

<b>PCN Number:</b>	20230420003.1		<b>PCN Date:</b>	April 24, 2023	
<b>Title:</b>	Qualify additional Assembly site for WQFN Package devices				
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>		<b>Dept:</b>	Quality Services	
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Jul 24, 2023		<b>Sample requests accepted until:</b>	May 24, 2023*	
*Sample requests received after May 24, 2023 will not be supported.					
<b>Change Type:</b>					
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design	<input type="checkbox"/>	Wafer Bump Material
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet	<input type="checkbox"/>	Wafer Bump Process
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change	<input type="checkbox"/>	Wafer Fab Site
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Wafer Fab Materials
<input checked="" type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input type="checkbox"/>	Wafer Fab Process
<b>PCN Details</b>					
<b>Description of Change:</b>					
Texas Instruments Incorporated is announcing the qualification of additional Assembly sites for devices listed below					
<b>WQFN</b>					
Assembly Sites		TIEMA, CARZ, ASEN, TIM, UTL1, UTL3, CLARK, CDAT			
Lead Finish		NiPdAu, Matte Sn			
Mount Compound		4207123 435143 443156 PZ0035 PZ0031 1400410104 1400020112			
Mold Compound		4208625 4222198 1801512111			
Bond wire type		Au, Cu			
Bond wire diameter		20.3 UM (0.8 MIL) 37.8 UM (0.96 MIL)			
<b>Reason for Change:</b>					
Continuity of Supply					
<b>Anticipated impact on Fit, Form, 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>	
<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>					
<b>Assembly Site</b>	<b>Assembly Site Origin (22L)</b>	<b>Assembly Country Code (23L)</b>	<b>Assembly City</b>		

UTL1	NSE	THA	Bangkok
UTL3	UT3	THA	Bangpakong
CARZ	CSZ	CHN	Jiangsu
Clark	QAB	PHL	Angeles City, Pampanga
TIEM	CU6	MYS	Melaka
ASEN	ASN	CHN	Suzhou
TIM	MLA	THA	Kuala Lumpur
CDAT	CDA	CHN	Chengdu

Sample product shipping label (not actual product label)



#### Product Affected

HD3SS3220IRNHR	HD3SS3220IRNHT	HD3SS3220RNHR	HD3SS3220RNHT
----------------	----------------	---------------	---------------

## Qualification Report

### Qualification Results

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

	Stress Test	Duration	CDAT TLV75733PDRV	CDAT TPS65992DADRJK	CDAT TLC6983RRF
TC	Temperature Cycling -65/150C Or Temperature Cycling -55/125C	500 Cycles Or 700 Cycles	3/231/0	3/231/0	3/231/0
HAST	Biased HAST 130C/85%RH Or Biased HAST 110C/85%RH Or Temperature Humidity Bias, 85C/85%RH	96 hours Or 264 hours Or 1000 hours	3/231/0	3/231/0	3/231/0
HTSL	High Temp. Storage Bake 150C Or High Temp. Storage Bake 170C	1000 hours Or 420 hours	3/231/0	3/231/0	3/231/0
UHA ST /AC	Unbiased HAST, 130C/85%RH Or Autoclave 121C	96 hours	3/231/0	3/231/0	3/231/0
SD	Solderability	8 Hour Steam age or 155C Dry Bake	3/66/0	2/44/0	3/66/0 (ADS5296RGC)
WBP	Wire Bond Pull	Wires	3/228/0	3/228/0	3/228/0
WBS	Wire Bond Shear	Wires	3/228/0	3/228/0	3/228/0
MQ	Manufacturability	-	Pass	Pass	Pass

	Stress Test	Duration	Clark-AT LP5912Q1.2DRV RQ 1	Clark-AT ONET4291VARGP	Clark-AT SH6966ACC0RGC
TC	Temperature Cycling -65/150C Or Temperature Cycling -55/125C	500 Cycles Or 700 Cycles	3/231/0	3/231/0	3/231/0
HAST	Biased HAST 130C/85%RH Or Biased HAST 110C/85%RH Or Temperature Humidity Bias, 85C/85%RH	96 hours Or 264 hours Or 1000 hours	3/231/0	3/231/0	3/231/0
HTSL	High Temp. Storage Bake 150C Or High Temp. Storage Bake 170C	1000 hours Or 420 hours	3/231/0	3/231/0	3/231/0
UHA ST /AC	Unbiased HAST, 130C/85%RH Or Autoclave 121C	96 hours	3/231/0	3/231/0	3/231/0
SD	Solderability	8 Hour Steam age or 155C Dry Bake	1/22/0	3/66/0	3/66/0
WBP	Wire Bond Pull	Wires	3/228/0	3/228/0	3/228/0
WBS	Wire Bond Shear	Wires	3/228/0	3/228/0	3/228/0
MQ	Manufacturability	-	Pass	Pass	Pass

