TEXAS INSTRUMENTS **12500 TI Boulevard, MS 8640, Dallas, Texas 75243**

PCN#20240930004.2

Qualification of RFAB using qualified Process Technology, Die Revision, & Assembly/Test Site (CDAT) & BOM options for select devices

Change Notification / Sample Request

Date: October 01, 2024
To: MOUSER 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 and approval of this 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 Change Management team. For sample requests or sample related questions, contact your local Field Sales Representative. As always, we thank you for your continued business.

Change Management Team
SC Business Services

20240930004.2
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, you have recently purchased these devices. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
TPS74801QRGWRQ1	NULL

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

PCN Number:	20240930004.2	**PCN Date:**	October 01, 2024
Title:	Qualification of RFAB using qualified Process Technology, Die Revision and additional Assembly/Test Site (CDAT) plus BOM options for select devices		
Customer Contact:	Change Management Team	**Dept:**	Quality Services
Proposed 1st Ship Date:	March 30, 2025	**Sample requests accepted until:**	October 31, 2024*

***Sample requests received after October 31, 2024 will not be supported.**

Change Type:

☒	Assembly Site	☒	Design	☐	Wafer Bump Material
☒	Assembly Process	☒	Data Sheet	☐	Wafer Bump Process
☒	Assembly Materials	☐	Part number change	☒	Wafer Fab Site
☐	Mechanical Specification	☒	Test Site	☒	Wafer Fab Material
☒	Packing/Shipping/Labeling	☐	Test Process	☒	Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments is pleased to announce the addition of RFAB using the LBC9 qualified process technology and additional Assembly/Test Site (CDAT) & BOM options for the devices listed below.

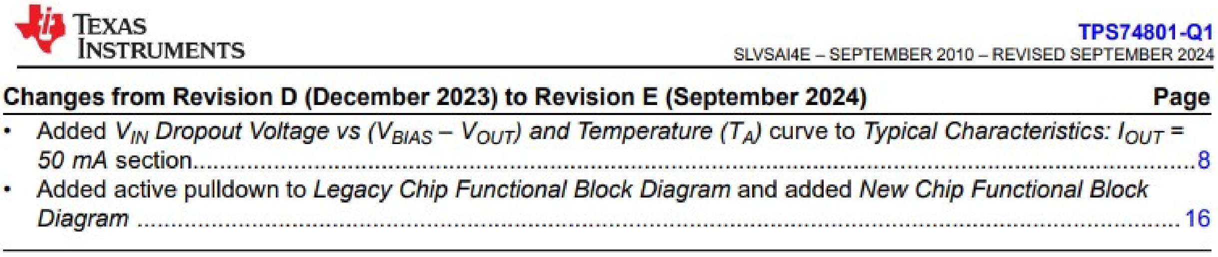
Current Fab Site			Additional Fab Site		
Current Fab Site	**Process**	**Wafer Diameter**	**Additional Fab Site**	**Process**	**Wafer Diameter**
DL-LIN	LBC4	200 mm	RFAB	LBC9	300 mm

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

Construction differences are as follows:

	Clark	**CDAT**
Mount compound	4207123	4225839
Mold compound	4208625	4222198
MSL	3	2
Probe Site	DL-LIN2	CD-PR
Final Test Site	MLA	CDAT

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.



TEXAS INSTRUMENTS

TPS74801-Q1

SLVSAI4E – SEPTEMBER 2010 – REVISED SEPTEMBER 2024

Changes from Revision D (December 2023) to Revision E (September 2024) **Page**

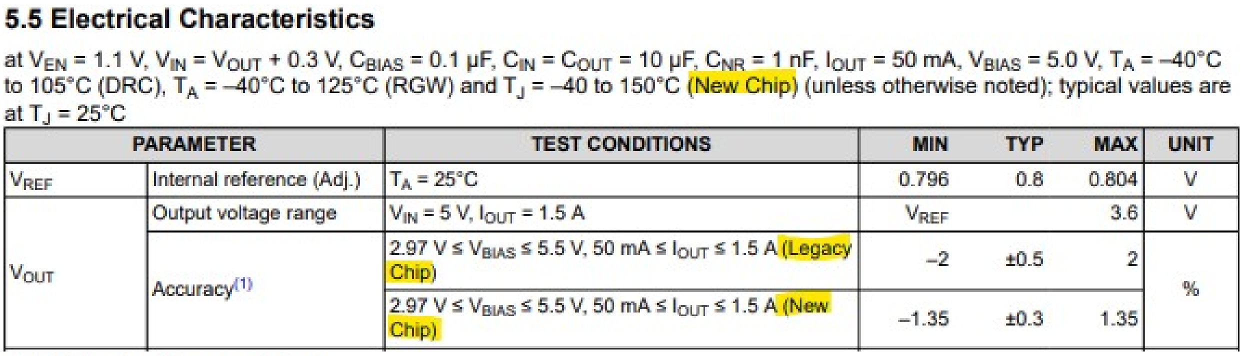
- Added V_{IN} *Dropout Voltage vs* ($V_{BIAS} - V_{OUT}$) *and Temperature* (T_A) curve to *Typical Characteristics:* I_{OUT} = *50 mA* section........8
- Added active pulldown to *Legacy Chip Functional Block Diagram* and added *New Chip Functional Block Diagram*........16

