PCN Number:	20231219014.1	PCN Date:	December 22, 2023
Title:	Qualification of RFAB using qualified Process Technology, Die Revision and additional Assembly site/BOM options for select devices		
Customer Contact:	Change Management team	Dept:	Quality Services
Proposed 1st Ship Date:	Mar 20, 2024	Estimated Sample Availability:	Jan 20, 2024*

***Sample requests received after January 20, 2024 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 Materials
☒	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, LBC9) and additional Assembly site (MLA and HFTF) for selected devices 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
DFAB	50A21	150 mm	RFAB	LBC9	300 mm
SFAB	JI1	150 mm			

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

Additionally, there will be BOM/Assembly options introduced for these devices:

Group 1:

	MLA	MLA (new)
Bond wire composition, diameter	Cu, 0.96 mil	Cu, 0.8 mil

Group 2:

	HNA	UTL	HFTF
Bond wire composition, diameter	Au, 1.0 mil	Au, 1.0 mil	Cu, 0.8 mil
Mount compound	400180	PZ0013	A-18
Mold compound	450179	CZ0094	R-30

Group 3:

	FMX	MLA
Bond wire composition, diameter	Cu, 0.96 mil	Cu, 0.8 mil

Qual details are provided in the Qual Data Section.

Reason for Change:

These changes are part of our multiyear plan to transition products from our 150-millimeter factories to newer, more efficient manufacturing processes and technologies, underscoring our commitment to product longevity and supply continuity.

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
DL-LIN	DLN	USA	Dallas
RFAB	**RFB**	**USA**	**Richardson**

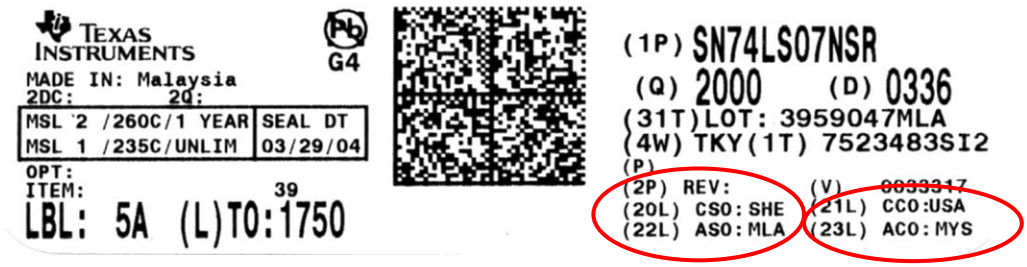
Die Rev:

Current	New
Die Rev [2P]	**Die Rev [2P]**
A, B, -	**A**

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
HNA	HNT	THA	Ayutthaya
UTL	NSE	THA	Bangkok
FMX	MEX	MEX	Aguascalientes
HFTF	**HFT**	**CHN**	**Hefei**
MLA	**MLA**	**MYS**	**Kuala Lumpur**

Sample product shipping label (not actual product label)



Group 1 Product Affected: Fab site, Die rev, BOM

LMV344IDR	LMV344IPWR	LMV344IPWRE4	TLV2362IPWR

Group 2 Product Affected: Fab site, Die rev, Assembly site

LMV342IDGKR	TLV2362IDGKR	TLV342IDGKR

Group 3 Product Affected: Fab site, Die rev, Assembly site

LMV342IDR	TL103WIDR	TLV342AIDR
TL103WAIDR	TLV2362IDR	TLV342IDR

For alternate parts with similar or improved performance, please visit the product page on TI.com

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

	Type	Test Name / Condition	Duration	Qual Device: TLV6742IDGK	QBS Product Reference: TLV6742IDR	QBS Process Reference: TLV9062ID	QBS Package Reference: LM5008MM_PCC
	PC	PreCon Level 2	Level 2-260C	-	-	3/1280/0	-
	PC	PreCon Level 1	Level 1 - 260C	-	-	-	3/693/0
	ED	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	3/90/0	-
	HAST	Biased HAST, 130C	96 Hours	-	-	3/231/0	3/231/0
	HAST	Unbiased HAST, 130C	96 Hours	-	-	3/231/0	3/231/0
	TC	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	3/231/0
	HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	3/231/0	3/231/0
	HTOL	Life Test, 150C	300 Hours	-	3/231/0	3/231/0	-
	ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/1 (1)	-
	HBM	ESD - HBM	2500 V	-	1/3/0	-	-
	HBM	ESD - HBM	4000 V	-	-	2/6/0	-
	CDM	ESD - CDM	1500 V	1/3/0	-	3/9/0	-
	CDM	ESD - CDM	2000 V	-	1/3/0	-	-
	LU	Latch-up	Per JESD78	-	1/6/0	3/18/0	-
	MSL	Moisture Sensitivity, L1	Level 1 - 260C	-	-	-	3/36/0
	MSL	Moisture Sensitivity, L2	Level 2-260C	-	-	3/36/0	-

