

PCN Number:	20211028000.1		PCN Date:	October 28, 2021									
Title:	Qualification of HFTF as an additional Assembly site for the select devices												
Customer Contact:	PCN Manager	Dept:	Quality Services										
Proposed 1st Ship Date:	Jan 26, 2022	Estimated Sample Availability:	Date provided at sample request										
Change Type:													
<input checked="" 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"/>		<input type="checkbox"/>	Wafer Fab Process								
PCN Details													
Description of Change:													
Texas Instruments is pleased to announce the qualification of HFTF as an additional assembly site for the list of devices shown below. Current assembly site and Material differences are as follows:													
<table border="1"> <thead> <tr> <th></th> <th>NFME</th> <th>HFTF</th> </tr> </thead> <tbody> <tr> <td>Mold Compound</td> <td>SID# R-07</td> <td>SID#R-27</td> </tr> <tr> <td>Lead Finish</td> <td>NiPdAu</td> <td>Matte Sn</td> </tr> </tbody> </table>						NFME	HFTF	Mold Compound	SID# R-07	SID#R-27	Lead Finish	NiPdAu	Matte Sn
	NFME	HFTF											
Mold Compound	SID# R-07	SID#R-27											
Lead Finish	NiPdAu	Matte Sn											
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.													
<table border="1"> <thead> <tr> <th>RoHS</th> <th>REACH</th> <th>Green Status</th> <th>IEC 62474</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> </tr> </tbody> </table>					RoHS	REACH	Green Status	IEC 62474	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	
RoHS	REACH	Green Status	IEC 62474										
<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change										
Changes to product identification resulting from this PCN:													
Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City										
NFME	NFM	CHN	Economic Development Zone										
HFTF	HFT	CHN	Hefei										
Sample product shipping label (not actual product label)													

TEXAS INSTRUMENTS

MADE IN: Malaysia
2DC: 20:

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:

BQ500100DCKR	INA199C1DCKR	INA211AIDCKRG4	INA213BIDCKR
BQ500100DCKT	INA199C1DCKT	INA211AIDCKT	INA213BIDCKT
INA199A1DCKR	INA199C2DCKR	INA211AIDCKTG4	INA214AIDCKR
INA199A1DCKT	INA199C2DCKT	INA211BIDCKR	INA214AIDCKR-S
INA199A2DCKR	INA199C3DCKR	INA211BIDCKT	INA214AIDCKRG4
INA199A2DCKT	INA199C3DCKT	INA212AIDCKR	INA214AIDCKT
INA199A3DCKR	INA210AIDCKR	INA212AIDCKT	INA214AIDCKTG4
INA199A3DCKT	INA210AIDCKR-S	INA212AIDCKTG4	INA214BIDCKR
INA199B1DCKR	INA210AIDCKRG4	INA212BIDCKR	INA214BIDCKT
INA199B1DCKT	INA210AIDCKT	INA212BIDCKT	INA215AIDCKR
INA199B2DCKR	INA210AIDCKTG4	INA213AIDCKR	INA215AIDCKT
INA199B2DCKT	INA210BIDCKR	INA213AIDCKRG4	INA215BIDCKR
INA199B3DCKR	INA210BIDCKT	INA213AIDCKT	INA215BIDCKT
INA199B3DCKT	INA211AIDCKR	INA213AIDCKTG4	

Qualification Report

Approve Date 06-Aug-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: INA198A3DCKR INA199B3DCKR INA199C3DCKR INA210BIDCKR	Qual Device: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
-	Pb Free Solderability - Dip and Look	Pb Free/Solderability	-	3/66/0	-	-	-
-	Pb Solderability - Dip and Look	Pb/Solderability	-	3/66/0	-	-	-
AC	Autoclave 121C	96 Hours	-	-	-	3/231/0	3/231/0
CDM	ESD - CDM	1000 V	-	1/3/0	-	-	1/3/0
CDM	ESD - CDM	2000 V	-	-	1/12/0	1/3/0	-
CDM	ESD CDM	500 V	-	-	-	-	1/3/0
DS	Die Shear	-	-	-	-	-	3/30/0
ED	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-	1/30/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	3/231/0	3/307/0
HBM	ESD - HBM	6000 V	-	-	-	1/3/0	-
HBM	ESD HBM	1000 V	-	-	-	-	1/3/0
HBM	ESD HBM	4000 V	-	-	-	-	1/3/0
HBM	ESD HBM	500V, 1000V, 1500V, 2000V, 3000V, 4000V (ss=3 per voltage)	-	-	1/18/0	-	-
HTOL	Life Test, 150C	300 Hours	-	-	-	-	3/231/0
HTOL	Life Test, 150C	3000 Hours	-	-	-	-	1/116/0
HTSL	High Temp Storage Bake 150C	1000 Hours	-	3/231/0	-	-	3/135/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	3/231/0	-
HTSL	High Temp Storage Bake 170C	600 Hours	-	-	-	3/231/0	-

