVD3082EP	QBS Product Reference: SN65HVD3082EDR	QBS Process Reference: TPS51217DSC	QBS Package Reference: TPIC6A596NE
AC	Autoclave 121C	96 Hours	3/231/0	-	3/231/0	3/231/0
CDM	ESD - CDM	1500 V	1/3/0	1/3/0	-	-
ED	Electrical Characterization	Per Datasheet Parameters	-	Pass	-	-
HAST	Biased HAST 130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
HBM	ESD - HBM (All Pins)	4000 V	-	1/3/0	-	-
HBM	ESD - HBM (Pins 6,7 only)	15000 V	-	1/3/0	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	3/231/0
HTOL	Life Test, 135C	635 Hours	-	-	3/231/0	-
HTSL	High Temp Storage Bake 150C	1000 Hours	3/231/0	-	-	-
HTSL	High Temp Storage Bake 175C	500 Hours	-	-	-	3/135/0
HTSL	High Temp Storage Bake, 170C	420 Hours	-	-	3/231/0	-
LU	Latch-up	(Per JESD78)	-	1/6/0	-	-
TC	Temperature Cycle - 65/150C	500 Cycles	3/231/0	-	3/231/0	3/231/0
WBP	Bond Pull	Wires	3/228/0	1/76/0	-	3/90/0
WBS	Ball Bond Shear	Wires	3/228/0	1/76/0	-	3/90/0

- Qual Device SN65HVD3082EP is qualified at Not Classified

- 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

Qualification Report

Approve Date 21-Jul-2021

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

Type	Test Name / Condition	Duration	Qual Device: SN65HVD3082EDGK	QBS Product Reference: SN65HVD3082EDR	QBS Process Reference: TPS51217DSC	QBS Package Reference: TPS62842DGR
AC	Autoclave 121C	96 Hours	3/231/0	-	3/231/0	3/231/0
CDM	ESD - CDM	1500 V	1/3/0	1/3/0	-	-
ED	Electrical Characterization	Per Datasheet Parameters	-	Pass	-	-
HAST	Biased HAST 130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
HBM	ESD - HBM (All Pins)	4000 V	-	1/3/0	-	-
HBM	ESD - HBM (Pins 6,7 only)	15000 V	-	1/3/0	-	-
HTOL	Life Test, 135C	635 Hours	-	-	3/231/0	-
HTOL	Life Test, 150C	300 Hours	-	-	-	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0	-	3/231/0	3/231/0
LU	Latch-up	(Per JESD78)	-	1/6/0	-	-
TC	Temperature Cycle - 65/150C	500 Cycles	3/231/0	-	3/231/0	3/231/0
WBP	Bond Pull	Wires	3/228/0	1/76/0	-	-
WBS	Ball Bond Shear	Wires	3/228/0	1/76/0	-	-

- QBS: Qual By Similarity
- Qual Device SN65HVD3082EDGK is qualified at LEVEL1-260C

- 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

Qualification Report

Approve Date 21-Jul-2021

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

Type	Test Name / Condition	Duration	Qual Device: SN65176BDR	Qual Device: SN65176BP	Qual Device: SN75176BPSR	QBS Process Reference: TPS51217DSC	QBS Package Reference: SN65HVD3082EP	QBS Package Reference: TCAN1044VDQ1(PG2.0)	QBS Package Reference: TCAN1044VD_Q1(PG1.1/PG1.0)
AC	Autoclave 121C	96 Hours	-	-	-	6/462/0	3/231/0	1/77/0	2/154/0
CDM	ESD - CDM	1000 V	1/3/0	-	-	-	-	-	-
CDM	ESD - CDM	1500 V	-	1/3/0	1/3/0	-	-	-	-
ED	Electrical Characterization	Per Datasheet Parameters	1/Pass	-	-	-	-	-	-
HAST	Biased HAST 130C/85%RH	96 Hours	-	-	-	3/231/0	-	1/77/0	2/154/0
HBM	ESD - HBM	4000 V	1/3/0	-	-	-	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-	-	1/77/0	2/154/0
HTOL	Life Test, 135C	635 Hours	-	-	-	3/231/0	-	-	-
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	-	-	3/231/0	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	3/231/0	-	-	-
HTSL	High Temp Storage Bake 175C	500 Hours	-	-	-	-	-	1/45/0	2/90/0
LU	Latch-up	(Per JESD78)	1/6/0	-	-	-	-	-	-
TC	Temperature Cycle -65/150C	500 Cycles	-	-	-	3/231/0	3/231/0	1/77/0	2/154/0
WBP	Bond Pull	Wires	1/76/0	1/76/0	1/76/0	-	3/228/0	1/30/0	2/60/0
WBS	Ball Bond Shear	Wires	1/76/0	1/76/0	1/76/0	-	3/228/0	1/30/0	2/60/0

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

Type	Test Name / Condition	Duration	QBS Package Reference: TL092CPS	QBS Package Reference: TPIC6A596NE
AC	Autoclave 121C	96 Hours	3/230/0	3/231/0
CDM	ESD - CDM	1000 V	-	-
CDM	ESD - CDM	1500 V	-	-
ED	Electrical Characterization	Per Datasheet Parameters	-	-
HAST	Biased HAST 130C/85%RH	96 Hours	-	3/231/0
HBM	ESD - HBM	4000 V	-	-
HTOL	Life Test, 125C	1000 Hours	-	3/231/0
HTOL	Life Test, 135C	635 Hours	-	-
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0	-
HTSL	High Temp Storage Bake 175C	500 Hours	-	3/135/0
LU	Latch-up	(Per JESD78)	-	-
TC	Temperature Cycle -65/150C	500 Cycles	3/231/0	3/231/0
WBP	Bond Pull	Wires	-	3/90/0
WBS	Ball Bond Shear	Wires	-	3/90/0

- QBS: Qual By Similarity
- Qual Device SN65176BP is qualified at Not Classified
- Qual Device SN75176BPSR is qualified at LEVEL1-260C
- Qual Device SN65176BDR is qualified at LEVEL1-260C

- 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

Qualification Report

Approve Date 02-Aug-2021

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

Type	Test Name / Condition	Duration	Qual Device: SN65176BDR	Qual Device: SN65HVD3082EDR	Qual Device: SN75176BDR	QBS Package Reference: TCAN1042HVDRQ1.
AC	Autoclave 121C	96 Hours	1/77/0	1/77/0	1/77/0	3/231/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	3/231/0
HTOL	Life Test, 150C	300 Hours	-	-	-	3/231/0
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	-	3/135/0
HTSL	High Temp Storage Bake 170C	420 Hours	1/77/0	1/77/0	1/77/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	1/77/0	1/77/0	1/77/0	3/231/0
WBP	Bond Pull	Wires	1/76/0	1/76/0	1/76/0	3/228/0
WBS	Ball Bond Shear	Wires	1/76/0	1/76/0	1/76/0	3/228/0

- QBS: Qual By Similarity
- Qual Devices SN75176BDR, SN65176BDR and SN65HVD3082EDR are qualified at LEVEL1-260C

- 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

For questions regarding this notice, e-mails can be sent to the 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
WW PCN Team	PCN_ww_admin_team@list.ti.com

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