	Type	Test Name / Condition	Duration	Qual Device: TLV6742IDGK	QBS Product Reference: TLV6742IDR	QBS Process Reference: TLV9062ID	QBS Package Reference: LM5008MM_PCC
	WBP	Bond Pull	Wires	1/76/0	1/76/0	1/76/0	3/228/0
	WBS	Ball Bond Shear	Wires	1/76/0	1/76/0	1/76/0	3/228/0

- QBS: Qual By Similarity
- Qual Device TLV6742IDGK is qualified at LEVEL1-260C
- 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
Note (1): One unit failed die EOS, discounted.
TI Qualification ID: 20190617-130333

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

Type	Test Name / Condition	Duration	Qual Device: TLV6742IPWR	QBS Product Reference: TLV6742IDR	QBS Process Reference: TLV9062ID	QBS Package Reference: OPA2990IPWR
ED	Electrical Characterization	Per Datasheet Parameters	-	Pass	Pass	Pass
ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/1 (1)	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
HBM	ESD - HBM	2500 V	-	1/3/0	-	-
CDM	ESD - CDM	2000 V	-	1/3/0	-	-
HTOL	Life Test, 150C	300 Hours	-	-	3/231/0	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	3/231/0	3/231/0
LU	Latch-up	(per JESD78)	-	1/6/0	3/18/0	1/6/0
SD	Solderability	Pb Free	-	-	3/66/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	3/231/0
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
WBP	Bond Pull	Wires	1/76/0	1/76/0	-	-
WBS	Ball Bond Shear	Wires	1/76/0	1/76/0	-	-

- QBS: Qual By Similarity
- Qual Device TLV6742IPWR is qualified at LEVEL2-260C
- 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
Note (1): One unit failed die EOS; discounted.
TI Qualification ID: 20190327-129195

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: OPA4310IDR	QBS Reference: OPA4990IDR	QBS Reference: TLV9062ID	QBS Reference: OPA4991IDR
HAST	A2	Biased HAST	130C	96 Hours	-	3/231/0	3/231/0	-
UHAST	A3	Autoclave	121C, 2 atm	96 Hours	-	3/231/5[1]	-	1/77/0
UHAST	A3	Unbiased HAST	130C	96 Hours	-	-	3/231/0	-
TC	A4	Temperature Cycle	-65/150C	500 Cycles	-	3/231/0	3/231/0	1/77/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	3/231/0	3/231/0	-
HTOL	B1	Life Test	150C	300 Hours	-	3/231/10[2,3]	3/231/0	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	1/800/0	3/2400/1[4]	-
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	-	-	3/66/0	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	3/9/0	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	3/9/0	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	3/18/0	3/18/0	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	3/90/0	3/90/0	-

- QBS: Qual By Similarity
- Qual Device OPA4310IDR 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/

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

TI Qualification ID: R-NPD-2111-059

[1] - Discounted Handling
[2] - Discounted Hardware
[3] - Discounted Hardware
[4] - Discounted EOS

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: TLV6742IDR	QBS Process Reference: TLV9062ID	QBS Package Reference: OPA2990IDR
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass
ELFR	Early Life Failure Rate, 125C	48 Hours	-	3/2400/1 (1)	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0
HBM	ESD - HBM	4000 V	-	2/6/0	-
HBM	ESD - HBM - Q100	2500 V	1/3/0	-	-
CDM	ESD - CDM	1500 V	-	3/9/0	3/9/0
CDM	ESD - CDM - Q100	2000 V	1/3/0	-	-
HTOL	Life Test, 150C	300 Hours	-	3/231/0	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	3/231/0	3/231/0
LU	Latch-up	(per JESD78)	1/6/0	3/18/0	3/18/0
SD	Solderability	Pb Free	-	3/66/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	3/231/0
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0
WBP	Bond Pull	Wires	1/76/0	-	-
WBS	Ball Bond Shear	Wires	1/76/0	-	-

- QBS: Qual By Similarity
- Qual Device TLV6742IDR is qualified at LEVEL2-260C
- 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

Note (1): Die EOS, 1 unit – discounted.

