12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20221216004.1

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: December 21, 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

20221216004.1
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
SN74LV02APWR	null
SN74LV04APWR	null
SN74LV04APWRG4	null
SN74LV07APWRG4	null
SN74LV14ANSR	null
SN74LV157APWR	null
SN74LV165APWR	null
SN74LV240APWR	null
SN74LV240APWRG4	null
SN74LV244APWR	null
SN74LV244APWRG4	null
SN74LV273APWR	null
SN74LV374APWR	null
SN74LV595APWR	null
SN74LV86APWR	null
SN74LV00APWR	null
SN74LV07APWR	null
SN74LV125APWR	null
SN74LV132APWR	null
SN74LV138APWRG4	null
SN74LV165APWRG4	null
SN74LV273APWRG4	null
SN74LV574APWR	null
SN74LV08ADR	null
SN74LV126APWR	null
SN74LV138APWR	null
SN74LV139APWR	null
SN74LV164APWR	null
SN74LV21APWR	null
SN74LV594APWR	null
SN74LV373APWR	null
SN74LV373APWRG4	null
SN74LV594APWRG4	null
SN74LV164ARGYR	null
SN74LV161APWR	null
SN74LV595APWRG4	null
SN74LV20APWR	null
SN74LV163APWR	null
SN74LV14ADR	null
SN74LV595ARGYR	null
SN74LV125ADR	null
SN74LV74ADR	null

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

PCN Number:	20221216004.1	PCN Date:	December 21, 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:	Mar 21, 2023	Sample requests accepted until:	Jan 21, 2023*

***Sample requests received after Jan 21, 2023 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 & TFME as additional Assembly site – PW packaged devices)

	MLA (Current)	ASESH	MLA (New)	TFME
Bond wire diameter (Cu)	0.96 mil	1.0 or 0.8 mil	0.8mil	0.8 mil
Lead finish	NiPdAu	Matte Sn	NiPdAu	Matte Sn
Mount Compound	4147858	SID#EY1000063	4147858	SID#A-03
Mold Compound	4211471	SID#EN2000508	4211471	SID#R-31

Group 2: (RFAB/Process migration, BOM Update in MLA & HFTF as an alternate Assembly site – D Packaged Devices)

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

Group 3: (RFAB/Process migration BOM update only – PW, NS, & DW packaged devices)

	MLA Current	MLA New
Bond wire diameter (Cu)	0.96 mil	0.8 mil

Group 4: (RFAB/Process migration & CDAT as alternate Assembly site – RGY packaged devices)

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

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; ***SN74LV04ADR*** – can ship with both Matte Sn and NiPdAu/Ag.

Example:

- Customer order for 7500 units of SN74LV04ADR 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.

Additionally, as a result of these changes, some of the impacted device datasheets will be updated. Target for these datasheet updates is the start of production. For a preview of these upcoming datasheet changes, please see below:

SN74LV14A (SCLS386)

Changes from Revision L (December 2022) to Revision M ( ) Page

- Updated thermal values for D package from RθJA = 94.9 to 123.9, RθJC(top) = 56.3 to 70.9, RθJB = 49.2 to 80.5, ΨJT = 20.7 to 38.7, ΨJB = 48.9 to 80, all values in °C/W 5
- Updated thermal values for NS package from RθJA = 91.4 to 120.2, RθJC(top) = 49.0 to 77.5, RθJB = 50.2 to 80.9, ΨJT = 15.3 to 42.1, ΨJB = 49.8 to 80.3, all values in °C/W 5

6.4 Thermal Information

THERMAL METRIC(1)		SN74LV14A						UNIT
		D	DB	DGV	NS	PW	RGY	
		14 PINS						
$R_{\theta JA}$	Junction-to-ambient thermal resistance	123.9	107.4	130.4	120.2	122.6	57.6	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	70.9	59.9	53.4	77.5	51.3	70.4	
$R_{\theta JB}$	Junction-to-board thermal resistance	80.5	54.7	63.5	80.9	64.4	33.6	
ψ_{JT}	Junction-to-top characterization parameter	38.7	21.0	7.3	42.1	6.8	3.5	
ψ_{JB}	Junction-to-board characterization parameter	80	51.2	62.8	80.3	63.8	33.7	
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	N/A	N/A	N/A	N/A	N/A	14.1	

(1) For more information about traditional and new thermal metrics, see the *IC Package Thermal Metrics* application report (SPRA953).

