

PCN Number:	20240411004.1	PCN Date:	April 11, 2024																					
Title:	Qualification of RFAB using qualified Process Technology, Die Revision, and additional Assembly site options for select devices																							
Customer Contact:	Change Management team	Dept:	Quality Services																					
Proposed 1st Ship Date:	July 10, 2024	Sample requests accepted until:	May 11, 2024*																					
*Sample requests received after May 11, 2024 will not be supported.																								
Change Type:																								
<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 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 LBC9 qualified process technology and additional Assembly site (MLA) options for selected devices listed below in the product affected section.																								
<table border="1"> <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>DFAB</td> <td>50A21, EXCAL2, BICOM2/2X</td> <td>150 mm</td> <td rowspan="2">RFAB</td> <td rowspan="2">LBC9</td> <td rowspan="2">300 mm</td> </tr> <tr> <td>SFAB</td> <td>J11</td> <td>150 mm</td> </tr> </tbody> </table>			Current Fab Site			Additional Fab Site			Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter	DFAB	50A21, EXCAL2, BICOM2/2X	150 mm	RFAB	LBC9	300 mm	SFAB	J11	150 mm	
Current Fab Site			Additional Fab Site																					
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter																			
DFAB	50A21, EXCAL2, BICOM2/2X	150 mm	RFAB	LBC9	300 mm																			
SFAB	J11	150 mm																						
The die was also changed as a result of the process change.																								
Additionally, there will be BOM/Assembly options introduced for these devices:																								
Group 1 device:																								
	UTL	CDAT																						
Wire diam/type	0.8mil Au	0.8mil Cu																						
Mount compound	PZ0039	4226215																						
Mold compound	CZ0138	4222198																						
Group 2 device:																								
	Current	Proposed																						
Wire diam/type	0.8mil Au	0.8mil Cu																						
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	<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
DL-LIN	DLN	USA	Dallas
SH-BIP-1	SHE	USA	Sherman
RFAB	RFB	USA	Richardson

Die Rev:**Current****New**

Die Rev [2P]	Die Rev [2P]
A, B	A, B

Assembly/Test Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
UTL1	NSE	THA	Bangkok
TI Mexico	MEX	MEX	Aguascalientes
MLA	MLA	MYS	KUALA LUMPUR
CDAT	CDA	CHN	Chengdu

Sample product shipping label (not actual product label)

**TEXAS INSTRUMENTS**
MADE IN: Malaysia
2DC: 20:
MSL 2 /260C/1 YEAR SEAL DT
MSL 1 /235C/UNLIM 03/29/04
OPT:
ITEM: 39
LBL: 5A (L)T0:1750

**G4**



(1P) **SN74LS07NSR**
(Q) **2000** (D) **0336**
(31T) LOT: 3959047MLA
(4W) TKY (1T) 7523483SI2
(P)
(2P) REV: (V) 0033317
(20L) CS0: SHE (21L) CC0:USA
(22L) AS0: MLA (23L) AC0: MYS

Group 1 Product Affected:

TLV342IRUGR	TLV342SIRUGR
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Group 2 Product Affected:

MC33078DR-NG

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

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: RC4580IDR	QBS Process Reference: LM2902BQPWRQ1	QBS Package Reference: LM2903BQDRQ1	QBS Package Reference: MC33063ADR	QBS Package Reference: OPA2991QDRQ1	QBS Product Reference: RC4580IPWR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	3/231/0	3/231/0	3/231/0	-
UHAST	A3	Unbiased HAST	110C/85%RH	264 Hours	-	3/231/0	-	-	-	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	3/231/0	3/231/0	3/231/0	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0	3/231/0	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	3/231/0	3/135/0	-	3/135/0	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	3/231/0	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	2/154/0	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	3/231/0	-	-	-
HTOL	B1	Life Test	150C	408 Hours	-	3/231/0	-	-	1/77/1 ¹	-

