12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20230707001.1
Cu bond wire Qualification plus reel dimension change and Qualification of RFAB as an additional fab site for select devices
Change Notification / Sample Request

Date: July 07, 2023
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 and approval of this 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

20230707001.1
Attachment: 1

Products Affected:

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

DEVICE	CUSTOMER PART NUMBER
ISO7810FDW	null
ISO6742DWR	null
ISO5451DWR	null
UCC21521ADW	null
UCC21521ADWR	null
UCC21521DW	null
ISO6740FDWR	null
ISO6742FDWR	null
ISO6760FDWR	null
ISO7820LLDWR	null
ISO7821LLSDWR	null
UCC21530DWK	null
ISO1640DWR	null
ISO6762DWR	null
ISO7842DWR	null
ISO7820FDW	null
ISO7830FDW	null
ISO7841DW	null
ISO7842DW	null
UCC21520DWR	null
ISO7821LLDW	null
ISO5452DWR	null
ISO6741FDWR	null
UCC20520DWR	null
ISO7841DWR	null
ISO6740DWR	null
UCC21520ADWR	null
ISO6741DWR	null
ISO7821LLDWR	null
ISO6763DWR	null
ISO7830DWR	null
UCC21530DWKR	null
UCC21520DW	null

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

PCN Number:	20230707001.1	PCN Date:	July 07, 2023
Title:	Cu bond wire Qualification plus reel dimension change and Qualification of RFAB as an additional fab site for select devices		
Customer Contact:	Change Management team	Dept:	Quality Services
Proposed 1st Ship Date:	Oct 5, 2023	Sample requests accepted until:	Aug 7, 2023

***Sample requests received after Aug 7, 2023 will not be supported.**

Change Type:

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

PCN Details

Description of Change:

Texas Instruments is pleased to announce the additional Assembly BOM options plus reel dimension changes and qualification of its RFAB fabrication facility as an additional Wafer Fab source for the list of devices in the "Product Affected" section below.

Current Fab Site			Additional Fab Site		
Current Fab Site	**Process**	**Wafer Diameter**	**Additional Fab Site**	**Process**	**Wafer Diameter**
MIHO8	LBC7	200 mm	RFAB	LBC7	300 mm

Construction differences for Group 2 & 3 are as follows:

What	Current	Additional
Current Bond wire, Diameter	**Die to LF: 1mil Cu or 0.96 Au Die to Die: 0.96 mil Au**	**Die to LF: 0.8 mil Cu Die to Die: 0.8 mil Cu**

Additionally, below only applies to Group 3:

What	From	To
Reel Width	24.4 mm	16.4 mm
Carrier Tape Width	24 mm	16 mm

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.

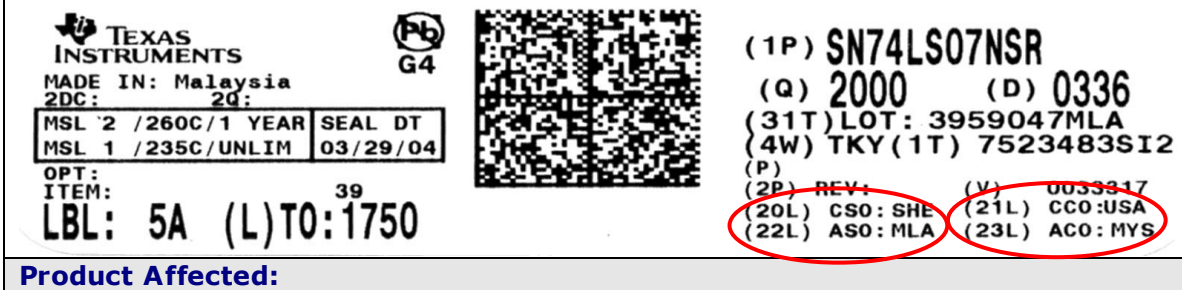
RoHS	REACH	Green Status	IEC 62474
☒ No Change	☒ No Change	☒ No Change	☒ No Change

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
MIHO8	MH8	JPN	Ibaraki
RFAB	**RFB**	**USA**	**Richardson**

Sample product shipping label (not actual product label)



Product Affected:

Group 1 device list - MIHO adding RFAB as an additional Fab site + Cu Wire:

ISO5451DW	SN5452DWR	ISO5452DWR	ISO5852SDW
ISO5452DW	ISO5451DWR	ISO5851DWR	ISO5852SDWR
ISO5851DW			

Group 2 device list – Cu Wire only:

ISO7810DW	ISO7830FDW	ISO7820FDWR	UCC21521CDW
ISO7821DW	ISO7831DWR	ISO7821FDWR	UCC21521DWR
ISO7831DW	ISO7831FDW	ISO7821LLDW	UCC21530DWK
ISO7840DW	ISO7840DWR	ISO7831FDWR	ISO7820LLDWR
ISO7841DW	ISO7840FDW	ISO7840FDWR	ISO7821LLDWR
ISO7842DW	ISO7841DWR	ISO7841FDWR	SN1506011DWR
ISO7810FDW	ISO7841FDW	ISO7842FDWR	UCC21520ADWR
ISO7820DWR	ISO7842DWR	SN005721DWR	UCC21521ADWR
ISO7820FDW	ISO7842FDW	UCC20520DWR	UCC21521CDWR
ISO7821DWR	UCC20520DW	UCC21520ADW	UCC21530DWKR
ISO7821FDW	UCC21520DW	UCC21520DWR	ISO7821LLSDWR
ISO7830DWR	UCC21521DW	UCC21521ADW	