SN74LV164A (SCLS403)

Changes from Revision J (December 2022) to Revision K ( ) Page

- Updated thermal values for PW package from RθJA = 120.2 to 138.7, RθJC(top) = 48.9 to 69.1, RθJB = 61.9 to 81.8, ΨJT = 5.7 to 20.3, ΨJB = 61.3 to 81.3, all values in °C/W 5
- Updated thermal values for RGY package from RθJA = 54.5 to 74.8, RθJC(top) = 67 to 81.1, RθJB = 30.5 to 49.5, ΨJT = 2.3 to 15, ΨJB = 30.5 to 49.5, RθJC(bot) = 11.2 to 32.5, all values in °C/W 5

6.4 Thermal Information

THERMAL METRIC[1]		SN74LV164A							UNIT
		D (SOIC)	DB (SSOP)	DGV (TVSOP)	NS (SOP)	PW (TSSOP)	RGY (VQFN)	BQA (WQFN)	
		14 PINS	14 PINS	14 PINS	14 PINS	14 PINS	14 PINS	14 PINS	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	92.6	104.4	126.7	89.3	138.7	74.8	88.3	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	53.9	57	50	46.9	69.1	81.1	90.9	
$R_{\theta JB}$	Junction-to-board thermal resistance	46.8	51.7	59.6	48	81.8	49.5	56.8	
Ψ_{JT}	Junction-to-top characterization parameter	18.9	18.6	5.8	13.7	20.3	15	9.9	
Ψ_{JB}	Junction-to-board characterization parameter	46.6	51.2	58.9	47.7	81.3	49.5	56.7	
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	N/A	N/A	N/A	N/A	N/A	32.5	33.4	

(1) For more information about traditional and new thermal metrics, see the *IC Package Thermal Metrics* application report, SPRA953.

SN74LV240A (SCLS384)

Changes from Revision J (December 2022) to Revision K ( ) Page

- Updated thermal values for PW package from RθJA = 102.4 to 128.2, RθJC(top) = 36.5 to 70.5, RθJB = 53.6 to 79.3, ΨJT = 2.4 to 23.4, ΨJB = 52.9 to 78.9, all values in °C/W 6

6.4 Thermal Information

THERMAL METRIC		DW	DB	DGV	NS	PW	UNIT
		20 PINS					
$R_{\theta JA}$	Junction-to-ambient thermal resistance	79.2	94.5	116.2	76.7	128.2	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	43.7	56.4	31.2	43.2	70.5	
$R_{\theta JB}$	Junction-to-board thermal resistance	47.0	49.7	57.7	44.2	79.3	
Ψ_{JT}	Junction-to-top characterization parameter	18.6	18.5	0.9	16.8	23.4	
Ψ_{JB}	Junction-to-board characterization parameter	46.5	49.3	57.0	43.8	78.9	
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	N/A	N/A	N/A	N/A	N/A	

SN74LV244A (SCLS383)

Changes from Revision O (November 2022) to Revision P ( ) Page

- Updated thermal values for PW package from RθJA = 102.6 to 128.2, RθJC(top) = 36.7 to 70.5, RθJB = 53.6 to 79.3, ΨJT = 2.4 to 23.4, ΨJB = 44.1 to 78.9, all values in °C/W 5
- Updated thermal values for DW package from RθJA = 79.4 to 102.3, RθJC(top) = 43.8 to 69.6, RθJB = 47.2 to 70.8, ΨJT = 18.8 to 46.4, ΨJB = 46.7 to 70.4, all values in °C/W 5

6.4 Thermal Information

THERMAL METRIC[1]		SN74LV244A							UNIT
		DB (SSOP)	DGV (TVSOP)	DW (SOIC)	NS (SO)	PW (TSSOP)	RGY (VQFN)	RKS (VQFN)	
		20 PINS	20 PINS	20 PINS	20 PINS	20 PINS	20 PINS	20 PINS	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	94.7	115.9	102.3	76.9	128.2	34.9	75.2	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	56.7	31.1	69.6	43.4	70.5	43.1	79.4	°C/W
$R_{\theta JB}$	Junction-to-board thermal resistance	49.9	57.4	70.8	44.5	79.3	12.7	47.8	°C/W
Ψ_{JT}	Junction-to-top characterization parameter	18.7	1.0	46.4	17.0	23.4	0.9	14.6	°C/W
Ψ_{JB}	Junction-to-board characterization parameter	49.5	56.7	70.4	44.1	78.9	12.8	47.8	°C/W
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	N/A	N/A	N/A	N/A	N/A	7.8	31.5	°C/W

(1) For more information about traditional and new thermal metrics, see the *Semiconductor and IC Package Thermal Metrics* application report, SPRA953.