The datasheet number will be changing.

Device Family	Change From:	Change To:
TPS74801-Q1	SLVSAI4D	**SLVSAI4E**

These changes may be reviewed at the datasheet links provided.
http://www.ti.com/product/TPS74801-Q1

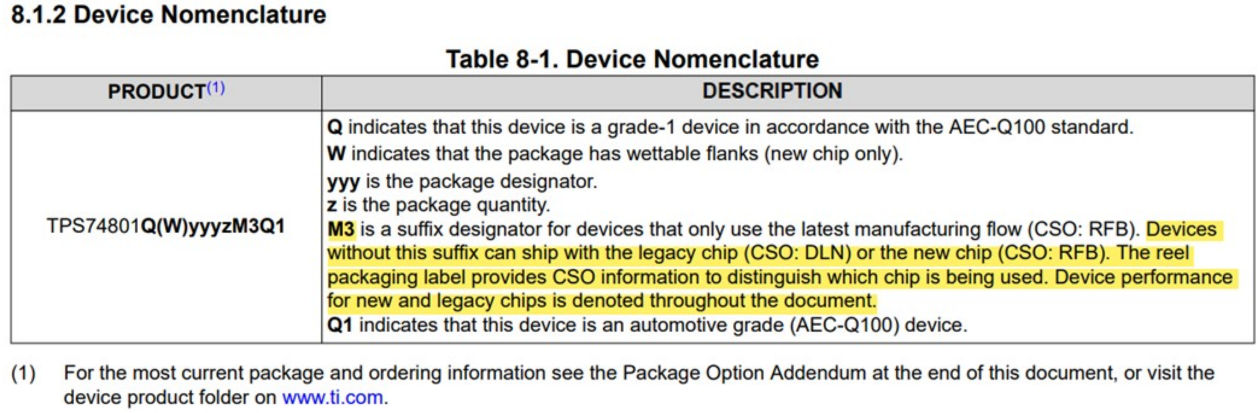
For more information on the performance of the LBC9 die and any differences with LBC4 die. For TPS74801-Q1 please consult the datasheet (rev. SLVSAI4E). An example of that comparison is shown below:



5.5 Electrical Characteristics

at V_{EN} = 1.1 V, V_{IN} = V_{OUT} + 0.3 V, C_{BIAS} = 0.1 µF, C_{IN} = C_{OUT} = 10 µF, C_{NR} = 1 nF, I_{OUT} = 50 mA, V_{BIAS} = 5.0 V, T_A = –40°C to 105°C (DRC), T_A = –40°C to 125°C (RGW) and T_J = –40 to 150°C (New Chip) (unless otherwise noted); typical values are at T_J = 25°C

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
V_{REF}	Internal reference (Adj.)	T_A = 25°C	0.796	0.8	0.804	V
V_{OUT}	Output voltage range	V_{IN} = 5 V, I_{OUT} = 1.5 A	V_{REF}		3.6	V
	Accuracy(1)	2.97 V ≤ V_{BIAS} ≤ 5.5 V, 50 mA ≤ I_{OUT} ≤ 1.5 A (Legacy Chip)	–2	±0.5	2	%
		2.97 V ≤ V_{BIAS} ≤ 5.5 V, 50 mA ≤ I_{OUT} ≤ 1.5 A (New Chip)	–1.35	±0.3	1.35	



8.1.2 Device Nomenclature

Table 8-1. Device Nomenclature

PRODUCT(1)	DESCRIPTION
TPS74801**Q(W)yyyzM3Q1**	**Q** indicates that this device is a grade-1 device in accordance with the AEC-Q100 standard. **W** indicates that the package has wettable flanks (new chip only). **yyy** is the package designator. **z** is the package quantity. **M3** is a suffix designator for devices that only use the latest manufacturing flow (CSO: RFB). Devices without this suffix can ship with the legacy chip (CSO: DLN) or the new chip (CSO: RFB). The reel packaging label provides CSO information to distinguish which chip is being used. Device performance for new and legacy chips is denoted throughout the document. **Q1** indicates that this device is an automotive grade (AEC-Q100) device.

