12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20220926000.1

Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly & BOM option for select devices

Change Notification / Sample Request

Date: September 28, 2022
To: TOKYO ELECTRON DEVICE (DSTR) PCN

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments (TI). The details of this change are on the following pages, and are in alignment with our standard product change notification (PCN) process.

TI requires acknowledgement of receipt of this notification within 30 days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance of the change. If samples or additional data are required, requests must be received within 30 days of this notification, given that samples are not built ahead of the change.

The Proposed First Ship date in this PCN letter is the earliest possible date that customers could receive the changed material. It is our commitment that the changed device will not ship before that date. If samples are requested within the 30 day sample request window, customers will still have 30-days to complete their evaluation regardless of the proposed 1st ship date.

This particular PCN is related to TI's multiyear transition plan for our two remaining factories with 150-millimeter production (DFAB in Dallas, Texas, and SFAB in Sherman, Texas). DFAB will remain open, but will focus on 200-mm production, with a smaller set of technologies. SFAB will close no earlier than 2024 and no later than 2025. As referenced in the "reason for change" below, these changes are part of our multiyear plan to transition these products to newer, more efficient manufacturing processes and technologies, underscoring our commitment to product longevity and supply continuity.

For questions regarding this notice or to provide acknowledgement of this PCN, you may contact your local Field Sales Representative or the PCN Team (PCN_ww_admin_team@list.ti.com). For sample requests or sample related questions, contact your local Field Sales Representative. As always, we thank you for your continued business.

PCN Team
SC Business Services

20220926000.1
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
SN74HC393N	null
SN74LV08APWR	null
SN74LV08APWRG4	null
SN74LV14APWR	null
SN74LV14APWRG4	null
SN74LV32APWR	null
SN74LV4T125PWR	null
SN74LV74APWR	null
SN74LV74APWRG4	null
SN74LV11APWR	null
SN74LV4T125RGYR	null
SN74LV32APWRG4	null
CD74HC390E	null
CD74HCT259E	null
SN74HCT540DWR	null
SN74LV02ARGYR	null
SN74LV14ARGYR	null
SN74LV32ARGYR	null
SN74LV125ATRGYR	null
SN74LV74ARGYR	null
SN74HCT138N	null
CD74HC4511E	null
CD74HC243M96	null

Technical details of this Product Change follow on the next page(s).

PCN Number:	20220926000.1	PCN Date:	September 28, 2022
Title:	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly & BOM options for select devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Dec 28, 2022	Sample requests accepted until:	Oct 28, 2022*

***Sample requests received after Oct 28, 2022 will not be supported.**

Change Type:					
☒	Assembly Site	☒	Assembly Process	☒	Assembly Materials
☒	Design	☐	Electrical Specification	☐	Mechanical Specification
☐	Test Site	☐	Packing/Shipping/Labeling	☐	Test Process
☐	Wafer Bump Site	☐	Wafer Bump Material	☐	Wafer Bump Process
☒	Wafer Fab Site	☒	Wafer Fab Materials	☒	Wafer Fab Process
		☐	Part number change		

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of a new fab & process technology (RFAB, LBC9) and Assembly & BOM option for selected devices as listed below in the product affected section. Construction differences are noted below:

Current Fab Site			Additional Fab Site		
Current Fab Site	**Process**	**Wafer Diameter**	**Additional Fab Site**	**Process**	**Wafer Diameter**
SFAB	HCMOS	150 mm	RFAB	LBC9	300 mm

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

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

Group 1: (RFAB/Process migration & BOM Update)

	Current	Additional
Bond wire diameter (Cu)	0.96 mils	0.8 mils

Group 2: (RFAB/Process migration BOM update at MLA & FMX as an alternate Assembly site)

	MLA Current	FMX Current	MLA New	FMX New
Bond wire diameter (Cu)	0.9 mil	0.96 mil	0.8 mil	0.8 mil
Mold Compound	4042503	4211880	4211880	4211880
Mount Compound	4042500	4147858	4147858	4147858
Lead Finish	NiPdAu	NiPdAu	NiPdAu	Matte Sn

Group 3: (RFAB/Process migration, BOM Update in MLA & HFTF as an alternate Assembly site)

	MLA Current	FMX	MLA New	HFTF
Bond wire diameter (Cu)	0.96 mil	0.96 mil	0.8 mil	0.8 mil
Mount Compound	4147858	4147858	4147858	SID#A-03
Mold Compound	4211880	4211880	4211880	SID#R-30
Lead Finish	NiPdAu	NiPdAu	NiPdAu	Matte Sn

Group 4: (RFAB/Process migration & CDAT as alternate Assembly site)