SN74LV273A (SCLS399)

Changes from Revision L (November 2022) to Revision M ( ) Page

- Updated thermal values for PW package from RθJA = 104.7 to 128.2, RθJC(top) = 38.8 to 70.5, RθJB = 55.7 to 79.3, ΨJT = 2.9 to 23.4, ΨJB = 55.1 to 78.9, all values in °C/W. 1

6.4 Thermal Information

THERMAL METRIC		SN74LV273A							UNIT
		DB	DGV	DW	NS	PW	RGY	RKS	
		20 PINS							
$R_{\theta JA}$	Junction-to-ambient thermal resistance	98.7	118.1	81.8	79.4	128.2	37.1	75.2	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	60.4	33.4	47.8	45.9	70.5	46.1	79.4	
$R_{\theta JB}$	Junction-to-board thermal resistance	56.9	59.6	49.4	46.9	79.3	14.9	47.8	
Ψ_{JT}	Junction-to-top characterization parameter	21.6	1.1	20.1	19.1	23.4	1.3	14.6	
Ψ_{JB}	Junction-to-board characterization parameter	53.5	58.9	49.0	46.5	78.9	15.0	47.8	
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	N/A	N/A	N/A	N/A	N/A	9.8	31.5	

SN74LV373A (SCLS407)

Changes from Revision M (December 2022) to Revision N ( ) Page

- Updated thermal values for PW package from RθJA = 102.4 to 128.2, RθJC(top) = 36.5 to 70.5, RθJB = 53.6 to 79.3, ΨJT = 2.4 to 23.4, ΨJB = 52.9 to 78.9, all values in °C/W..... 6

6.4 Thermal Information

THERMAL METRIC		SN74LV373A						UNIT
		DB (SSOP)	DGV (TVSOP)	DW (SOIC)	NS (SO)	PW (TSSOP)	RGY (VQFN)	
		20 PINS						
$R_{\theta JA}$	Junction-to-ambient thermal resistance	94.5	116.2	79.2	76.7	128.2	34.8	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	56.4	31.2	43.7	43.2	70.5	42.9	°C/W
$R_{\theta JB}$	Junction-to-board thermal resistance	49.7	57.7	47.0	44.2	79.3	12.4	°C/W
Ψ_{JT}	Junction-to-top characterization parameter	18.5	0.9	18.6	16.8	23.4	0.8	°C/W
Ψ_{JB}	Junction-to-board characterization parameter	49.3	57.0	46.5	43.8	78.9	12.5	°C/W
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	N/A	N/A	N/A	N/A	N/A	7.6	°C/W

SN74LV374A (SCLS408)

Changes from Revision K (December 2022) to Revision L ( ) Page

- Updated thermal values for PW package from RθJA = 102.4 to 128.2, RθJC(top) = 36.5 to 70.5, RθJB = 53.6 to 79.3, ΨJT = 2.4 to 23.4, ΨJB = 52.9 to 78.9, all values in °C/W..... 5

6.4 Thermal Information

THERMAL METRIC		SN74LV374A				UNIT
		DB (SSOP)	DW (SOIC)	NS (SO)	PW (TSSOP)	
		20 PINS	20 PINS	20 PINS	20 PINS	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	94.5	79.2	76.7	128.2	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	56.4	43.7	43.2	70.5	
$R_{\theta JB}$	Junction-to-board thermal resistance	49.7	47	44.2	79.3	
Ψ_{JT}	Junction-to-top characterization parameter	18.5	18.6	16.8	23.4	
Ψ_{JB}	Junction-to-board characterization parameter	49.3	46.5	43.8	78.9	
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	N/A	N/A	N/A	N/A	

SN74LV574A (SCLS412)

Changes from Revision J (December 2022) to Revision K ( ) Page

- Updated thermal values for PW package from RθJA = 83 to 128.2, all values in °C/W.....5
- Updated thermal values for DW package from RθJA = 58 to 102.3, all values in °C/W.....5

6.4 Thermal Information

THERMAL METRIC		SN74LV574A							UNIT
		DB	DGV	DW	GQN	NS	PW	RGY	
		20 PINS	20 PINS	20 PINS	20 PINS	20 PINS	20 PINS	20 PINS	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	70	92	102.3	78	60	128.2	37	°C/W

SN74LV367A (SCLS398)

Changes from Revision H (December 2022) to Revision I ( ) Page

- Updated thermal values for PW package from RθJA = 108 to 131.2, all values in °C/W..... 1

6.4 Thermal Information

THERMAL METRIC(1)		SN74LV367A					UNIT
		D	DB	DGV	NS	PW	
		16 PINS	16 PINS	16 PINS	16 PINS	16 PINS	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	73	82	120	64	131.2	°C/W

(1) For more information about traditional and new thermal metrics, see the *IC Package Thermal Metrics* application report (SPRA953).

