

<b>PCN Number:</b>	20231016006.1		<b>PCN Date:</b>	October 17, 2023	
<b>Title:</b>	Qualification of RFAB using qualified Process Technology, Die Revision 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>	Jan 16, 2024		<b>Estimated Sample Availability:</b>	Nov 16, 2023*	
<b>*Sample requests received after November 16, 2023 will not be supported.</b>					
<b>Change Type:</b>					
<input checked="" type="checkbox"/> Assembly Site	<input checked="" type="checkbox"/> Design	<input type="checkbox"/> Wafer Bump Material			
<input checked="" type="checkbox"/> Assembly Process	<input 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 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 and additional Assembly/BOM options for the devices listed below.					
<b>Current Fab Site</b>			<b>Additional Fab Site</b>		
<b>Current Fab Site</b>	<b>Process</b>	<b>Wafer Diameter</b>	<b>Additional Fab Site</b>	<b>Process</b>	<b>Wafer Diameter</b>
SFAB	J11	150 mm	RFAB	TIB	300 mm
The die was also changed as a result of the process change.					
Additional BOM items are as follows:					
<b>Group 1 BOM Table (RFAB/Process migration &amp; BOM Option):</b>					
	<b>Current</b>		<b>Additional</b>		
Bond wire Composition, diameter	Au, 0.8 or Cu, 0.96 or 1.0 mil		Cu, 0.8mil		
<b>Group 2 BOM Table (RFAB/Process migration/BOM Option plus TI Malaysia as additional Assembly site):</b>					
	<b>TI Mexico</b>		<b>TI Malaysia</b>		
Bond wire Composition, diameter	Cu, 1.0 mil		Cu, 0.8mil		
<b>Group 3 BOM Table (RFAB/Process migration/BOM Option plus TI Malaysia as additional Assembly site):</b>					
	<b>TI Taiwan</b>		<b>TI Malaysia</b>		
Bond wire Composition, diameter	Au, 0.96 mil		Cu, 0.8mil		
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					

## 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	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<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]	Die Rev [2P]
A	A

### Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
TI Mexico	MEX	MEX	Aguascalientes
TI Taiwan	TAI	TWN	Chung Ho, New Taipei City
<b>TI Malaysia</b>	<b>MLA</b>	<b>MYS</b>	<b>Kuala Lumpur</b>

Sample product shipping label (not actual product label)



## Product Affected:

### Group 1 Device list (RFAB/Process migration & BOM Option):

LM239DR	LM2901DR	LM3302DR	LM339DR
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### Group 2 Device list (RFAB/Process migration/BOM Option plus TI Malaysia as additional Assembly site):

LM2901VQDR
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### Group 3 Device list (RFAB/Process migration/BOM Option plus TI Malaysia as additional Assembly site):

LM139DR	LM139DRG4
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For alternate parts with similar or improved performance, please visit the product page on [TI.com](http://TI.com)

## Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: <a href="#">LM2901VQDR</a>	QBS Reference: <a href="#">SN74HCS74QDRQ1</a>	QBS Reference: <a href="#">LM324BIPWR</a>	QBS Reference: <a href="#">LM2901BQDRQ1</a>	QBS Reference: <a href="#">MC33063ADR</a>	QBS Reference: <a href="#">LM2901BQPWRQ1</a>
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	1/77/0	3/231/0	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	3/231/0	-	1/77/0	3/231/0	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	-	1/77/0	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	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	1/77/0	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	3/231/0	-	2/154/0	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	1/77/0	-	1/77/0
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	-	1/30/0	-	-	1/30/0	-	3/90/0

- QBS: Qual By Similarity
- Qual Device LM2901VQDR 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-2308-054

[1]-Unit damaged prior to ATE  
Package cracked down the middle

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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