(1) For the most current package and ordering information see the Package Option Addendum at the end of this document, or visit the device product folder on www.ti.com.

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-millimeter 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
RFAB	**RFB**	**USA**	**Richardson**

Die Rev:

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

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
TI Clark	QAB	PHL	Angeles City, Pampanga
CDAT	**CDA**	**CHN**	**Chengdu**

Sample product shipping label (not actual product label):

TEXAS INSTRUMENTS
MADE IN: Malaysia
2DC: 2Q:
MSL 2 /260C/1 YEAR SEAL DT
MSL 1 /235C/UNLIM 03/29/04
OPT:
ITEM: 39
LBL: 5A (L)TO:1750
G4
(1P) SN74LS07NSR
(Q) 2000 (D) 0336
(31T)LOT: 3959047MLA
(4W) TKY(1T) 7523483SI2
(P)
(2P) REV: (V) 0033317
(20L) CSO: SHE (21L) CCO:USA
(22L) ASO: MLA (23L) ACO: MYS

Product Affected:

TPS74801QRGWRQ1

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

Automotive Qualification Summary
(As per AEC-Q100 Rev. J and JEDEC Guidelines)

TPS74801QRGWRM3Q1 300mm Automotive Grade 1 AECQ100 Qualification
Approve Date 21-June-2024

Product Attributes

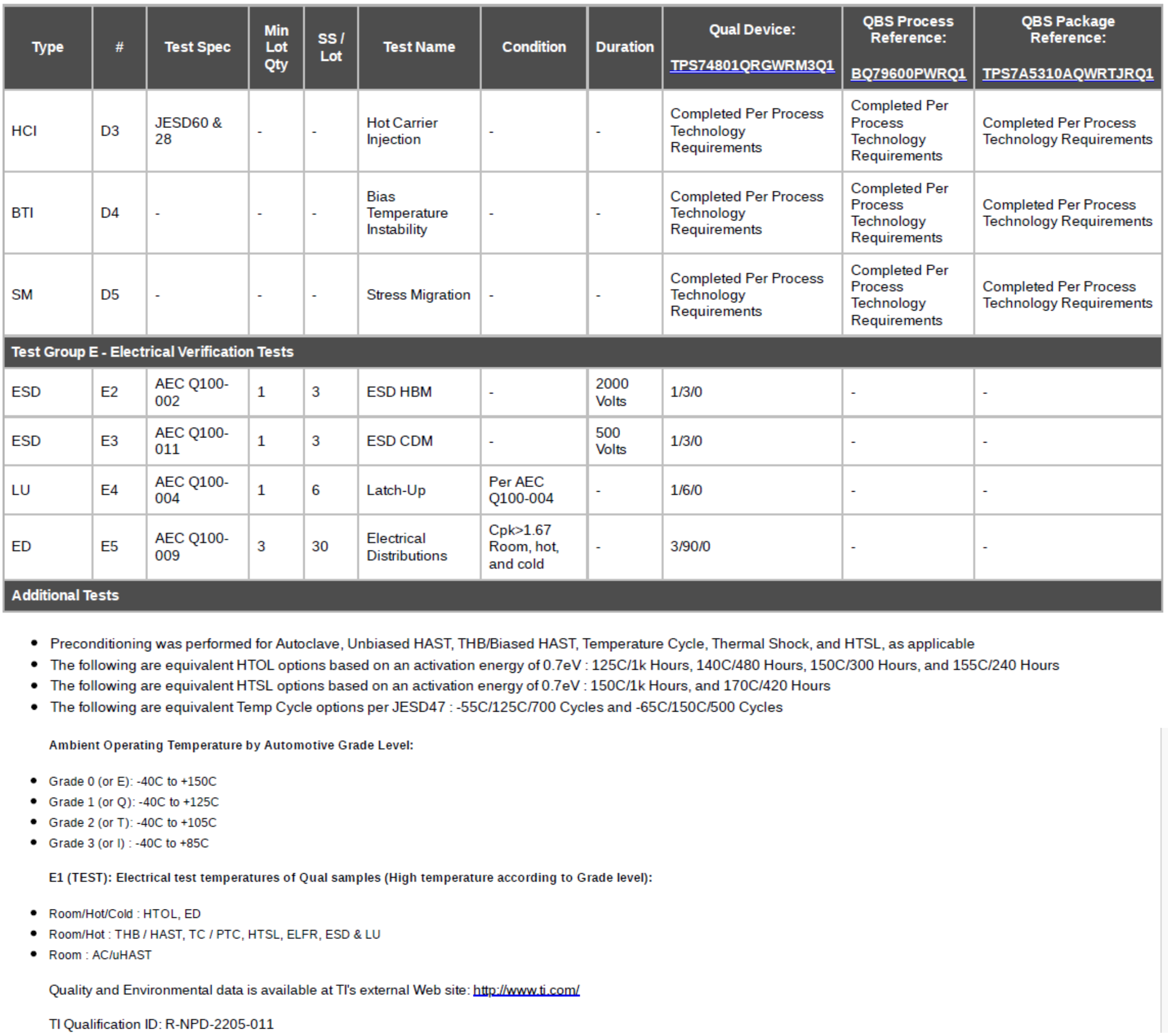
Attributes	Qual Device: TPS74801QRGWRM3Q1	QBS Process Reference: BQ79600PWRQ1	QBS Package Reference: TPS7A5310AQWRTJRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1
Operating Temp Range (C)	-40 to 125	-40 to 125	-40 to 125
Product Function	Power Management	Power Management	Power Management
Wafer Fab Supplier	RFAB	RFAB	RFAB
Assembly Site	CDAT	MLA	CDAT
Package Group	QFN	TSSOP	QFN
Package Designator	RGW	PW	RTJ
Pin Count	20	16	20