SN74LV594A (SCLS413)

Changes from Revision K (December 2022) to Revision L ( ) Page

- Updated thermal values for PW package from RθJA = 106.1 to 131.2, RθJC(top) = 40.8 to 69.4, RθJB = 51.1 to 75.8, ΨJT = 3.8 to 21, ΨJB = 50.6 to 75.4, all values in °C/W. 5

6.4 Thermal Information

THERMAL METRIC		SN74LV594A				UNIT
		BQB (WQFN)	D (SOIC)	DB (SSOP)	PW (TSSOP)	
		16 PINS	16 PINS	16 PINS	16 PINS	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	85.9	80.2	97.8	131.2	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	82.4	40.3	48.1	69.4	
$R_{\theta JB}$	Junction-to-board thermal resistance	55.6	38	48.5	75.8	
Ψ_{JT}	Junction-to-top characterization parameter	9.4	9	10	21	
Ψ_{JB}	Junction-to-board characterization parameter	55.6	37.7	47.9	75.4	
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	33.3	N/A	N/A	N/A	

SN74LV595A (SCLS414)

Changes from Revision S (November 2022) to Revision T ( ) Page

- Updated thermal values for PW package from RθJA = 106.1 to 131.2, RθJC(top) = 40.8 to 69.4, RθJB = 51.1 to 75.8, ΨJT = 3.8 to 21, ΨJB = 50.6 to 75.4, all values in °C/W..... 5
- Updated thermal values for RGY package from RθJA = 39.5 to 73.7, RθJC(top) = 50.5 to 49.6, RθJB = 17.1 to 75.1, ΨJT = 0.9 to 14.9, ΨJB = 17.2 to 49.6, RθJC(bot) = 5.9 to 32.9, all values in °C/W..... 5

6.4 Thermal Information

THERMAL METRIC		SN74LV595A						UNIT
		D	DB	NS	PW	RGY	BQB	
		16 PINS	16 PINS	16 PINS	16 PINS	16 PINS	16 PINS	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	80.2	97.8	79.4	131.2	73.7	85.9	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	40.3	48.1	35.8	69.4	49.6	82.4	
$R_{\theta JB}$	Junction-to-board thermal resistance	38.0	48.5	40.2	75.8	75.1	55.6	
Ψ_{JT}	Junction-to-top characterization parameter	9.0	10.0	5.5	21	14.9	9.4	
Ψ_{JB}	Junction-to-board characterization parameter	37.7	47.9	39.9	75.4	49.6	55.6	
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	N/A	N/A	N/A	N/A	32.9	33.3	

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]**
H, I, M, -	**A**

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

			Development Zone
CDAT	**CDAT**	**CHN**	**Chengdu**

Sample product shipping label (not actual product label)

Product Affected:

Group 1 Device list (RFAB/Process migration, BOM Update & TFME as additional Assembly site – PW packaged devices)

SN74LV00APWR	SN74LV126APWR	SN74LV163APWR	SN74LV27APWR
SN74LV02APWR	SN74LV132APWR	SN74LV164APWR	SN74LV594APWR
SN74LV04APWR	SN74LV138APWR	SN74LV165APWR	SN74LV594APWRG4
SN74LV04APWRG4	SN74LV138APWRG4	SN74LV165APWRG3	SN74LV595APWR
SN74LV07APWR	SN74LV139APWR	SN74LV165APWRG4	SN74LV595APWRG4
SN74LV07APWRG3	SN74LV157APWR	SN74LV20APWR	SN74LV86APWR
SN74LV07APWRG4	SN74LV161APWR	SN74LV21APWR	SN74LV125APWR

Group 2 Device list (RFAB/Process migration, BOM Update in MLA & HFTF as an alternate Assembly site – D Packaged Devices)

SN74LV00ADR	SN74LV11ADR	SN74LV132ADR	SN74LV32ADR
SN74LV04ADR	SN74LV125ADR	SN74LV14ADR	SN74LV74ADR
SN74LV07ADR	SN74LV125ATDR	SN74LV21ADR	SN74LV86ADR
SN74LV08ADR	SN74LV126ADR		

