12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20220217000.1
Qualification of new Fab site (CFAB) using qualified Process Technology, Die Revision, updated BOMs and additional Assembly options for select devices
Change Notification / Sample Request

Date: February 22, 2022
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

20220217000.1
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
LM2903DGKR	null
LM393DGKR	null
LM293ADGKR	null
LM393ADGKR	null
LM293DGKR	null

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

PCN Number:	20220217000.1	**PCN Date:**	February 22, 2022
Title:	Qualification of new Fab site (CFAB) using qualified Process Technology, Die Revision, updated BOMs, and additional Assembly options for select devices		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	May 21, 2022	**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 (CFAB, JI3), updated BOMs, and assembly (HFTF) 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**
SFAB	JI1	150 mm	CFAB	JI3	200 mm

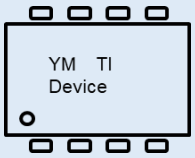
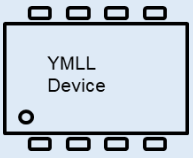
The die was also changed as a result of the process change.

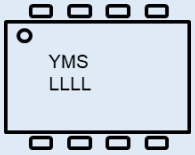
Construction differences are noted below:

	ASESH	HNA	UTL2	HFTF (old)**	HFTF (new)
Mount Compound	SID#EY1000063	SID#400180	SID#PZ0013	SID#A-18	SID#A-18
Mold Compound	SID#EN2000763	SID#450179	SID#CZ0094	SID#R-30	SID#R-30
Lead finish	NiPdAu	NiPdAu	NiPdAu	Matte Sn	Matte Sn
Bond wire diameter	Cu, 1.0 mils	Au, 1.0 mils	Au, 1.0 mils	Cu, 1.0 mils	Cu, 0.8 mils

** Applies to LM2903DGKR, LM293DGKR, & LM393DGKR only

Package Marking Differences:

	ASESH/HNA/UTL2	HFTF
Top Side	 TI = TI CHARACTER YM = YEAR MONTH O = PIN 1	 YM = YEAR MONTH DATE CODE LL = LAST 2 DIGIT IN ASSY LOT CODE O = PIN 1

Bottom Side	 YM = YEAR MONTH DATE CODE S = ASSEMBLY SITE CODE LLLL = LOT TRACE CODE O = PIN 1	NONE

G4 (NiPdAu lead finish) versions of this device family are included in EOL notice PDN#20220217001.3.

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

Die Rev:

Current	**New**
Die Rev [2P]	**Die Rev [2P]**
A, B	**A**

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
ASESH	ASH	CHN	Shanghai
HNA	HNT	THA	Ayutthaya
UTL2	NS2	THA	Bangpakong, Chachoengsao
HFTF	**HFT**	**CHN**	**Hefei**

Sample product shipping label (not actual product label)

Product Affected:

Group 1 - CFAB/Process migration, Die Revision, adding HFTF A/T Site and BOM updates:	
LM393ADGKR	LM293ADGKR

Group 2 - CFAB/Process migration, Die Revision and Assembly BOM updates:		
LM2903DGKR	LM293DGKR	LM393DGKR

Qualification Report

Approve Date 09-Jul-2021

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

Type	Test Name / Condition	Duration	Qual Device: LM2903DGKR	QBS Product Reference: LM2903BQDRQ1	QBS Product / Package Reference: LM2903BQDGKRQ1	QBS Package Reference: LM358BIDGKR
HTOL	Life Test, 150C	300 Hours	-	3/231/0	1/77/0	-
HAST	Biased HAST, 110C/85%RH	264 Hours	-	-	3/231/0	-
UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	3/231/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	-
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	3/231/0	-
HBM	ESD - HBM	2000V	-	3/9/0	1/3/0	-
CDM	ESD - CDM	1000V	-	-	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	-
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	-	-	-	1/12/0
WBP	Bond Pull	Wires	-	-	3/300/0	1/76/0
WBS	Ball Bond Shear	Wires	-	-	3/300/0	1/76/0

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- QBS: Qual By Similarity
- Qual Device LM2903DGKR is qualified at LEVEL1-260C

- 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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