

<b>PCN Number:</b>	20220617001.1A	<b>PCN Date:</b>	July 18, 2022												
<b>Title:</b>	Qualification of STATS ChipPac Korea as an additional Assembly site and updated BOMs for select devices														
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services												
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Sept 22, 2022	<b>Sample requests accepted until:</b>	Jul 22, 2022*												
*Sample requests received after (Jul 22 <sup>nd</sup> 2022) will not be supported.															
<b>Change Type:</b>															
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design												
<input checked="" type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet												
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change												
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site												
<input checked="" type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process												
		<input type="checkbox"/>	Wafer Bump Site												
		<input type="checkbox"/>	Wafer Bump Material												
		<input type="checkbox"/>	Wafer Bump Process												
		<input type="checkbox"/>	Wafer Fab Site												
		<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 STATS ChipPac Korea as additional Assembly Site and updated BOMs for Select Devices listed in the "Product Affected" Section. Material differences are as follows.															
<table border="1"> <thead> <tr> <th>Assembly Site</th> <th>Assembly Site Origin</th> <th>Assembly Country Code</th> <th>Assembly City</th> </tr> </thead> <tbody> <tr> <td>Amkor K4</td> <td>AMP</td> <td>KOR</td> <td>Gwangju</td> </tr> <tr> <td><a href="#">STATS ChipPac Korea</a></td> <td><a href="#">SCK</a></td> <td><a href="#">KOR</a></td> <td><a href="#">Incheon</a></td> </tr> </tbody> </table>				Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City	Amkor K4	AMP	KOR	Gwangju	<a href="#">STATS ChipPac Korea</a>	<a href="#">SCK</a>	<a href="#">KOR</a>	<a href="#">Incheon</a>
Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City												
Amkor K4	AMP	KOR	Gwangju												
<a href="#">STATS ChipPac Korea</a>	<a href="#">SCK</a>	<a href="#">KOR</a>	<a href="#">Incheon</a>												
Construction and process differences are noted below:															
	<b>Amkor K4 (Old)</b>	<b>Amkor K4 (New)</b>	<b>STATS ChipPac Korea</b>												
Underfill	101354427	n/a	n/a												
Molding process	CUF	MUF	MUF												
Mold compound	101353433	101417921	RA01-0157U												
<b>Reason for Change:</b>															
Continuity of supply.															
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>															
None															
<b>Impact on Environmental Ratings</b>															
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.															
<b>RoHS</b>	<b>REACH</b>	<b>Green Status</b>	<b>IEC 62474</b>												
<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change												
<b>Changes to product identification resulting from this PCN:</b>															

Assembly Site		
Amkor K4	Assembly Site Origin (22L)	ASO: AMP
STATS ChipPac Korea	Assembly Site Origin (22L)	ASO: SCK

Sample product shipping label (not actual product label)



**TEXAS INSTRUMENTS**  
 MADE IN: Malaysia  
 2DC: 2Q:  
 MSL 2 / 260C / 1 YEAR SEAL DT  
 MSL 1 / 235C / UNLIM 03/29/04  
 OPT:  
 ITEM: 39  
**LBL: 5A (L)T0:1750**

(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:**

IWR1443FQAGABL	IWR1843ABGABL	IWR6443ABGABL	IWR6843ABSABLR
IWR1443FQAGABLR	IWR1843ABGABLR	IWR6443AQGABL	IWR6843AQGABL
IWR1642AQAGABL	IWR1843AQGABL	IWR6443AQGABLR	IWR6843AQGABLR
IWR1642AQAGABLR	IWR1843AQGABLR	IWR6843ABGABL	IWR6843AQSABL
IWR1642AQASABL	IWR2243APBGABL	IWR6843ABGABLR	IWR6843AQSABLR
IWR1642AQASABLR	IWR2243APBGABLR	IWR6843ABSABL	XI1843AQGABL

## STATS ChipPac Korea Qualification Report

### Automotive New Product Qualification Summary (As per AEC-Q100 and JEDEC Guidelines)

Approve Date 17-May-2022

#### Product Attributes

Attributes	Qualification Device:	
	xWR1843 ES2.0	xWR2243 ES2.0
Automotive Grade Level*	Grade 2	Grade 2
Product Function	-Radar processor	-Radar Processor
Wafer Fab Supplier	UMC F12	UMC F12
Assembly Site	SCK	SCK
Package Type	-FCBGA	FCBGA
Package Designator	161 ABL	161 ABL
Ball/Lead Count	205	205

\*All currently qualified product niches in Radar business with ABL package are covered by this qualification: xWR1xxx, xWR2xxx, and xWR6xxx.