Type	#	Test Name	Condition	Duration	Qual Device: RC4580IDR	QBS Process Reference: LM2902BQPWRQ1	QBS Package Reference: LM2903BQDRQ1	QBS Package Reference: MC33063ADR	QBS Package Reference: OPA2991QDRQ1	QBS Product Reference: RC4580IPWR
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	3/2400/0	1/800/0	-	-
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	3/30/0	-	3/30/0	-
ESD	E2	ESD CDM	-	1500 Volts	-	3/9/0	-	-	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	1/3/0	-	1/3/0
ESD	E2	ESD CDM	-	500 Volts	-	-	1/3/0	-	1/3/0	-
ESD	E2	ESD HBM	-	1000 Volts	-	-	-	1/3/0	-	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	-	3/9/0	1/3/0	-	1/3/0	-
LU	E4	Latch-Up	Per JESD78	-	-	3/18/0	1/6/0	1/3/0	1/6/0	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	-	-	1/30/0	-	1/30/0
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	3/90/0	3/90/0	-	3/90/0	-
FTY	E6	Final Test Yield	-	-	1/1/0	-	-	-	-	-

- QBS: Qual By Similarity
- Qual Device RC4580IDR 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-2307-066

[1]-HTOL failed due to rejects mixed back in with tested good units.

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: TLV342SIRUGR	QBS Reference: OPA2991QDGKRQ1	QBS Reference: ADS1115IRUGR	QBS Reference: 2N7001TDPWR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/2	3/231/0	3/231/0
UHA	A3	Autoclave	121C/15psig	96 Hours	-	3/231/0	-	-
UHA	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	3/231/0	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	3/231/0
HTSL	A6	High Temperature Storage Life	175C	630 Hours	-	3/135/0	-	-
HTOL	B1	Life Test	150C	408 Hours	-	3/231/1 ¹	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/4 ²	-	-
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	-	-	1/76/0	-
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	-	-	1/76/0	-

Type	#	Test Name	Condition	Duration	Qual Device: TLV342SIRUGR	QBS Reference: OPA2991QDGKRQ1	QBS Reference: ADS1115IRUGR	QBS Reference: 2N7001TDPWR
SD	C3	PB Solderability	Precondition w/155C Dry Bake (4 hrs +/- 15 minutes); PB Solder;	-	-	1/15/0	-	3/66/0
SD	C3	PB-Free Solderability	Precondition w/155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	-	1/15/0	1/22/0	3/66/0
PD	C4	Physical Dimensions	Cpk>1.67	-	-	3/30/0	-	3/15/0
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	1/3/0	-	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	1/6/0	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	3/90/0	-	3/90/0
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-
FTY	E6	Final Test Yield	-	-	1/Pass	-	-	3/3/0

- QBS: Qual By Similarity
- Qual Device TLV342SIRUGR 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-2210-032

[1]-One unit failed Vio due to bad BI socket contact
[2]-Three units failed Vio due to bad BI socket contact
one EOS failure due to reverse-insertion - discounted

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: TLV342IRUGR	QBS Reference: TLV62568DBVR	QBS Reference: ADS1115IRUGR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	3/231/0
UHAST	A3	Autoclave	121C/15psig	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	-	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	3/231/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	3/231/0	-
HTOL	B1	Life Test	150C	300 Hours	-	3/231/0	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/3000/0	-
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	-	-	1/76/0
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	-	-	1/76/0
SD	C3	PB-Free Solderability	Precondition w/155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	-	-	1/22/0
ESD	E2	ESD CDM	-	1500 Volts	-	1/3/0	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-

Type	#	Test Name	Condition	Duration	Qual Device: TLV342IRUGR	QBS Reference: TLV62568DBVR	QBS Reference: ADS1115IRUGR
ESD	E2	ESD HBM	-	3500 Volts	1/3/0	1/3/0	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	1/6/0	-
CHAR	E5	Electrical Characterization	Min, Typ, Max Temp	-	-	1/30/0	-
FTY	E6	Final Test Yield	-	-	1/Pass	-	-

- QBS: Qual By Similarity
- Qual Device TLV342IRUGR 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-2310-045

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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