Group 3 device list – Cu Wire & Reel diameter only:

ISO1640DWR	ISO6740DWR	ISO6763DWR	ISO6760LDWR
ISO1641DWR	ISO6741DWR	ISO6731FDWR	ISO6761FDWR
ISO1642DWR	ISO6742DWR	ISO6740FDWR	ISO6762FDWR
ISO1643DWR	ISO6760DWR	ISO6741FDWR	ISO6763FDWR
ISO1644DWR	ISO6761DWR	ISO6742FDWR	ISO6760LNDWR
ISO6731DWR	ISO6762DWR	ISO6760FDWR	

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: SN3257QDYYRQ1
Test Group A – Accelerated Environment Stress Tests								
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 1-260C	No fails
	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-WBP	A4	MIL-STD883 Method 2011	1	60	Bond Pull Post Temp Cycle	Wires	1/60/0
	PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	3/135/0
Test Group B – Accelerated Lifetime Simulation Tests								
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	300 Hours	3/231/0
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	24 Hours	3/2400/0
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A
Test Group C – Package Assembly Integrity Tests								
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear Cpk >1.67	Wires	3/90/0
	WBP	C2	MIL-STD883 Method 2011	1	30	Bond Pull, Cpk >1.67	Wires	3/90/0
	SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Free Solder	1/15/0
	SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Solder	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	-	-	Electromigration	-	Completed Per Process Technology Requirements
	TDDB	D2	JESD35	-	-	Time Dependant 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	1500 V	1/3/0
	LU	E4	AEC Q100-004	1	6	Latch-up	Per AEC Q100-004	1/6/0
	ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67	3/90/0

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

TI Qualification ID: 20181203-127728

Qualification Report

to qualify 0.8mils PCC wire for ISO devices for die to lead and die to die. (PR Tech LBC8ISO, SOIC 16DW/14DWK package).
Approve Date 16-JUNE -2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: UCC21520QDWRQ1	Qual Device: ISO5452DWR	QBS Reference: UCC21520QDWQ1	QBS Reference: ISO5851QDWQ1	QBS Reference: TMP451AQDQFRQ1	QBS Reference: AMC1305M25QDWQ1	QBS Reference: AMC1305M25QDWQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	1/77/0	-	3/231/0	3/231/0	3/231/0	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	1/77/0	1/77/0	1/77/0	3/231/0	3/231/0	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	1/77/0	1/77/0	1/77/0	3/231/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	1/45/0	-	-	-	3/135/0	3/135/0
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	1/45/0	1/45/0	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	3/231/0	-	-	-
HTOL	B1	Life Test	150C	408 Hours	-	-	-	-	3/231/0	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	3/2400/0	-	-	-
ELFR	B2	Early Life Failure Rate	150C	24 Hours	-	-	-	-	3/2400/0	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	1/10/0	3/30/0	-	-
ESD	E2	ESD CDM	-	500 Volts	-	-	1/3/0	1/3/0	1/3/0	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	1/3/0	1/3/0	1/3/0	-	-
LU	E4	Latch-Up	Per JESD78	-	-	-	1/6/0	1/6/0	1/6/0	-	-

Type	#	Test Name	Condition	Duration	Qual Device: UCC21520QDWRQ1	Qual Device: ISO5452DWR	QBS Reference: UCC21520QDWQ1	QBS Reference: ISO5851QDWQ1	QBS Reference: TMP451AQDQFRQ1	QBS Reference: AMC1305M25QDWQ1	QBS Reference: AMC1305M25QDWQ1
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	1/30/0	1/30/0	1/30/0	1/30/0	3/90/0	3/90/0	3/90/0

- QBS: Qual By Similarity
- Qual Device UCC21520QDWRQ1 is qualified at MSL2 260C
- Qual Device ISO5452DWR is qualified at MSL2 260C

- 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

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

TI Qualification ID: R-CHG-2203-108

TI Information
Selective Disclosure

Qualification Report

ISO67xxDW and ISO164xDW 0.8mil Cu wire Qual in TIM
Approve Date 20-JUNE -2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: ISO6763QDWRQ1	QBS Reference: UCC23513QDWYQ1	QBS Reference: ISO6763QDWRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	3/231/0	3/231/0	1/77/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	3/231/0	3/231/0	1/77/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	3/231/0	3/231/0	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	3/135/0	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	3/135/0	1/45/0
HTOL	B1	Life Test	125C	1000 Hours	-	3/231/0	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	-
ESD	E2	ESD CDM	-	1500 Volts	-	-	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	-	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	-	1/6/0	1/6/0
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	3/90/0	3/90/0	-

- QBS: Qual By Similarity
- Qual Device ISO6763QDWRQ1 is qualified at MSL2 260C

- 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

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

TI Qualification ID: R-CHG-2203-118

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