



12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20240628004.1

Qualification of RFAB using qualified Process Technology, Die Revision, Datasheet, and additional Assembly BOM options for select devices
Change Notification / Sample Request

Date: June 28, 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

20240628004.1
Attachment: 1

Products Affected:

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

DEVICE	CUSTOMER PART NUMBER
TPS74801RGWR	NULL
TPS74801RGWRG4	NULL
TPS74801RGWT	NULL
TPS74801RGWTG4	NULL
TPS74901RGWR	NULL
TPS74901RGWT	NULL
TPS74901RGWTG4	NULL

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

PCN Number:	20240628004.1	PCN Date:	June 28, 2024
Title:	Qualification of RFAB using qualified Process Technology, Die Revision, Datasheet, and additional Assembly BOM options for select devices		
Customer Contact:	Change Management Team	Dept:	Quality Services
Proposed 1st Ship Date:	September 26, 2024	Sample requests accepted until:	July 28, 2024*
*Sample requests received after July 28, 2024 will not be supported.			
Change Type:			
<input type="checkbox"/> Assembly Site	<input checked="" type="checkbox"/> Design	<input type="checkbox"/>	Wafer Bump Material
<input type="checkbox"/> Assembly Process	<input checked="" type="checkbox"/> Data Sheet	<input type="checkbox"/>	Wafer Bump Process
<input checked="" type="checkbox"/> Assembly Materials	<input type="checkbox"/> Part number change	<input checked="" type="checkbox"/>	Wafer Fab Site
<input type="checkbox"/> Mechanical Specification	<input type="checkbox"/> Test Site	<input checked="" type="checkbox"/>	Wafer Fab Material
<input checked="" type="checkbox"/> Packing/Shipping/Labeling	<input type="checkbox"/> Test Process	<input checked="" type="checkbox"/>	Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of its RFAB fabrication facility as an additional Wafer Fab option in addition to Assembly 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
DFAB	LBC4	150 mm	RFAB	LBC9	300 mm

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

Construction differences are as follows:

	Current	Proposed
Mount compound	4207123	4225839

The datasheets will be changing as a result of the above mentioned changes. The datasheet change details can be reviewed in the datasheet revision history. The links to the revised datasheets are available in the table below.



TPS748
SBVS074N – JANUARY 2007 – REVISED JUNE 2024

Changes from Revision M (April 2023) to Revision N (June 2024)	Page
• Changed M3 references to <i>new chip</i>	1
• Changed 2% accuracy to 1% accuracy (<i>new chip</i>) in <i>Description</i> section	1
• Added new chip plots to <i>Typical Characteristics</i> sections.....	8
• Added <i>New Chip Functional Block Diagram</i> to <i>Functional Block Diagrams</i> section.....	16
• Changed <i>Standard Capacitor Values for Programming the Soft-Start Time</i> table: corrected equation in footnote and added <i>soft-start time</i> column for new chip.....	20
• Changed both <i>Application Curves</i> sections in <i>Typical Applications</i> to use new chip curves.....	26
• Added <i>Device Nomenclature</i> section.....	33



TPS74901
SBVS082K – JUNE 2007 – REVISED JUNE 2024

Changes from Revision J (April 2023) to Revision K (June 2024)		Page
• Changed M3 references to new chip	Added: Accuracy over line, load, and temperature: 1% (new chip) in Description section.....	1
• Added (Legacy Chip) to KTW package.....		3
• Changed Typical Characteristics: $I_{OUT} = 50mA$ section and added new chip curves.....		8
• Changed Typical Characteristics: $I_{OUT} = 1 A$ section, added new chip curves side by side to legacy curves.....		14
• Changed Legacy Chip Functional Block Diagram to include pulldown resistor for legacy chip and added New Chip Functional Block Diagram		16
• Added active pulldown circuit discussion and equation to Enable and Shutdown section.....		17
• Added SOFT-START TIME (New Chip) column and changed footnote in Standard Capacitor Values for Programming the Soft-Start Time table.....		22
• Added feed-forward capacitor discussion to Programmable Soft-Start section.....		22
• Changed Application Curves section to only show new chip curves.....		25
• Changed last sentence of Layout Recommendations and Power Dissipation section; added Figure 7-7		25
• Deleted (previously numbered) Figure 35 through Figure 39.....		26
• Added Device Nomenclature section.....		30

