

**PCN# 20240613005.2**

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

**Date:** June 13, 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

**20240613005.2**  
**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.

<b>DEVICE</b>	<b>CUSTOMER PART NUMBER</b>
SN74LV4051AQPWRQ1	NULL
SN74LV4051ATPWRQ1	NULL
SN74LV4052AQPWRQ1	NULL
SN74LV4053AQPWRQ1	NULL

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

<b>PCN Number:</b>	20240613005.2	<b>PCN Date:</b>	June 13, 2024
<b>Title:</b>	Qualification of RFAB using qualified Process Technology, Die Revision, Datasheet and Assembly BOM options for select devices		
<b>Customer Contact:</b>	Change Management team	<b>Dept:</b>	Quality Services
<b>Proposed 1<sup>st</sup> Ship Date:</b>	December 10, 2024	<b>Sample requests accepted until:</b>	July 13, 2024*

**\*Sample requests received after July 13, 2024 will not be supported.**

**Change Type:**

<input type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Design	<input type="checkbox"/>	Wafer Bump Material
<input checked="" 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 Materials
<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 addition of RFAB using the LBC7 qualified process technology and additional 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
SFAB	EPIC1S2	150 mm	RFAB	LBC7	300 mm

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

Construction differences are as follows:

	Current	Proposed
Wire diam/type	0.96mil Cu	0.8mil Cu

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.



**SN74LV4051A-Q1**

SCLS520F – AUGUST 2003 – REVISED JUNE 2024

**Changes from Revision E (January 2015) to Revision F (June 2024) Page**

- Updated the numbering format for tables, figures, and cross-references throughout the document..... 1
- Updated the *Package Information* table to include package lead size..... 1
- Added new VIH and VIL Specifications at 1.65V Vcc..... 5
- Added Ron, Ron Peak, and Delta Ron Specifications at 1.65V Vcc..... 5



**SN74LV4052A-Q1**

SCLS469G – MARCH 2003 – REVISED JUNE 2024

**Changes from Revision F (December 2014) to Revision G (June 2024) Page**

- Updated the numbering format for tables, figures, and cross-references throughout the document..... 1
- Updated the *Package Information* table to include package leads..... 1
- Added new VIH and VIL Specifications at 1.65V Vcc..... 5



**SN74LV4053A-Q1**

SCLS521D – AUGUST 2003 – REVISED JUNE 2024

**Changes from Revision C (June 2011) to Revision D (June 2024) Page**

- Changed the numbering format for tables, figures, and cross-references throughout the document..... 1
- Added new VIH and VIL Specifications at 1.65V Vcc..... 5
- Added Ron, Ron Peak, and Delta Ron Specifications at 1.65V Vcc..... 5

Product Folder	Current Datasheet Number	New Datasheet Number	Link to full datasheet
SN74LV4051A-Q1	SCLS520E	<b>SCLS520F</b>	<a href="http://www.ti.com/product/SN74LV4051A-Q1">http://www.ti.com/product/SN74LV4051A-Q1</a>
SN74LV4052A-Q1	SCLS469F	<b>SCLS469G</b>	<a href="http://www.ti.com/product/SN74LV4052A-Q1">http://www.ti.com/product/SN74LV4052A-Q1</a>
SN74LV4053A-Q1	SCLS521C	<b>SCLS521D</b>	<a href="http://www.ti.com/product/SN74LV4053A-Q1">http://www.ti.com/product/SN74LV4053A-Q1</a>

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 and 200-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
SH-BIP-1	SHE	USA	Sherman
<b>RFAB</b>	<b>RFB</b>	<b>USA</b>	<b>Richardson</b>

**Die Rev:**

Current	New
Die Rev [2P] H	<b>Die Rev [2P] B</b>

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)T0:1750

(1P) SN74LS07NSR  
 (Q) 2000 (D) 0336  
 (31T) LOT: 3959047MLA  
 (4W) TKY (1T) 7523483SI2  
 (P)  
 (2P) REV: 0033317  
 (20L) CSO: SHE (21L) CCO:USA  
 (22L) ASO:MLA (23L) ACO:MYS

**Product Affected:**

SN74LV4051AQPWRQ1	SN74LV4051ATPWRQ1	SN74LV4052AQPWRQ1	SN74LV4053AQPWRQ1
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For alternate parts with similar or improved performance, please visit the product page on [TI.com](http://TI.com)

