



12500 TI Boulevard, MS 8640, Dallas, Texas 75243

**PCN# 20240116003.1**

**Qualification of RFAB using qualified Process Technology and Die Revision for select devices  
Change Notification / Sample Request**

**Date:** January 16, 2024

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

**20240116003.1**  
**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.

<b>DEVICE</b>	<b>CUSTOMER PART NUMBER</b>
ULN2003ADR	null

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

<b>PCN Number:</b>	20240116003.1			<b>PCN Date:</b>	January 16, 2024																		
<b>Title:</b>	Qualification of RFAB using qualified Process Technology and Die Revision for select devices																						
<b>Customer Contact:</b>	Change Management Team	<b>Dept:</b>	Quality Services																				
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Apr 16, 2024	<b>Sample requests accepted until:</b>	Feb 16, 2024*																				
<b>*Sample requests received after February 16, 2024 will not be supported.</b>																							
<b>Change Type:</b>																							
<input type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Design	<input type="checkbox"/>	Wafer Bump Material																		
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet	<input type="checkbox"/>	Wafer Bump Process																		
<input 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																		
<b>PCN Details</b>																							
<b>Description of Change:</b>																							
Texas Instruments is pleased to announce the addition of RFAB using the TIB qualified process technology for select devices listed below in the product affected section.																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Current Fab Site</th> <th colspan="3">Additional Fab Site</th> </tr> <tr> <th>Current Fab Site</th> <th>Process</th> <th>Wafer Diameter</th> <th>Additional Fab Site</th> <th>Process</th> <th>Wafer Diameter</th> </tr> </thead> <tbody> <tr> <td>SFAB</td> <td>J11</td> <td>150 mm</td> <td>RFAB</td> <td>TIB</td> <td>300 mm</td> </tr> </tbody> </table>						Current Fab Site			Additional Fab Site			Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter	SFAB	J11	150 mm	RFAB	TIB	300 mm
Current Fab Site			Additional Fab Site																				
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter																		
SFAB	J11	150 mm	RFAB	TIB	300 mm																		
The die was also changed as a result of the process change.																							
Qual details are provided in the Qual Data Section.																							
<b>Reason for Change:</b>																							
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.																							
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>																							
None																							
<b>Changes to product identification resulting from this PCN:</b>																							
<b>Fab Site Information:</b>																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Chip Site</th> <th>Chip Site Origin Code (20L)</th> <th>Chip Site Country Code (21L)</th> <th>Chip Site City</th> </tr> </thead> <tbody> <tr> <td>SH-BIP-1</td> <td>SHE</td> <td>USA</td> <td>Sherman</td> </tr> <tr> <td><b>RFAB</b></td> <td><b>RFB</b></td> <td><b>USA</b></td> <td><b>Richardson</b></td> </tr> </tbody> </table>						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>						
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>																				
<b>Die Rev:</b>																							
<b>Current</b>																							
<b>New</b>																							
Die Rev [2P]		Die Rev [2P]																					
F		A																					

Sample product shipping label (not actual product label)





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: (V) 0033317  
(20L) CSO: SHE (21L) CCO: USA  
(22L) ASO: MLA (23L) ACO: MYS

**Product Affected:**

ULN2003ADR

**Qualification Results**

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

Type	#	Test Name	Condition	Duration	Qual Device: ULN2003ADR	QBS Reference: MC33063ADR	QBS Reference: MC33063AQDRQ1	QBS Reference: ULN2003ADR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	3/231/0	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	3/231/0	-	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	3/231/0	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	2/154/0	3/231/0	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	1/800/0	3/2400/0	-

Type	#	Test Name	Condition	Duration	Qual Device: ULN2003ADR	QBS Reference: MC33063ADR	QBS Reference: MC33063AQDRQ1	QBS Reference: ULN2003ADR
ESD	E2	ESD CDM	-	250 Volts	-	-	-	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	-	-	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	-	-	-	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-	1/30/0

- QBS: Qual By Similarity
- Qual Device ULN2003ADR is qualified at MSL1 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-CHG-2209-040

## Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: ULN2003ADR	QBS Reference: MC33063ADR	QBS Reference: MC33063ADR	QBS Reference: MC33063AQDRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	-	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	3/135/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	3/231/0	-

Type	#	Test Name	Condition	Duration	Qual Device: ULN2003ADR	QBS Reference: MC33063ADR	QBS Reference: MC33063ADR	QBS Reference: MC33063AQDRQ1
HTOL	B1	Life Test	125C	1000 Hours	-	2/154/0	1/77/0	3/231/0
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	1/800/0	2/1600/0	3/2400/0
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	1/15/0
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	1/15/0
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	3/30/0
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	-	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-	-

- QBS: Qual By Similarity
- Qual Device ULN2003ADR is qualified at MSL1 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-CHG-2209-042

For questions regarding this notice, e-mails can be sent to 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 disdains 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](http://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.