

PCN Number:	20161102002	PCN Date:	Nov 14, 2016
Title:	Qualification of AIZU as an additional Wafer Fab Site option for select devices in HPA07 and F05 Technology		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Feb 14, 2017	Estimated Sample Availability:	Date provided at sample request.
Change Type:			
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Assembly Process
<input type="checkbox"/>	Design	<input type="checkbox"/>	Assembly Materials
<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Electrical Specification
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Mechanical Specification
<input checked="" type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>	Packing/Shipping/Labeling
<input type="checkbox"/>		<input type="checkbox"/>	Test Process
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Material
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Process
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Materials
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Process
<input type="checkbox"/>		<input type="checkbox"/>	Part number change

PCN Details

Description of Change:

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

Current Sites			Additional Sites		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
DP1DM5	HPA07	200mm	AIZU	HPA07	200mm
DP1DM5	F05	200mm	AIZU	F05	200mm

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

Chip Site	Chip Site Origin (20L)	Chip Site Country Code (21L)	Chip Site City
DP1DM5	DM5	USA	Richardson

New Fab Site

Chip Site	Chip Site Origin (20L)	Chip Site Country Code (21L)	Chip Site City
AIZU	CU2	JPN	Aizuwakamatsu-shi

Sample product shipping label (not actual product label)

Product Affected Group:

ADS8028IRTJR	NN1002RHH	TMS320F2812GHHA	TMS320F2812PGFS
ADS8028IRTJT	NN1002RHHR	TMS320F2812GHHR	TMS320F2812ZHHA
DFDF2812ZHHR	TMS320F2810PBKA	TMS320F2812GHHS	TMS320F2812ZHHR
ENICSF2811PBKA	TMS320F2810PBKS	TMS320F2812PGFA	TMS320F2812ZHHS
NN1002RGZ	TMS320F2811PBKA	TMS320F2812PGFAG4	TYCOF2812PGFA
NN1002RGZR	TMS320F2811PBKS		

Qualification Report**HPA07 Offload DM5 to Aizu: ADS8028**

Approval date: 10/17/2016

Product Attributes

Attributes	Qual Device: ADS8028IRTJT	QBS Product Reference: ADS8028IRTJT	QBS Process Reference: OPA2333AIDGK	QBS Process Reference: TMP431ADGK	QBS Package Reference: SH6966ACC0RGCRG4	QBS Package Reference: TPS2231RGPR
Assembly Site	CLARK AT	CLARK-AT	ASESH	HNT	CLARK-AT	CLARK-AT
Package Family	VQFN	VQFN	TSSOP	TSSOP	QFN	QFN
Wafer Fab Supplier	AIZU	DMOS5	AIZU	AIZU	MIHO8	DFAB
Wafer Fab Process	50HPA07	50HPA07	50HPA07	50HPA07	LBC7	LBC4

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: ADS8028IRTJT	QBS Product Reference: ADS8028IRTJT	QBS Process Reference: OPA2333AIDGK	QBS Process Reference: TMP431ADGK	QBS Package Reference: SH6966ACC0RGCRG4	QBS Package Reference: TPS2231RGPR
AC	Autoclave 121C	2 atm (96 Hrs)	-	-	-	-	3/231/0	3/231/0
CDM	ESD CDM	+/- 250V, 500V*, 750V*, 1000V*	1/3/0	1/3/0	1/3/0	1/3/0	-	-
ED	Electrical Characterization	Per Datasheet Parameters	1/Pass	1/Pass	1/Pass	2/Pass	-	-
HAST	Biased HAST 130C/85%RH	96 Hours	-	1/77/0	1/77/0	2/154/0	3/231/0	-
HBM	ESD HBM	+/- 500V, 1000V, 1500V*, 2000V*, 2500V*	1/3/0	1/3/0	1/3/0	1/3/0	-	-
HTOL	Life Test, 150C	300 Hours	-	-	1/77/0	2/154/0	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	-	3/231/0	3/231/0
LU	Latch-up	(per JESD78)	1/Pass	1/Pass	1/6/0	1/6/0	-	-
MSL	Thermal Path Integrity	Level 2-260C	-	1/12/0	-	-		2/44/0
TC	Temperature Cycle -65/150C	500 Cycles	-	1/77/0	1/77/0	2/154/0	3/231/0	3/231/0

- 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/>**Green/Pb-free Status:**

