



12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20241022001.2

**Qualification of LFAB and additional Assembly site (CDAT & TI-CLARK) options for
select devices**

Change Notification / Sample Request

Date: October 23, 2024

To: MOUSER 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 Change Management team.

For sample requests or sample related questions, contact your local Field Sales Representative.

Sincerely,

Change Management Team
SC Business Services

20241022001.2
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, you have recently purchased these devices. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
CC2640R2FTWRGZRQ1	CC2640R2FTWRGZRQ1
CC2640R2FTWRGZTQ1	CC2640R2FTWRGZTQ1

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

PCN Number:	20241022001.2	PCN Date:	October 23, 2024
Title:	Qualification of LFAB and additional Assembly site (CDAT & TI-CLARK) options for select devices		
Customer Contact:	Change Management team	Dept:	Quality Services
Proposed 1st Ship Date:	April 21, 2025	Sample requests accepted until:	November 22, 2024*
*Sample requests received after November 22, 2024 will not be supported.			
Change Type:			
<input checked="" type="checkbox"/> Assembly Site	<input type="checkbox"/> Design	<input type="checkbox"/>	Wafer Bump Material
<input checked="" type="checkbox"/> Assembly Process	<input type="checkbox"/> Data Sheet	<input type="checkbox"/>	Wafer Bump Process
<input checked="" type="checkbox"/> Assembly Materials	<input type="checkbox"/> Part number change	<input checked="" type="checkbox"/>	Wafer Fab Site
<input type="checkbox"/> Mechanical Specification	<input type="checkbox"/> Test Site	<input type="checkbox"/>	Wafer Fab Materials
<input checked="" type="checkbox"/> Packing/Shipping/Labeling	<input type="checkbox"/> Test Process	<input checked="" type="checkbox"/>	Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of its LFAB fabrication facility as an additional Wafer Fab option in addition to Assembly site (CDAT & TI-CLARK) and BOM options for the devices listed below.

Current Fab Site			Additional Fab Site		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
TSMC-F14	F021	300mm	LFAB	F65	300mm

In support of the qualification of the LFAB Wafer Fab site, the flash design library was changed to allow production in the new fab site. The change does not impact device functionality, and device performance is accounted for in the respective datasheet specifications.

Construction differences are as follows:

Group 1 device

	UTL1	TI CDAT	TI CLARK
Mount compound	PZ0035	4207123	4207123

Group 2 device – there are no material differences and the device remains at the current Assembly site.

Qual details are provided in the Qual Data Section.

Reason for Change:

Continuity of Supply.

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

None

Impact on Environmental Ratings:

Checked boxes indicate the status of environmental ratings following implementation of this change. If below boxes are checked, there are no changes to the associated environmental ratings.

RoHS	REACH	Green Status	IEC 62474
<input checked="" type="checkbox"/> No Change			

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
TSMC-F14	T14	TWN	Tainan City
LFAB	LHI	USA	Lehi

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
UTL1	NSE	THA	Bangkok
CDAT	CDA	CHN	Chengdu
TI Clark	QAB	PHL	Angeles City, Pampanga

Sample product shipping label (not actual product label)



Product Affected:

Group 1 (Fab site and Assembly site)

CC2640R2FTWRGZRQ1 CC2640R2FTWRGZTQ1

Group 2 (Fab site only)

CC2640R2FTRGZRQ1

Automotive Qualification Summary
(As per AEC-Q100 Rev. J and JEDEC Guidelines)CC2640R2FTRGZRQ1 & CC2640R2FTWRGZRQ1 Qualification Plan
Approve Date 2-October-2024

