PCN Number:	20170922000-001	PCN Date:	Oct. 2, 2017
Title:	Qualification of MAINEFAB for select ABCD150XV2 devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Apr. 2, 2018	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 MAINEFAB fabrication facility as a wafer Fab source for the devices listed in "Product Affected" section of this document.

Current				
Chip Site	**Process**	**Wafer Diameter**	**Interlayer Dielectric**	**Contact Plug**
GFAB6	ABCD150XV2	150mm	TEOS Base ILD TEOS SOG/ SOG etchback	Part of metallization
GFAB8	ABCD150XV2	200mm	TEOS Base ILD TEOS SOG/ SOG etchback	Part of metallization

New				
Chip Site	**Process**	**Wafer Diameter**	**Interlayer Dielectric**	**Contact Plug**
MAINEFAB	ABCD150XV2*	200mm	Oxide CMP	W plug

*Interlayer Dielectric (ILD) and Contact plug processes will be upgraded to MaineFab's standardized Chemical-Mechanical Planarization (CMP) ILD and Tungsten (W) Contact plug processes.

Qual details are provided in the Qual Data Section.

Reason for Change:

GFAB closure

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

None

Changes to product identification resulting from this PCN:

Current

Chip Sites	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
GFAB6	GF6	GBR	Greenock
GFAB8	GF8	GBR	Greenock

New

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

Sample product shipping label (not actual product label)

Product Affected:

LM5109BQNGTRQ1	LM5109BQNGTTQ1	SN1406012TDGSRQ1

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

MAINEFAB ABCD150XV2 technology qualification/Automotive Grade 1
Approved 13-Sep-2017

Product Attributes

Attributes	Qual Device: LM5100AM/NOPB	QBS Package Reference: LM5576Q0MH/NOPB
Automotive Grade Level	Grade 1	Grade 0
Operating Temp Range	-40 to +125 C	-40 to +150 C
Product Function	Power Management	Power Management
Wafer Fab Supplier	MAINEFAB	MAINEFAB
Die Revision	E	A
Assembly Site	TIEMA	TIEMA
Package Type	SOIC	HTSSOP
Package Designator	D	PWP
Ball/Lead Count	8	20

- QBS: Qual By Similarity
- Qual Device LM5100AM/NOPB_QL is qualified at LEVEL1-260CG

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: LM5100AM/NOPB	QBS Package Reference: LM5576Q0MH/NOPB
	Test Group A – Accelerated Environment Stress Tests								
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 1	Level 1, 260C	3/239/0	3/720/0
	HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	3/231/0	3/231/0
	AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96HRS	-	3/231/0
	TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -55/150C	2000CYC	-	3/231/0
	TC-BP	A4	MIL-STD883 Method 2011	1	30	Post Temp. Cycle Bond Pull	Wires		1/30/0
	PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	N/A

Test Group B – Accelerated Lifetime Simulation Tests									
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	3/231/0	-
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	1000 Hours	-	3/231/0
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	3/2400/0	-
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	48 Hours	-	3/2400/0
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A
Test Group C – Package Assembly Integrity Tests									
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	Wires	3/60/0	-
	WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	Wires	3/60/0	-
	SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	-	-	-
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	-	-	-
Test Group D – Die Fabrication Reliability Tests									
	EM	D1	JESD61	-	-	Electromigration	-	-	-
	TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	-
	HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	-	-
	NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	-	-
	SM	D5	-	-	-	Stress Migration	-	-	-
Test Group E – Electrical Verification Tests									
	HBM	E2	AEC Q100-002	1	3	ESD - HBM	2000 V (Note1)	3/9/0	-
	CDM	E3	AEC Q100-011	1	3	ESD - CDM	1250 V	3/9/0	-
	LU	E4	AEC Q100-004	1	6	Latch-up	(Per AEC-Q100-004)	3/18/0	-
	ED	E4	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67	3/90/0	-

A1 (PC): Preconditioning:
Performed for THB, Biased HAST, AC, uHAST &TC samples, as applicable.
Note 1: 2000V for all pins except pin 2, pin 3, and pin 4 which are rated at 1000V for HBM

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

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.

Location	E-Mail
USA	PCNAmericasContact@list.ti.com
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