Type	Test Name / Condition	Duration	Qual Device: INA199A3DCKR INA199B3DCKR INA199C3DCKR INA210BIDCKR	Qual Device: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
LU	Latch-up	(Per JESD78)	-	-	1/6/0	1/6/0	1/12/0
MQ	Manufacturability	(per mfg. Site specification)	-	-	1/Pass	-	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	-	1/Pass	-	3/Pass	-
MSL	Moisture Sensitivity	(level 2 @ 260C peak +/-5C)	-	-	1/12/0	-	-
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	-	-	-	1/12/0	-
MSL	Moisture Sensitivity, JEDEC	Level 3-235C	-	-	-	-	1/12/0
MSL	Moisture Sensitivity, L2	Elec-1	-	3/39/0	-	-	-
PD	Physical Dimensions	(per mechanical drawing)	-	1/5/0	-	-	-
TC	Temperature Cycle - 65/150C	1000 Cycles	-	-	-	3/231/0	3/231/0
TC	Temperature Cycle - 65/150C	500 Cycles	-	3/231/0	-	3/231/0	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96 Hrs/130/85% RH	-	3/231/0	-	-	-
VM	Bond Pad Crater Check	Completed	-	-	-	3/Pass	-
WBP	Bond Pull	Wires	-	-	-	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	-	-	-	-	1/50/0
WBS	Wire Bond Shear	Wires	-	-	-	3/228/0	-
YLD	Yield Evaluation	(per mfg. Site specification)	1/Pass 1/Pass 1/Pass 1/Pass	-	-	-	-

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- QBS: Qual By Similarity

- Qual Device INA199A3DCKR is qualified at LEVEL2-260CG

- Qual Device INA199B3DCKR is qualified at LEVEL2-260CG

- Qual Device INA199C3DCKR is qualified at LEVEL2-260CG

- Qual Device INA210AIDCKR is qualified at LEVEL2-260CG

- Qual Device INA210BIDCKR is qualified at LEVEL2-260CG

- 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

Qualification Report

Approve Date 25-Aug-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: INA211AIDCKR	Qual Device: INA211BIDCKR	QBS Product Reference: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
-	Pb Free Solderability - Dip and Look	Pb Free/Solderability	-	-	3/66/0	-	-	-
-	Pb Solderability - Dip and Look	Pb/Solderability	-	-	3/66/0	-	-	-
AC	Autoclave 121C	96 Hours	-	-	-	-	3/231/0	3/231/0
CDM	ESD - CDM	1000 V	-	-	1/3/0	-	-	1/3/0
CDM	ESD - CDM	2000 V	-	-	-	1/12/0	1/3/0	-
CDM	ESD CDM	500 V	-	-	-	-	-	1/3/0
DS	Die Shear	--	-	-	-	-	-	3/30/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	1/30/0	-	-	1/30/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	3/231/0	3/307/0
HBM	ESD - HBM	6000 V	-	-	-	-	1/3/0	-
HBM	ESD HBM	1000 V	-	-	-	-	-	1/3/0
HBM	ESD HBM	4000 V	-	-	-	-	-	1/3/0
HBM	ESD HBM	500V, 1000V, 1500V, 2000V, 3000V, 4000V (ss=3 per voltage)	-	-	-	1/18/0	-	-
HTOL	Life Test, 150C	300 Hours	-	-	-	-	-	3/231/0
HTOL	Life Test, 150C	3000 Hours	-	-	-	-	-	1/116/0
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	3/231/0	-	-	3/135/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	-	3/231/0	-
HTSL	High Temp Storage Bake 170C	600 Hours	-	-	-	-	3/231/0	-
LU	Latch-up	(Per JESD78)	-	-	-	1/6/0	1/6/0	1/12/0
MQ	Manufacturability	(per mfg. Site specification)	-	-	-	1/Pass	-	-

