12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20230228000.1

Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly & BOM option for select devices

Change Notification / Sample Request

Date: March 07, 2023
To: PREMIER FARNELL 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

20230228000.1
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
LM4040C41IDBZR	null
LM4040CIM3-4.1/NOPB	null
LM4040A25IDBZR	null

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

PCN Number:	20230228000.1	PCN Date:	March 07, 2023
Title:	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly & BOM option for select devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	June 5, 2023	Sample requests accepted until:	April 7, 2023*

***Sample requests received after April 7, 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 (RFAB, LBC9) and Assembly & BOM option for selected devices as listed below in the product affected section. Construction differences are noted below:

Current Fab Site			Additional Fab Site		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
SFAB	J12	150 mm	RFAB	LBC9	300mm
GFAB	LFAST	200 mm			

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

Additionally, there will be a BOM/Assembly site options introduced for these devices:

Group 1 Device Construction table:

	TIEM	TFME	TIPI	CDAT
Bond wire diameter composition, diameter	Cu, 0.96 mil or Au, 1.0 mil	Cu, 0.8mil	Cu, 0.8 mil	Cu, 0.8 mil
Lead finish	Matte Sn	Matte Sn	NiPdAu	Matte Sn
Mount Compound	4213245	SID#A-03	8095733	4207123
Mold Compound	8097131	SID#R-27	4222198	4222198
ECAT	G3	G3	G4	G3
Pin one designator	Stripe or notch	dot	dot	dot

Group 2 Device Construction table:

	ASEWH	UTL2	TFME	TIPI	CDAT
Bond wire diameter composition, diameter	Au, 1.0 mil	Au, 1.0 mil	Cu, 0.8mil	Cu, 0.8 mil	Cu, 0.8 mil
Lead finish	NiPdAu	NiPdAu	Matte Sn	NiPdAu	Matte Sn
Mount Compound	SID#1120999A2	SID#PZ0001	SID#A-03	8095733	4207123
Mold Compound	SID#4020039A1	SID#CZ0096	SID#R-27	4222198	4222198
ECAT	G4	G4	G3	G4	G3
Pin one designator	Stripe or notch	Stripe or notch	dot	dot	dot

Upon expiry of this PCN TI will combine lead free solutions in a single ***standard part number***, for the devices in group 3. For example; ***LM4040AIM3-2.5/NOPB*** – can ship with both Matte Sn and NiPdAu/Ag.

Example:

- Customer order for 7500 units of LM4040AIM3-2.5/NOPB with 2500 units SPQ (Standard Pack Quantity per Reel).

- TI can satisfy the above order in one of the following ways.
  - I. 3 Reels of NiPdAu finish.
  - II. 3 Reels of Matte Sn finish
  - III. 2 Reels of Matte Sn and 1 reel of NiPdAu finish.
  - IV. 2 Reels of NiPdAu and 1 reel of Matte Sn finish.

Pb (lead) plated variants of the Group 1 devices are included in EOL notice PDN #20230228001.3. G4 variants of the Group 2 devices are included in EOL notice PDN#20230228002.3.

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
GFAB	GF6	GBR	Greenock
RFAB	**RFB**	**USA**	**Richardson**

Die Rev:

Current	**New**
Die Rev [2P]	**Die Rev [2P]**
A, B, C, D, E, -	**A**

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
TIEM	CU6	MYS	Melaka
ASEWH	AWH	CHN	Weihai
UTL2	NS2	THA	Bangpakong
TIPI	**PHI**	**PHL**	**Baguio City**
TFME	**NFM**	**CHN**	**Economic Development Zone**
CDAT	**CDAT**	**CHN**	**Chengdu**

Sample product shipping label (not actual product label)

Product Affected:

Group 1 Device list:

