

PCN Number:	20231207002.1A		PCN Date:	December 12, 2023																			
Title:	Qualification of RFAB as an additional Fab site option, Die Revision, and Assembly Site and BOM options for select devices																						
Customer Contact:	Change Management Team		Dept:	Quality Services																			
Proposed 1st Ship Date:	Mar 08, 2024		Sample requests accepted until:	Jan 12, 2024 for PCN rev A device*																			
*Sample requests received after Jan 13, 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 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 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:																							
<p>Revision A is to announce the <u>addition</u> of new device that was not included on the original PCN notification. The new device is highlighted and bolded under Group 3 in the device list below. The expected first shipment date for the new device will be 90 days from this notice (Mar 12, 2024) for the newly added device only. The proposed 1st ship date of Mar 08, 2024 still applies for the original set of devices.</p> <p>Texas Instruments is pleased to announce the qualification of its RFAB fabrication facility as an additional Wafer Fab option in addition to Assembly site and BOM options for the devices listed below.</p>																							
<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>FR-BIP-1</td> <td>ASLC10</td> <td>200mm</td> <td>RFAB</td> <td>LBC7</td> <td>300mm</td> </tr> </tbody> </table>						Current Fab Site			Additional Fab site			Current Fab Site	Process	Wafer Diameter	Additional Fab site	Process	Wafer Diameter	FR-BIP-1	ASLC10	200mm	RFAB	LBC7	300mm
Current Fab Site			Additional Fab site																				
Current Fab Site	Process	Wafer Diameter	Additional Fab site	Process	Wafer Diameter																		
FR-BIP-1	ASLC10	200mm	RFAB	LBC7	300mm																		
<p>The die was also changed as a result of the process change to accommodate the change in Assembly technology</p> <p>Construction differences are as follows:</p>																							
Group 1 Device:																							
	TI Malaysia	TI Malaysia (new)																					
Bond wire composition, diameter	Cu, 0.96 mil	Cu, 0.8 mil																					
Group 2 Device:																							
	TI Malaysia	TI Mexico																					
Bond wire composition, diameter	Cu, 0.96 mil	Cu, 0.8 mil																					
Package marking	Pin 1 Stripe With ECAT (G4) TI Logo	Pin 1 Dot Remove ECAT (G4) TI letter																					
Group 3 Device:																							
	TI Malaysia	TI CDAT	TI CLARK																				
Bond wire composition, diameter	Au, 0.96mil	Cu, 0.80mil	Cu, 0.80mil																				
Mount Compound	4205846	4207123	4207123																				

Mold Compound	4208625	4222198	4222198
Lead finish	NiPdAu	NiPdAu	NiPdAu
Final Test site	MLA	CDAT	CLARK

Reason for Change:

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
FR-BIP-1	TID	DEU	Freising
RFAB	RFB	USA	Richardson

Die Rev:

Current


New


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

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
TI Malaysia	MLA	MYS	Kuala Lumpur
TI Mexico	MEX	MEX	Aguaascalientes
TI CDAT	CDA	CHN	Chengdu
TI Clark	QAB	PHL	Angeles City, Pampanga

Sample product shipping label (not actual product label):


TEXAS INSTRUMENTS
MADE IN: Malaysia
2DC: 20:


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

MSL '2 / 260C / 1 YEAR SEAL DT
MSL 1 / 235C / UNLIM 03/29/04
OPT:
ITEM: 39
LBL: 5A (L) T0:1750

Group 1 Product Affected: Fab site, Die Revision, BOM update

TXS0104EPWR	TXS0104EPWRG4
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Group 2 Product Affected: Fab site, Die Revision, Assembly site

TXS0104EDR

Group 3 Product Affected: Fab site, Die Revision, Assembly site

TXS0104ERGYR	TXS0104ERGYRG4
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Group 1 Qualification Report

Approve Date 19-OCTOBER-2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: TXS0104EPWR	QBS Reference: TMP235AEDBZRQ1	QBS Reference: SN74HCS74QPWRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	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	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	-	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	3/135/0
HTSL	A6	High Temperature Storage Life	150C	2000 Hours	-	3/135/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	3/231/0
HTOL	B1	Life Test	150C	1000 Hours	-	3/231/0	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	3/2400/0
ELFR	B2	Early Life Failure Rate	150C	48 Hours	-	3/2400/0	-
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	1/15/0	1/15/0
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	3/30/0
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-
ESD	E2	ESD CDM	-	500 Volts	-	1/3/0	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	1/3/0	1/3/0
LU	E4	Latch-Up	Per JESD78	-	1/3/0	1/6/0	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	3/90/0	3/90/0

QBS: Qual By Similarity

Qual Device TXS0104EPWR 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/>

Group 2 Qualification Report

Approve Date 19-OCTOBER -2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: TXS0104EDR	QBS Reference: LM2904BQDRQ1	QBS Reference: LM393BIDR	QBS Reference: TMUX1134PWR
HAST	A2	Biased HAST	130C	96 Hours	-	3/231/0	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	0/0/0	3/231/0	3/231/0
UHAST	A3	Unbiased HAST	130C	192 Hours	-	3/231/0	-	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
TC	A4	Temperature Cycle	-65/150C	500 Cycles	-	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	175C	500 Hours	-	3/135/0	3/231/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	3/231/0	3/231/0
HTOL	B1	Life Test	150C	408 Hours	-	3/231/0	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/4 ^{1,2}	3/2400/0	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	-	-
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	-	-	-	1/22/0
PD	C4	Physical Dimensions	Cpk>1.67	-	-	3/30/0	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	2/6/0	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	2/6/0	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	-	3/9/0	-	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	3/18/0	2/6/0	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	3/90/0	1/30/0
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	3/90/0	-	-
FTY	E6	Final Test Yield	-	-	-	-	1/1/0	-

QBS: Qual By Similarity

Qual Device TXS0104EDR 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/>

[1]-Precon and ELFR fails due to a defect screenable at production test. See 8D attached to eQDB.

[2]-Precon and ELFR fails due to a defect screenable at production test. See 8D attached to eQDB.

Group 3 Qualification Report

Approve Date 21-SEPTEMBER-2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: TXS0104ERGYR	QBS Reference: TMP235AEDBZRQ1	QBS Reference: SN74HCS595QBQBRQ1
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	1/77/0	-	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	3/135/0
HTSL	A6	High Temperature Storage Life	150C	2000 Hours	-	3/135/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	3/231/0
HTOL	B1	Life Test	150C	1000 Hours	-	3/231/0	-
ELFR	B2	Early Life Failure Rate	150C	48 Hours	-	3/2400/0	-
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	1/15/0	-
SD	C3	PB Solderability	8 Hours Steam Age	-	-	-	1/22/0
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	1/15/0	-
SD	C3	PB-Free Solderability	8 Hours Steam Age	-	-	-	1/22/0
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	1/22/0	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	3/30/0	3/30/0
ESD	E2	ESD CDM	-	2000 Volts	-	0/0/0	1/3/0
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-
ESD	E2	ESD CDM	-	500 Volts	-	1/3/0	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	1/3/0	-
ESD	E2	ESD HBM	-	7000 Volts	-	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	1/3/0	1/6/0	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	3/90/0	3/90/0

QBS: Qual By Similarity

Qual Device TXS0104ERGYR 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/>

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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