- QBS: Qual By Similarity
- Qual Device TPS74801QRGWRM3Q1 is qualified at MSL2 260C

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: TPS74801QRGWRM3Q1	QBS Process Reference: BQ79600PWRQ1	QBS Package Reference: TPS7A5310AQWRTJRQ1
Test Group A - Accelerated Environment Stress Tests										
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL2 260C	-	All Pass	-	All Pass
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	1/77/0	-	3/231/0
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	96 Hours	1/77/0	-	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	-	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp Cycle Bond Pull	-	-	1/5/0	-	-
PTC	A5	JEDEC JESD22-A105	1	45	PTC	-40/125C	1000 Cycles	-	-	1/45/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	1/45/0	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	175C	500 Hours	-	-	3/135/0
Test Group B - Accelerated Lifetime Simulation Tests										
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	125C	1000 Hours	1/77/0	3/231/0	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	-
EDR	B3	AEC Q100-005	1	77	NVM Endurance, Data Retention, and Op Life	Per QSS-009-018	1 Step	-	3/231/0	-
Test Group C - Package Assembly Integrity Tests										
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	1/30/0	-	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	1/30/0	-	3/90/0
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	-	-	1/15/0
SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	1/15/0	-	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	1/10/0	-	3/30/0
Test Group D - Die Fabrication Reliability Tests										
EM	D1	JESD61	-	-	Electromigration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements



Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: TPS74801QRGWRM3Q1	QBS Process Reference: BQ79600PWRQ1	QBS Package Reference: TPS7A5310AQWRTJRQ1
HCI	D3	JESD60 & 28	-	-	Hot Carrier Injection	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
BTI	D4	-	-	-	Bias Temperature Instability	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
SM	D5	-	-	-	Stress Migration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
Test Group E - Electrical Verification Tests										
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	1/3/0	-	-
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	1/3/0	-	-
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	1/6/0	-	-
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	3/90/0	-	-
Additional Tests										

- 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

Ambient Operating Temperature by Automotive Grade Level:

- Grade 0 (or E): -40C to +150C
- Grade 1 (or Q): -40C to +125C
- Grade 2 (or T): -40C to +105C
- Grade 3 (or I) : -40C to +85C

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

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

TI Qualification ID: R-NPD-2205-011

ZVEI IDs: SEM-DE-01, SEM-DE-02, SEM-DE-03, SEM-PW-02, SEM-PW-09, SEM-PW-13, SEM-PA-07, SEM-PA-11, SEM-PA-18, SEM-PS-02, SEM-PS-04, SEM-TF-01, SEM-DS-01, SEM-DS-02

For questions regarding this notice, e-mails can be sent to the Change Management team or your local Field Sales Representative.

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