PCN Number:	20230627002.1	**PCN Date:**	July 27, 2023
Title:	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision and additional BOM elements for select devices		
Customer Contact:	Change Management Team	**Dept:**	Quality Services
Proposed 1st Ship Date:	Oct. 25, 2023	**Sample requests accepted until:**	Aug. 27, 2023

***Sample requests received after Aug. 25, 2023 will not be supported.**

Change Type:

☐	Assembly Site	☒	Design	☐	Wafer Bump Material
☐	Assembly Process	☐	Data Sheet	☐	Wafer Bump Process
☒	Assembly Materials	☐	Part number change	☒	Wafer Fab Site
☐	Mechanical Specification	☐	Test Site	☒	Wafer Fab Material
☐	Packing/Shipping/Labeling	☐	Test Process	☒	Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of a new fab & process technology (RFAB, TIB) die revision, and additional BOM elements for selected devices as listed below in the product affected section.

Current Fab Site			Additional Fab Site		
Current Fab Site	**Process**	**Wafer Diameter**	**Additional Fab Site**	**Process**	**Wafer Diameter**
CFAB	JI3	200 mm	RFAB	TIB	300 mm
SH-BIP-1	JI1	150 mm			

The die was also changed as a result of the process change.

Additional BOM elements for the devices listed below as follows:

What	Current	Additional
Lead finish	**NiPdAu**	**Matte Sn**
Mount Compound	**4147858**	**4211470**
Mold Compound	**4211880**	**4228573**

Upon expiry of this PCN, there will be a transition period where TI will combine lead free solutions in a single ***standard part number*** For example; ***TLV73315PQDBVRQ1*** – can ship with both Matte Sn and NiPdAu.

Example:

- Customer order for 7500 units of TPS61377RYHR with 2500 units SPQ (Standard Pack Quantity per Reel).

- TI can satisfy the above order in one of the following ways.
  - I. 3 Reels of NiPdAu finish.
  - II. 3 Reels of Matte Sn finish
  - III. 2 Reels of Matte Sn and 1 reel of NiPdAu finish.
  - IV. 2 Reels of NiPdAu and 1 reel of Matte Sn finish.

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.

RoHS	REACH	Green Status	IEC 62474
☒ No Change	☒ No Change	☒ No Change	☒ No Change

Changes to product identification resulting from this PCN:

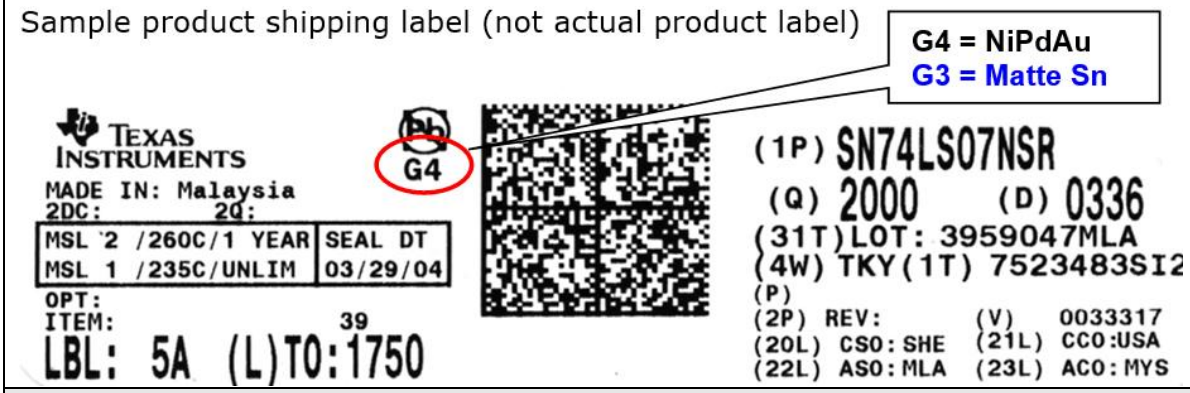
Fab Site Information:

Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
SH-BIP-1	SHE	USA	Sherman
CFAB	CU3	CHN	Chengdu
RFAB	**RFB**	**USA**	**Richardson**

Die Rev:

Current	New
Die Rev [2P]	**Die Rev [2P]**
C,E,F,H	**A**

Sample product shipping label (not actual product label)



Product Affected:

Group 1 Device list (BOM elements only)

CD40107BM	OPA2317IDR	OPA380AIDR	TLV6002HIDR
CD40107BM96	OPA2330AID	OPA704UA	TLV6742IDR
LF353DR	OPA2330AIDR	OPA704UA/2K5	TLV9002IDR
LM211D	OPA2333AID	OPA735AID	TLV9022DR
LM211DR	OPA2333AIDR	OPA735AIDR	TLV9032DR
LM2903BIDR	OPA2335AID	OPA862IDR	TLV9042IDR
LM2903DR	OPA2335AIDR	P82B96DR	TLV9052IDR
LM2903DR-S	OPA2342UA	PCA9517DR	TLV9062IDR
LM2904LVIDR	OPA2342UA/2K5	RC4558DR	TLV9102IDR
LM293ADR	OPA2343UA	RC4580ID	TLV9152IDR
LM293DR	OPA2343UA/2K5	RC4580IDR	TLV9162IDR
LM311D	OPA2344UA	SN1711004DR	TLV9302IDR
LM311DR	OPA2344UA/2K5	SN2772IDR	TLV9352IDR

LM358LVIDR	OPA2348AID	SN293ADR	TLV9362IDR
LM393ADR	OPA2348AIDR	SN293DR	TMP1075DR
LM393BIDR	OPA2353UA/2K5	SN393DR	TMP175AID
LM393DR	OPA2356AID	SN65EPT23D	TMP175AIDR
LM393LVDR	OPA2356AIDR	SN65EPT23DR	TMP275AID
LM5109BMAX/NOPB	OPA2375IDR	SN74CBT3306DR	TMP275AIDR
LM833D	OPA2607IDR	SN74CBTD3306DR	TMP75AID
LM833DR	OPA2743UA	THP210DR	TMP75AIDR
LMV358AIDR	OPA2743UA/2K5	THS4131IDR	TPS3707-30DR
LMV358ID	OPA2990IDR	THS4521ID	TPS76633DR
LMV358IDR	OPA2991IDR	THS4521IDR	TS12A4517DR
LMV393IDR	OPA2992IDR	THS7314D	TSV912AIDR
LP2951ACM-3.0/NOPB	OPA317ID	THS7314DR	UCC27324DR
LP2951CM/NOPB	OPA317IDR	THS7315D	UCC27424DR
LP2951CM-3.0/NOPB	OPA333AID	THS7315DR	UCC27523DR
LP2951CM-3.3/NOPB	OPA333AIDR	THS7316D	UCC27525D
LP2951CMX/E7002608	OPA335AID	THS7316DR	UCC27528D
LP2951CMX/J7000697	OPA335AIDR	THVD1400DR	UCC27614DR
LP2951CMX/NAK2	OPA338UA	THVD1406DR	UCC27624DR
LP2951CMX/NOPB	OPA343UA	THVD1420DR	UCC28C50DR
LP2951CMX-3.0/NOPB	OPA343UA/2K5	THVD1426DR	UCC28C51DR
LP2951CMX-3.3/NOPB	OPA344UA	THVD1500DR	UCC28C52DR
MCP6292IDR	OPA344UA/2K5	THVD1505DR	UCC28C53DR
NA555DR	OPA345UA	THVD1520DR	UCC28C54DR
NE555DR	OPA347UA	TL071HIDR	UCC28C55DR
OPA1632DR	OPA347UA/2K5	TL072CDR	UCC28C56HDR
OPA1652AID	OPA348AID	TL072HIDR	UCC28C56LDR
OPA1652AIDR	OPA348AIDR	TL081HIDR	UCC28C57HDR
OPA1677DR	OPA350UA	TL082CDR	UCC28C57LDR
OPA1678IDR	OPA350UA/2K5	TL082HIDR	UCC28C58DR
OPA1692ID	OPA353UA	TL3472CDR	UCC28C59DR
OPA1692IDR	OPA353UA/2K5	TL3472IDR	UCC38C50DR
OPA2186DR	OPA355UA	TL7702ACD	UCC38C51DR
OPA2301AID	OPA355UA/2K5	TL7702ACDR	UCC38C52DR
OPA2301AIDR	OPA356AID	TLV07IDR	UCC38C53DR
OPA2310IDR	OPA356AIDR	TLV1812DR	UCC38C54DR
OPA2314AID	OPA374AID	TLV1822DR	UCC38C55DR
OPA2314AIDR	OPA374AIDR	TLV2186IDR	
OPA2317ID	OPA380AID	TLV2314IDR	

