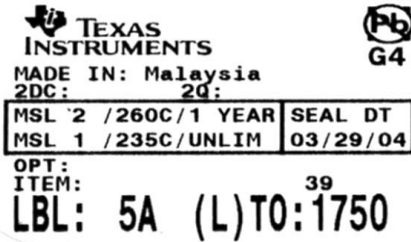


PCN Number:	20230707001.1		PCN Date:	July 07, 2023	
Title:	Cu bond wire Qualification plus reel dimension change and Qualification of RFAB as an additional fab site for select devices				
Customer Contact:	Change Management team		Dept:	Quality Services	
Proposed 1st Ship Date:	Oct 5, 2023		Sample requests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



(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:

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: <u>SN3257QDYRQ1</u>
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	JESD81	-	-	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

TI Information
Selective Disclosure

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: UCC21520QDWO1	QBS Reference: ISO5851QDWO1	QBS Reference: TMP451AQDQFRQ1	QBS Reference: AMC1305M25QDWO1	QBS Reference: AMC1305M25QDWO1
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.

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