Group 3 Device list (RFAB/Process migration BOM update only – PW, NS, & DW packaged devices)

SN74LV14ANSR	SN74LV244APWRE4	SN74LV273APWRG4	SN74LV374APWR
SN74LV240APWR	SN74LV244APWRG4	SN74LV373APWR	SN74LV574ADWR
SN74LV240APWRG4	SN74LV273APWR	SN74LV373APWRG4	SN74LV574APWR
SN74LV244APWR	SN74LV273APWRE4		

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

SN74LV163ARGYR	SN74LV165ARGYR	SN74LV595ARGYR	SN74LV595ARGYRG4
SN74LV164ARGYR	SN74LV165ARGYRG4		

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

Qualification Report
Approve Date 05-OCTOBER -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV00ADR	Qual Device: SN74LV04ADR	Qual Device: SN74LV07ADR	Qual Device: SN74LV08ADR	Qual Device: SN74LV11ADR	Qual Device: SN74LV125ADR	Qual Device: SN74LV125ATDR	Qual Device: SN74LV126ADR	Qual Device: SN74LV132ADR	Qual Device: SN74LV14ADR	Qual Device: SN74LV21ADR	Qual Device: SN74LV32ADR	Qual Device: SN74LV74ADR	Qual Device: SN74LV86ADR	QBS Reference: SN74LS627QDRQ1	QBS Reference: SN74LV1T00QDBVRQ1	QBS Reference: SN74LV1T02QDBVRQ1
HAST	A2	Biased HAST	130C	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/77/0
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/77/0
UHAST	A3	Unbiased HAST	130C	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-
TC	A4	Temperature Cycle	-65/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/135/0	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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	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	-
SD	C3	PB Solderability	Precondition w155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/15/0	-
SD	C3	PB Solderability	Precondition w155C Dry Bake (4 hrs +/- 15 minutes); PB Solder;	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/66/0	-	-
SD	C3	PB-Free Solderability	Precondition w155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/15/0	-
SD	C3	PB-Free Solderability	Precondition w155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/66/0	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/30/0	-
ESD	E2	ESD CDM	-	250 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	1/5/0	-	3/6/0	-
ESD	E2	ESD CDM	-	500 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/5/0	1/5/0
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/5/0	1/5/0
CHAR	E5	Electrical Characterization	Min, Typ, Max Temp	-	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	3/90/0	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	3/90/0	-	-

CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/90/0	3/90/0

$rex({OPN}){4}

- QBS: Qual By Similarity
- Qual Device SN74LV00ADR is qualified at MSL1 260C
- Qual Device SN74LV04ADR is qualified at MSL1 260C
- Qual Device SN74LV07ADR is qualified at MSL1 260C
- Qual Device SN74LV08ADR is qualified at MSL1 260C
- Qual Device SN74LV11ADR is qualified at MSL1 260C
- Qual Device SN74LV125ADR is qualified at MSL1 260C
- Qual Device SN74LV125ATDR is qualified at MSL1 260C
- Qual Device SN74LV126ADR is qualified at MSL1 260C
- Qual Device SN74LV132ADR is qualified at MSL1 260C
- Qual Device SN74LV14ADR is qualified at MSL1 260C
- Qual Device SN74LV21ADR is qualified at MSL1 260C
- Qual Device SN74LV32ADR is qualified at MSL1 260C
- Qual Device SN74LV74ADR is qualified at MSL1 260C
- Qual Device SN74LV86ADR 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-2111-089

Qualification Report
Approve Date 11-OCTOBER-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV00ADR	Qual Device: SN74LV04ADR	Qual Device: SN74LV07ADR	Qual Device: SN74LV08ADR	Qual Device: SN74LV11ADR	Qual Device: SN74LV125ADR	Qual Device: SN74LV125ATDR	Qual Device: SN74LV126ADR	Qual Device: SN74LV132ADR	Qual Device: SN74LV14ADR	Qual Device: SN74LV21ADR	Qual Device: SN74LV32ADR	Qual Device: SN74LV74ADR	Qual Device: SN74LV86ADR	QBS Reference: SN74LV125ATDRQBSR	QBS Reference: SN74LV132PWQBSR	QBS Reference: SN74LV132QDRQBSR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/770	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/770	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310	-	1/770
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2/1540
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/770	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/1350	-	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/450	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/450
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/770	-
HTOL	B1	Life Test	150C	408 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/770
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2400	-	-
SD	C3	PB Solderability	Preconditioned w155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/150	-	-
SD	C3	PB-Free Solderability	Preconditioned w155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/150	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/300	-	-
ESD	E2	ESD CDM	-	1500 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/30
ESD	E2	ESD CDM	-	250 Volts	-	-	-	-	-	-	-	-	-	1/30	-	-	-	1/30	-	-	-
ESD	E2	ESD CDM	-	500 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/30	1/30	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/30	1/30	-
ESD	E2	ESD HBM	-	4000 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/30
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	-	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/90/0	3/90/0	3/90/0

