

<b>PCN Number:</b>	20190926004.1		<b>PCN Date:</b>	Oct 31, 2019						
<b>Title:</b>	Qualify New Assembly Material set for Selected Device(s)									
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services							
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Jan 31, 2020	<b>Estimated Sample Availability:</b>	Date provided at sample request							
<b>Change Type:</b>										
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design	<input type="checkbox"/>	Wafer Bump Site					
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet	<input type="checkbox"/>	Wafer Bump Material					
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change	<input type="checkbox"/>	Wafer Bump Process					
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Wafer Fab Site					
<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input type="checkbox"/>	Wafer Fab Materials					
				<input type="checkbox"/>	Wafer Fab Process					
<b>PCN Details</b>										
<b>Description of Change:</b>										
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:										
<table border="1"> <thead> <tr> <th>Material</th> <th>Current</th> <th>Proposed</th> </tr> </thead> <tbody> <tr> <td>Mount compound</td> <td>4207768</td> <td>4208458</td> </tr> </tbody> </table>					Material	Current	Proposed	Mount compound	4207768	4208458
Material	Current	Proposed								
Mount compound	4207768	4208458								
<b>Reason for Change:</b>										
Continuity of supply										
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>										
None										
<b>Anticipated impact on Material Declaration</b>										
<input type="checkbox"/>	No Impact to the Material Declaration	<input checked="" type="checkbox"/>	Material Declarations or Product Content reports are driven from production data and will be available following the production release. Upon production release the revised reports can be obtained at the site link below <a href="http://www.ti.com/quality/docs/materialcontentsearch.tsp">http://www.ti.com/quality/docs/materialcontentsearch.tsp</a>							
<b>Changes to product identification resulting from this PCN:</b>										
None										
<b>Product Affected:</b>										
RM41L232BPZT	RM46L430PGET	RM46L840CPGET	RM48L530DPGET							
RM42L432BPZT	RM46L440CPGET	RM46L850CPGET	RM48L540DPGET							
RM42L432PZT	RM46L450CPGET	RM46L852CPGET	RM48L950DPGET							
RM46L430CPGET	RM46L830CPGET	RM46L852PGET	RM48L952DPGET							



# Qualification Report

Approve Date 06-Sept-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: <u>5700432APZQ</u> <u>Q1R</u>	Qual Device: <u>LS10206AGPG</u> <u>EQR</u>	Qual Device: <u>S5703137CPG</u> <u>EQQ</u>	QBS Device: <u>LS10206AGPG</u> <u>EQR</u>	QBS Package Reference: <u>F280049PZQ</u>
<b>Test Group A – Accelerated Environment Stress Tests</b>											
PC	A 1	JEDEC J-STD-020 JESD2 2-A113	3	77	Preconditioning	Level 3-260C	-	-	-	3/693/0	1/190/0
THB	A 2	JEDEC JESD2 2-A101	3	77	Biased Temperature and Humidity, 85C/85%RH	1000 Hours	-	-	-	3/231/0	-
HAST	A 2	JEDEC JESD2 2-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	-
AC	A 3	JEDEC JESD2 2-A102	3	77	Autoclave 121C	96 Hours	-	-	-	3/231/0	1/77/0
UHA ST	A 3	JEDEC JESD2 2-A102	3	77	Unbiased HAST 130C/85%RH	96 Hours	-	-	-	-	-
UHA ST	A 3	JEDEC JESD2 2-A102	3	77	Unbiased HAST 110C/85%RH	264 Hours	-	-	-	-	-
TC	A 4	JEDEC JESD2 2-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	-	-	-	3/231/0	1/77/0
TC-WBP	A 4	MIL-STD883 Method 2011	1	60	Bond Pull Post Temp Cycle	Wires	-	-	-	1/60/0	-
PTC	A 5	JEDEC JESD2	1	45	Power Temperature	1000 Cycle	N/A	N/A	N/A	N/A	N/A