Type	Test Name / Condition	Duration	Qual Device: INA211AIDCKR	Qual Device: INA211BIDCKR	QBS Product Reference: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	1/Pass	-	1/Pass	-	3/Pass	-
MSL	Moisture Sensitivity	(level 2 @ 260C peak +/-5C)	-	-	-	1/12/0	-	-
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	-	-	-	-	1/12/0	-
MSL	Moisture Sensitivity, JEDEC	Level 3-235C	-	-	-	-	-	1/12/0
MSL	Moisture Sensitivity, L2	Elec-1	-	-	3/39/0	-	-	-
PD	Physical Dimensions	(per mechanical drawing)	-	-	1/5/0	-	-	-
TC	Temperature Cycle - 65/150C	1000 Cycles	-	-	-	-	3/231/0	3/231/0
TC	Temperature Cycle - 65/150C	500 Cycles	-	-	3/231/0	-	3/231/0	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96 Hrs/130/85% RH	-	-	3/231/0	-	-	-
VM	Bond Pad Crater Check	Completed	-	-	-	-	3/Pass	-
WBP	Bond Pull	Wires	-	-	-	-	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	-	-	-	-	-	1/50/0
WBS	Wire Bond Shear	Wires	-	-	-	-	3/228/0	-
YLD	Yield Evaluation	(per mfg. Site specification)	1/Pass	1/Pass	-	-	-	-

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- QBS: Qual By Similarity

- Qual Device INA211BIDCKR is qualified at LEVEL2-260CG

- Qual Device INA211AIDCKR is qualified at LEVEL2-260CG

- 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

Qualification Report

Approve Date 25-Aug-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: INA212AIDCKR	Qual Device: INA212BIDCKR	QBS Product Reference: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
-	Pb Free Solderability - Dip and Look	Pb Free/Solderability	-	-	3/66/0	-	-	-
-	Pb Solderability - Dip and Look	Pb/Solderability	-	-	3/66/0	-	-	-
AC	Autoclave 121C	96 Hours	-	-	-	-	3/231/0	3/231/0
CDM	ESD - CDM	1000 V	-	-	1/3/0	-	-	1/3/0
CDM	ESD - CDM	2000 V	-	-	-	1/12/0	1/3/0	-
CDM	ESD CDM	500 V	-	-	-	-	-	1/3/0
DS	Die Shear	--	-	-	-	-	-	3/30/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	1/30/0	-	-	1/30/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	3/231/0	3/307/0
HBM	ESD - HBM	6000 V	-	-	-	-	1/3/0	-
HBM	ESD HBM	1000 V	-	-	-	-	-	1/3/0
HBM	ESD HBM	4000 V	-	-	-	-	-	1/3/0
HBM	ESD HBM	500V, 1000V, 1500V, 2000V, 3000V, 4000V (ss=3 per voltage)	-	-	-	1/18/0	-	-
HTOL	Life Test, 150C	300 Hours	-	-	-	-	-	3/231/0
HTOL	Life Test, 150C	3000 Hours	-	-	-	-	-	1/116/0
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	3/231/0	-	-	3/135/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	-	3/231/0	-
HTSL	High Temp Storage Bake 170C	600 Hours	-	-	-	-	3/231/0	-
LU	Latch-up	(Per JESD78)	-	-	-	1/6/0	1/6/0	1/12/0
MQ	Manufacturability	(per mfg. Site specification)	-	-	-	1/Pass	-	-