TI Qualification ID: 20190327-129192

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: OPA4310IPWR	QBS Reference: TLV9062ID	QBS Reference: LM324BIPWR	QBS Reference: OPA4310IDR	QBS Reference: OPA4991QPWRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0	-	3/231/0
UHAST	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	-	1/45/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	3/231/0	-	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	3/231/0	-	-
HTOL	B1	Life Test	150C	300 Hours	-	3/231/0	-	-	3/231/0
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/1[1]	3/2400/0	-	-
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	-	3/66/0	-	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	1/10/0
ESD	E2	ESD CDM	-	250 Volts	-	3/9/0	1/3/0	1/3/0	-

ESD	E2	ESD HBM	-	1000 Volts	-	3/9/0	1/3/0	1/3/0	-
LU	E4	Latch-Up	Per JESD78	-	-	3/18/0	1/3/0	1/3/0	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	3/90/0	1/30/0	1/30/0	-

- QBS: Qual By Similarity
- Qual Device OPA4310IPWR 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/

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

TI Qualification ID: R-NPD-2111-062

[1]-Die EOS
1 unit – discounted

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: TL103WBIDR	QBS Process Reference: LM2902BQPWRQ1	QBS Package Reference: LMV393QDRQ1	QBS Package Reference: LM358BIDR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	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	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	150C	1000 Hours	-	3/231/0	3/135/0	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	1/77/0
HTOL	B1	Life Test	125C	1000 Hours	-	-	3/231/0	-
HTOL	B1	Life Test	150C	408 Hours	-	3/231/0	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	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: TL103WBIDR	QBS Process Reference: LM2902BQPWRQ1	QBS Package Reference: LMV393QDRQ1	QBS Package Reference: LM358BIDR
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	1/15/0	-
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	1/15/0	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	3/30/0	3/30/0	-
ESD	E2	ESD CDM	-	1500 Volts	-	3/9/0	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	1/3/0
ESD	E2	ESD CDM	-	500 Volts	-	-	1/3/0	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	-	3/9/0	1/3/0	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	3/18/0	1/6/0	1/3/0
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	1/30/0	3/90/0	3/90/0	-
FTY	E6	Final Test Yield	-	-	-	-	-	1/Pass

- QBS: Qual By Similarity
- Qual Device TL103WBIDR 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-NPD-2211-091

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

	Type	Test Name / Condition	Duration	Qual Device: OPA2310IDGKR	QBS Product Reference: OPA2310IDSGR	QBS Process Reference: TLV9062ID	QBS Package Reference: LM2904BQDGKRQ1
	AC	Autoclave 121C	96 Hours	-	-	-	3/231/0
	CDM	ESD - CDM	1500 V	-	-	3/9/0	-
	ED	Electrical Characterization	Per Datasheet Parameters	-	-	3/Pass	-
	ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/1	-
	HAST	Biased HAST, 110C/85%RH	528 Hours	-	-	-	3/210/0
	HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	-
	HBM	ESD - HBM	4000 V	-	-	2/6/0	-
	HTOL	Life Test, 150C	300 Hours	-	-	3/231/0	-
	HTSL	High Temp Storage Bake 170C	420 Hours	-	-	3/231/0	-
	LU	Latch-up	Latchup1/25 C	-	2/6/0	-	-
	LU	Latch-up	Latchup2/125 C	-	2/6/0	-	-
	LU	Latch-up	Per JESD78	-	-	3/18/0	-
	MSL	Moisture Sensitivity, L2	168/85C / 60% RH	-	-	3/36/0	-
	SD	Pb Free Solderability	Pb Free/Solder	-	-	3/66/0	-
	TC	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	3/231/0
	UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	3/231/0	-
	YLD	FTY and Bin Summary	-	1/Pass	-	-	1/Pass