	MLA	CDAT
Bond wire diameter (Cu)	0.96 mil	0.8 mil
Mold Compound	4208625	4222198
Mount Compound	4205846	4207123

Group 5: (RFAB/Process migration, BOM update in MLA & TFME as an alternate Assembly site)

	MLA Current	ASESH	MLA New	TFME
Bond wire composition, diameter	Au or Cu, 0.96 mil	Cu, 1.0 mil	Cu, 0.8 mil	Cu, 0.8 mil
Mount Compound	4147858 or 4042500	SID#EY1000063	4147858	SID#A-03
Mold Compound	4206193 or 4211471	SID#EN2000508	4211471	SID#R-31
Lead Finish	NiPdAu	Matte Sn	NiPdAu	Matte Sn

Group 6: (RFAB/Process migration BOM update in MLA & HFTF as an alternate Assembly site for select devices)

	MLA Current	MLA New	HFTF
Bond wire diameter (Cu)	0.96 mil	0.8 mil	0.8 mil
Mount Compound	4147858	4147858	SID#A-03
Mold Compound	4211880	4211880	SID#R-30
Lead Finish	NiPdAu	NiPdAu	Matte Sn

Upon expiry of this PCN TI will combine lead free solutions in a single ***standard part number***, for the devices in group 3. For example; ***CD74HC243M96*** – can ship with both Matte Sn and NiPdAu/Ag.

Example:

- Customer order for 7500 units of CD74HC243M96 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:

These changes are part of our multiyear plan to transition products from our 150-milimeter 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:

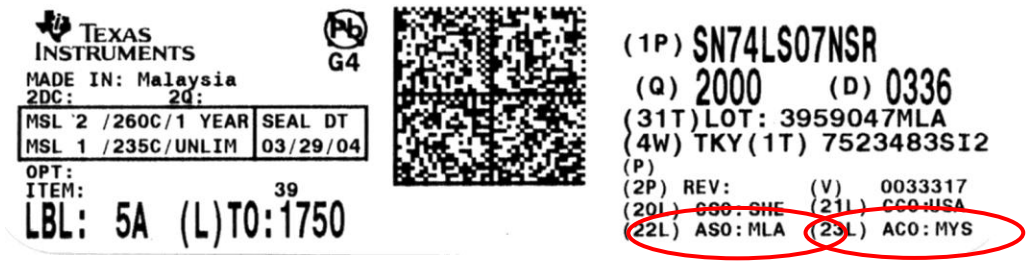
Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
SH-BIP-1	SHE	USA	Sherman
RFAB	**RFB**	**USA**	**Richardson**

Die Rev:

Current	**New**
Die Rev [2P]	**Die Rev [2P]**
A, E, G, H, I, J, -	**A, B**

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
MLA	MLA	MYS	Kuala Lumpur
TI Mexico	MEX	MEX	Aguascalientes
ASESH	ASH	CHN	Shanghai
HFTFAT	**HFT**	**CHN**	**Hefei**
TFME	**NFM**	**CHN**	**Economic Development Zone**

Sample product shipping label (not actual product label)



Product Affected:

Group 1 Device list (RFAB/Process migration & BOM Update))

CD74HC245M96	SN74HC245DWRG4	CD74HC390E	CD74HCT259EE4
CD74HCT241M96	SN74HC640DWR	CD74HC390EE4	SN74HC393N
CD74HCT245M96	SN74HCT245DWR	CD74HC4511E	SN74HC4040N
CD74HCT540M96	SN74HCT245DWRE4	CD74HC4511EE4	SN74HC4040NE4
CD74HCT640E	SN74HCT245DWRG4	CD74HCT251E	SN74HCT138N
SN74HC245DWR	SN74HCT540DWR	CD74HCT259E	SN74HCT138NE4
SN74HC245DWRE4	SN74HCT540DWRG4		

Group 2 Device list (RFAB/Process migration BOM update at MLA & FMX as an alternate Assembly site)

CD74HC147E	CD74HC4094E

Group 3 Device list (RFAB/Process migration, BOM Update in MLA & HFTF as an alternate Assembly site)

SN74HC42DR

Group 4 Device list (RFAB/Process migration & CDAT as alternate Assembly site)

SN74LV02ARGYR	SN74LV14ARGYR	SN74LV4T125RGYR	SN74LV74ARGYR
SN74LV125ATRGYR	SN74LV32ARGYR		

Group 5 Device list (RFAB/Process migration, BOM update in MLA & TFME as an alternate Assembly site)