Group 2 Device list (Wafer fab, die revision, process technology and BOM elements)

LM258ADR	LM2904DR	LM358BIDR	SN2904DR
LM258DR	LM2904DR-JF	LM358DR	SN358DR
LM2904BAIDR	LM358ADR	LM358DR-JF	

LM2904BIDR	LM358BAIDR	MC1458DR	

Qualification Report

MLA SOIC 8D Hyde 4225917 Bare Cu Roughen Leadframe with Ag Ring and Matte Sn Post Mold Plating (Commercial) Approve Date 26-MAY -2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: RC4580IDR	Qual Device: LM358BIDR	Qual Device: TL082HIDR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	3/231/0	3/231/0	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	3/231/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	3/231/0	3/231/0	3/231/0
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	3/228/0	3/228/0	3/228/0
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	3/228/0	3/228/0	3/228/0
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes); PB Solder;	-	-	3/66/0	-
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	-	3/66/0	-
PD	C4	Physical Dimensions	(per mechanical drawing)	-	3/15/0	3/15/0	3/15/0
FTY	E6	Final Test Yield	-	-	3/3/0	3/3/0	3/3/0

- QBS: Qual By Similarity
- Qual Device RC4580IDR is qualified at MSL1 260C
- Qual Device LM358BIDR is qualified at MSL1 260C
- Qual Device TL082HIDR is qualified at MSL1 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/

TI Qualification ID: R-CHG-2303-081

Qualification Report

LM358B TIB FMX with HYDE LF Qualification
Approve Date 16-SEPTEMBER-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: LM358BIDR	QBS Process Reference: LM2902BQPWRQ1	QBS Package Reference: CD4093BQM96Q1	QBS Package Reference: TLC5916QDRQ1	QBS Package Reference: LM2903BIDR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	3/231/0	3/231/0	3/231/0
UHAST	A3	Unbiased HAST	110C/85%RH	264 Hours	-	3/231/0	-	-	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	3/231/0	-	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	3/231/0	-	-	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	1/77/0	-	-	-	-
HTOL	B1	Life Test	150C	408 Hours	-	3/231/0	-	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	-	-	-
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	2/6/0	-	-	-	-
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	2/6/0	-	-	-	-

Type	#	Test Name	Condition	Duration	Qual Device: LM358BIDR	QBS Process Reference: LM2902BQPWRQ1	QBS Package Reference: CD4093BQM96Q1	QBS Package Reference: TLC5916QDRQ1	QBS Package Reference: LM2903BIDR
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	3/66/0	3/66/0	-
PD	C4	Physical Dimensions	(per mechanical drawing)	-	-	3/30/0	3/30/0	3/30/0	3/15/0
ESD	E2	ESD CDM	-	1500 Volts	1/3/0	3/9/0	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	1/3/0	3/9/0	-	-	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	3/18/0	-	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	3/90/0	-	-	-
FTY	E6	Final Test Yield	-	-	1/Pass	-	-	-	-

- QBS: Qual By Similarity
- Qual Device LM358BIDR is qualified at MSL1 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/

TI Qualification ID: R-CHG-2207-058

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