Type	Test Name / Condition	Duration	Qual Device: INA212AIDCKR	Qual Device: INA212BIDCKR	QBS Product Reference: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	1/Pass	-	1/Pass	-	3/Pass	-
MSL	Moisture Sensitivity	(level 2 @ 260C peak +/- 5C)	-	-	-	1/12/0	-	-
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	-	-	-	-	1/12/0	-
MSL	Moisture Sensitivity, JEDEC	Level 3-235C	-	-	-	-	-	1/12/0
MSL	Moisture Sensitivity, L2	Elec-1	-	-	3/39/0	-	-	-
PD	Physical Dimensions	(per mechanical drawing)	-	-	1/5/0	-	-	-
TC	Temperature Cycle - 65/150C	1000 Cycles	-	-	-	-	3/231/0	3/231/0
TC	Temperature Cycle - 65/150C	500 Cycles	-	-	3/231/0	-	3/231/0	3/231/0
UHASt	Unbiased HAST 130C/85%RH	96 Hrs/130/85% RH	-	-	3/231/0	-	-	-
VM	Bond Pad Crater Check	Completed	-	-	-	-	3/Pass	-
WBP	Bond Pull	Wires	-	-	-	-	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	-	-	-	-	-	1/50/0
WBS	Wire Bond Shear	Wires	-	-	-	-	3/228/0	-
YLD	Yield Evaluation	(per mfg. Site specification)	1/Pass	1/Pass	-	-	-	-

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- QBS: Qual By Similarity

- Qual Device INA212BIDCKR is qualified at LEVEL2-260CG

- Qual Device INA212AIDCKR is qualified at LEVEL2-260CG

- 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

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Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Qualification Report

Approve Date 25-Aug-2021

Qualification Results

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Type	Test Name / Condition	Duration	Qual Device: INA199A1DCKR INA199B1DCKR INA199C1DCKR	Qual Device: INA213AIDCKR	Qual Device: INA213BIDCKR	QBS Product Reference: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
-	Pb Free Solderability - Dip and Look	Pb Free/Solderability	-	-	-	3/66/0	-	-	-
-	Pb Solderability - Dip and Look	Pb/Solderability	-	-	-	3/66/0	-	-	-
AC	Autoclave 121C	96 Hours	-	-	-	-	-	3/231/0	3/231/0
CDM	ESD - CDM	1000 V	-	-	-	1/3/0	-	-	1/3/0
CDM	ESD - CDM	2000 V	-	-	-	-	1/12/0	1/3/0	-
CDM	ESD CDM	500 V	-	-	-	-	-	-	1/3/0
DS	Die Shear	--	-	-	-	-	-	-	3/30/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	1/30/0	1/30/0	-	-	1/30/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	-	3/231/0	3/307/0
HBM	ESD - HBM	6000 V	-	-	-	-	-	1/3/0	-
HBM	ESD HBM	1000 V	-	-	-	-	-	-	1/3/0
HBM	ESD HBM	4000 V	-	-	-	-	-	-	1/3/0
HBM	ESD HBM	500V, 1000V, 1500V, 2000V, 3000V, 4000V (ss=3 per voltage)	-	-	-	-	1/18/0	-	-
HTOL	Life Test, 150C	300 Hours	-	-	-	-	-	-	3/231/0
HTOL	Life Test, 150C	3000 Hours	-	-	-	-	-	-	1/116/0
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	-	3/231/0	-	-	3/135/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	-	-	3/231/0	-
HTSL	High Temp Storage Bake 170C	600 Hours	-	-	-	-	-	3/231/0	-
LU	Latch-up	(Per JESD78)	-	-	-	-	1/6/0	1/6/0	1/12/0

Type	Test Name / Condition	Duration	Qual Device: INA199A1DCKR INA199B1DCKR INA199C1DCKR	Qual Device: INA213AIDCKR	Qual Device: INA213BIDCKR	QBS Product Reference: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
MQ	Manufacturability	(per mfg. Site specification)	-	-	-	-	1/Pass	-	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	-	1/Pass	-	1/Pass	-	3/Pass	-
MSL	Moisture Sensitivity	(level 2 @ 260C peak +0/-5C)	-	-	-	-	1/12/0	-	-
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	-	-	-	-	-	1/12/0	-
MSL	Moisture Sensitivity, JEDEC	Level 3-235C	-	-	-	-	-	-	1/12/0
MSL	Moisture Sensitivity, L2	Elec-1	-	-	-	3/39/0	-	-	-
PD	Physical Dimensions	(per mechanical drawing)	-	-	-	1/5/0	-	-	-
TC	Temperature Cycle -65/150C	1000 Cycles	-	-	-	-	-	3/231/0	3/231/0
TC	Temperature Cycle -65/150C	500 Cycles	-	-	-	3/231/0	-	3/231/0	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96 Hrs/130/85% RH	-	-	-	3/231/0	-	-	-
VM	Bond Pad Crater Check	Completed	-	-	-	-	-	3/Pass	-
WBP	Bond Pull	Wires	-	-	-	-	-	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	-	-	-	-	-	-	1/50/0
WBS	Wire Bond Shear	Wires	-	-	-	-	-	3/228/0	-
YLD	Yield Evaluation	(per mfg. Site specification)	1/Pass 1/Pass 1/Pass	1/Pass	1/Pass	-	-	-	-