#### Qualification Results

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

Type	Test Spec	Lot QTY	SS/Lot	Test Name / Condition	Duration	Results	Results
						(lots/sample size/fails) xWR1843 ES2.0	(lots/sample size/fails) xWR2243 ES2.0
HTOL	JEDEC JESD22-A108	3	77	High Temp Op Life, 140C Tj	1000 Hours	3/231/0	QBS xWR1843
EFR	AEC Q100-	3	800	Early Life Failure Rate,	48 Hours	3/2400/0	QBS xWR1843

	008			140C Tj			
PC	JEDEC J-STD- 020 JESD22- A113	3	26	Preconditioning	Level 3- 260C	3/1677/0**	1/170/0
THB	JEDEC JESD22- A101	3	77	Biased Temperature & Humidity, 85C/85%RH	1000 Hours	3/231/0	QBS xWR1843
TC	JEDEC JESD22- A104 and Appendix 3	3	26	Temperature Cycle, -55/150C	1000 Cycles	3/231/0	1/77/0**
PTC	JEDEC JESD22- A105	1	45	Power Temperature Cycle, -40/125C	1000 Cycles	3/45/0	QBS xWR1843
HTSL	JEDEC JESD22- A103	1	45	High Temp. Storage Bake, 150C	1000 Hours	3/77/0	QBS xWR1843
UHASt	JEDEC JESD22- A118	3	77	Unbiased HASt, 110C/85%RH	264 Hours	3/231/0	QBS xWR1843
PD	JEDEC JESD22- B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	NA	Complete/Pass	QBS xWR1843
SBS	AEC Q100- 010	3	50	Solder Ball Shear (Cpk>1.67)	3 lots / 5 balls per device/10 devices per lot	Complete/Pass	QBS xWR1843
BLR Temp Cycle	JEDEC JESD22- A104	-	-	-40/125C,60 min cyc JESD22-A104, Condition G, Soak Mode 4	1000+ cyc	1/32/0 at 1kcyc (Weibull plot available upon request)	QBS xWR1843

QBS = Qualification By Similarity.

Tests D1 through D5 were completed at silicon technology level. Summary is available upon request.

**A1 (PC): Preconditioning:**

Performed completed on TC, PTC, UHASt, HTSL, and THB samples.

\*\*15 Post-precondition electrical endpoint test rejects on xWR1843 and 8 Temperature Cycle electrical endpoint test rejects on xWR2243 were discounted due to an Electrically-Induced Physical Damage (EIPD) failure mechanism, common across all units, which is unrelated to the changes under qualification. These do not affect the required AEC-Q100 test quantities shown in the results table, as extra units were populated.

**Green/Pb-free Status:**

Qualified Pb-Free(SMT) and Green

# Amkor K4 Qualification Report

## Automotive New Product Qualification Summary (As per AEC-Q100 and JEDEC Guidelines)

Approve Date 17-May-2022

### Product Attributes

Attributes	Qualification Device: <u>xWR1843 ES2.0</u>	Qualification Device: <u>xWR2243 ES2.0</u>	Qualification Device: <u>xWR1243 ES 3.0</u>	Qualification Device: <u>AWR1642 ES 2.0</u>	Qualification Device: <u>AWR6843 ES 2.0</u>
Automotive Grade Level*	Grade 2	Grade 2	Grade 2	Grade 2	Grade 2
Product Function	-Radar processor	-Radar Processor	-Radar Processor	-Radar processor	-Radar processor
Wafer Fab Supplier	UMC F12	UMC F12	UMC F12	UMC F12	UMC F12
Assembly Site	Amkor	Amkor	Amkor	Amkor	Amkor
Package Type	-FCBGA	FCBGA	FCBGA	-FCBGA	-FCBGA
Package Designator	161 ABL	161 ABL	161 ABL	161 ABL	161 ABL
Ball/Lead Count	205	205	205	205	205

\*Change = From - capillary flip-chip underfill and baseline mold compound, To - new molded underfill (mold and flip-chip underfill are same material). Bump and assembly site is Amkor K4, which was previously qualified and is not changing.