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: <u>5700432APZQ</u> <u>Q1R</u>	Qual Device: <u>LS10206AGPG</u> <u>EQR</u>	Qual Device: <u>S5703137CPG</u> <u>EQQ</u>	QBS Device: <u>LS10206AGPG</u> <u>EQR</u>	QBS Package Reference: <u>F280049PZQ</u>
		2-A105			Temperature Cycle	Hours					
HTSL	A6	JEDEC JESD2 2-A103	1	45	High Temp Storage Bake 150C	1000 hours	-	-	-	3/231/0	-
<b>Test Group B – Accelerated Lifetime Simulation Tests</b>											
HTOL	B1	JEDEC JESD2 2-A108	3	77	HTOL 125C	1000 Hours	-	-	-	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	-	-	-	-
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	N/A	N/A	N/A
<b>Test Group C – Package Assembly Integrity Tests</b>											
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	Wires	3/90/0	3/90/0	3/90/0	1/30/0	1/30/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	Wires	3/90/0	3/90/0	3/90/0	1/30/0	1/30/0
SD	C3	JEDEC JESD2 2-B102	1	15	Surface Mount Solderability >95% Lead Coverage	-	-	-	-	-	-
PD	C4	JEDEC JESD2 2-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	-	-	-	-	-	-
LI	C6	JEDEC JESD2 2-B105	1	50	Lead Integrity	-	-	-	-	-	-
<b>Test Group D – Die Fabrication Reliability Tests</b>											
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
TDDB	D2	JESD35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	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: <u>5700432APZQ Q1R</u>	Qual Device: <u>LS10206AGPG EQR</u>	Qual Device: <u>S5703137CPG EQQ</u>	QBS Device: <u>LS10206AGPG EQR</u>	QBS Package Reference: <u>F280049PZQ</u>
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	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	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	Completed Per Process Technology Requirements

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	QBS Package Reference: <u>F280040PMQR</u>	QBS Package Reference: <u>771538PTPACT</u>	QBS Package Reference: <u>TMS320F28377DPT PQ (DM6, UMC)</u>
<b>Test Group A – Accelerated Environment Stress Tests</b>									
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 3-260C	3/1020/0	3/894/0	6/1386/0
THB	A2	JEDEC JESD22-A101	3	77	Biased Temperature and Humidity, 85C/85%RH	1000 Hours	3/231/0	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	-	6/462/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	3/231/0	-	-
UHAST	A3	JEDEC JESD22-A102	3	77	Unbiased HAST 130C/85%RH	96 Hours		3/231/0	6/462/0
UHAST	A3	JEDEC JESD22-A102	3	77	Unbiased HAST 110C/85%RH	264 Hours		3/228/0	
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	6/462/0
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	N/A	N/A
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 hours	3/231/0	3/231/0	6/462/0

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	QBS Package Reference: <u>F280040PMQR</u>	QBS Package Reference: <u>771538PTPACT</u>	QBS Package Reference: <u>TMS320F28377DPT PQ (DM6, UMC)</u>
<b>Test Group B – Accelerated Lifetime Simulation Tests</b>									
HTOL	B1	JEDEC JESD22-A108	3	77	HTOL 125C	1000 Hours	1/77/0	-	6/462/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	-	6/4800/0
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	6/462/0
<b>Test Group C – Package Assembly Integrity Tests</b>									
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	Wires	1/30/0	1/30/0	1/30/0
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SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	-	-	-	-
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	-	-	-	-
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Tddb	D2	JESD35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	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
SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements

- QBS: Qual By Similarity

- Qual Devices 5700432APZQQ1R, LS10206AGPGEQR and S5703137CPGEQQ are qualified at LEVEL3-260CG

**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

**Note: Generic data (QBS) is being used to convert the 8200TI Die attach devices to FS849 die attach devices. This die attach has been qualified and in production in LQFP/HLQFP Automotive devices for the same packages, die sizes and die technologies thus justify using QBS package data.**

For questions regarding this notice, e-mails can be sent to the regional contacts shown below or your local Field Sales Representative.

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