12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20210326002.1
Qualification of MIHO8 as an additional Fab site option for select LBC8 devices
Change Notification / Sample Request

Date: March 31, 2021
To: TOKYO ELECTRON DEVICE (DSTR) PCN

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

Texas Instruments requires acknowledgement of receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance of the change. If samples or additional data are required, requests must be received within **30 days** of this notification.

The changes discussed within this PCN will not take effect any earlier than the proposed first ship date on Page 3 of this notification, unless customer agreement has been reached on an earlier implementation of the change.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice or to provide acknowledgement of this PCN, you may contact your local Field Sales Representative or the PCN Team (PCN_ww_admin_team@list.ti.com). For sample requests or sample related questions, contact your local Field Sales Representative.

PCN Team
SC Business Services

20210326002.1
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
LMR23610ADDA	null
LMR23630ADDA	null
LMR23610ADDAR	null
LMR23630ADDAR	null
LMR23625CFPDRRR	null
LMR23625CFPDRRT	null
LMR23630AFDDAR	null
LMR23630FDRRR	null
LMR23630FDRRT	null
LMR23630AFDDA	null
LMZM33602RLRR	null
LMR23615DRRR	null
LMR23630DRRT	null
LMR23630APDRRR	null

Technical details of this Product Change follow on the next page(s).

PCN Number:	20210326002.1	**PCN Date:**	Mar 31, 2021
Title:	Qualification of MIHO8 as an additional Fab site option for select LBC8 devices		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Jun 30, 2021	**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		

Notification Details

Description of Change:

Texas Instruments is pleased to announce the qualification of its MIHO8 fabrication facility as an additional Wafer Fab source for the selected devices listed in the "Product Affected" section.

Current Fab Site			Additional Fab Site		
Current Fab Site	**Process**	**Wafer Diameter**	**New Fab Site**	**Process**	**Wafer Diameter**
DP1DM5	LBC8	200mm	MIHO8	LBC8	200mm

Qual details are provided in the Qual Data Section.

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:

Fab Site Information:

Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
DP1DM5	DM5	USA	Dallas
MIHO8	**MH8**	**JPN**	**Ibaraki**

Sample product shipping label (not actual product label)

Product Affected:

LMR23610ADDA	LMR23625CFDDA	LMR23630AFDDA	LMR23630FDRRR
LMR23610ADDAR	LMR23625CFDDAR	LMR23630AFDDAR	LMR23630FDRRT
LMR23615DRRR	LMR23625CFPDRRR	LMR23630APDRRR	LMZM33602RLRR
LMR23615DRRT	LMR23625CFPDRRT	LMR23630APDRRT	LMZM33603RLRR
LMR23625CDDA	LMR23630ADDA	LMR23630DRRR	

LMR23625CDDAR	LMR23630ADDAR	LMR23630DRRT

Automotive New Product Qualification Summary
(As per AEC-Q100, Q006 and JEDEC Guidelines)

Approved 11-20-2019

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 LMR23630xQDRRQ1	QBS Process Reference: LM46002AQPWPRQ1
Test Group A – Accelerated Environment Stress Tests									
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	All units for A2 to A5	MSL2/260C	-	3/693/0 for A2 to A4 1/45/0 for A5	-
	HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 hours	3/231/0	-
	AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 hours	3/231/0	-
	TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 cycles	3/231/0	-
	TC	A4	JEDEC JESD22-A104 and Appendix 3	1	5 units	Temperature Cycle, -65/150C	Post 500 cycles	5 units/ 30 wires pass.	-
	PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40/125C	1000 cycles	1/45/0	-
	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, 125C	1000 hours	3/231/0	-
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	24 hours	QBS	3/2400/0
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, 150C	1000 hours	QBS	3/231/0
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									
	HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	2000 Volts	1/3/0	-
	CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	750 volts	1/3/0	-
	LU	E4	AEC Q100-004	1	6	Latch-up	125C	1/3/0	-
	ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	3/90/0	-

- QBS: Qual By Similarity

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

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

Approved 26-Dec-2019

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: LMR236xxQDDA	QBS Wafer fab Process Reference: LM4360xxQPWPRQ1	QBS Package Reference: LMR236xxQDDAQ1
Test Group A – Accelerated Environment Stress Tests										
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning Level 2	260C	QBS	3/693/0	3/693/0
	THB	A2	JEDEC JESD22-A101	3	77	Biased Temperature and Humidity, 85C/85%RH	1000 hours	QBS	3/231/0	3/231/0
	AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 hours	QBS	3/231/0	3/231/0
	TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 cycles	QBS	3/231/0	3/231/0
	TC	A4	Post Temp cycle bond pulls	1	5 units	Post-500 cycles	-	QBS	1/5/0	1/5/0
	PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40/125C	1000 cycles	QBS	1/45/0	1/45/0
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 hours	QBS	3/231/0	3/231/0
Test Group B – Accelerated Lifetime Simulation Tests								Note 2		
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	408 hours	QBS	3/231/0	-
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	24 hours	QBS	3/2400/0	-
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	1000 hours	QBS	3/231/0	-
Test Group C – Package Assembly Integrity Tests										
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	-	QBS	-	1/30/0

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: LMR236xxQDDA	QBS Wafer fab Process Reference: LM4360xxQPWPRQ1	QBS Package Reference: LMR236xxQDDAQ1
	WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	-	QBS	-	1/30/0
	SD	C3	JEDEC JESD22-B102	1	15	Auto Solderability (Pb and Pb-Free)	>95% Lead Coverage	QBS	-	1/15/0
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Auto Physical Dimensions	Cpk>1.33 Ppk>1.67	QBS	-	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									
	HBM	E2	AEC Q100-002	1	3	ESD - HBM	2000 V	1/3/0	-	
	CDM	E3	AEC Q100-011	1	3	ESD - CDM	750 V	1/3/0	-	
	LU	E4	AEC Q100-004	1	6	Latch-up	125C	1/6/0	-	
	ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	3/30/0	-	

- QBS: Qual By Similarity
- Qual Device LMR236xxQDDARQ1 is qualified at LEVEL2-260CG

Note 1: Top metallization of the silicon die is the same process and same factory location for both primary and second sourced fab products – supports QBS for group A and group C tests.

Note 2: Silicon IP components of the LMR232xxQDDA are used in LM4360xxQPWPRQ1

A1 (PC): Preconditioning:
Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable.

Ambient Operating Temperature by Automotive Grade Level: Grade 1 (or Q): -40°C to +125°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 contacts shown below or your local Field Sales Representative.

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