LM4040AIM3-2.0/NOPB	LM4040BIM3X-5.0/NOPB	LM4040DEM3-2.5/NOPB	LM4040EIM3X-2.5/NOPB
LM4040AIM3-2.5/NOPB	LM4040CEM3-2.5/E7001881	LM4040DEM3-3.0/NOPB	LM4040EIM3X-3.0/NOPB
LM4040AIM3-3.0/NOPB	LM4040CEM3-2.5/NOPB	LM4040DEM3-5.0/NOPB	LM4041AIM3-1.2/NOPB
LM4040AIM3-4.1/NOPB	LM4040CEM3-3.0/NOPB	LM4040DEM3X-2.5/NOPB	LM4041AIM3X-1.2/NOPB
LM4040AIM3-5.0/NOPB	LM4040CEM3-5.0/NOPB	LM4040DEM3X-5.0/NOPB	LM4041BIM3-1.2/NOPB
LM4040AIM3X-2.0/NOPB	LM4040CEM3X-3.0/NOPB	LM4040DIM3-2.0/NOPB	LM4041BIM3X-1.2/NOPB
LM4040AIM3X-2.5/NOPB	LM4040CEM3X-5.0/NOPB	LM4040DIM3-2.5/NOPB	LM4041CEM3-1.2/NOPB

LM4040AIM3X-3.0/NOPB	LM4040CIM3-2.0/NOPB	LM4040DIM3-3.0/NOPB	LM4041CEM3X-1.2/NOPB
LM4040AIM3X-4.1/NOPB	LM4040CIM3-2.5/NOPB	LM4040DIM3-4.1/NOPB	LM4041CIM3-1.2/NOPB
LM4040AIM3X-5.0/NOPB	LM4040CIM3-3.0/NOPB	LM4040DIM3-5.0/NOPB	LM4041CIM3X-1.2/NOPB
LM4040BIM3-2.0/NOPB	LM4040CIM3-4.1/NOPB	LM4040DIM3X-2.0/NOPB	LM4041DEM3-1.2/NOPB
LM4040BIM3-2.5/NOPB	LM4040CIM3-5.0/NOPB	LM4040DIM3X-2.5/NOPB	LM4041DEM3X-1.2/NOPB
LM4040BIM3-3.0/NOPB	LM4040CIM3X-2.0/NOPB	LM4040DIM3X-3.0/NOPB	LM4041DIM3-1.2/NOPB
LM4040BIM3-4.1/NOPB	LM4040CIM3X-2.5/NOPB	LM4040DIM3X-4.1/NOPB	LM4041DIM3X-1.2/NOPB
LM4040BIM3-5.0/NOPB	LM4040CIM3X-3.0/NOPB	LM4040DIM3X-5.0/NOPB	LM4041EEM3-1.2/NOPB
LM4040BIM3X-2.0/NOPB	LM4040CIM3X-4.1/NOPB	LM4040EEM3-2.5/NOPB	LM4041EEM3X-1.2/NOPB
LM4040BIM3X-2.5/NOPB	LM4040CIM3X-5.0/NOPB	LM4040EIM3-2.5/NOPB	LM4041EIM3-1.2/NOPB
LM4040BIM3X-3.0/NOPB	LM4040DEM3-2.0/NOPB	LM4040EIM3-3.0/NOPB	LM4041EIM3X-1.2/NOPB
LM4040BIM3X-4.1/NOPB			

Group 2 Device list:

LM4040A20IDBZR	LM4040B41IDBZT	LM4040C50IDBZR	LM4040D41IDBZT
LM4040A20IDBZT	LM4040B50IDBZR	LM4040C50IDBZT	LM4040D50IDBZR
LM4040A25IDBZR	LM4040B50IDBZT	LM4040C50QDBZR	LM4040D50IDBZT
LM4040A25IDBZT	LM4040C20IDBZR	LM4040C50QDBZT	LM4040D50QDBZR
LM4040A30IDBZR	LM4040C20IDBZT	LM4040D20IDBZR	LM4040D50QDBZT
LM4040A30IDBZT	LM4040C20QDBZR	LM4040D20IDBZT	LM4041A12IDBZR
LM4040A41IDBZR	LM4040C20QDBZT	LM4040D20QDBZR	LM4041A12IDBZT
LM4040A41IDBZT	LM4040C25IDBZR	LM4040D20QDBZT	LM4041B12IDBZR
LM4040A50IDBZR	LM4040C25IDBZT	LM4040D25IDBZR	LM4041B12IDBZT
LM4040A50IDBZT	LM4040C25QDBZR	LM4040D25IDBZT	LM4041C12IDBZR
LM4040B20IDBZR	LM4040C25QDBZT	LM4040D25QDBZR	LM4041C12IDBZT
LM4040B20IDBZT	LM4040C30IDBZR	LM4040D25QDBZT	LM4041C12QDBZR
LM4040B25IDBZR	LM4040C30IDBZT	LM4040D30IDBZR	LM4041C12QDBZT
LM4040B25IDBZT	LM4040C30QDBZR	LM4040D30IDBZT	LM4041D12IDBZR
LM4040B30IDBZR	LM4040C30QDBZT	LM4040D30QDBZR	LM4041D12IDBZT
LM4040B30IDBZT	LM4040C41IDBZR	LM4040D41IDBZR	LM4041D12QDBZR
LM4040B41IDBZR	LM4040C41IDBZT		

