PCN Number:	PCN 20200519003.2	**PCN Date:**	May 26, 2020
Title:	Qualification of RFAB Wafer Fab site for LM5360xx devices		
Customer Contact:	[PCN Manager](#)	**Dept:**	Quality Services
Proposed 1st Ship Date:	Nov 26, 2020	**Estimated Sample Availability:**	Date provided at sample request

Change Type:

☐	Assembly Site	☐	Design	☐	Wafer Bump Site
☐	Assembly Process	☐	Data Sheet	☐	Wafer Bump Material
☐	Assembly Materials	☐	Part number change	☐	Wafer Bump Process
☐	Mechanical Specification	☐	Test Site	☒	Wafer Fab Site
☐	Packing/Shipping/Labeling	☐	Test Process	☒	Wafer Fab Materials
				☐	Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments Incorporated is announcing the qualification of RFAB Wafer Fab site for LM5360xx devices.

Current			New		
Wafer Fab Site	**Process**	**Wafer Diameter**	**Wafer Fab Site**	**Process**	**Wafer Diameter**
DP1DM5	LBC8	200 mm	RFAB	LBC8	300 mm

The LBC8 process technology has been running successfully in production at RFAB since 2013.

Reason for Change:

Continuity of Supply.

Anticipated impact on Fit, Form, 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
DP1DM5	DM5	USA	Dallas

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)

(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:

LM536003QDSXRQ1	LM53600MQDSXRQ1	LM53601AQWDSXRQ1
LM536003QDSXTQ1	LM53600MQDSXTQ1	LM53601AQWDSXTQ1

	LM536005QDSXRQ1	LM53600NQDSXRQ1	LM53601LQDSXRQ1	
	LM536005QDSXTQ1	LM53600NQDSXTQ1	LM53601LQDSXTQ1	
	LM53600AQDSXRQ1	LM536013QDSXRQ1	LM53601LQWDSXRQ1	
	LM53600AQDSXTQ1	LM536013QDSXTQ1	LM53601LQWDSXTQ1	
	LM53600LQDSXRQ1	LM536015QDSXRQ1	LM53601MQDSXRQ1	
	LM53600LQDSXTQ1	LM536015QDSXTQ1	LM53601MQDSXTQ1	
	LM53600LQWDSXRQ1	LM53601AQDSXRQ1	LM53601NQDSXRQ1	
	LM53600LQWDSXTQ1	LM53601AQDSXTQ1	LM53601NQDSXTQ1	

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

Approved 10-Dec-2019

Product Attributes

Attributes	Qual Device: LM5360xyQDSXTQ1	QBS Process Reference: S0704038C0PLPR
Automotive Grade Level	Grade 1	Grade 1
Operating Temp Range	-40 to +125 C	-40 to +125 C
Product Function	Power Management	Power Management
Die Attributes	-	-
Wafer Fab Supplier	RFAB	RFAB
Wafer Diameter (mm)	300	300
Wafer Process Technology	Power BiCMOS	Power BiCMOS
Wafer Process ID	LBC8	LBC8
Die Size (L,W) (mm)	1.7 X 2.3	8.38 X 8.11

- QBS: Qual By Similarity
- Qual Device LM5360xxQDSXQ1 family is qualified at LEVEL2-260C