### Qualification Results

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

Type	Test Spec	Lot QTY	SS/Lot	Test Name / Condition	Duration	Results (lots/sample size/fails) <u>xWR1843 ES2.0</u>	Results (lots/sample size/fails) <u>xWR2243 ES2.0</u>	Results (lots/sample size/fails) xWR1243 ES 3.0	Results (lots/sample size/fails) AWR1642 ES 2.0	Results (lots/sample size/fails) AWR6843 ES 2.0
HTOL	JEDEC JESD22-A108	3	77	High Temp Op Life, 140C Tj	1000 Hours	3/231/0 (SCK lots – same G355S material)	QBS xWR1843	QBS xWR1843	QBS xWR1843	QBS xWR1843
EFR	AEC Q100-008	3	800	Early Life Failure Rate, 140C Tj	48 Hours	3/2400/0 (SCK lots – same G355S material)	QBS xWR1843	QBS xWR1843	QBS xWR1843	QBS xWR1843
PC	JEDEC J-STD-020 JESD22-A113	3	26	Preconditioning	Level 3-260C	3/1600/0	1/100/0	QBS xWR1843+xWR2243	QBS xWR1843	QBS xWR1843
THB	JEDEC JESD22-A101	3	77	Biased Temperature & Humidity, 85C/85%RH	1000 Hours	3/231/0	QBS xWR1843	QBS xWR1843	QBS xWR1843	QBS xWR1843
TC	JEDEC JESD22-A104 and Appendix 3	3	26	Temperature Cycle, -55/150C	1000 Cycles	3/231/0	1/90/0	QBS xWR1843+xWR2243	QBS xWR1843	QBS xWR1843
PTC	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40/125C	1000 Cycles	3/54/0	QBS xWR1843	QBS xWR1843	QBS xWR1843	QBS xWR1843
HTSL	JEDEC JESD22-A103	1	45	High Temp. Storage Bake, 150C	1000 Hours	3/87/0	QBS xWR1843	QBS xWR1843	QBS xWR1843	QBS xWR1843
UHAST	JEDEC JESD22-A118	3	77	Unbiased HAST, 110C/85%RH	264 Hours	3/231/0	QBS xWR1843	QBS xWR1843	QBS xWR1843	QBS xWR1843
PD	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	NA	Complete/Pass	QBS xWR1843	QBS xWR1843	QBS xWR1843	QBS xWR1843
SBS	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	3 lots / 5 balls per device/10 devices	Complete/Pass	QBS xWR1843	QBS xWR1843	QBS xWR1843	QBS xWR1843

					per lot					
BLR Temp Cycle	JEDEC JESD22- A104	-	-	-40/125C,60 min cyc JESD22-A104, Condition G, Soak Mode 4	1000+ cyc	1/32/0 at 1kcyc (Weibull plot available upon request)	1/32/0 at 1kcyc (Weibull plot available upon request)	QBS xWR1243	QBS xWR1843	QBS xWR1843

QBS = Qualification By Similarity.

Tests D1 through D5 were completed at silicon technology level. Summary is available upon request.

**A1 (PC): Preconditioning:**

Performed completed on TC, PTC, UHAST, HTSL, and THB samples.

**Qualification By Similarity Information / Justification:**

**Green/Pb-free Status:**

Qualified Pb-Free(SMT) and Green

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

Location	E-Mail
WW PCN Team	<a href="mailto:PCN_ww_admin_team@list.ti.com">PCN_ww_admin_team@list.ti.com</a>

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