Qualified Pb-Free (SMT) and Green

Qualification Report

HPA07 Offload DM5 to Aizu: NN1002
Approve Date: 14-Oct-2016

Product Attributes

Attributes	Qual Device: NN1002RHHR	QBS Product Reference: NN1002RHHR	QBS Process Reference: OPA2333AIDGK	QBS Process Reference: TMP431ADGK	QBS Package Reference: SH6966ACC0RGCRG4_CU_WIRE	QBS Package Reference: TPS65090RVN
Assembly Site	CLARK AT	CLARK-AT	ASESH	HNT	CLARK-AT	CLARK-AT
Package Family	VQFN	VQFN	TSSOP	TSSOP	QFN	VQFN
Wafer Fab Supplier	AIZU	DMOS5	AIZU	AIZU	MIHO8	RFAB
Wafer Fab Process	50HPA07	50HPA07	50HPA07	50HPA07	LBC7	LBC7 + OTP

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: NN1002RHHR	QBS Product Reference: NN1002RHHR	QBS Process Reference: OPA2333AIDGK	QBS Process Reference: TMP431ADGK	QBS Package Reference: SH6966ACC0RGCRG4_CU_WIRE	QBS Package Reference: TPS65090RVN
AC	Autoclave 121C	2 atm (96 Hrs)	-	-	-	-	3/231/0	3/231/0
CDM	ESD CDM	+/- 250V, 500V*, 750V*, 1000V*	1/3/0	1/3/0	1/3/0	1/3/0	-	-
ED	Electrical Characterization	Per Datasheet Parameters	1/Pass	-	1/Pass	2/Pass	-	-
HAST	Biased HAST 130C/85%RH	96 Hours	-	-	1/77/0	2/154/0	3/231/0	-
HBM	ESD HBM	+/- 500V, 1000V, 1500V*, 2000V*, 2500V*	1/3/0	-	1/3/0	1/3/0	-	1/3/0
HTOL	Life Test, 150C	300 Hours	-	-	1/77/0	2/154/0	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	-	3/231/0	3/231/0
LU	Latch-up	(per JESD78)	1/6/0	-	1/6/0	1/6/0	-	-
MSL	Thermal Path Integrity	Level 3-260C	-	-	-	-	3/66/0	3/45/0
TC	Temperature Cycle -65/150C	500 Cycles	-	-	1/77/0	2/154/0	3/231/0	3/231/0

- 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/>

Green/Pb-free Status:

Qualified Pb-Free (SMT) and Green

Qualification Report

AIZU 50HPA07 Phase 3 Qualification Approve Date 18-Dec-2011

Product Attributes

Attributes	Qual Device: ADS1230IPW	Qual Device: ADS8505IBDW	Qual Device: DAC8820ICDB
Wafer Fab Supplier	AIZU	AIZU	AIZU
Wafer Process	50HPA07	50HPA07	50HPA07
Assembly Site	TAI	TAI	CARSEM
Package Family	TSSOP	SOIC	SSOP

- QBS: Qual By Similarity
- Qual Device DAC8820ICDB is qualified at LEVEL2-260C
- Qual Device ADS1230IPW is qualified at LEVEL2-260C
- Qual Device ADS8505IBDW is qualified at LEVEL2-260C

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: ADS1230IPW	Qual Device: ADS8505IBDW	Qual Device: DAC8820ICDB
CDM	ESD - CDM	1000 V	1/3/0	-	1/3/0
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass
HBM	ESD - HBM	2500 V	1/3/0	-	1/3/0
HTOL	Life Test, 125C	1000 Hours	-	-	1/77/0
HTOL	Life Test, 150C	300 Hours	-	1/77/0	-
LU	Latch-up	(per JESD78)	1/6/0	1/6/0	1/6/0
TC	Temperature Cycle-65/150C	500 Cycles	-	1/77/0	1/77/0
UHASt	Unbiased HAST, 130C/85%RH	96 Hours	-	1/77/0	-

- Preconditioning was performed for Autodave, 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/>

Green/Pb-free Status:

Qualified Pb-Free (SMT) and Green

Qualification Report

AIZU Phase 2 of 50HPA07 Wafer Fab Qualification Approved 12/31/2011

Product Attributes

Attributes	Qual Device: BUF12840AIRGE	Qual Device: INA210AIDCK	Qual Device: INA219AIDCN	Qual Device: OPA2376AIDGK
Assembly Site	CLARK	HNT	NS2	HANA THAILAND
Package Family	VQFN	SOT / COL	SOT23	-
Wafer Fab Supplier	AIZU	AIZU	AIZU	AIZU
Wafer Fab Process	50HPA07	50HPA07	50HPA07	50HPA07

- QBS: Qual By Similarity
- Qual Device BUF12840AIRGE is qualified at LEVEL3-260C
- Qual Device INA210AIDCK is qualified at LEVEL2-260C
- Qual Device INA219AIDCN is qualified at LEVEL2-260C
- Qual Device OPA2376AIDGK is qualified at LEVEL2-260C

