

<b>PCN Number:</b>	20221216004.1	<b>PCN Date:</b>	December 21, 2022
<b>Title:</b>	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly & BOM options for select devices		
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Mar 21, 2023	<b>Sample requests accepted until:</b>	Jan 21, 2023*

**\*Sample requests received after Jan 21, 2023 will not be supported.**

**Change Type:**

<input checked="" type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Assembly Process	<input checked="" type="checkbox"/>	Assembly Materials
<input checked="" type="checkbox"/>	Design	<input type="checkbox"/>	Electrical Specification	<input type="checkbox"/>	Mechanical Specification
<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Wafer Bump Material	<input type="checkbox"/>	Wafer Bump Process
<input checked="" type="checkbox"/>	Wafer Fab Site	<input checked="" type="checkbox"/>	Wafer Fab Materials	<input checked="" type="checkbox"/>	Wafer Fab Process
		<input type="checkbox"/>	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)**

	<b>MLA Current</b>	<b>MLA New</b>
Bond wire diameter (Cu)	0.96 mil	0.8 mil

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

	<b>MLA</b>	<b>CDAT</b>
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 R $\theta$ JA = 94.9 to 123.9, R $\theta$ JC(top) = 56.3 to 70.9, R $\theta$ JB = 49.2 to 80.5,  $\Psi$ JT = 20.7 to 38.7,  $\Psi$ JB = 48.9 to 80, all values in °C/W..... 5
- Updated thermal values for NS package from R $\theta$ JA = 91.4 to 120.2, R $\theta$ JC(top) = 49.0 to 77.5, R $\theta$ JB = 50.2 to 80.9,  $\Psi$ JT = 15.3 to 42.1,  $\Psi$ JB = 49.8 to 80.3, all values in °C/W ..... 5

**6.4 Thermal Information**

THERMAL METRIC <sup>(1)</sup>	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	
$\Psi$ JT	Junction-to-top characterization parameter	38.7	21.0	7.3	42.1	6.8	3.5	
$\Psi$ 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 R $\theta$ JA = 120.2 to 138.7, R $\theta$ JC(top) = 48.9 to 69.1, R $\theta$ JB = 61.9 to 81.8,  $\Psi$ JT = 5.7 to 20.3,  $\Psi$ JB = 61.3 to 81.3, all values in °C/W..... **5**
- Updated thermal values for RGY package from R $\theta$ JA = 54.5 to 74.8, R $\theta$ JC(top) = 67 to 81.1, R $\theta$ JB = 30.5 to 49.5,  $\Psi$ JT = 2.3 to 15,  $\Psi$ JB = 30.5 to 49.5, R $\theta$ JC(bot) = 11.2 to 32.5, all values in °C/W ..... **5**

**6.4 Thermal Information**

THERMAL METRIC <sup>(1)</sup>		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	
$\Psi$ JT	Junction-to-top characterization parameter	18.9	18.6	5.8	13.7	20.3	15	9.9	
$\Psi$ 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 R $\theta$ JA = 102.4 to 128.2, R $\theta$ JC(top) = 36.5 to 70.5, R $\theta$ JB = 53.6 to 79.3,  $\Psi$ JT = 2.4 to 23.4,  $\Psi$ JB = 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	
$\Psi$ JT	Junction-to-top characterization parameter	18.6	18.5	0.9	16.8	23.4	
$\Psi$ 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 R $\theta$ JA = 102.6 to 128.2, R $\theta$ JC(top) = 36.7 to 70.5, R $\theta$ JB = 53.6 to 79.3,  $\Psi$ JT = 2.4 to 23.4,  $\Psi$ JB = 44.1 to 78.9, all values in °C/W..... **5**
- Updated thermal values for DW package from R $\theta$ JA = 79.4 to 102.3, R $\theta$ JC(top) = 43.8 to 69.6, R $\theta$ JB = 47.2 to 70.8,  $\Psi$ JT = 18.8 to 46.4,  $\Psi$ JB = 46.7 to 70.4, all values in °C/W..... **5**