SN74LV08APWR	SN74LV14APWR	SN74LV32APWRG4	SN74LV74APWR
SN74LV08APWRG4	SN74LV14APWRG4	SN74LV4T125PWR	SN74LV74APWRG4
SN74LV11APWR	SN74LV32APWR		

Group 6 Device list (RFAB/Process migration BOM update in MLA & HFTF as an alternate Assembly site for select devices)

CD74HC243M96

The following table provides the updated thermal characteristics to all devices contained within this PCN. All thermal values can be compared to the existing devices by reviewing the datasheets currently on TI.com. The impact to the customer system is anticipated to be negligible, however the customer must review their system design to assess any risk due to the change in thermal characteristics. Please see the table below which provides a summary of thermal values that some of the devices will be updated to based on each pin/pkg combination. The below table only applies to the following devices: CD74HC245M96, CD74HCT241M96, CD74HCT245M96, CD74HCT540M96, CD74HCT640E, SN74HC245DWR, SN74HC640DWR, SN74HCT245DWR, SN74HCT540DWR, SN74LV14APWR, SN74LV14APWRG4, SN74LV14ARGYR. The datasheets/thermal values for the other devices in this PCN will not be changed as a result of the changes in this PCN.

THERMAL METRIC		PW (TSSOP) 14 PINS	RGY (VQFN) 14 PINS	DW (SOIC) 20 PINS	N (PDIP) 20 PINS	UNIT
RθJA	Junction-to-ambient thermal resistance	151.0	86.6	104.5	84.9	°C/W
RθJC(top)	Junction-to-case (top) thermal resistance	80.0	91.9	69.4	74.7	°C/W
RθJB	Junction-to-board thermal resistance	94.2	61.2	73.2	65.8	°C/W
ΨJT	Junction-to-top characterization parameter	28.0	22.5	41.9	48.7	°C/W
ΨJB	Junction-to-board characterization parameter	93.6	61.1	72.6	65.5	°C/W
RθJC(bot)	Junction-to-case (bottom) thermal resistance	N/A	44.3	N/A	N/A	°C/W

Qualification Report
Approve Date 06-SEPTEMBER-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: CD74HCT241M96	Qual Device: SN74HCT540DWR	QBS Reference: SN74HCS273QPWRQ1	QBS Reference: SN74HCS74QDRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	3/231/0
UHAST	A3	Unbiased HAST	130C/85%RH	96 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
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	3/135/0
HTOL	B1	Life Test	125C	1000 Hours	-	-	3/231/0	3/231/0
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	3/30/0
ESD	E2	ESD CDM	-	250 Volts	1/3/0	1/3/0	-	-
ESD	E2	ESD CDM	-	500 Volts	-	-	1/3/0	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	1/3/0	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	1/3/0	1/3/0
LU	E4	Latch-Up	Per JESD78	-	1/3/0	1/3/0	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	3/90/0	3/90/0

- QBS: Qual By Similarity
- Qual Device CD74HCT241M96 is qualified at MSL1 260C
- Qual Device SN74HCT540DWR 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-CHG-2209-005

Qualification Report
Approve Date 07-SEPTEMBER-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: CD74HC245M96	Qual Device: SN74HC245DWR	Qual Device: CD74HCT245M96	Qual Device: SN74HCT245DWR	Qual Device: SN74HC640DWR	Qual Device: CD74HC243M96	Qual Device: CD74HC243M96	Qual Device: SN74HC42DR	Qual Device: SN74HC42DR	QBS Reference: SN74HCS174DR
HAST	A2	Biased HAST	130C	96 Hours	-	-	-	-	-	-	-	-	-	3/231/0
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-
UHAST	A3	Unbiased HAST	130C	96 Hours	-	-	-	-	-	-	-	-	-	3/231/0
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-
TC	A4	Temperature Cycle	-65/150C	500 Cycles	-	1/77/0	-	-	-	-	-	-	-	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	1/77/0	-	-	-	-	-	-	-	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	-	-	-
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	125C	1000 Hours	-	-	-	-	-	-	-	-	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	-	-	-	-	-	-
ESD	E2	ESD CDM	-	250 Volts	-	1/3/0	1/3/0	-	1/3/0	1/3/0	-	1/3/0	-	3/9/0
ESD	E2	ESD CDM	-	500 Volts	-	-	-	-	-	-	-	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	-	-	-	-	1/3/0	1/3/0	-	1/3/0	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	-	-	-	-	-	-	-
LU	E4	Latch-Up	Per JESD78	-	-	-	-	-	1/3/0	1/3/0	-	1/3/0	-	-
CHAR	E5	Electrical Characterization	Min, Typ, Max Temp	-	-	-	-	-	1/30/0	-	-	-	-	3/90/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	-	-	-	1/30/0	1/30/0	-	1/30/0	-	3/90/0
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-	-	-	-	-	-	-

