

PCN Number:	20211220001.2	PCN Date:	December 23, 2021
Title:	Qualification of RFAB as an additional Fab site option for select ABCD6 devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Jun 22, 2022	Estimated Sample Availability:	Date provided at sample request.
Change Type:			
<input type="checkbox"/> Assembly Site	<input type="checkbox"/> Assembly Process	<input type="checkbox"/> Assembly Materials	
<input type="checkbox"/> Design	<input type="checkbox"/> Electrical Specification	<input type="checkbox"/> Mechanical Specification	
<input type="checkbox"/> Test Site	<input type="checkbox"/> Packing/Shipping/Labeling	<input type="checkbox"/> Test Process	
<input type="checkbox"/> Wafer Bump Site	<input type="checkbox"/> Wafer Bump Material	<input type="checkbox"/> Wafer Bump Process	
<input checked="" type="checkbox"/> Wafer Fab Site	<input checked="" type="checkbox"/> Wafer Fab Materials	<input checked="" type="checkbox"/> Wafer Fab Process	
	<input type="checkbox"/> Part number change		

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of its RFAB fabrication facility as an additional Wafer Fab source for the selected devices listed in the "Product Affected" section.

Current Fab Site				Additional Fab Site			
Current Fab Site	Process	Passivation	Wafer Diameter	Additional Fab Site	Process	Passivation	Wafer Diameter
MAINEFAB	ABCD6	SiN	200 mm	RFAB	ABCD6	SiON	300 mm

Qual details are provided in the Qual Data Section.

Reason for Change:

Continuity of Supply

Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):

None

Changes to product identification resulting from this PCN:

Current:

Current Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
MAINEFAB	CUA	USA	South Portland

New Fab Site:

New Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
RFAB	RFB	USA	Richardson

Sample product shipping label (not actual product label)



MADE IN: Malaysia
2DC: 20:

MSL 2 / 260C / 1 YEAR	SEAL DT
MSL 1 / 235C / UNLIM	03/29/04

OPT: 39
ITEM: 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:

INA240A1QPWRQ1	INA240A2QPWRQ1	INA240A3QPWRQ1	INA240A4QPWRQ1
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Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)

Approved 02-Dec-2021

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: <u>INA240A1QP</u> <u>WRQ1</u>	Qual Device: <u>INA240A2QP</u> <u>WRQ1</u>	Qual Device: <u>INA240A3QP</u> <u>WRQ1</u>	Qual Device: <u>INA240A4QP</u> <u>WRQ1</u>	QBS Product Reference: <u>INA240A1QP</u> <u>WRQ1</u>	QBS Process Reference: <u>INA240A1E</u> <u>DQ1</u>	QBS Process Reference: <u>INA240A2E</u> <u>DQ1</u>	QBS Process Reference: <u>INA240A3E</u> <u>DQ1</u>
Test Group A – Accelerated Environment Stress Tests														
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	1/77/0	-	-	-	3/231/0	1/77/0	1/77/0	1/77/0
UHA ST	A3	JEDEC JESD22-a118	3	77	Unbiased HAST 130C/85%RH	96 Hours	1/79/0	-	-	-	3/231/0	1/77/0	1/77/0	1/77/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	1000 Cycles	1/77/0	-	-	-	-	1/77/0	1/77/0	1/77/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	1820 Cycles	-	-	-	-	-	1/77/0	1/77/0	1/77/0

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: <u>INA240A1QP</u> <u>WRQ1</u>	Qual Device: <u>INA240A2QP</u> <u>WRQ1</u>	Qual Device: <u>INA240A3QP</u> <u>WRQ1</u>	Qual Device: <u>INA240A4QP</u> <u>WRQ1</u>	QBS Product Reference: <u>INA240A1QP</u> <u>WRQ1</u>	QBS Process Reference: <u>INA240A1E</u> <u>DQ1</u>	QBS Process Reference: <u>INA240A2E</u> <u>DQ1</u>	QBS Process Reference: <u>INA240A3E</u> <u>DQ1</u>
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	2000 Cycles	-	-	-	-	-	1/77/0	1/73/0	1/73/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	1/77/0	-	-	-	3/242/1*	-	-	-
TC-WBP	A4	MIL-STD883 Method 2011	1	60	Auto Post TC Bond Pull	30 ball bonds, min. 5 units	1/5/0	-	-	1/5/0	1/5/0	1/5/0	-	-
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	N/A	N/A	N/A	-	-	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	1/45/0	-	-	-	-	-	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	1000 Hours	-	-	-	-	-	1/45/0	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	-	-	-	-	1/45/0	-	-	-

