12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20230130003.1
Qualification of additional Fab sites (CFAB & DL-LIN) using qualified Process Technology and additional Assembly sites options for select devices
Change Notification / Sample Request

Date: February 01, 2023
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 multiyear transition plan for our two remaining factories with 150-millimeter production (DFAB in Dallas, Texas, and SFAB in Sherman, Texas). DFAB will remain open, but will focus on 200-mm production, with a smaller set of technologies. SFAB will close no earlier than 2024 and no later than 2025. 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

20230130003.1
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
TLC2252CDR	null
TLC2272ACD	null
TLC2272AIDR	null
TLC2272CDR	null
TLV2374ID	null
TLV272CDR	null
TLV272IDR	null
TLV274CDR	null
TPS3705-33DR	null
TPS3705-50DR	null
TLC072CD	null
TLC072CDR	null
TLC2272IDR	null
TLC2274ACDR	null
TLV2474ID	null
TLV271IDR	null
TLV2372ID	null
TLV274IDR	null
TLC2274AID	null
TLV2252AIDR	null
TLV2252IDR	null
TLV2254IDR	null
TLV274ID	null
TPS3705-33D	null
TLV2462IDR	null
TLC084IDR	null
TLV2372IDR	null
TPS3705-30DR	null
TLC072IDR	null
TLC072AIDR	null
TLV2374IDR	null
TLC2274ACD	null

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

PCN Number:	20230130003.1	PCN Date:	February 01, 2023
Title:	Qualification of additional Fab sites (CFAB & DL-LIN) using qualified Process Technology and additional Assembly sites options for select devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	May 1, 2023	Sample requests accepted until:	Mar 3, 2023*

***Sample requests received after Mar 3, 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:

Qualification of additional Fab sites (CFAB & DL-LIN) using qualified Process Technology and additional Assembly sites options for the list of devices in the product affected section below.

Current Fab Site			Additional Fab Site		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
DL-LIN	LBC3S	150mm	CFAB	LBC3S	200mm
			DL-LIN		

All devices listed below are currently in one or two of the following 3 Assembly sites: TI Malaysia, TI Taiwan, or TI Mexico. After expiration of this PCN, all devices can be built from any of these 3 assembly sites. BOM Materials are the same between all three sites.

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:

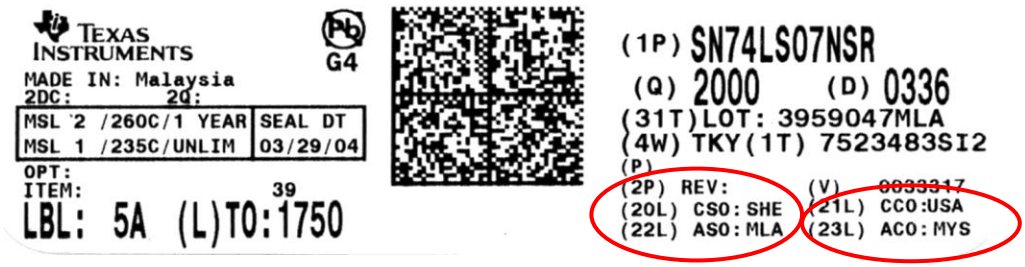
Fab Site Information:

Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
DL-LIN	DLN	USA	Dallas
CFAB	**CU3**	**CHN**	**Chengdu**
DL-LIN	**DLN**	**USA**	**Dallas**

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
TI Mexico	MEX	MEX	Aguascalientes
TI Malaysia	MLA	MYS	KUALA LUMPUR
TI Taiwan	TAI	TWN	Chung Ho, New Taipei City

Sample product shipping label (not actual product label)



Product Affected:

Group 1 Device list (CFAB as additional Fab site & TI Mexico, Malaysia, & Taiwan Assembly sites)