- QBS: Qual By Similarity
- Qual Device SN74LV00ADR is qualified at MSL1 260C
- Qual Device SN74LV04ADR is qualified at MSL1 260C
- Qual Device SN74LV07ADR is qualified at MSL1 260C
- Qual Device SN74LV08ADR is qualified at MSL1 260C

- Qual Device SN74LV11ADR is qualified at MSL1 260C
- Qual Device SN74LV125ADR is qualified at MSL1 260C
- Qual Device SN74LV125ATDR is qualified at MSL1 260C
- Qual Device SN74LV126ADR is qualified at MSL1 260C
- Qual Device SN74LV132ADR is qualified at MSL1 260C
- Qual Device SN74LV14ADR is qualified at MSL1 260C
- Qual Device SN74LV21ADR is qualified at MSL1 260C
- Qual Device SN74LV32ADR is qualified at MSL1 260C
- Qual Device SN74LV74ADR is qualified at MSL1 260C
- Qual Device SN74LV86ADR 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-Z1111-096

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

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 04-OCTOBER -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV14ANSR	QBS Reference: SN74HCS74QPWRQ1	QBS Reference: PSN74LV4T125QPWRQ1	QBS Reference: SN74LVC8T245NSR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	1/77/0	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	1/77/0	-	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	1/77/0	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	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	-	3/231/0	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	1/77/0	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	3/135/0	-	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	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	-	-	1/77/0	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	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	-	-	-
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	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-
ESD	E2	ESD CDM	-	500 Volts	-	1/3/0	1/3/0	-
ESD	E2	ESD HBM	-	2000 Volts	-	1/3/0	1/3/0	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	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 SN74LV14ANSR 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-2111-090

TI Information
Selective Disclosure

Qualification Report
Approve Date 08-NOVEMBER -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV163ARGYR	Qual Device: SN74LV165ARGYR	Qual Device: SN74LV595ARGYR	QBS Reference: TS3A5017QRGYRQ1	QBS Reference: SN74LV595AQWBQBRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	3/231/0	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	1/77/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	3/231/0	1/77/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	3/231/0	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	3/135/0	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	1/45/0
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	3/231/0	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	1/77/0
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	-
ESD	E2	ESD CDM	-	1500 Volts	-	-	-	1/3/0	-
ESD	E2	ESD CDM	-	500 Volts	-	-	-	-	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	1/3/3	1/3/0
LU	E4	Latch-Up	Per JESD78	-	-	-	-	1/6/0	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	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 SN74LV163ARGYR is qualified at MSL1 260C
- Qual Device SN74LV165ARGYR is qualified at MSL1 260C
- Qual Device SN74LV595ARGYR 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-2112-028

Qualification Report
Approve Date 07-NOVEMBER -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV164ARGYR	QBS Reference: TS3A5017QRGYRQ1	QBS Reference: SN74LV163ARGYR	QBS Reference: SN74LV595AQWBQBRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	1/77/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	3/231/0	-	1/77/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	-	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	3/135/0	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	1/45/0
HTOL	B1	Life Test	125C	1000 Hours	-	3/231/0	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	1/77/0
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	-	-

ESD	E2	ESD CDM	-	1500 Volts	-	1/3/0	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-
ESD	E2	ESD CDM	-	500 Volts	-	-	-	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	-	1/3/3	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	-	1/6/0	-	1/6/0
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 SN74LV164ARGYR 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-2112-019