- QBS: Qual By Similarity
- Qual Device CD74HC245M96 is qualified at MSL1 260C
- Qual Device SN74HC245DWR is qualified at MSL1 260C
- Qual Device CD74HCT245M96 is qualified at MSL1 260C
- Qual Device SN74HCT245DWR is qualified at MSL1 260C
- Qual Device SN74HC640DWR is qualified at MSL1 260C
- Qual Device CD74HC243M96 is qualified at MSL1 260C
- Qual Device CD74HC243M96 is qualified at MSL1 260C
- Qual Device SN74HC42DR is qualified at MSL1 260C
- Qual Device SN74HC42DR 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-2204-113

Qualification Report
Approve Date 01-SEPTEMBER-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: CD74HC147E	Qual Device: CD74HC147E	Qual Device: CD74HC4094E	Qual Device: CD74HC4094E	Qual Device: CD74HCT640E	QBS Reference: SN74HC595N	QBS Reference: TLC339IN	QBS Reference: SN74HCS74QPWRQ1
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	-
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	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	3/135/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	-	-	3/231/0	3/231/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	-	-	-	3/231/0
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	-	-	-	-	3/2400/0
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	-	-	-	3/30/0
ESD	E2	ESD CDM	-	250 Volts	1/3/0	1/3/0	1/3/0	-	1/3/0	-	-	-
ESD	E2	ESD CDM	-	500 Volts	-	-	-	-	-	-	-	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	-	-	-	-	1/3/0	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	-	-	-	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	-	-	-	-	1/3/0	-	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	-	-	-	1/30/0	1/30/0	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-	-	-	-	3/90/0

- QBS: Qual By Similarity
- Qual Device CD74HC147E is qualified at MSL1 260C
- Qual Device CD74HC147E is qualified at MSL1 260C
- Qual Device CD74HC4094E is qualified at MSL1 260C
- Qual Device CD74HC4094E is qualified at MSL1 260C
- Qual Device CD74HCT640E 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-2204-118

Qualification Report
Approve Date 20-September-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV02ARGYR	Qual Device: SN74LV125ATRGYR	Qual Device: SN74LV14ARGYR	Qual Device: SN74LV32ARGYR	Qual Device: SN74LV4T125RGYR	Qual Device: SN74LV74ARGYR	QBS Reference: SN74HCS74QPWRQ1	QBS Reference: PCMG260QRTVRQ1	QBS Reference: TS3A5017QRGYRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	3/231/0	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	-65C/150C	500 Cycles	-	-	-	-	-	-	3/231/0	3/231/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	-	-	3/231/0	3/231/0	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	-	-	-	-	1/76/0	-	-	-	-
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	-	-	-	-	1/76/0	-	-	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	-	-	3/30/0	3/30/0	3/30/0
ESD	E2	ESD CDM	-	1500 Volts	1/3/0	-	-	-	-	-	-	-	1/3/0
ESD	E2	ESD HBM	-	4000 Volts	1/3/0	-	-	-	-	-	1/3/0	1/3/0	1/3/3
LU	E4	Latch-Up	Per JESD78	-	1/3/0	-	-	-	-	-	-	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-	-	-	-	3/90/0	3/90/0	3/90/0

- QBS: Qual By Similarity
- Qual Device SN74LV02ARGYR is qualified at MSL1 260C
- Qual Device SN74LV125ATRGYR is qualified at MSL1 260C
- Qual Device SN74LV14ARGYR is qualified at MSL1 260C
- Qual Device SN74LV32ARGYR is qualified at MSL1 260C
- Qual Device SN74LV4T125RGYR is qualified at MSL1 260C
- Qual Device SN74LV74ARGYR 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-2111-093

Qualification Report
Approve Date 21-SEPTEMBER-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV4T125PWR	QBS Reference: SN74HCS74QPWRQ1	QBS Reference: SN74HCS74PWR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	1/77/0	-	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	3/231/0	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	3/135/0	3/231/0
HTOL	B1	Life Test	125C	1000 Hours	-	3/231/0	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	-
PD	C4	Physical Dimensions	(per mechanical drawing)	-	-	3/30/0	3/15/0
ESD	E2	ESD CDM	-	1500 Volts	1/3/0	1/3/0	3/9/0
ESD	E2	ESD HBM	-	4000 Volts	-	1/3/0	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	3/90/0	3/90/0

- QBS: Qual By Similarity
- Qual Device SN74LV00APWR is qualified at MSL1 260C
- Qual Device SN74LV04APWR is qualified at MSL1 260C
- Qual Device SN74LV02APWR is qualified at MSL1 260C
- Qual Device SN74LV05APWR is qualified at MSL1 260C

