PCN Number:	20221215001.1	PCN Date:	December 16, 2022
Title:	Qualification of new Fab site (RFAB) for select devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Mar 16, 2023	Sample Requests accepted until:	Jan 16, 2023*

*Sample requests received after Jan 16, 2023 will not be supported.

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 is pleased to announce the Qualification of new Fab site (RFAB) for selected devices listed in "Product Affected" section.

Current Fab Site			New Fab Site		
Current Fab Site	Process	Wafer Diameter	New Fab Site	Process	Wafer Diameter
MFAB	ABCD6	200 mm	RFAB	ABCD6	300 mm

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
MAINEFAB	CUA	USA	South Portland

New Fab Site

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

Sample product shipping label (not actual product label)

Product Affected:

LM5108DRCR	UCC27282DRCR	UCC27284DRCR	UCC27289DRCR
LM5108DRCT	UCC27282DRCT	UCC27284DRCT	UCC27289DRCT

Qualification Report

Approve Date 04-Nov-2022

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

Product Attributes

Attributes	Qual Device: UCC27282QDRCTQ1	Qual Device: UCC27284DRCT	Qual Device: UCC27289DRCT	Qual Device: UCC27282DRCT	QBS Reference: BQ25171QWDRCRQ1	QBS Reference: LM5141QRGERQ1	QBS Reference: UCC27282QDQ1	QBS Reference: UCC27284QDQ1	QBS Reference: UCC27289D	QBS Reference: CAXC8T245QRHLRQ1
Automotive Grade Level	Grade 1	-	-	-	Grade 1	Grade 1	Grade 1	Grade 1	-	Grade 1
Operating Temp Range (C)	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 150	-40 to 150	-40 to 125	-40 to 125
Product Function	Power Management	-	-	-	Power Management	Power Management	Power Management	Power Management	-	Signal Chain
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	RFAB	RFAB	RFAB	RFAB	RFAB	MH8
Assembly Site	CDAT	CDAT	CDAT	CDAT	CDAT	UTL1	FMX	FMX	FMX	CDAT
Package Group	QFN	QFN	QFN	QFN	-	QFN	SOIC	SOIC	SOIC	QFN
Package Designator	DRC	DRC	DRC	DRC	DRC	RGE	D	D	D	RHL
Pin Count	10	10	10	10	10	24	8	8	8	24

QBS: Qual By Similarity
Qual Device UCC27282QDRCTQ1 is qualified at MSL2 260C
Qual Device UCC27284DRCT is qualified at MSL2 260C
Qual Device UCC27289DRCT is qualified at MSL2 260C
Qual Device UCC27282DRCT is qualified at MSL1 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: UCC27282QDRCTQ1	Qual Device: UCC27284DRCT	Qual Device: UCC27289DRCT	Qual Device: UCC27282DRCT	QBS Reference: BQ25171QWDRCRQ1	QBS Reference: LM5141QRGERQ1	QBS Reference: UCC27282QDQ1	QBS Refere UCC27284
Test Group A - Accelerated Environment Stress Tests															
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	1 Step	-	-	-	-	-	-	-	-
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL2 260C	1 Step	1/0/0	-	-	-	3/0/0	-	3/0/0	-
HAST	A2	JEDEC JESD22-A110	3	77	Temperature Humidity Bias	85C/85%RH	1000 Hours	-	-	-	-	-	-	-	-
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	-	1/77/0	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	-	-	-	3/231/0	-	3/231/0	-
PTC	A5	JEDEC JESD22-A105	1	45	PTC	-40/125C	1000 Cycles	-	-	-	-	1/45/0	-	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	3/135/0	-	1/77/0	-
Test Group B - Accelerated Lifetime Simulation Tests															
HTOL	B1	JEDEC JESD22-A108	1	77	Life Test	125C	1000 Hours	-	-	-	-	-	3/231/0	-	-
HTOL	B1	JEDEC JESD22-A108	1	77	Life Test	150C	1000 Hours	-	-	-	-	-	-	3/231/0	-
ELFR	B2	AEC Q100-008	1	77	Early Life Failure Rate	125C	48 Hours	-	-	-	-	-	3/2400/0	-	-
ELFR	B2	AEC Q100-008	1	77	Early Life Failure Rate	150C	48 Hours	-	-	-	-	-	-	1/800/0	-

Test Group C - Package Assembly Integrity Tests															
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	1/30/0	-	-	-	3/15/0	-	-	-
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	1/30/0	-	-	-	3/15/0	-	-	-
SD	C3	JEDEC JESD22-B102	1	15	PB Solderability	>95% Lead Coverage	-	-	-	-	-	1/15/0	-	-	-
SD	C3	JEDEC JESD22-B102	1	15	PB-Free Solderability	>95% Lead Coverage	-	-	-	-	-	1/15/0	-	-	-
PD	C4	JEDEC JESD22-B100 and B108	1	10	Physical Dimensions	Cpk>1.67	-	1/10/0	-	-	-	3/30/0	-	-	-

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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Process Technology Requirements
TDDB	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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Process Technology Requirements
HCI	D3	JESD60 & 28	-	-	Hot Carrier Injection	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed 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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed 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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Process Technology Requirements
Test Group E - Electrical Verification Tests															
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	1/3/0	-	-	-	-	-	1/3/0	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	1/3/0	-	-	-	-	-	1/3/0	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	1/6/0	-	-	-	-	-	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	1/30/0	-	-	-	-	-	3/90/0	1/30/0

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
Ambient Operating Temperature by Automotive Grade Level:
Grade 0 (or E): -40C to +150C
Grade 1 (or Q): -40C to +125C
Grade 2 (or T): -40C to +105C
Grade 3 (or I) : -40C to +85C
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
Quality and Environmental data is available at TI's external Web site: http://www.ti.com/
[1]-Fab Defect. Corrective actions implemented
QEM-EVAL-2009-00457
[2]-6 fails across 3 lots (as well as 6 fails on control material) were attributed to electrically induced physical damage. Extensive FA and 8D (attached to eQDB) attributed these to board issues andwere discounted as not related to the fab change.
[3]-6 fails across 3 lots (as well as 6 fails on control material) were attributed to electrically induced physical damage. Extensive FA and 8D (attached to eQDB) attributed these to board issues andwere discounted as not related to the fab change.
[4]-6 fails across 3 lots (as well as 6 fails on control material) were attributed to electrically induced physical damage. Extensive FA and 8D (attached to eQDB) attributed these to board issues andwere discounted as not related to the fab change.
[5]-Discounted. QEM-EVAL-1710-00385

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
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