TI Information
Selective Disclosure

Qualification Report
Approve Date 30-OCTOBER -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	Qual Device: SN74LV164ARGYR	QBS Reference: SN74LV164ARGYR	QBS Reference: SN74LV164ARGYR	QBS Reference: SN74LV164ARGYR	QBS Reference: SN74LV164ARGYR	QBS Reference: SN74LV164ARGYR	QBS Reference: SN74LV164ARGYR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	3/231/0	-	-	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/77/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-	-	-	-	1/77/0
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/77	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	3/231/0	-	-	-	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/1/0/0	-	-	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/153/0	-	-	-	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/45/0
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-	-	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-	-	-	-	1/77/0
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2400/0	-	-	-	-
SD	C3	PB Solderability	Precondition w/155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/15/0	1/15/0	-	-	-	-
SD	C3	PB-Free Solderability	Precondition w/155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/15/0	1/15/0	-	-	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/30/0	1/30/0	-	-	-	-
ESD	E2	ESD CDM	-	2000 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/3/0	-	-	-	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3	-	-	-	-	-	-	1/3	1/3	-	1/3	-	-	-	-	-	1/3/0	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	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/3/0	-	-	-	1/3/0
ESD	E2	ESD HBM	-	5000 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/3/0	-	-	-	-	-
LU	E4	Latch-Up	Per JESD78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/6/0	-	-
LU	E4	Latch-Up	Per JESD78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/6/0	1/6/0	-	-	-	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30	1/30	1/30	1/30	1/30	1/30	1/30	1/30	1/30	1/30	1/30	1/30	1/30	1/30	-	-	1/30/0	1/30/0	1/30/0	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/90/0	3/90/0	-	-	-	3/90/0

- QBS: Qual By Similarity
- Qual Device SN74LV164APWRG4 is qualified at MSL1 260C
- Qual Device SN74LV164APWR is qualified at MSL1 260C
- Qual Device SN74LV157APWR is qualified at MSL1 260C
- Qual Device SN74LV161APWR is qualified at MSL1 260C
- Qual Device SN74LV163APWR is qualified at MSL1 260C
- Qual Device SN74LV165APWR is qualified at MSL1 260C
- Qual Device SN74LV165APWRG4 is qualified at MSL1 260C
- Qual Device SN74LV166APWR is qualified at MSL1 260C
- Qual Device SN74LV594APWR is qualified at MSL1 260C
- Qual Device SN74LV594APWRG4 is qualified at MSL1 260C
- Qual Device SN74LV595APWR is qualified at MSL1 260C
- Qual Device SN74LV595APWRG4 is qualified at MSL1 260C
- Qual Device SN74LV166APWR 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-2112-022

Qualification Report
Approve Date 16-NOVEMBER -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV138APWR	Qual Device: SN74LV139APWR	Qual Device: SN74LV157APWR	Qual Device: SN74LV161APWR	Qual Device: SN74LV163APWR	Qual Device: SN74LV165APWR	Qual Device: SN74LV165APWRG3	Qual Device: SN74LV367APWR	Qual Device: SN74LV594APWR	Qual Device: SN74LV595APWR	QBS Reference: SN74HC573PWRG4	QBS Reference: SN74HCH74PWR	QBS Reference: SN74LV595AQWRQBRG4
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	3/231/0	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	1/77/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	1/77/0
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	1/77	-	-	-	-	-	-	-	-	-	-	3/231/0	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	3/231/0	-	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	-	-	-	3/135/0	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	-	-	-	-	-	-	-	-	1/45/0
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	-	-
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	-	-	-	-	-	-	1/15/0	-	-
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)	-	-	-	-	-	-	-	-	-	-	-	1/15/0	-	-
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	-
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	-	3/9/0	-
ESD	E2	ESD CDM	-	500 Volts	-	-	-	-	-	-	-	-	-	-	1/3/0	-	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	-	-	-	-	-	-	-	1/3/0	-	-	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	-	-	-	-	-	-	-	1/3/0	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	-	-	-	-	-	-	-	1/3/0	-	-	-	-	-
LU	E4	Latch-Up	Per JESD78	-	-	-	-	-	-	-	-	-	-	-	1/6/0	-	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	-	3/90/0	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-	-	-	-	-	-	-	3/90/0	-	3/90/0

- QBS: Qual By Similarity
- Qual Device SN74LV138APWR is qualified at MSL1 260C
- Qual Device SN74LV139APWR is qualified at MSL1 260C
- Qual Device SN74LV157APWR is qualified at MSL1 260C
- Qual Device SN74LV161APWR is qualified at MSL1 260C
- Qual Device SN74LV163APWR is qualified at MSL1 260C
- Qual Device SN74LV165APWR is qualified at MSL1 260C
- Qual Device SN74LV165APWRG3 is qualified at MSL1 260C
- Qual Device SN74LV367APWR is qualified at MSL1 260C
- Qual Device SN74LV594APWR is qualified at MSL1 260C
- Qual Device SN74LV595APWR 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 165C/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-2112-024

