12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20230327006.1
Qualification of new Fab site (CFAB), Die Revision, Datasheet update, additional Assembly Site (MLA) and BOM options for select devices
Change Notification / Sample Request

Date: March 30, 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

20230327006.1
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
OP07DDR	null
OP-07DPS	null
OP-07DP	null
OP-07DPSR	null
OP07CP	null
OP07DP	null
OP07CDR	null
OP07DD	null

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

PCN Number:	20230327006.1	**PCN Date:**	March 30, 2023
Title:	Qualification of new Fab site (CFAB) using qualified Process Technology, Die Revision, Datasheet update, additional Assembly Site (MLA) and BOM options for select devices		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Jun 30, 2023	**Sample requests accepted until:**	April 30, 2023

***Sample requests received after April 30, 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:

Texas Instruments is pleased to announce the qualification of a new fab & process technology, (CFAB, JI3), die revision, and additional Assembly Site (MLA) and BOM options for selected devices 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**
SFAB	JI1	150 mm	CFAB	JI3	200 mm

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

Assembly BOM options are noted below:

Group 1 Device:

	Current		Additional	
	ASESH	**FMX**	**FMX**	**MLA**
Wire type	0.96 mil Cu	0.96 mil Cu	0.8 mil Cu	0.8 mil Cu
Lead finish	Matte Sn	NiPdAu	NiPdAu	NiPdAu
Mold Compound	EN2000509	4211880	4211880	4211880
Mount Compound	EY1000063	4147858	4147858	4147858
Pin 1 marking	Stripe	Stripe	Dot/Dimple	Dot/Dimple

Group 2 Device:

	Current	Additional
Wire diameter	0.96mil Cu	0.8mil Cu

The datasheet 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.

4 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Revision G (November 2014) to Revision H (July 2022) **Page**

- Added supply condition to wide input voltage range feature bullet....1
- Changed VCC_+ to V+ and VCC_- to V–....3
- Changed supply voltage abbreviation from VCC+ and VCC– to V_S in *Absolute Maximum Ratings* and throughout the data sheet....4
- Changed note 5 in *Absolute Maximum Ratings* to include a note that fast-ramping shorts to the positive supply can damage the device....4
- Changed Electrostatic discharge Human-body model and Charged-device model from 1000 V to ±1000 V....4
- Added new values to *Thermal Information* 4
- Changed *Electrical Characteristics* format 5
- Changed parameter name from supply-voltage sensitivity to power supply rejection ratio in *Electrical Characteristics* 5
- Changed parameter name from input offset voltage to Input voltage noise density in *Electrical Characteristics* 5
- Changed input current noise density unit from nV/√Hz to pA/√Hz in *Electrical Characteristics* 5
- Changed parameter name from large-signal differential voltage gain to open-loop voltage gain in *Electrical Characteristics* 5
- Changed parameter name from peak output voltage to voltage output swing in Electrical Characteristics....5
- Changed functional block diagram....7
- Changed text to clarify how to adjust input mismatches using null pins in *Application Information* 8

Product Family	Current Datasheet Number	New Datasheet Number	Link to full datasheet
OP07C, OP07D, OP07	SLOS099G	SLOS099H	https://www.ti.com/product/OP07

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
SH-BIP-1	SHE	USA	Sherman
CFAB	**CU3**	**CHN**	**Chengdu**

Die Rev:

Current	New
Die Rev [2P]	**Die Rev [2P]**
-	**B**

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
ASESH	ASH	CHN	Shanghai
TI Mexico	MEX	MEX	Aguascalientes
TI Malaysia	**MLA**	**MYS**	**Kuala Lumpur**

Sample product shipping label (not actual product label)

Product Affected:

Group 1 Device list (Wafer fab, die revision, Assembly Site/BOM and Datasheet):

OP07CD	OP07CDG4	OP07CDRE4
OP07CDE4	OP07CDR	OP07CDRG4

Group 2 Device list (Wafer fab, die revision, Assembly BOM and Datasheet):

OP07CP	OP07CPE4

Group 3 Device list (Datasheet changes only):

OP07DD	OP07DP	OP-07DPS	OP07-W
OP07DDR	OP-07DP	OP-07DPSR	
OP07DDRE4	OP07DPE4	OP-07DPSRG4	

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

Qualification Report

Approve Date 03-May-2022

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

	Type	Test Name / Condition	Duration	Qual Device: OP07CD	QBS Process Reference: LM2904BQDRQ1	QBS Package Reference: LM393BIDR	QBS Package Reference: TCAN1043DQ1 (PG3.0)	QBS Package Reference: TCAN1043DQ1(PG1.0)	QBS Package Reference: TLV8542D
	HTOL	Auto High Temp Operating Life Grade 1, 150C	408 Hours	-	3/231/0	-	-	-	-
	HTOL	Life Test, 140C	480 Hours	-	-	-	1/77/0	-	-
	HTOL	Life Test, 150C	300 Hours	3/231/0	-	-	-	-	-
	ELFR	Early Life Failure Rate, 125C	48 Hours	-	3/2400/4 (1)	-	-	-	-
	HBM	ESD - HBM	1000 V	1/3/0	-	-	-	-	-
	HBM	ESD - HBM	2000 V	-	3/9/0	-	-	-	-
	CDM	ESD - CDM	1000 V	1/3/0	-	-	-	-	-
	CDM	ESD - CDM	1500 V	-	3/9/0	-	-	-	-
	LU	Latch-up	Per JESD78	1/6/0	3/18/0	-	1/6/0	-	1/6/0
	ED	Electrical Characterization	Per Datasheet Parameters	1/30/0	3/90/0	-	3/90/0	-	-
	TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	1/77/0	1/77/0	2/154/0	1/77/0
	UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	3/231/0	1/77/0	-	-	-
	AC	Autoclave 121C	96 Hours	-	-	-	1/77/0	2/154/0	1/77/0
	HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	1/77/0	1/77/0	2/154/0	1/77/0