## 6.4 Thermal Information

THERMAL METRIC <sup>(1)</sup>		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 <sub>θJA</sub>	Junction-to-ambient thermal resistance	94.7	115.9	102.3	76.9	128.2	34.9	75.2	°C/W
R <sub>θJC(top)</sub>	Junction-to-case (top) thermal resistance	56.7	31.1	69.6	43.4	70.5	43.1	79.4	°C/W
R <sub>θJB</sub>	Junction-to-board thermal resistance	49.9	57.4	70.8	44.5	79.3	12.7	47.8	°C/W
ψ <sub>JT</sub>	Junction-to-top characterization parameter	18.7	1.0	46.4	17.0	23.4	0.9	14.6	°C/W
ψ <sub>JB</sub>	Junction-to-board characterization parameter	49.5	56.7	70.4	44.1	78.9	12.8	47.8	°C/W
R <sub>θJC(bot)</sub>	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 R<sub>θJA</sub> = 104.7 to 128.2, R<sub>θJC(top)</sub> = 38.8 to 70.5, R<sub>θJB</sub> = 55.7 to 79.3, ψ<sub>JT</sub> = 2.9 to 23.4, ψ<sub>JB</sub> = 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 <sub>θJA</sub>	Junction-to-ambient thermal resistance	98.7	118.1	81.8	79.4	128.2	37.1	75.2	°C/W
R <sub>θJC(top)</sub>	Junction-to-case (top) thermal resistance	60.4	33.4	47.8	45.9	70.5	46.1	79.4	
R <sub>θJB</sub>	Junction-to-board thermal resistance	56.9	59.6	49.4	46.9	79.3	14.9	47.8	
ψ <sub>JT</sub>	Junction-to-top characterization parameter	21.6	1.1	20.1	19.1	23.4	1.3	14.6	
ψ <sub>JB</sub>	Junction-to-board characterization parameter	53.5	58.9	49.0	46.5	78.9	15.0	47.8	
R <sub>θJC(bot)</sub>	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 R<sub>θJA</sub> = 102.4 to 128.2, R<sub>θJC(top)</sub> = 36.5 to 70.5, R<sub>θJB</sub> = 53.6 to 79.3, ψ<sub>JT</sub> = 2.4 to 23.4, ψ<sub>JB</sub> = 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 <sub>θJA</sub>	Junction-to-ambient thermal resistance	94.5	116.2	79.2	76.7	128.2	34.8	°C/W
R <sub>θJC(top)</sub>	Junction-to-case (top) thermal resistance	56.4	31.2	43.7	43.2	70.5	42.9	°C/W
R <sub>θJB</sub>	Junction-to-board thermal resistance	49.7	57.7	47.0	44.2	79.3	12.4	°C/W
ψ <sub>JT</sub>	Junction-to-top characterization parameter	18.5	0.9	18.6	16.8	23.4	0.8	°C/W
ψ <sub>JB</sub>	Junction-to-board characterization parameter	49.3	57.0	46.5	43.8	78.9	12.5	°C/W
R <sub>θJC(bot)</sub>	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 R $\theta$ JA = 102.4 to 128.2, R $\theta$ JC(top) = 36.5 to 70.5, R $\theta$ JB = 53.6 to 79.3,  $\Psi$ JT = 2.4 to 23.4,  $\Psi$ JB = 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	
$\Psi$ JT	Junction-to-top characterization parameter	18.5	18.6	16.8	23.4	
$\Psi$ 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 R $\theta$ JA = 83 to 128.2, all values in °C/W..... 5
- Updated thermal values for DW package from R $\theta$ JA = 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 R $\theta$ JA = 108 to 131.2, all values in °C/W..... 1

**6.4 Thermal Information**

THERMAL METRIC <sup>(1)</sup>		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 R $\theta$ JA = 106.1 to 131.2, R $\theta$ JC(top) = 40.8 to 69.4, R $\theta$ JB = 51.1 to 75.8,  $\Psi$ JT = 3.8 to 21,  $\Psi$ JB = 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	
$\Psi$ JT	Junction-to-top characterization parameter	9.4	9	10	21	
$\Psi$ 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)**

- 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 <sub>θJA</sub>	Junction-to-ambient thermal resistance	80.2	97.8	79.4	131.2	73.7	85.9	°C/W
R <sub>θJC(top)</sub>	Junction-to-case (top) thermal resistance	40.3	48.1	35.8	69.4	49.6	82.4	
R <sub>θJB</sub>	Junction-to-board thermal resistance	38.0	48.5	40.2	75.8	75.1	55.6	
Ψ <sub>JT</sub>	Junction-to-top characterization parameter	9.0	10.0	5.5	21	14.9	9.4	
Ψ <sub>JB</sub>	Junction-to-board characterization parameter	37.7	47.9	39.9	75.4	49.6	55.6	
R <sub>θJC(bot)</sub>	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- 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
<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change

**Changes to product identification resulting from this PCN:**

**Fab Site Information:**

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

**Die Rev:**

**Current**

**New**

Die Rev [2P]	Die Rev [2P]
H, I, M, -	<b>A</b>

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

			<b>Development Zone</b>
<b>CDAT</b>	<b>CDAT</b>	<b>CHN</b>	<b>Chengdu</b>

Sample product shipping label (not actual product label)

**TEXAS INSTRUMENTS**  
 MADE IN: Malaysia  
 2DC: 2Q:  
 MSL 2 / 260C/1 YEAR SEAL DT  
 MSL 1 / 235C/UNLIM 03/29/04  
 OPT:  
 ITEM: 39  
**LBL: 5A (L)T0:1750**

(1P) SN74LS07NSR  
 (Q) 2000 (D) 0336  
 (31T) LOT: 3959047MLA  
 (4W) TKY (1T) 7523483SI2  
 (P)  
 (2P) REV: (V) 0033317  
 (20L) ~~GGG: SHE~~ (21L) CCO:USA  
 (22L) ASO: MLA (23L) ACO: MYS