Qualification Report
Approve Date 16-NOVEMBER -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV164APWR	QBS Reference: SN74HCS74QPWRQ1	QBS Reference: SN74HCS74PWR	QBS Reference: SN74LV595AQWBQBRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	1/77/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	1/77/0
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	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	-	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	3/231/0	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	3/135/0	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	1/45/0
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	-	-
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	1/15/0	-	-
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)	-	-	1/15/0	-	-
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	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	3/30/0	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	3/9/0	-
ESD	E2	ESD CDM	-	500 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	-	-	1/6/0	-	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	3/90/0	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	3/90/0	-	3/90/0

- QBS: Qual By Similarity
- Qual Device SN74LV164APWR 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-2112-018

Qualification Report
Approve Date 17-NOVEMBER -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV240APWR	Qual Device: SN74LV240APWRG4	QBS Reference: SN74HCS244QPWRQ1	QBS Reference: SN74LV244AQWRKSRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	1/77/0
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	1/77/0	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	1/77/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	3/231/0	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	1/77/0	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	1/45/0	1/45/0
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	1/77/0
HTOL	B1	Life Test	150C	300 Hours	-	-	1/77/0	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-
ESD	E2	ESD CDM	-	500 Volts	-	-	1/3/0	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	1/3/0	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	3/90/0

- QBS: Qual By Similarity
- Qual Device SN74LV240APWR is qualified at MSL1 260C
- Qual Device SN74LV240APWRG4 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-2210-007

Qualification Report
Approve Date 01-NOVEMBER -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV374APWR	Qual Device: SN74LV574APWR	Qual Device: SN74LV373APWR	Qual Device: SN74LV373APWRG4	QBS Reference: SN74HCS244QPWRQ1	QBS Reference: SN74LV244AQWRKSRQ1	QBS Reference: SN74LV240APWR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	1/77/0	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	1/77/0	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	1/77/0	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	3/231/0	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	1/77
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	1/77/0	1/77/0	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	1/45/0	1/45/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	-	1/77/0	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	1/77/0	-	-
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	1/3/0	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	1/3/0	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	1/3/0	-	-	-	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	1/30/0	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 SN74LV374APWR is qualified at MSL1 260C
- Qual Device SN74LV574APWR is qualified at MSL1 260C
- Qual Device SN74LV373APWR is qualified at MSL1 260C
- Qual Device SN74LV373APWRG4 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-2210-008

Qualification Report
Approve Date 15-NOVEMBER -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV244APWR	Qual Device: SN74LV244APWRG4	Qual Device: SN74LV273APWR	Qual Device: SN74LV273APWRG4	QBS Reference: SN74HCS244QPWRQ1	QBS Reference: SN74LV244AQWRKSRQ1	QBS Reference: SN74LV240APWR	QBS Reference: SN74LV373APWR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	1/77/0	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	1/77/0	-	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	1/77/0	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	3/231/0	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	1/77/0	1/77/0	-	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	1/45/0	1/45/0	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	-	1/77/0	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	1/77/0	-	-	-
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	1/3/0	-	-
ESD	E2	ESD HBM	-	1000 Volts	-	-	1/3/0	-	-	-	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	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	-	-
FTY	E6	Final Test Yield	-	-	1/1/0	1/1/0	1/1/0	1/1/0	-	-	-	-

- Qual Device SN74LV244APWR is qualified at MSL1 260C
- Qual Device SN74LV244APWRG4 is qualified at MSL1 260C
- Qual Device SN74LV273APWR is qualified at MSL1 260C
- Qual Device SN74LV273APWRG4 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

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Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

TI Qualification ID: R-CHG-2211-021

Qualification Report
Approve Date 07-December-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN74LV574ADWR	QBS Reference: SN74HCS244QPWRQ1	QBS Reference: SN74LV244AQWRKSRQ1	QBS Reference: SN74LV574APWR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	1/77/0	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	1/77/0	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	1/77/0	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	3/231/0	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	1/77/0	1/77/0	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	1/45/0	1/45/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	1/77/0	-
HTOL	B1	Life Test	150C	300 Hours	-	1/77/0	-	-
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
ESD	E2	ESD HBM	-	2000 Volts	-	1/3/0	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	3/90/0	-

- QBS: Qual By Similarity
- Qual Device SN74LV574ADWR 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-2212-004

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