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: BUF12840AIRGE	Qual Device: INA210AIDCK	Qual Device: INA219AIDCN	Qual Device: OPA2376AIDGK
HAST	Biased HAST, 130C/85%RH	96 Hours	-	1/77/0	1/77/0	-
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	1/77/0	1/77/0	1/77/0	-
TC	Temperature Cycle -65/150C	500 Cycles	1/77/0	1/77/0	1/77/0	-
HTSL	High Temp Storage Bake, 170C	420 Hours	1/77/0	1/77/0	1/77/0	-
HTOL	Life Test, 150C	300 Hours	1/77/0	1/77/0	1/77/0	-
HBM	ESD - HBM	1000 V	1/3/0	1/3/0	1/3/0	-
CDM	ESD - CDM	500 V	1/3/0	1/3/0	1/3/0	-
LU	Latch-up	Per JESD78	1/6/0	1/6/0	1/6/0	-
ED	Electrical Characterization	Per Datasheet Parameters	1/Pass	1/Pass	1/Pass	1/Pass

- 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/>

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Qualification Report

INA231AIYFFR/T in AIZU as 2nd source

Approve Date 8-April-2016

Product Attributes

Attributes	Qual Device: INA231AIYFF	QBS Process Reference: CD3246B0YFFR	QBS Process Reference: TMP103AYFF	QBS Process Reference: TSC2014YZG	QBS Package Reference: CD3246B0YFFR	QBS Package Reference: TPS75105YFF
Assembly Site	CLARK-AT	CLARK-AT	CLARK-AT	CLARK-AT	CLARK-AT	CLARK-AT
Package Family	DSBGA	DSBGA	DSBGA	DSBGA	DSBGA	DSBGA
Wafer Fab Supplier	AIZU	AIZU	AIZU	AIZU	DMOS5	FFAB
Wafer Process	50HPA07HV	50HPA07HV	33HPA07	33HPA07	50HPA07HV	3370A12

-QBS: Qual by Similarity

-Qual Device INA231AIYFF is qualified at LEVEL1-260C

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: INA231AIYFF	QBS Process Reference: CD3246B0YFFR	QBS Process Reference: TMP103AYFF	QBS Process Reference: TSC2014YZG	QBS Package Reference: CD3246B0YFFR	QBS Package Reference: TPS75105YFF
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass	Pass	Pass	Pass
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/252/0	-	-	3/231/0	3/230/0
HBM	ESD - HBM	2500 V	1/3/0	2/12/0	1/3/0	1/3/0	2/12/0	-
CDM	ESD - CDM	1000 V	1/3/0	2/6/0	1/3/0	-	2/6/0	-
HTOL	Life Test, 150C	300 Hours	1/77/0	3/231/0	-	1/77/0	3/231/0	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	3/231/0	-	-	3/231/0	3/231/0
LU	Latch-up	(per JESD78)	1/6/0	3/18/0	1/6/0	1/6/0	3/18/0	-
PD	Physical Dimensions	--	-	-	-	-	-	3/15/0
SBS	Bump Shear	Unstressed	-	3/150/0	-	-	-	3/150/0
TC	Temperature Cycle, -40/125C	400 Cycles	-	-	-	-	3/230/0	-
TC	Temperature Cycle, -55/125C	700 Cycles	-	3/231/0	-	-	-	3/231/0
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	-	3/231/0	-	-	3/231/0	3/231/0

-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/>

Green/Pb-free Status:

Qualified Pb-Free (SMT) and Green

**Qualification Data: Aizu F05 Qualification
(Approved 4/14/2016)**

This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

Qualification Device Construction Details:

Qualification Vehicle: TMS320F2803XAPN

Wafer Fab Site:	AIZU	Wafer Process:	F05
Assembly Site:	TI Philippines	Wafer Size Dia.	200mm

Qualification: Plan **Test Results**

Reliability Test	Conditions	Sample Size (PASS/FAIL)
20K W/E	20K Write / Erase Cycles prior to HTSL, HTOL, RTSL	1800/0
HTOL (High Temperature Op Life)	125C - 1000 Hours	231/0
HTSL (High Temp Storage Life)*	150C Bake - 1000 Hours	231/0
RTSL (Room Temp Storage Life)	25C - 1000 Hours	231/0
Package Reliability		
Preconditioning	MSL3/260C	693/0
THB	85C/85RH - 1000 Hours	231/0
Temp Cycle	-65C/150C - 500 Cycles	231/0
Autoclave	121C/96hrs	231/0
ESD-HBM	2000v	15/0
ESD-CDM	750v	6/0
Latchup	1.5Vdd +/-100mA 125C	6/0

Notes:

* Test requires Moisture Preconditioning

Qualification tests "pass" on zero fails for each test

<optional> "QBS" stands for Qualification by Similarity

For questions regarding this notice, e-mails can be sent to the regional contacts shown below, or you can contact your local Field Sales Representative.

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