12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20230206000.1B
Qualification of additional Fab site (RFAB) and Assembly site (CDAT) options for select LBC7 devices
Change Notification / Sample Request

Date: March 21, 2023
To: TOKYO ELECTRON DEVICE (DSTR) PCN

Dear Customer:

Revision B is to announce the addition of new devices that were not included on the original PCN notification.

This is an announcement of a change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

Texas Instruments 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.

The changes discussed within this PCN will not take effect any earlier than the proposed first ship date on Page 3 of this notification, unless customer agreement has been reached on an earlier implementation of the change.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

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.

PCN Team
SC Business Services

20230206000.1B
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
THVD1450DGKR	null
THVD1452DGSR	null
THVD1510DGK	null
THVD1450DR	null
THVD1551DGKR	null
THVD1410DR	null
THVD1452DR	null
THVD1552DGSR	null
THVD1552DR	null
THVD1410D	null
THVD1410DGKR	null
THVD1550D	null
THVD1451DRBR	null
SN1450687473DRBR	null
THVD1450DRBR	null
THVD1450DRBT	null
THVD1512DGSR	null
THVD1550DR	null
THVD1510DGKR	null
THVD1550DGK	null
THVD1550DGKR	null
THVD1552DGS	null
THVD1451DRBT	null
THVD1451D	null
THVD1451DR	null
THVD1452D	null
THVD1512DGS	null
THVD1510DR	null
THVD1552D	null
THVD1551DGK	null

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

PCN Number:	20230206000.1B	PCN Date:	March 21, 2023
Title:	Qualification of additional Fab site (RFAB) and Assembly site (CDAT) options for select LBC7 devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	May 6, 2023	Sample requests accepted until:	April 20, 2023*

***Sample requests received after April 20, 2023 will not be supported.**

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:

Revision B is to announce the addition of new devices that were not included on the original PCN notification. The new devices are highlighted in yellow and **bolded** in the product affected section below. The expected first shipment date for the new devices will be 90 days from this notice for these newly added devices only. The proposed 1st ship date of May 6, 2023 still applies for the original set of devices.

Texas Instruments is pleased to announce the qualification of an additional fab (RFAB) and assembly (CDAT) site for selected devices as listed below in the product affected section.

Current Fab Site			Additional Fab Site		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
MIHO	LBC7	200 mm	RFAB	LBC7	300 mm

For the devices in the group 2, construction differences are as follows:

	UTL1 & UTL3	CDAT
Mold Compound	SID#CZ0141	4222198
Mount Compound	SID#PZ0031	4207123
Bond wire composition, diameter	Au, 1.3 mil	Cu, 0.8 mil

Qual details are provided in the Qual Data Section.

Reason for Change:

Continuity of Supply

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
MIHO8	MH8	JPN	Ibaraki
RFAB	**RFB**	**USA**	**Richardson**

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
UTL1	NSE	THA	Bangkok
UTL3	UT3	THA	Bangpakong
CDAT	**CDA**	**CHN**	**Chengdu**

Sample product shipping label (not actual product label)

Product Affected:

Group 1 Devices Adding RFAB as an additional Wafer Fab site:

SN1102023DBZR	**THVD1450DRBT**	TPS53913RVER	TPS562200DDCT
SN1102023LP	**THVD1451D**	TPS53913RVET	TPS562209DDCR
SN1102023LPB	**THVD1451DR**	TPS53915RVER	TPS562209DDCT
SN1401038RTER	**THVD1451DRBR**	TPS53915RVET	TPS563200DDCR
SN1401043RVER	**THVD1451DRBT**	TPS543B20RVFR	TPS563200DDCT
SN1402065RVER	**THVD1452D**	TPS543B20RVFT	TPS563209DDCR
SN1402065RVET	**THVD1452DGS**	TPS543C20ARVFR	TPS563209DDCT
SN1450687473DRBR	**THVD1452DGSR**	TPS543C20RVFR	TPS563210ADDFR
SN1501019ADDCR	**THVD1452DR**	TPS543C20RVFT	TPS563210ADDFT
SN1501019DDCR	**THVD1510D**	TPS544A20RVFR	TPS563210DDFR
SN1501019DDCT	**THVD1510DGK**	TPS544A20RVFT	TPS563210DDFT
SN1501020DDCR	**THVD1510DGKR**	TPS544B20RVFR	TPS563219ADDFR
SN1501020DDCT	**THVD1510DR**	TPS544B20RVFT	TPS563219ADDFT
SN1504025DDCR	**THVD1512DGS**	TPS544C20RVFR	TPS563219DDFR
SN1504025DDCT	**THVD1512DGSR**	TPS544C20RVFT	TPS563219DDFT
SN1504026DDCR	**THVD1530DR**	TPS544C20ZRVFR	TPS564201DDCR
SN1504026DDCT	**THVD1550D**	TPS544C20ZRVFT	TPS564201DDCT
SN1602018RVFR	**THVD1550DGK**	TPS546C20ARVFR	TPS564208DDCR
SN1602018RVFT	**THVD1550DGKR**	TPS546C20ARVFT	TPS564208DDCT
SN1607018DQPR	**THVD1550DR**	TPS546C23RVFR	TPS62240DDCR
SN1607021DQPR	**THVD1551DGK**	TPS546C23RVFT	TPS62240DDCT
SN1611045DDCR	**THVD1551DGKR**	TPS546C23ZRVFR	TPS62260DDCR
SN1804026DDFR	**THVD1552D**	TPS546C23ZRVFT	TPS62260DDCT