Product Attributes

Attributes		Qual Device: <u>CC2640R2FTRGZRQ1</u>	Qual Device: <u>CC2640R2FTWRGZRQ1</u>	Qual Device: <u>CC2640R2FTWRGZRQ1</u>	QBS Package, Process Reference: <u>CC2642R1FTWRGZRQ1</u>	QBS Package Reference: <u>CC2642R1FTWRGZRQ1</u>	QBS Process Reference: <u>CC2642R1FTWRGZRQ1</u>
Automotive Grade Level	Grade 2	Grade 2	Grade 2	Grade 2	Grade 2	Grade 2	Grade 2
Operating Temp Range (C)	-40 to 105	-40 to 105	-40 to 105	-40 to 105	-40 to 105	-40 to 105	-40 to 105
Product Function	Microprocessor	Microprocessor	Microprocessor	Microprocessor	Microprocessor	Microprocessor	Microprocessor
Wafer Fab Supplier	LFAB	LFAB	TSMC-F14	LFAB	TSMC-F14	TSMC-F14	TSMC-F14
Assembly Site	CDAT/CLARK-AT	CDAT/CLARK-AT	CDAT/CLARK-AT	CDAT/CLARK-AT	CDAT/CLARK-AT	CDAT/CLARK-AT	SCS
Package Group	QFN	QFN	QFN	QFN	QFN	QFN	QFN
Package Designator	RGZ	RGZ	RGZ	RGZ	RGZ	RGZ	RTC
Pin Count	48	48	48	48	48	48	48

- QBS: Qual By Similarity, also known as Generic Data
- Qual Device CC2640R2FTRGZRQ1 is qualified at MSL3 260C
- Qual Device CC2640R2FTWRGZRQ1 is qualified at MSL3 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: <u>CC2640R2FTRGZRQ1</u>	Qual Device: <u>CC2640R2FTWRGZRQ1</u>	Qual Device: <u>CC2640R2FTWRGZRQ1</u>	QBS Package, Process Reference: <u>CC2642R1FTWRGZRQ1</u>	QBS Package Reference: <u>CC2642R1FTWRGZRQ1</u>	QBS Process Reference: <u>CC2642R1FTWRGZRQ1</u>	
Test Group A - Accelerated Environment Stress Tests														
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL3 260C	-	QBS / Generic Data	QBS / Generic Data	QBS / Generic Data	3/828/0	3/828/0	3/828/0	
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	110C/85%RH	264 Hours	QBS / Generic Data	QBS / Generic Data	QBS / Generic Data	3/231/0	3/231/0	3/231/0	
Test Group B - Accelerated Lifetime Simulation Tests														
ACUHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	110C/85%RH	264 Hours	QBS / Generic Data	QBS / Generic Data	QBS / Generic Data	3/231/0	3/231/0	3/231/0	
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-55C/125C	1000 Cycles	QBS / Generic Data	QBS / Generic Data	QBS / Generic Data	3/231/0	3/231/0	3/231/0	
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	QBS / Generic Data	QBS / Generic Data	QBS / Generic Data	3/135/0	3/135/0	3/135/0	
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	QBS / Generic Data	1/30/0	QBS / Generic Data	3/90/0	3/90/0	3/90/0	
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	QBS / Generic Data	1/30/0	QBS / Generic Data	3/90/0	3/90/0	3/90/0	
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	QBS / Generic Data	QBS / Generic Data	QBS / Generic Data	1/15/0	1/15/0	1/15/0	
SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	QBS / Generic Data	QBS / Generic Data	QBS / Generic Data	1/15/0	1/15/0	1/15/0	
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	QBS / Generic Data	1/10/0	QBS / Generic Data	3/30/0	3/30/0	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				
TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per 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				

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: CC2640R2FTRGZRQ1	Qual Device: CC2640R2FTWRGZRQ1	Qual Device: CC2640R2FTWRGZRQ1	QBS Package, Process Reference: CC2642R1FTWRGZRQ1	QBS Package Reference: CC2642R1FTWRGZRQ1	QBS Process Reference: CC2642R1FTWRGZRQ1
BTI	D4	-	-	-	Bias Temperature Instability	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements			
SM	D5	-	-	-	Stress Migration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements			
Test Group E - Electrical Verification Tests													
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	QBS / Generic Data	1/3/0	QBS / Generic Data	1/3/0	1/3/0	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts, 250V on OSC pins	QBS / Generic Data	1/3/0	QBS / Generic Data	1/3/0	1/3/0	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	QBS / Generic Data	1/3/0	QBS / Generic Data	1/3/0	1/3/0	1/3/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpl>1.67 Room, hot, and cold	-	QBS / Generic Data	1/30/0	QBS / Generic Data	3/90/0	3/90/0	3/90/0

- 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/>

TI Qualification ID: R-CHG-2402-005

ZVEI ID's: SEM-PW-09, SEM-PW-13, SEM-PA-07, SEM-PA-18

For questions regarding this notice, e-mails can be sent to the Change Management team or your local Field Sales Representative.

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