TCA4311ADR	TLC2254IDR	TLC2274ACDR	TLV2264AID
TLC084AID	TLC2264AID	TLC2274AID	TLV2264AIDR
TLC084AIDR	TLC2264AIDR	TLC2274AIDR	TLV2264ID
TLC084CD	TLC2264CD	TLC2274CD	TLV2264IDR
TLC084CDR	TLC2264CDR	TLC2274CDR	TLV2371ID
TLC084ID	TLC2264ID	TLC2274ID	TLV2371IDR
TLC084IDR	TLC2264IDR	TLC2274IDR	TLV2374ID
TLC2252AID	TLC2272ACD	TLV2252AID	TLV2374IDR
TLC2252AIDR	TLC2272ACDR	TLV2252AIDR	TLV271CDR
TLC2252CD	TLC2272AID	TLV2252ID	TLV271ID
TLC2252CDR	TLC2272AIDR	TLV2252IDR	TLV271IDR
TLC2252IDR	TLC2272CD	TLV2254AID	TLV274CD
TLC2254AID	TLC2272CDR	TLV2254AIDR	TLV274CDR
TLC2254AIDR	TLC2272ID	TLV2254ID	TLV274ID
TLC2254CDR	TLC2272IDR	TLV2254IDR	TLV274IDR
TLC2254ID	TLC2274ACD		

Group 2 Device list (CFAB & DFAB8 as additional Fab sites & TI Mexico, Malaysia, & Taiwan Assembly sites)

TLC072AID	TLC082AID	TLV2462AIDR	TLV2474ID
TLC072AIDR	TLC082AIDR	TLV2462CD	TLV2474IDR
TLC072CD	TLC082CD	TLV2462CDR	TLV272CDR
TLC072CDR	TLC082CDR	TLV2462ID	TLV272ID
TLC072ID	TLC082ID	TLV2462IDR	TLV272IDR
TLC072IDR	TLC082IDR	TLV2463AIDR	TPS3705-30D
TLC074AID	TLC083CDR	TLV2463CDR	TPS3705-30DR
TLC074AIDR	TLV2370IDR	TLV2463ID	TPS3705-33D
TLC074CD	TLV2372ID	TLV2474AID	TPS3705-33DR
TLC074CDR	TLV2372IDR	TLV2474AIDR	TPS3705-50D
TLC074ID	TLV2373IDR	TLV2474CD	TPS3705-50DR
TLC074IDR	TLV2462AID	TLV2474CDR	

For alternate parts with similar or improved performance, please visit the product page on TI.com

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

Type	Test Name / Condition	Duration	Qual Device: TLV2401QDBVRQ1	QBS Process Reference: MAX3243IPWG4DL
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0	3/231/0
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	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	-
HTOL	Life Test, 150C	408 Hours	3/231/0	3/231/0
ELFR	Early Life Failure Rate, 125C	48 Hours	-	3/2400/0
HBM	ESD - HBM - Q100	500 V	1/3/0	-
CDM	ESD - CDM - Q100	1500 V	1/3/0	-
LU	Latch-up	(per JESD78)	1/6/0	-
ED	Electrical Characterization	Per Datasheet parameters	3/90/0	-

- QBS: Qual By Similarity
- Qual Device TLV2401QDBVRQ1 is qualified at LEVEL1-260C

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
TI Qualification ID: 20190124-128331

TEXAS INSTRUMENTS

TI Information
Selective Disclosure

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

Type	Test Name / Condition	Duration	Qual Device: TLC2264AQPWRQ1	Qual Device: TLC2264AIDRCT	QBS Process Reference: CD3301RHHR	QBS Package Reference: TLV9064QPWRQ1
HTOL	Life Test, 150C	300 Hours	1/3/0	-	3/231/0	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	3/231/0	1/45/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	-
AC	Autoclave 121C	96 Hours	-	-	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	3/231/0
HBM	ESD - HBM	2000 V	1/3/0	-	1/3/0	-
CDM	ESD - CDM	750 V	1/3/0	--	1/3/0	-
LU	Latch-up	(per JESD78)	1/6/0	-	1/6/0	-
ED	Electrical Characterization	Per Datasheet Parameters	1/30/0	-	1/30/0	-
MQ	Assembly MQ	Per Site Specifications	Pass	Pass	Pass	Pass

- QBS: Qual By Similarity
- Qual Device TLC2264AQPWRQ1is 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