SN1804026DDFT	**THVD1552DGS**	TPS548A20RVER	TPS62262DDCR
SN1807012RVFR	**THVD1552DGSR**	TPS548A20RVER-P	TPS62262DDCT
SN1807013RVER	**THVD1552DR**	TPS548A20RVET	TPS62561DDCR
SN1812002RVFR	TLC59116IPWR	TPS548B22RVFR	TPS62561DDCT
SN2101029RVER	TLC59116IRHBR	TPS548B22RVFT	TPS82084SILR
THVD1410D	TPS53318DQPR	TPS549A20RVER	TPS82084SILT
THVD1410DGK	TPS53318DQPT	TPS549A20RVET	TPS82085SILR
THVD1410DGKR	TPS53319DQPR	TPS549B22RVFR	TPS82085SILT
THVD1410DR	TPS53319DQPT	TPS549B22RVFT	TPSM41615MOVR
THVD1450D	TPS53513RVER	TPS55340PWP	TPSM41625MOVR
THVD1450DGK	TPS53513RVER-P	TPS55340PWPR	TPSM846C23MOLR
THVD1450DGKR	TPS53513RVET	TPS55340RTER	TPSM846C24MOLR
THVD1450DR	TPS53515RVER	TPS55340RTET	
THVD1450DRBR	TPS53515RVET	TPS562200DDCR	

Group 2 Devices Adding RFAB Fab site and CDAT as an additional Assembly site:

TPS62240DRVR	TPS62250DRVT	TPS62262DRVR	TPS62291DRVT
TPS62240DRVT	TPS62260ADRVR	TPS62262DRVT	TPS62293DRVR
TPS62242DRVR	TPS62260ADRVT	TPS62263DRVR	TPS62562DRVR
TPS62242DRVT	TPS62260DRVR	TPS62263DRVT	TPS62562DRVT
TPS62243DRVR	TPS62260DRVT	TPS62290DRVR	TPS62590DRVR
TPS62243DRVT	TPS62261DRVR	TPS62290DRVT	TPS62590DRVT
TPS62250DRVR	TPS62261DRVT	TPS62291DRVR	

Qualification Report

Approve Date 6-October-2010

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: TPS51217DSC
ED	Electrical Characterization	Per Datasheet Parameters	Pass
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0
AC	Autoclave, 121C	96 Hours	3/231/0
HBM	ESD - HBM	2000 V	3/9/0
CDM	ESD - CDM	500 V	3/9/0
HTOL	Life Test, 135C	635 Hours	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/231/0
LU	Latch-up	(per JESD78)	3/18/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/18/0

- Qual Device TPS51217DSC is qualified at LEVEL2-260C

- 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

Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)
Approved 15-Feb-2022

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

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPS62261TDRVRQ1	QBS Package Reference: Q25171QWDRCRQ1
Test Group A – Accelerated Environment Stress Tests									
	PC	A1	JEDEC J-STD-020 JESD22-A113	3		MSL2/260C	-	3/693/0	3/693/0
	HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 hours	1/77/0 & QBS	3/231/0
	AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 hours	3/231/0	3/231/0
	TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 cycles	3/231/0	3/231/0
	TC-WBP	A4	MIL-STD883 Method 2011	1	60	Bond Pull over Ball Post T/C 500 Cycles	Wires	QBS	1/30/0
	PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	1/45/0
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 hours	QBS	3/231/0
Test Group B – Accelerated Lifetime Simulation Tests									
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 hours	B1 Data carried over from original TPS62261TDRVRQ1 qualification	
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 hours	B2 Data carried over from original TPS62261TDRVRQ1 qualification	
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	
Test Group C – Package Assembly Integrity Tests									
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	-	1/30/0	
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear, Cpk >1.67	Wires	1/30/0	
	SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Free Solder	QBS to package family data	1/15/0
	SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Solder	QBS to package family data	1/15/0