- Qual Device SN74LV06APWR is qualified at MSL1 260C
- Qual Device SN74LV07APWR is qualified at MSL1 260C
- Qual Device SN74LV07APWRG3 is qualified at MSL1 260C
- Qual Device SN74LV08APWR is qualified at MSL1 260C
- Qual Device SN74LV10APWR is qualified at MSL1 260C
- Qual Device SN74LV11APWR is qualified at MSL1 260C
- Qual Device SN74LV125APWR is qualified at MSL1 260C
- Qual Device SN74LV126APWR is qualified at MSL1 260C
- Qual Device SN74LV132APWR is qualified at MSL1 260C
- Qual Device SN74LV14APWR is qualified at MSL1 260C
- Qual Device SN74LV20APWR is qualified at MSL1 260C
- Qual Device SN74LV21APWR is qualified at MSL1 260C
- Qual Device SN74LV27APWR is qualified at MSL1 260C
- Qual Device SN74LV32APWR is qualified at MSL1 260C
- Qual Device SN74LV74APWR is qualified at MSL1 260C
- Qual Device SN74LV86APWR is qualified at MSL1 260C
- Qual Device SN74LV4T125PWR 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-2111-095

Qualification Report
Approve Date 03-AUGUST -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: CD74HCT251E	Qual Device: CD74HCT259E	Qual Device: SN74HC393N	Qual Device: CD74HC4511E	Qual Device: CD74HCT251E	Qual Device: CD74HC4511E	Qual Device: SN74HC393N
ESD	E2	ESD CDM	-	250 Volts	1/3/0	1/3/0	1/3/0	1/3/0	-	-	-

- QBS: Qual By Similarity
- Qual Device CD74HCT251E is qualified at MSL1 NOT CLASSIFIED
- Qual Device CD74HCT259E is qualified at MSL1 NOT CLASSIFIED
- Qual Device SN74HC393N is qualified at MSL1 NOT CLASSIFIED
- Qual Device CD74HC4511E is qualified at MSL1 NOT CLASSIFIED
- Qual Device CD74HCT251E is qualified at MSL1 NOT CLASSIFIED
- Qual Device CD74HC4511E is qualified at MSL1 NOT CLASSIFIED
- Qual Device SN74HC393N is qualified at MSL1 NOT CLASSIFIED

- 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-CHG-2112-033

TI Information
Selective Disclosure

Qualification Report
Approve Date 22-SEPTEMBER-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV08APWR	Qual Device: SN74LV08APWRG4	Qual Device: SN74LV11APWR	Qual Device: SN74LV14APWR	QBS Reference: SN74HCS74QPWRQ1	QBS Reference: SN74LV08ATPWRG4Q1	QBS Reference: SN74LV11ATPWRG4Q1	QBS Reference: SN74LV14ATPWRQ1	QBS Reference: SN74LV32ATPWRG4Q1	QBS Reference: SN74LV74AQPWRG4Q1	QBS Reference: ADS131B04QPWRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	3/231/0	-	-	-	-	-	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
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	3/135/0	-	-	-	-	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	3/231/0	-	-	-	-	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	-	-	-	1/77/0	-	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	-	3/2400/0	-	-	-	-	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	3/30/0	-	-	-	-	-	-
ESD	E2	ESD CDM	-	1500 Volts	-	-	-	-	1/3/0	-	-	1/3/0	-	1/3/0	-
ESD	E2	ESD HBM	-	4000 Volts	-	-	-	-	1/3/0	-	-	1/3/0	-	1/3/0	1/3/0
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-	3/90/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	3/90/0

- QBS: Qual By Similarity
- Qual Device SN74LV08APWR is qualified at MSL1 260C
- Qual Device SN74LV08APWRG4 is qualified at MSL1 260C
- Qual Device SN74LV11APWR is qualified at MSL1 260C
- Qual Device SN74LV14APWR is qualified at MSL1 260C
- Qual Device SN74LV14APWRG4 is qualified at MSL1 260C
- Qual Device SN74LV32APWR is qualified at MSL1 260C
- Qual Device SN74LV32APWRG4 is qualified at MSL1 260C
- Qual Device SN74LV4T125PWR is qualified at MSL1 260C
- Qual Device SN74LV74APWR is qualified at MSL1 260C
- Qual Device SN74LV74APWRG4 is qualified at MSL1 260C
- Qual Device SN74LV86APWR 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-2111-101

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

Location	E-Mail
WW Change Management Team	PCN_ww_admin_team@list.ti.com