	Stress Test	Duration	ASEN CSD87502Q2	ASEN TPS65988CFRSH	ASEN TPS65126RSH
TC	Temperature Cycling -65/150C Or Temperature Cycling -55/125C	500 Cycles Or 700 Cycles	3/231/0	3/231/0	1/77/0
HAST/ THB	Biased HAST 130C/85%RH Or Biased HAST 110C/85%RH Or Temperature Humidity Bias, 85C/85%RH	96 hours Or 264 hours Or 1000 hours	3/231/0	3/231/0	3/231/0
HTSL	High Temp. Storage Bake 150C Or High Temp. Storage Bake 170C	1000 hours Or 420 hours	3/231/0 (TIOL1XXDMW)	3/231/0	2/122/0
UHA ST /AC	Unbiased HAST, 130C/85%RH Or Autoclave 121C	96 hours	3/231/0	3/231/0	3/231/0
SD	Solderability	8 Hour Steam age or 155C Dry Bake	3/66/0 (CSD58911Q2)	3/66/0	1/22/0 (TPS65987DDJRSH )
WBP	Wire Bond Pull	Wires	3/228/0	3/228/0	3/228/0
WBS	Wire Bond Shear	Wires	3/228/0	3/228/0	3/228/0
MQ	Manufacturability	-	Pass	Pass	Pass

	Stress Test	Duration	CARZ TLV75733PDRV	CARZ TPD5S330RJK	CARZ UCD9211RHA
TC	Temperature Cycling -65/150C Or Temperature Cycling -55/125C	500 Cycles Or 700 Cycles	3/231/0	3/231/0	3/231/0
HAST	Biased HAST 130C/85%RH Or Biased HAST 110C/85%RH Or Temperature Humidity Bias, 85C/85%RH	96 hours Or 264 hours Or 1000 hours	3/231/0	3/231/0	3/231/0 (ADS8548SRGC)
HTSL	High Temp. Storage Bake 150C Or High Temp. Storage Bake 170C	1000 hours Or 420 hours	3/231/0	3/231/0	3/231/0
UHA ST /AC	Unbiased HAST, 130C/85%RH Or Autoclave 121C	96 hours	3/231/0	3/231/0	3/231/0
SD	Solderability	8 Hour Steam age or 155C Dry Bake	3/66/0 (DS90LV028AQDQF)	3/66/0	3/66/0
WBP	Wire Bond Pull	Wires	3/228/0	3/228/0	3/228/0
WBS	Wire Bond Shear	Wires	3/228/0	3/228/0	3/228/0
MQ	Manufacturability	-	Pass	Pass	Pass

	Stress Test	Duration	UTL1 TPS717XXQDRVQ1	UTL1 LM73606QRNPQ1	UTL1 SH6966ADU0RGC
TC	Temperature Cycling -65/150C Or Temperature Cycling -55/125C	500 Cycles Or 700 Cycles	3/231/0	2/154/0	3/231/0
HAST	Biased HAST 130C/85%RH Or Biased HAST 110C/85%RH Or Temperature Humidity Bias, 85C/85%RH	96 hours Or 264 hours Or 1000 hours	3/231/0	3/231/0	3/231/0
HTSL	High Temp. Storage Bake 150C Or High Temp. Storage Bake 170C	1000 hours Or 420 hours	3/231/0	2/154/0	3/231/0
UHA ST /AC	Unbiased HAST, 130C/85%RH Or Autoclave 121C	96 hours	3/231/0	2/154/0	3/231/0
SD	Solderability	8 Hour Steam age or 155C Dry Bake	2/44/0	1/22/0	1/22/0
WBP	Wire Bond Pull	Wires	3/228/0	3/228/0	3/228/0
WBS	Wire Bond Shear	Wires	3/228/0	3/228/0	3/228/0
MQ	Manufacturability	-	Pass	Pass	Pass

# Qualification Report

Approval Date: 14-April-2023

## Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: HD3SS3220IRNHR	QBS Reference: HD3SS3212IRKSR	QBS Reference: HD3SS460RNHR	QBS Reference: LMH32401IRGTR	QBS Reference: TWL3033HXIZXR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	-	-
AC	A3	Autoclave	121C/15psig	96 Hours	-	3/231/0	-	-	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	3/231/0	-	3/231/0	-	-
TC	A4	Temperature Cycle	-65/150C	500 Cycles	3/231/0	3/231/0	3/231/0	-	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	3/231/0	3/231/0	3/231/0	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	3/231/0
HTOL	B1	Life Test	150C	300 Hours	-	-	-	3/231/0	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	-	3/2400/0
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	-	1/22/0	1/22/0	-	-
PD	C4	Physical Dimensions	(per mechanical drawing)	-	3/15/0	3/15/0	3/15/0	-	-
CHAR	E5	Electrical Characterization	Min, Typ, Max Temp	-	1/30/0	-	-	-	-

QBS: Qual By Similarity

Qual Device HD3SS3220IRNHR 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/>

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>

## IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale ([www.ti.com/legal/termsofsale.html](http://www.ti.com/legal/termsofsale.html)) or other applicable terms available either on [ti.com](http://ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.