**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](http://TI.com)





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: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	Qual Device: SN74LV54ADR	QIS Reference: SN74LV54ADR	QIS Reference: SN74LV54ADR	QIS Reference: SN74LV54ADR
HAST	A2	Bleed HAST	130C85NH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/770	-
HAST	A2	Bleed HAST	130C85NH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310	-
HAST	A2	Bleed HAST	130C85NH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310
UHAST	A3	Autoclave	121C25p4g	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310
UHAST	A3	Autoclave	121C25p4g	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310
UHAST	A3	Unbleed HAST	130C85NH	96 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310	-
TC	A4	Temperature Cycle	-55C150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/2310	-
TC	A4	Temperature Cycle	-55C150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/1540
TC	A4	Temperature Cycle	-55C150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/770
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/1350	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14/50
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14/50
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/4050	-
SD	C3	Pb Solderability	Precondition at 250C Dry Bake (4 hrs @ 15 min/cycle)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/150	-
SD	C3	Pb-Free Solderability	Precondition at 250C Dry Bake (4 hrs @ 15 min/cycle)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/150	-
PD	C4	Physical Dimensions	CpA-V1.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/500	-
ESD	E2	ESD CDM	-	1500 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/50
ESD	E2	ESD CDM	-	2500 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESD	E2	ESD CDM	-	500 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/50	1/50
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/50	1/50
ESD	E2	ESD HBM	-	4000 Volts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/50
CHAR	E5	Electrical Characterization	Per DataSheet Parameters	-	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	-	-
CHAR	E5	Electrical Characterization	CpA-V1.67 Room, hot, and cold	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/500	3/500

- QIS: Qual By Similarity
- Qual Device SN74LV54ADR is qualified at MSL1 280C
- Qual Device SN74LV54ADR is qualified at MSL1 280C
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- Qual Device SN74LV54ADR is qualified at MSL1 280C

- Preconditioning was performed for Autoclave, Unbleed HAST, THW Bleed HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV: 125C/80 Hours, 140C/40 Hours, 150C/200 Hours, and 155C/40 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV: 150C/24 Hours, and 170C/20 Hours
- The following are equivalent Temp Cycle options per JEDEC47: -55C/25C/70C Cycles and -55C/150C/50C Cycles

Quality and Environmental data is available at TI external Web site: <http://www.ti.com>

Green/Pb-Free Status:  
Qualified Pb-Free(QM) and Green

TI Qualification ID: R-APD-2111-098

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: SN74LV8APWR	Qual Device: SN74LV8APWRG4	Qual Device: SN74LV11APWR	Qual Device: SN74LV14APWR	QBS Reference: SN74HCS74QPWRQ1	QBS Reference: SN74LV8ATPWRQ4Q1	QBS Reference: SN74LV11ATPWRQ4Q1	QBS Reference: SN74LV14ATPWRQ1	QBS Reference: SN74LV32ATPWRQ4Q1	QBS Reference: SN74LV74APWRQ4Q1	QBS Reference: ADS131B94QPWRQ1
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	Cpin-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	Cpin-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 SN74LV4712BPWR is qualified at MSL1 260C
- Qual Device SN74LV74APWR is qualified at MSL1 260C
- Qual Device SN74LV74APWRG4 is qualified at MSL1 260C
- Qual Device SN74LV8APWR 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 JEDEC47: -65C/125C/100 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: <a href="#">SN74LV4T125PWR</a>	QBS Reference: <a href="#">SN74HCS74QPWRQ1</a>	QBS Reference: <a href="#">SN74HCS74PWR</a>
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

TI Information  
Selective Disclosure

**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: <a href="#">SN74LV14ANSR</a>	QBS Reference: <a href="#">SN74HCS74QPWRQ1</a>	QBS Reference: <a href="#">PSN74LV4T125QPWRQ1</a>	QBS Reference: <a href="#">SN74LVC8T245NSR</a>
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: TS3A5017QRCYRQ1	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

TI Information  
Selective Disclosure

**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: <a href="#">SN74LV164ARGYR</a>	QBS Reference: <a href="#">TS3A5017QRGYRQ1</a>	QBS Reference: <a href="#">SN74LV163ARGYR</a>	QBS Reference: <a href="#">SN74LV595AQWBQBRQ1</a>
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	-	-





**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

TI Information  
Selective Disclosure

## 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: <a href="#">SN74LV240APWR</a>	Qual Device: <a href="#">SN74LV240APWRG4</a>	QBS Reference: <a href="#">SN74HCS244QPWRQ1</a>	QBS Reference: <a href="#">SN74LV244AQWRKSRQ1</a>
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	-	-	-	-	-	1/770	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	1/770	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	1/770	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	3/2310	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	1/77
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	1/770	1/770	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	1/450	1/450	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	-	1/770	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	1/770	-	-
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	-
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- 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: SN74LV33APWR
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

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-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: <a href="#">SN74LV574ADWR</a>	QBS Reference: <a href="#">SN74HCS244QPWRQ1</a>	QBS Reference: <a href="#">SN74LV244AQWRKSRQ1</a>	QBS Reference: <a href="#">SN74LV574APWR</a>
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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