TI Qualification ID: 20200903-135990

TEXAS INSTRUMENTS

TI Informational
Selective Disclosure

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

Type	Test Name / Condition	Duration	Qual Device: TLV2464CPWR	QBS Process Reference: CD3301RHHR	QBS Package Reference: TPS2042BD	QBS Package Reference: TPS2419DR
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
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	-	3/231/0
AC	Autoclave 121C	96 Hours	-	3/231/0	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0
HBM	ESD - HBM	4000 V	1/3/0	1/3/0	-	-
CDM	ESD - CDM	1000 V	1/3/0	1/3/0	-	-
LU	Latch-up	(per JESD78)	1/6/0	1/6/0	-	-
ED	Electrical Characterization	Per Datasheet Parameters	1/30/0	1/30/0	-	-
MQ	Assembly MQ	Per Site Specifications	Pass	Pass	Pass	Pass

- QBS: Qual By Similarity
- Qual Device TLV2464CPWR 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

TI Qualification ID: 20210308-139022

Qualification Report

Product Attributes

Attributes	Qual Device: 1P8T245NSR	Qual Device: ADS900E	Qual Device: PCM1801U	Qual Device: SN65HVD1781DR	Qual Device: TCA9546ADR	Qual Device: TCA9546ADR_RLF	Qual Device: TL494IDR
Assembly Site	MLA	MLA	MLA	MLA	MLA	MLA	FMX
Package Family	SOP	SSOP	SOIC	SOIC	SOIC	SOIC	SOIC
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V0
Wafer Fab Supplier	FFAB	TSMC WF2	TSMC WF2	DM5	MH8	MH8	SFAB
Wafer Fab Process	ASL3C	0.6-DPDM	0.6-DPDM	LBC5X	LBC7	LBC7	JI1

Product Attributes

Attributes	Qual Device: TLC320AD77CDBR	Qual Device: TPS2074DB	Qual Device: TPS2101D	Qual Device: TPS2214ADB	Qual Device: TSS721AD	Qual Device: UC27131D	QBS Package Reference: ULQ2003AQDRQ1_STDLF
Assembly Site	MLA	MLA	TAI	MLA	TAI	FMX	FMX
Package Family	SSOP	SSOP	SOIC	SSOP	SOIC	SOIC	SOIC
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	ANAM-1, DFAB	DFAB	DFAB	DFAB	SFAB	SFAB	SFAB
Wafer Fab Process	33A21X3, 33C10X3	LBC3S	LBC3S	LBC3S	JI1	JI-PWR1	JI1-SLM

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL1-260C: TL494IDR, TSS721AD, 1P8T245NSR, PCM1801U, TLC320AD77CDBR, TPS2074DB, TPS2101D, SN65HVD1781DR, TCA9546ADR, TPS2214ADB
- Qual Devices qualified at LEVEL2-260C: ADS900E, UC27131D
- Device TLC320AD77CDBR contains multiple dies.

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

Type	Test Name / Condition	Duration	Qual Device: 1P8T245NSR	Qual Device: ADS900E	Qual Device: PCM1801U	Qual Device: SN65HVD1781DR	Qual Device: TCA9546ADR	Qual Device: TCA9546ADR_RLF	Qual Device: TL494IDR
AC	Autoclave 121C	96 Hours	3/231/0	-	3/231/0	-	3/231/0	3/231/0	-
FLAM	Flammability (UL 94V-0)	-	-	-	-	-	3/15/0	3/15/0	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	-	-	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0	-	3/231/0	-	3/231/0	3/231/0	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass	Pass	Pass	Pass	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/222/0	3/231/0	3/231/0	3/231/0	3/231/0	-
TC-BP	Post TC Bond Pull	Wires	-	-	-	3/90/0	3/162/0	3/90/0	-

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

Type	Test Name / Condition	Duration	Qual Device: TLC320AD77CDBR	Qual Device: TPS2074DB	Qual Device: TPS2101D	Qual Device: TPS2214ADB	Qual Device: TSS721AD	Qual Device: UC27131D	QBS Package Reference: ULQ2003AQDRQ1_STDLF
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	-	3/231/0	-	-	3/231/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	-	-	3/231/0
HTOL	Life Test, 150C	408 Hours	-	-	-	-	-	-	3/231/0
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	-	-	-	-	1/45/0
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0	3/231/0	-	3/231/0	-	-	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass	Pass	Pass	Pass	-
MQ	Manufacturability (Auto Assembly)	(per automotive requirements)	-	-	-	-	-	-	Pass
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	-	3/231/0
TC-BP	Post TC Bond Pull	Wires	-	-	-	-	-	-	1/30/0

- 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

TI Qualification ID: 20141019-109101, 20140520-104903 (QBS)

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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