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: LM4040QAIM3-5.0/NO	QBS Package Reference: TLV809EA46DBZR	QBS Process Reference: TLC6C5816QPWPRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	3/231/0
ACLV	A3	Autoclave	121C/33.3psig	96 Hours	-	3/231/0	3/231/0
UHAST	A3	Biased HAST	130C/85%RH	96 Hours	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	3/231/0	3/231/0
HTOL	B1	Life Test	140C	480 Hours	-	-	3/231/0
HTOL	B1	Life Test	125C	1000 Hours	3/231/0	-	-
EFR	B2	Early Life	150C	24 Hours	-	-	3/2400/0
ESD	E2	ESD HBM	-	2000 Volts	1/3/0	1/3/0	1/3/0
ESD	E2	ESD HBM	-	4000 Volts	1/3/0	1/3/0	1/3/0
ESD	E3	ESD CDM	-	250 Volts	1/3/0	1/3/0	1/3/0
ESD	E3	ESD CDM	-	1500 Volts	1/3/0	1/3/0	1/3/0
LU	E4	Latch-Up	Per JESD78	-	1/6/0	1/6/0	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	3/90/0	3/90/0
MQ	-	MQ (Assembly)	Per site specification	-	-	3/3/0	3/3/0

- QBS: Qual By Similarity
- Qual Device LM4040QAIM3-5.0/NO is qualified at MSL1 260C.

Concurrently qualifies the LM4040 Family:

- LM4040XxYYzDBZrG4:
- X = 0 or 1 (0 is fixed, 1 is adjustable; x = Accuracy Grade (A, B, C, D); YY = 2-digit voltage option (1.225 – 5V); z = 1 letter temperature designator; DBZ – package designator; r = size option
- LM404XQgTM3X-v.o
- X = 0 or 1 (0 is fixed, 1 is adjustable; Q = Automotive designator; g = Tolerance Grade (A, B, C, D); T = temperature Grade (I, E) M3 = Package Designator SOT23 YY; X = Optional packing designator; v.o = = 2-digit voltage option (1.225 – 5V); NOPB = Environmental Standard

- 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: R-CHG-2207-026

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: LM4040QAIM3-5.0/NO	QBS Product Reference: LM4040QAIM3-5.0/NO	QBS Package Reference: TLV803EA43VDBZ	QBS Package Reference: TPS3840PH30DBVRQ1	QBS Process Reference: TLC6C5816QPWPRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	1/77/0	-	3/231/0	3/231/0
ACLV	A3	Autoclave	121C/33.3psig	96 Hours	-	-	3/231/0	-	3/231/0
UHAST	A3	Biased HAST	130C/85%RH	96 Hours	-	1/77/0	-	3/231/0	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	1/77/0	3/231/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	3/135/0	3/231/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	3/231/0		
HTOL	B1	Life Test	140C	480 Hours	-	-	-	-	3/231/0
HTOL	B1	Life Test	125C	1000 Hours	-	3/231/0	-	3/231/0	-
EFR	B2	Early Life	150C	24 Hours	-	-	-	-	3/2400/0
ESD	E2	ESD HBM	-	2000 Volts	-	1/3/0	-	-	1/3/0
ESD	E2	ESD HBM	-	4000 Volts	-	1/3/0	-	-	1/3/0
ESD	E3	ESD CDM	-	250 Volts	-	1/3/0	-	-	1/3/0
ESD	E3	ESD CDM	-	1500 Volts	-	1/3/0	1/3/0	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	-	1/6/0	-	-	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	1/30/0	-	3/90/0