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: INA240A1QP WRQ1	Qual Device: INA240A2QP WRQ1	Qual Device: INA240A3QP WRQ1	Qual Device: INA240A4QP WRQ1	QBS Product Reference: INA240A1QP WRQ1	QBS Process Reference : INA240A1E DQ1	QBS Process Reference : INA240A2E DQ1	QBS Process Reference : INA240A3E DQ1
Test Group B – Accelerated Lifetime Simulation Tests														
HTOL	B1	JEDEC JESD22-A108	3	77	HTOL 150C	1000 Hours	-	-	-	-	-	1/77/0	1/77/0	1/77/0
HTOL	B1	JEDEC JESD22-A108	3	77	L/T 150C	408 Hours	1/77/0	-	-	-	2/222/0	-	-	-
HTOL	B1	JEDEC JESD22-A108	3	77	L/T 150C	500 Hours	-	-	-	-	1/77/0	-	-	-
ELFR	B2	ACE Q100-008	3	800	Early Life Failure Rate 150C	48 Hours	-	-	-	-	-	1/800/0	1/800/0	1/800/0
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	N/A	N/A	3/231/0 (oplife) 1/45/0 (data Retention)	-	-	-
Test Group C – Package Assembly Integrity Tests														
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	-	1/30/0	-	-	-	1/30/0	-	-	-
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	-	1/30/0	-	-	-	1/30/0	-	-	-
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	Pb and Pb free	-	-	-	-	1/15/0 1/15/0	-	-	-

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: INA240A1QP WRQ1	Qual Device: INA240A2QP WRQ1	Qual Device: INA240A3QP WRQ1	Qual Device: INA240A4QP WRQ1	QBS Product Reference: INA240A1QP WRQ1	QBS Process Reference : INA240A1E DQ1	QBS Process Reference : INA240A2E DQ1	QBS Process Reference : INA240A3E DQ1
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	-	-	-	-	-	3/30/0	-	-	-
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	-	-	-	-	-	-	-	-	-
Test Group D – Die Fabrication Reliability Tests														
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	-	-	-	-
TDD	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	-	-	-	-
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	-	-	-	-
NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	-	-	-	-
SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	-	-	-	-

Test Group E – Electrical Verification Tests														
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	2500 V	1/3/0	-	-	-	-	1/3/0	1/3/0	1/3/0
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	3000 V	-	-	-	-	1/3/0	-	-	-
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	4000 V	-	-	-	-	-	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1000 V	1/3/0	-	-	-	1/3/0	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1500 V	-	-	-	-	-	1/3/0	1/3/0	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-up	LU	1/6/0	-	-	-	1/6/0	1/6/0	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0

- QBS: Qual By Similarity
- Qual Device INA240A3QPWRQ1 is qualified at LEVEL2-260C
- Qual Device INA240A4QPWRQ1 is qualified at LEVEL2-260C
- Qual Device INA240A2QPWRQ1 is qualified at LEVEL2-260C
- Qual Device INA240A1QPWRQ1 is qualified at LEVEL2-260C

A1 (PC): Preconditioning:
Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable.

Ambient Operating Temperature by Automotive Grade Level:
Grade 0 (or E): -40°C to +150°C
Grade 1 (or Q): -40°C to +125°C
Grade 2 (or T): -40°C to +105°C
Grade 3 (or I): -40°C to +85°C

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/uHAST

Green/Pb-free Status:
Qualified Pb-Free (SMT) and Green

*Mechanical Failure

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