Product Folder	Current Datasheet Number	New Datasheet Number	Link to full datasheet
TPS748	SBVS074M	SBVS074N	http://www.ti.com/product/TPS748
TPS74901	SBVS082J	SBVS082K	http://www.ti.com/product/TPS74901

Any differences/changes between the LBC4 die and LBC9 die have been made in the data sheet using "Legacy Chip" (LBC4) and "New Chip" (LBC9). Please refer below as an example:

V _{DO}	V _{IN} dropout voltage ⁽²⁾	$I_{OUT} = 3A, V_{BIAS} - V_{OUT(nom)} \geq 3.25V^{(3)}$ (Legacy Chip)	120	280	mV
		$I_{OUT} = 3A, V_{BIAS} - V_{OUT(nom)} \geq 3.25V^{(3)}$ (New Chip)	120	200	
	V _{BIAS} dropout voltage ⁽²⁾	$I_{OUT} = 3A, V_{IN} = V_{BIAS}$ (Legacy Chip)	1.31	1.75	V
		$I_{OUT} = 3A, V_{IN} = V_{BIAS}$ (New Chip)	1.45	1.6	

The Device Nomenclature Table also provides guidance to determine if LBC4 die or LBC9 is being used:

Table 8-1. Device Nomenclature

PRODUCT	V _{OUT}
TPS74801yyz ⁽¹⁾ M3	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 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. The device performance for new and legacy chips is denoted throughout the document.

Table 8-1. Device Nomenclature

PRODUCT ⁽¹⁾	V _{OUT}
TPS74901yyz ⁽¹⁾ M3	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 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 used. The device performance for new and legacy chips is denoted throughout the document.

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

<input checked="" type="checkbox"/> 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-1	DLN	USA	Dallas
RFAB	RFB	USA	Richardson

Die Rev:

Current

New

Die Rev [2P]	Die Rev [2P]
A	A

Sample product shipping label (not actual product label):



Product Affected:

TPS74801RGWR	TPS74801RGWT	TPS74901RGWR	TPS74901RGWTG4
TPS74801RGWRG4	TPS74801RGWTG4	TPS74901RGWT	

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: TPS74801RGWRM3	QBS Package Reference: TPS7A5310AQWRTJRQ1	QBS Process Reference: TPS560430XFDBVR	QBS Package/Process/Product Reference: TPS74801QRGWRM3Q1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	1/77/0
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	3/231/0	-	1/77/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	-	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	1/77/0
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	3/135/0	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	3/231/0	1/77/0
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	3/2400/0	-
SD	C3	PB Solderability	Precondition w/155C Dry Bake (4 hrs +/- 15 minutes)	-	-	1/15/0	-	-

Type	#	Test Name	Condition	Duration	Qual Device: TPS74801RGWRM3	QBS Package Reference: TPS7A5310AQWRTJRQ1	QBS Process Reference: TPS560430XFDBVR	QBS Package/Process/Product Reference: TPS74801QRGWRM3Q1
SD	C3	PB-Free Solderability	Precondition w/155C Dry Bake (4 hrs +/- 15 minutes)	-	-	1/15/0	-	1/15/0
PD	C4	Physical Dimensions	Cpk>1.67	-	-	3/30/0	-	1/10/0
ESD	E2	ESD CDM	-	500 Volts	-	1/3/0	-	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	-	1/3/0	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	-	1/6/0	-	1/6/0
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	3/90/0	-	3/90/0

- QBS: Qual By Similarity
- Qual Device TPS74801RGWRM3 is qualified at MSL2 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/>

TI Qualification ID: R-NPD-2402-009

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

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use

these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale (www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.