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- QBS: Qual By Similarity

- Qual Device INA199C1DCKR is qualified at LEVEL2-260CG

- Qual Device INA199B1DCKR is qualified at LEVEL2-260CG

- Qual Device INA213AIDCKR is qualified at LEVEL2-260CG

- Qual Device INA213BIDCKR is qualified at LEVEL2-260CG

- Qual Device INA199A1DCKR is qualified at LEVEL2-260CG

- 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

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- The following are equivalent Temp Cycle options per JESD47: -55C/125C/700 Cycles and -65C/150C/500 Cycles

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Qualified Pb-Free(SMT) and Green

Qualification Report

Approve Date 25-Aug-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: INA199A2DCKR INA199B2DCKR INA199C2DCKR INA214BIDCKR	Qual Device: INA214AIDCKR	QBS Product Reference: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
-	Pb Free Solderability - Dip and Look	Pb Free/Solderability	-	-	3/66/0	-	-	-
-	Pb Solderability - Dip and Look	Pb/Solderability	-	-	3/66/0	-	-	-
AC	Autoclave 121C	96 Hours	-	-	-	-	3/231/0	3/231/0
CDM	ESD - CDM	1000 V	-	-	1/3/0	-	-	1/3/0
CDM	ESD - CDM	2000 V	-	-	-	1/12/0	1/3/0	-
CDM	ESD CDM	500 V	-	-	-	-	-	1/3/0
DS	Die Shear	--	-	-	-	-	-	3/30/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	1/30/0	-	-	1/30/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	3/231/0	3/307/0
HBM	ESD - HBM	6000 V	-	-	-	-	1/3/0	-
HBM	ESD HBM	1000 V	-	-	-	-	-	1/3/0
HBM	ESD HBM	4000 V	-	-	-	-	-	1/3/0
HBM	ESD HBM	500V, 1000V, 1500V, 2000V, 3000V, 4000V (ss=3 per voltage)	-	-	-	1/18/0	-	-
HTOL	Life Test, 150C	300 Hours	-	-	-	-	-	3/231/0
HTOL	Life Test, 150C	3000 Hours	-	-	-	-	-	1/116/0
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	3/231/0	-	-	3/135/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	-	3/231/0	-
HTSL	High Temp Storage Bake 170C	600 Hours	-	-	-	-	3/231/0	-

Type	Test Name / Condition	Duration	Qual Device: INA199A2DCKR INA199B2DCKR INA199C2DCKR INA214BIDCKR	Qual Device: INA214AIDCKR	QBS Product Reference: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
LU	Latch-up	(Per JESD78)	-	-	-	1/6/0	1/6/0	1/12/0
MQ	Manufacturability	(per mfg. Site specification)	-	-	-	1/Pass	-	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	-	1/Pass	1/Pass	-	3/Pass	-
MSL	Moisture Sensitivity	(level 2 @ 260C peak +0/-5C)	-	-	-	1/12/0	-	-
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	-	-	-	-	1/12/0	-
MSL	Moisture Sensitivity, JEDEC	Level 3-235C	-	-	-	-	-	1/12/0
MSL	Moisture Sensitivity, L2	Elec-1	-	-	3/39/0	-	-	-
PD	Physical Dimensions	(per mechanical drawing)	-	-	1/5/0	-	-	-
TC	Temperature Cycle -65/150C	1000 Cycles	-	-	-	-	3/231/0	3/231/0
TC	Temperature Cycle -65/150C	500 Cycles	-	-	3/231/0	-	3/231/0	3/231/0
UHA	Unbiased HAST 130C/85%RH	96 Hrs/130/85% RH	-	-	3/231/0	-	-	-
VM	Bond Pad Crater Check	Completed	-	-	-	-	3/Pass	-
WBP	Bond Pull	Wires	-	-	-	-	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	-	-	-	-	-	1/50/0
WBS	Wire Bond Shear	Wires	-	-	-	-	3/228/0	-
YLD	Yield Evaluation	(per mfg. Site specification)	1/Pass 1/Pass 1/Pass 1/Pass	1/Pass	-	-	-	-

