PCN Number:	20230502001.1	**PCN Date:**	May 08, 2023
Title:	Qualify New Assembly Material set for Selected Device(s)		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Aug 08, 2023	**Sample requests accepted until:**	June 08, 2023*

***Sample requests received after June 08, 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 assembly material for devices listed in "Product affected" section below. Devices will remain in current assembly facility and piece part changes as follows:

Group 1 Device:

Material	Current	Proposed
Wire type	0.96mil Au	0.8mil Cu

Group 2 Device:

Material	Current	Proposed
Wire type	0.96mil Au	0.8mil Cu
Mold compound	4209640	4221499

Group 3 Device:

Material	Current	Proposed
Wire type	0.96mil Au	0.8mil Cu
Mount compound	4042500	4211470
Mold compound	4209640	4221499

Reason for Change:

Continuity of supply.

1) To align with world technology trends and use wiring with enhanced mechanical and electrical properties
2) Maximize flexibility within our Assembly/Test production sites.
3) Cu is easier to obtain and stock

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:

None

Product Affected:

Group 1:

AMC1204BDW	AMC1304L25DW	AMC1305F25DW	AMC1305M25DW
AMC1204BDWR	AMC1304L25DWR	AMC1305F25DWR	AMC1305M25DWR
AMC1204DW	AMC1304M05DW	AMC1305L25DW	AMC1307M05DWR
AMC1204DWR	AMC1304M05DWR	AMC1305L25DWR	
AMC1304L05DW	AMC1304M25DW	AMC1305M05DW	
AMC1304L05DWR	AMC1304M25DWR	AMC1305M05DWR	

Group 2:

ISO1050DW	ISO7331CDWR	ISO7341CDW	ISO7342FCDWR
ISO1050DWR	ISO7331FCDW	ISO7341CDWR	ISO7520CDW
ISO7330CDW	ISO7331FCDWR	ISO7341FCDW	ISO7520CDWR
ISO7330CDWR	ISO7340CDW	ISO7341FCDWR	ISO7521CDW
ISO7330FCDW	ISO7340CDWR	ISO7342CDW	ISO7521CDWR
ISO7330FCDWR	ISO7340FCDW	ISO7342CDWR	SN1007074DW
ISO7331CDW	ISO7340FCDWR	ISO7342FCDW	SN1007074DWR

Group 3:

ISO7631FCDW	ISO7631FMDWR	ISO7641FCDW	ISO7641FMDWR
ISO7631FCDWR	ISO7640FMDW	ISO7641FCDWR	
ISO7631FMDW	ISO7640FMDWR	ISO7641FMDW	

Qualification Report

Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)
Approve Date 28-Apr-2023

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: AMC1305M25QDWQ1	Qual Device: AMC1305M25QDWQ1	QBS Reference: AMC1305M25QDWRQ1	QBS Reference: AMC1305M25QDWRQ1
Test Group A - Accelerated Environment Stress Tests											
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL3 260C	1 Step	No Fails	No Fails	No Fails	No Fails
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	3/231/0	3/231/0	3/231/0	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp Cycle Bond Pull	-	-	1/5/0	1/5/0	1/5/0	1/5/0

HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	3/135/0	3/135/0	1/45/0	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	175C	500 Hours	-	-	-	1/45/0
Test Group B - Accelerated Lifetime Simulation Tests											
HTOL	B1	JEDEC JESD22-A108	1	77	Life Test	150C	408 Hours	-	-	1/77/0	3/231/0
ELFR	B2	AEC Q100-008	1	77	Early Life Failure Rate	150C	24 Hours	-	-	-	3/2400/0
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	3/90/0	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	3/90/0	3/90/0	3/90/0	3/90/0
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	-	-	1/15/0	-
SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	-	-	1/15/0	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	1	10	Physical Dimensions	Cpk>1.67	-	-	-	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	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	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	Completed Per 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
SM	D5	-	-	-	Stress Migration	-	-	Completed Per Process Technology Requirements	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	-	-	1/3/0	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	-	-	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
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	3/90/0	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/

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