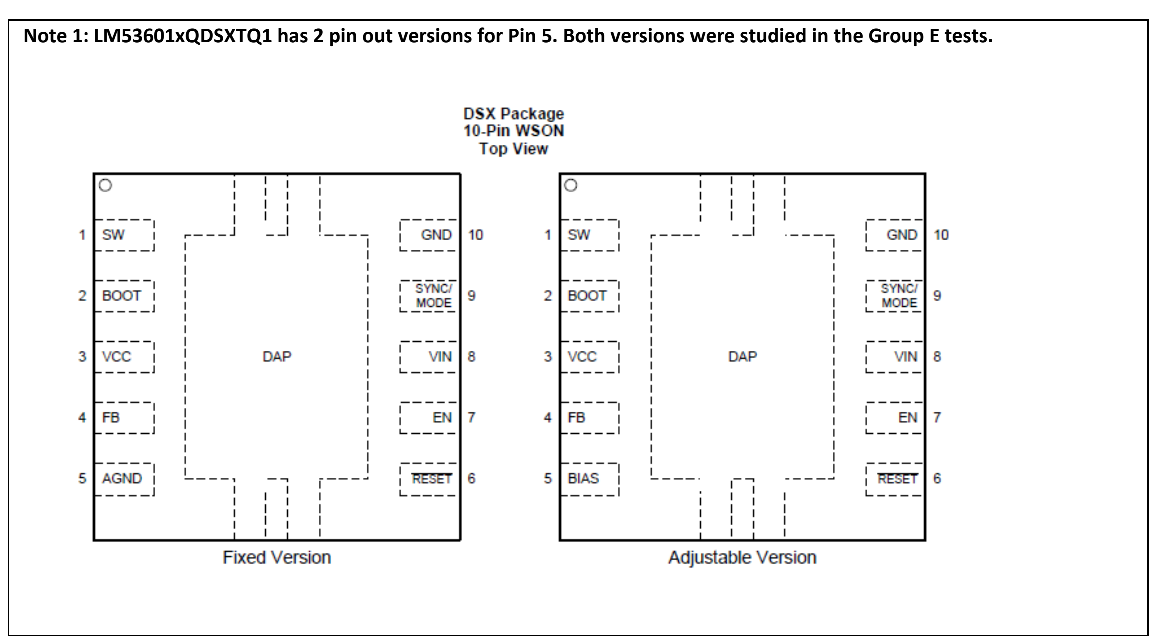
Qualification Results
Data Displayed as: Number of lots / Total sample size / Total failed

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: LM53601xyLQDSXTQ1	QBS wafer fab Process Reference: S0704038C0PLPR
Test Group A – Accelerated Environment Stress Tests									
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	All units for A2 to A4	Automotive Preconditioning Level 2	ATE	3/693/0	-
	HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 hours	3/231/0	-
	uHAST	A3	JEDEC JESD22-A102	3	77	130C/85%RH	96 hours	3/321/0	-
	TC	A4	JEDEC JESD22-A104 and Appendix	3	77	Temperature Cycle, -65/150C	500 cycles	3/77/0	-

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: LM53601xyLQDSXTQ1	QBS wafer fab Process Reference: S0704038C0PLPR
			3						
	TC	A4	MIL-STD883 Method 2011	1	5 units	Temperature Cycle, -65/150C	Post 500 cycles	5 units/ 30 wires pass.	-
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 hours	1/45/0	-
Test Group B – Accelerated Lifetime Simulation Tests									
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	408 hours	3/231/0	-
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	3/2400/0
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life 150C	1000 hours	N/A	-
Test Group C – Package Assembly Integrity Tests									
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	-	1/30/0	-
	WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	-	1/30/0	-
	SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	-	1/15/0	-
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	-	3/30/0	-
Test Group D – Die Fabrication Reliability Tests									
	EM	D1	JESD61	-	-	Electro migration	-	Completed Per Process Technology Requirements	-
	TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	Completed Per Process Technology Requirements	-
	HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	-
	NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements	-
	SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	-
Test Group E – Electrical Verification Tests								See note 1	
	HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	250V, 500V,	1/3/0 Fixed version 1/3/0 Adjustable	-

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: LM53601xyLQDSXTQ1	QBS wafer fab Process Reference: S0704038C0PLPR
							1000V, 2000V, 2500V	Version	
	CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	250V, 500V, 750V	1/3/0 Fixed version 1/3/0 Adjustable Version	-
	LU	E4	AEC Q100-004	1	6	Latch-up	125C	1/6/0 Fixed version 1/6/0 Adjustable Version	-
	ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	3/90/0 Fixed and Adjustable versions	

Note 1: LM53601xQDSXTQ1 has 2 pin out versions for Pin 5. Both versions were studied in the Group E tests.



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

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