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- QBS: Qual By Similarity

- Qual Device INA199B2DCKR is qualified at LEVEL2-260CG

- Qual Device INA199C2DCKR is qualified at LEVEL2-260CG

- Qual Device INA199A2DCKR is qualified at LEVEL2-260CG

- Qual Device INA214AIDCKR is qualified at LEVEL2-260CG

- Qual Device INA214BIDCKR is qualified at LEVEL2-260CG

- 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

Qualification Report

Approve Date 25-Aug-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: INA215AIDCKR	Qual Device: INA215BJDCKR	QBS Product Reference: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
-	Pb Free Solderability - Dip and Look	Pb Free/Solderability	-	-	3/66/0	-	-	-
-	Pb Solderability - Dip and Look	Pb/Solderability	-	-	3/66/0	-	-	-
AC	Autoclave 121C	96 Hours	-	-	-	-	3/231/0	3/231/0
CDM	ESD - CDM	1000 V	-	-	1/3/0	-	-	1/3/0
CDM	ESD - CDM	2000 V	-	-	-	1/12/0	1/3/0	-
CDM	ESD CDM	500 V	-	-	-	-	-	1/3/0
DS	Die Shear	--	-	-	-	-	-	3/30/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	1/30/0	-	-	1/30/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	3/231/0	3/307/0
HBM	ESD - HBM	6000 V	-	-	-	-	1/3/0	-
HBM	ESD HBM	1000 V	-	-	-	-	-	1/3/0
HBM	ESD HBM	4000 V	-	-	-	-	-	1/3/0
HBM	ESD HBM	500V, 1000V, 1500V, 2000V, 3000V, 4000V (ss=3 per voltage)	-	-	-	1/18/0	-	-
HTOL	Life Test, 150C	300 Hours	-	-	-	-	-	3/231/0
HTOL	Life Test, 150C	3000 Hours	-	-	-	-	-	1/116/0
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	3/231/0	-	-	3/135/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	-	3/231/0	-
HTSL	High Temp Storage Bake 170C	600 Hours	-	-	-	-	3/231/0	-
LU	Latch-up	(Per JESD78)	-	-	-	1/6/0	1/6/0	1/12/0

Type	Test Name / Condition	Duration	Qual Device: INA215AIDCKR	Qual Device: INA215BIDCKR	QBS Product Reference: INA210AIDCKR	QBS Product Reference: INA210AIDCK	QBS Package Reference: TMUX1119DCK	QBS Process Reference: OPA300AID
MQ	Manufacturability	(per mfg. Site specification)	-	-	-	1/Pass	-	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	1/Pass	-	1/Pass	-	3/Pass	-
MSL	Moisture Sensitivity	(level 2 @ 260C peak +0/-5C)	-	-	-	1/12/0	-	-
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	-	-	-	-	1/12/0	-
MSL	Moisture Sensitivity, JEDEC	Level 3-235C	-	-	-	-	-	1/12/0
MSL	Moisture Sensitivity, L2	Elec-1	-	-	3/39/0	-	-	-
PD	Physical Dimensions	(per mechanical drawing)	-	-	1/5/0	-	-	-
TC	Temperature Cycle -65/150C	1000 Cycles	-	-	-	-	3/231/0	3/231/0
TC	Temperature Cycle -65/150C	500 Cycles	-	-	3/231/0	-	3/231/0	3/231/0
UHASt	Unbiased HAST 130C/85%RH	96 Hrs/130/85% RH	-	-	3/231/0	-	-	-
VM	Bond Pad Crater Check	Completed	-	-	-	-	3/Pass	-
WBP	Bond Pull	Wires	-	-	-	-	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	-	-	-	-	-	1/50/0
WBS	Wire Bond Shear	Wires	-	-	-	-	3/228/0	-
YLD	Yield Evaluation	(per mfg. Site specification)	1/Pass	1/Pass	-	-	-	-

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

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- Qual Device INA215BIDCKR is qualified at LEVEL2-260CG

- Qual Device INA215AIDCKR is qualified at LEVEL2-260CG

- 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

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Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

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