- QBS: Qual By Similarity
- Qual Device OPA2310IDGKR is qualified at LEVEL1-260C

- 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

TI Qualification ID: 20210525-140202

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

	Type	Test Name / Condition	Duration	Qual Device: OPA2310IDR	QBS Product Reference: OPA2310IDSGR	QBS Process Reference: TLV9062ID	QBS Package Reference: LM393DR
	AC	Autoclave 121C	192 Hours	-	-	-	3/231/0
	AC	Autoclave 121C	96 Hours	-	-	-	3/231/0
	CDM	ESD - CDM	1000 V	-	-	3/9/0	-
	CDM	ESD - CDM	1500 V	-	-	3/9/0	-
	CDM	ESD - CDM	250 V	-	1/3/0	3/9/0	-
	CDM	ESD - CDM	500 V	-	-	3/9/0	-
	CDM	ESD - CDM	750 V	-	-	3/9/0	-
	ED	Electrical Characterization	Per Datasheet Parameters	-	-	3/Pass	-
	ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/1	-
	HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	-
	HBM	ESD - HBM	1000 V	-	1/3/0	3/9/0	-
	HBM	ESD - HBM	1500 V	-	-	3/9/0	-
	HBM	ESD - HBM	2000 V	-	-	3/9/0	-
	HBM	ESD - HBM	2500 V	-	-	3/12/0	-
	HBM	ESD - HBM	3000 V	-	-	3/9/0	-
	HBM	ESD - HBM	3500 V	-	-	3/9/0	-

	Type	Test Name / Condition	Duration	Qual Device: OPA2310IDR	QBS Product Reference: OPA2310IDSGR	QBS Process Reference: TLV9062ID	QBS Package Reference: LM393DR
	HBM	ESD - HBM	4000 V	-	-	2/6/0	-
	HBM	ESD - HBM	500 V	-	1/3/0	3/9/0	-
	HBM	ESD - HBM - Q100	4400 V	-	-	3/18/0	-
	HTOL	Life Test, 150C	300 Hours	-	-	3/231/0	-
	HTSL	High Temp Storage Bake 170C	420 Hours	-	-	3/231/0	3/231/0
	HTSL	High Temp Storage Bake 170C	840 Hours	-	-	-	3/231/0
	LI	Lead Fatigue	Leads	-	-	-	3/66/0
	LI	Lead Pull	Leads	-	-	-	3/72/0
	LU	Latch-up	Latchup1/25 C	-	2/6/0	-	-
	LU	Latch-up	Latchup2/125 C	-	2/6/0	-	-
	LU	Latch-up	Per JESD78	-	-	3/18/0	-
	MQ	Manufacturability (Assembly)	(per mfg. Site specification)	-	-	1/Pass	3/Pass
	MQ	Manufacturability (Wafer Fab)	(per mfg. Site specification)	-	-	1/Pass	-
	MSL	Moisture Sensitivity, JEDEC	Level 1-260C	-	-	-	3/36/0
	MSL	Moisture Sensitivity, L2	168/85C / 60% RH	-	-	3/36/0	-
	PC	PreCon Level 2	85C/60%RH/260C	-	-	3/1280/0	-
	PD	Physical Dimensions	(per mechanical drawing)	-	-	-	3/90/0
	SD	Pb Free Solderability	Pb Free/Solder	-	-	3/66/0	-
	TC	Temperature Cycle, -65/150C	1000 Cycles	-	-	-	3/228/0
	TC	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	3/231/0
	UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	3/231/0	-
	VM	Visual / Mechanical	(per mfg. Site specification)	-	-	-	3/984/0

	Type	Test Name / Condition	Duration	Qual Device: OPA2310IDR	QBS Product Reference: OPA2310IDSGR	QBS Process Reference: TLV9062ID	QBS Package Reference: LM393DR
	VM	Visual Quality Reliability Inspection	Post Temp Cycle	-	-	-	3/6/0

- QBS: Qual By Similarity
- Qual Device OPA2310IDR is qualified at LEVEL1-260C

- 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

TI Qualification ID: 20210525-140201

For questions regarding this notice, e-mails can be sent to the Change Management team or your local Field Sales Representative.

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