	Type	Test Name / Condition	Duration	Qual Device: OP07CD	QBS Process Reference: LM2904BQDRQ1	QBS Package Reference: LM393BIDR	QBS Package Reference: TCAN1043DQ1 (PG3.0)	QBS Package Reference: TCAN1043DQ1(PG1.0)	QBS Package Reference: TLV8542D
	HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	1/77/0	-	-	-
	HTSL	High Temp Storage Bake 175C	500 Hours	-	3/135/0	-	1/45/0	-	-
	LI	Lead Pull to Destruction	Leads	-	-	-	1/42/0	-	-
	PD	Physical Dimensions	Cpk>1.67	-	3/30/0	-	2/20/0	1/10/0	-
	SD	Surface Mount Solderability	Pb	-	1/30/0	-	-	-	-
	SD	Surface Mount Solderability	Pb Free Solder	-	-	-	-	1/15/0	-
	SD	Surface Mount Solderability	Pb Solder	-	-	-	-	1/15/0	-

- 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

Note (1): ELFR fails due to a defect screenable at production test.

Qualification Report
Approve Date 02-September-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: OP07CP	QBS Process Reference: LM2904BQDRQ1	QBS Package Reference: LM358BIDR	QBS Product Reference: OP07CD
HAST	A2	Biased HAST	130C	96 Hours	-	3/231/0	3/231/0	-
UHAST	A3	Unbiased HAST	130C	96 Hours	1/77/0	3/231/0	3/231/0	-
TC	A4	Temperature Cycle	-65/150C	500 Cycles	1/77/0	3/231/0	3/231/0	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	3/135/0	3/231/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	3/231/0
HTOL	B1	Life Test	150C	300 Hours	-	-	3/231/0	-
HTOL	B1	Life Test	150C	408 Hours	-	3/231/0	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/4[1,2]	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	3/30/0	-	-
ESD	E2	ESD CDM	-	1000 Volts	1/3/0	-	-	-
ESD	E2	ESD CDM	-	250 Volts	-	-	3/9/0	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	-	-	3/9/0	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	-	3/9/0	-	-
LU	E4	Latch-Up	Per JESD78	-	-	-	3/18/0	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	3/90/0	3/90/0	1/30/0
FTY	E6	Final Test Yield	-	-	-	-	3/0/0	-

- QBS: Qual By Similarity
- Qual Device OP07CP is qualified at NOT CLASSIFIED 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 03-May-2022

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

	Type	Test Name / Condition	Duration	Qual Device: OP07CD	QBS Product Reference: OP07CD	QBS Process Reference: LM2904BQDRQ1	QBS Package Reference: LM2903BQDRQ1	QBS Package Reference: TLV9032QDRQ1
	HTOL	Auto High Temp Operating Life Grade 1, 150C	408 Hours	-	-	3/231/0	-	-
	HTOL	Life Test, 125C	1000 Hours	-	-	-	-	3/231/0
	HTOL	Life Test, 150C	300 Hours	-	3/231/0	-	-	1/77/0
	ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/4 (1)	-	-
	HBM	ESD - HBM	1000 V	-	1/3/0	-	-	-
	HBM	ESD - HBM	2000 V	-	-	3/9/0	-	-
	CDM	ESD - CDM	1000 V	-	1/3/0	-	-	-
	CDM	ESD - CDM	1500 V	-	-	3/9/0	-	-
	LU	Latch-up	Per JESD78	-	1/6/0	3/18/0	-	-
	ED	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	3/90/0	-	-
	HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	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	-	-
	TC	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	-	3/231/0
	UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	3/231/0	-	3/231/0
	SD	Free Surface Mount Solderability	Pb Free	-	-	1/30/0	1/15/0	-

	Type	Test Name / Condition	Duration	Qual Device: OP07CD	QBS Product Reference: OP07CD	QBS Process Reference: LM2904BQDRQ1	QBS Package Reference: LM2903BQDRQ1	QBS Package Reference: TLV9032QDRQ1
	PD	Auto Physical Dimensions	Cpk>1.67	-	-	3/30/0	-	-
	SD	Surface Mount Solderability	Pb	-	-	1/30/0	-	-
	YLD	FTY and Bin Summary	-	1/Pass	-	-	-	-

- 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

Note (1): ELFR fails due to a defect screenable at production test.

For questions regarding this notice, e-mails can be sent to the contact shown 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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