PCN Number:	20211208002.2	**PCN Date:**	Dec. 14, 2021
Title:	Qualification of AIZU as an additional Wafer Fab Site option for select PiccoloA devices		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	June 14, 2022	**Estimated Sample Availability:**	Date provided at sample request.

Change Type:

☐	Assembly Site	☐	Assembly Process	☐	Assembly Materials
☐	Design	☐	Electrical Specification	☐	Mechanical Specification
☐	Test Site	☐	Packing/Shipping/Labeling	☐	Test Process
☐	Wafer Bump Site	☐	Wafer Bump Material	☐	Wafer Bump Process
☒	Wafer Fab Site	☐	Wafer Fab Materials	☐	Wafer Fab Process
		☐	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 Site			Additional Site		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
DP1DM5	F05	200mm	AIZU	F05	200mm

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:

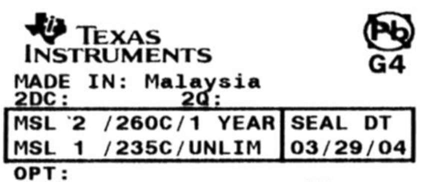
Current

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

Additional

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:

KLITE23PTQR	TMS320F28023DAQ	TMS320F28026PTQ	TMS320F28027PTQR
TMS320F28022DAQ	TMS320F28023PTQ	TMS320F28027DAQ	
TMS320F28022DAQR	TMS320F28026DAQ	TMS320F28027FPTQ	
TMS320F28022PTQ	TMS320F28026FPTQ	TMS320F28027PTQ	

Automotive Change Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)

Product Attributes

Attributes	Qual Device: TMS320F2802xPTQ	Qual Device: TMS320F2802xDAQ	Qual Device: TMS320F28035PNQ
Automotive Grade Level	Grade 1	Grade 1	Grade 1
Operating Temp Range Ta	-40 to +125 C	-40 to +125 C	-40 to +125 C
Product Function	Microprocessor	Microprocessor	Microprocessor
Die Attributes	-	-	-
Wafer Fab Supplier	AIZU	AIZU	AIZU
Other Die Attributes	Refer to CofDC	Refer to CofDC	Refer to CofDC
Package Attributes			-
Assembly Site	TAI	TAI	PHI
Package Type	LFQP	TSSOP	LQFP
Package Designator	PT	DA	PN
Ball/Lead Count	48	38	80
Other package Attributes	Refer to CofDC	Refer to CofDC	Refer to CofDC

- QBS: Qual By Similarity
- Qual Device TMS320F28035PNQ is qualified at LEVEL3-260C.

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: TMS320F2802xPTQ	Qual Device: TMS320F2802xDAQ	Qual Device: TMS320F28035PNQ
Test Group A – Accelerated Environment Stress Tests									
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL3/260C			3/693/0
						MSL2/260C	1/154/0	1/154/0	
THB	A2	JEDEC JESD22-A101	3	77	Biased Temperature and Humidity, 85C/85% RH	1000 hours	QBS	QBS	3/231/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 hours	1/77/0	1/77/0	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65C/150C	500 cycles	1/77/0	1/77/0	3/231/0
			1	5	Post Temp cycle bond pull	Post 500 cycles	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
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 hours	1/45/0	1/45/0	3/231/0
Test Group B – Accelerated Lifetime Simulation Tests									

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TMS320F2802xPTQ	Qual Device: TMS320F2802xDAQ	Qual Device: TMS320F28035PNQ
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 hours	1/77/0	QBS	3/231/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 hours	QBS	QBS	3/2400/0
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life, 150C	1000 hours	QBS	QBS	3/231/0
EDR	B3	AEC Q100-005	3	77	Write/Erase Endurance prior to B1 and B3	1000 cycles	QBS	QBS	3/462/0
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	1/30/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	-	1/30/0	1/30/0	1/30/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	-	QBS	QBS	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	-	QBS	QBS	3/30/0
Test Group D – Die Fabrication Reliability Tests									
EM	D1	JESD61	-	-	Electromigration	EM	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	TDDB	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	HCI	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
NBTI	D4	-	-	-	Negative Bias	NBTI	Completed Per Process	Completed Per Process	Completed Per Process

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TMS320F2802xPTQ	Qual Device: TMS320F2802xDAQ	Qual Device: TMS320F28035PNQ
					Temperature Instability		Technology Requirements	Technology Requirements	Technology Requirements
SM	D5	-	-	-	Stress Migration	SM	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	2000V	1/3/0	1/3/0	1/3/0
CDM	E3	AEC Q100-011	1	3	ESD - CDM	750V	1/3/0	1/3/0	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-up	125C	1/6/0	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	-	3/90/0	QBS	3/90/0

A1 (PC): Preconditioning:
Performed for THB, AC, 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

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