MQ	-	MQ (Assembly)	Per site specification	-	1/1/0	1/1/0	3/3/0	3/3/0	3/3/0
MQ	-	MQ (Fab)	Per site specification	-	-	1/1/0	-	-	-

- QBS: Qual By Similarity
- Qual Device LM4040QAIM3-5.0/NO is qualified at MSL1 260C.

Concurrently qualifies the LM4040 Family:

- LM4040XxYYzDBZrG4:
- X = 0 or 1 (0 is fixed, 1 is adjustable; x = Accuracy Grade (A, B, C, D); YY = 2-digit voltage option (1.225 – 5V); z = 1 letter temperature designator; DBZ – package designator; r = size option
- LM404XQgTM3X-v.o
- X = 0 or 1 (0 is fixed, 1 is adjustable; Q = Automotive designator; g = Tolerance Grade (A, B, C, D); T = temperature Grade (I, E) M3 = Package Designator SOT23 YY; X = Optional packing designator; v.o = 2-digit voltage option (1.225 – 5V); NOPB = Environmental Standard

- 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: R-CHG-2207-027

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: LM4040QAIM3-5.0/NO	QBS Package Reference: TLV809EA46DBZR	QBS Package Reference: TPS3840DBVRQ1	QBS Process Reference: TLC6C5816QPWPRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	1/77/0	1/77/0	3/231/0	3/231/0
ACLV	A3	Autoclave	121C/33.3psig	96 Hours	-	1/77/0	-	3/231/0
UHAST	A3	Biased HAST	130C/85%RH	96 Hours	1/77/0	-	3/231/0	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	1/77/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	1/77/0	3/231/0	3/231/0
HTOL	B1	Life Test	140C	480 Hours	-	-	-	3/231/0
HTOL	B1	Life Test	125C	1000 Hours	3/231/0	1/77/0	3/231/0	-
EFR	B2	Early Life	150C	24 Hours	-	-	-	3/2400/0
ESD	E2	ESD HBM	-	2000 Volts	1/3/0	-	1/3/0	1/3/0
ESD	E2	ESD HBM	-	4000 Volts	1/3/0	-	1/3/0	1/3/0
ESD	E3	ESD CDM	-	250 Volts	1/3/0	-	1/3/0	1/3/0
ESD	E3	ESD CDM	-	1500 Volts	1/3/0	1/3/0	1/3/0	1/3/0
LU	E4	Latch-Up	Per JESD78	-	1/6/0	-	1/6/0	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	3/90/0	3/90/0
MQ	-	MQ (Assembly)	Per site specification	-	1/1/0	3/3/0	3/3/0	3/3/0
MQ	-	MQ (Fab)	Per site specification	-	1/1/0	-	-	-

- QBS: Qual By Similarity
- Qual Device LM4040QAIM3-5.0/NO is qualified at MSL1 260C.

Concurrently qualifies the LM4040 Family:

- LM4040XxYYzDBZrG4:
- X = 0 or 1 (0 is fixed, 1 is adjustable; x = Accuracy Grade (A, B, C, D); YY = 2-digit voltage option (1.225 – 5V); z = 1 letter temperature designator; DBZ – package designator; r = size option
- LM404XQgTM3X-v.o
- X = 0 or 1 (0 is fixed, 1 is adjustable; Q = Automotive designator; g = Tolerance Grade (A, B, C, D); T = temperature Grade (I, E) M3 = Package Designator SOT23 YY; X = Optional packing designator; v.o = = 2-digit voltage option (1.225 – 5V); NOPB = Environmental Standard

- 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
WW Change Management Team	PCN_ww_admin_team@list.ti.com