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPS62261TDRVRQ1	QBS Package Reference: Q25171QWDRCRQ1
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	QBS to package family data	3/30/0
Test Group D – Die Fabrication Reliability Tests									
	EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	-
	TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	Completed Per Process Technology Requirements	-
	HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	-
	NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements	-
	SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	-
Test Group E – Electrical Verification Tests									
	HBM	E2	AEC Q100-002	1	3	ESD - HBM	2000 V	E2 Data carried over from original TPS62261TDRVRQ1 qualification	
	CDM	E3	AEC Q100-011	1	3	ESD - CDM	500 V	E3 Data carried over from original TPS62261TDRVRQ1 qualification	
	LU	E4	AEC Q100-004	1	6	Latch-up	Per AEC Q100-004	E4 Data carried over from original TPS62261TDRVRQ1 qualification	
	ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67	E5 Data carried over from original TPS62261TDRVRQ1 qualification	

- QBS: Qual By Similarity

A1 (PC): Preconditioning:
Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable.

Ambient Operating Temperature by Automotive Grade Level:
Grade 0 (or E): -40°C to +150°C
Grade 1 (or Q): -40°C to +125°C
Grade 2 (or T): -40°C to +105°C
Grade 3 (or I) : -40°C to +85°C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):
Room/Hot/Cold : HTOL, ED
Room/Hot : THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU
Room : AC/uHAST

Green/Pb-free Status:
Qualified Pb-Free (SMT) and Green

Qualification Report
Approve Date 03-March-2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: THVD1550D	Qual Device: THVD1510DGK	Qual Device: THVD1552DGS	QBS Reference: TPS51217DSCR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	3/231/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	3/231/0
HTOL	B1	Life Test	135C	635 Hours	-	-	-	3/231/0
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	1/76/0	1/76/0	1/76/0	-
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	1/76/0	1/76/0	1/76/0	-
ESD	E2	ESD CDM	-	1500 Volts	1/3/0	1/3/0	1/3/0	3/9/0
ESD	E2	ESD HBM (Bus Pins)	-	16000 Volts	1/3/0	1/3/0	1/3/0	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	3/9/0
ESD	E2	ESD HBM	-	8000 Volts	1/3/0	1/3/0	1/3/0	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	1/3/0	1/3/0	3/18/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	-	1/30/0	3/60/0

- QBS: Qual By Similarity

- Qual Device THVD1550D is qualified at MSL1 260C
- Qual Device THVD1510DGK is qualified at MSL1 260C
- Qual Device THVD1552DGS is qualified at MSL1 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 03-March-2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: THVD1450DRBR	Qual Device: THVD1410DGKR	Qual Device: THVD1452DR	QBS Reference: TPS51217DSCR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	3/231/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	3/231/0
HTOL	B1	Life Test	135C	635 Hours	-	-	-	3/231/0
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	1/76/0	1/76/0	1/76/0	-
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	1/76/0	1/76/0	1/76/0	-
ESD	E2	ESD CDM	-	1500 Volts	-	1/3/0	1/3/0	3/9/0
ESD	E2	ESD HBM (Bus Pins)	-	16000 Volts	-	1/3/0	1/3/0	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	3/9/0
ESD	E2	ESD HBM	-	8000 Volts	-	1/3/0	1/3/0	-
LU	E4	Latch-Up	Per JESD78	-	-	1/3/0	1/3/0	3/18/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-	3/60/0

- QBS: Qual By Similarity

- Qual Device THVD1450DRBR is qualified at MSL1 260C
- Qual Device THVD1410DGKR is qualified at MSL1 260C
- Qual Device THVD1452DR is qualified at MSL1 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 contact below or your local Field Sales Representative.

Location	E-Mail
WW Change Management Team	PCN_ww_admin_team@list.ti.com

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