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

**RedBull SW\_LV\_Wave5-6(-Q) Grp 5**  
Approve Date 03-June-2024

**Product Attributes**

Attributes	Qual Device:	Qual Device:	Qual Device:	Qual Device:	QBS Process Reference:	QBS Package Reference:
	SN74LV4051AQPWRQ1	SN74LV4052AQPWRQ1	SN74LV4053AQPWRQ1	SN74LV4051ATPWRQ1	TMP235AEDBZRQ1	TMUX1308QPWRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 2	Grade 0	Grade 1
Operating Temp Range (C)	-40 to 125	-40 to 125	-40 to 125	-40 to 105	-40 to 150	-40 to 125
Product Function	Signal Chain	Signal Chain				
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	RFAB	RFAB
Assembly Site	MLA	MLA	MLA	MLA	HNA	MLA
Package Group	TSSOP	TSSOP	TSSOP	TSSOP	-	TSSOP
Package Designator	PW	PW	PW	PW	DBZ	PW
Pin Count	16	16	16	16	3	16

- QBS: Qual By Similarity
- Qual Device SN74LV4051AQPWRQ1 is qualified at MSL1 260C
- Qual Device SN74LV4052AQPWRQ1 is qualified at MSL1 260C
- Qual Device SN74LV4053AQPWRQ1 is qualified at MSL1 260C
- Qual Device SN74LV4051ATPWRQ1 is qualified at MSL1 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:	Qual Device:	Qual Device:	Qual Device:	QBS Process Reference:	QBS Package Reference:
								SN74LV4051AQPWRQ1	SN74LV4052AQPWRQ1	SN74LV4053AQPWRQ1	SN74LV4051ATPWRQ1	TMP235AEDBZRQ1	TMUX1308QPWRQ1
<b>Test Group A - Accelerated Environment Stress Tests</b>													
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	-	-	-	No Fails	-	No Fails	No Fails
<b>Test Group B - Accelerated Lifetime Simulation Tests</b>													
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	3/231/0	3/231/0
ACUHAST	A3	JEDEC A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	-	-	1/77/0	-	-	3/231/0
ACUHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	-	3/231/0	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-55C/150C	1000 Cycles	-	-	1/77/0	-	-	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	3/231/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	2000 Hours	-	-	-	-	3/135/0	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	175C	500 Hours	-	-	-	-	-	3/135/0
<b>Test Group C - Package Assembly Integrity Tests</b>													
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	125C	1000 Hours	1/77/0	-	-	-	-	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	150C	1000 Hours	-	-	-	-	3/231/0	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	150C	300 Hours	-	-	-	-	-	3/231/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate	150C	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	-	-	-	-	1/77/0	-
<b>Test Group C - Package Assembly Integrity Tests</b>													
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices. 30 wires Cpk>1.67	Wires	1/30/0	1/30/0	1/30/0	-	3/90/0	3/90/0
WBP	C2	ML-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices. 30 wires Cpk>1.67	Wires	1/30/0	1/30/0	1/30/0	-	3/90/0	3/90/0

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device:	Qual Device:	Qual Device:	Qual Device:	OBS Process Reference:	OBS Package Reference:
								SN74LV4951AQPWRQ1	SN74LV4952AQPWRQ1	SN74LV4953AQPWRQ1	SN74LV4951ATPWRQ1	TMP235AED8ZRQ1	TMLDC1308QPWRQ1
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	-	-	-	-	1/15/0	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	1/10/0	1/10/0	-	3/30/0	3/30/0
<b>Test Group D - Die Fabrication Reliability Tests</b>													
EM	D1	JESD61	-	-	Electromigration	-	-	Completed Per Process Technology Requirements					
TDDb	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	Completed Per Process Technology Requirements					
HCI	D3	JESD60 & 28	-	-	Hot Carrier Injection	-	-	Completed Per Process Technology Requirements					
BTI	D4	-	-	-	Bias Temperature Instability	-	-	Completed Per Process Technology Requirements					
SM	D5	-	-	-	Stress Migration	-	-	Completed Per Process Technology Requirements					
<b>Test Group E - Electrical Verification Tests</b>													
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	1/3/0	1/3/0	1/3/0	-	1/3/0	-
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	5000 Volts	-	-	-	-	-	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	2000 Volts	-	-	-	-	-	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	-	-	-	-	1/3/0	-
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	750 Volts	1/3/0	-	-	-	-	-
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	1/3/0	1/3/0	1/3/0	-	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot and cold	-	1/30/0	1/30/0	1/30/0	-	3/90/0	3/90/0
<b>Additional Tests</b>													

- 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 J): -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/HAST

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

TI Qualification ID: R-CHG-2212-044

ZVEI ID's: SEM-DE-03, SEM-DS-01, SEM-PW-02, SEM-PW-09, SEM-PW-13, SEM-PA-08

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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