

PCN Number:	20231031003.1	PCN Date:	October 31, 2023
Title:	Qualification of RFAB using qualified Process Technology, Die Revision, datasheet, and additional Assembly site/BOM options for select devices		
Customer Contact:	Change Management team	Dept:	Quality Services
Proposed 1st Ship Date:	Jan 29, 2024	Sample requests accepted until:	Dec 1, 2023*

***Sample requests received after December 1, 2023 will not be supported.**

Change Type:					
<input checked="" type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Design	<input type="checkbox"/>	Wafer Bump Material
<input checked="" type="checkbox"/>	Assembly Process	<input checked="" type="checkbox"/>	Data Sheet	<input type="checkbox"/>	Wafer Bump Process
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change	<input checked="" type="checkbox"/>	Wafer Fab Site
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site	<input checked="" type="checkbox"/>	Wafer Fab Materials
<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input checked="" type="checkbox"/>	Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments is pleased to announce the addition of RFAB using the LBC9 qualified process technology and additional Assembly site (MLA) and BOM options for select devices listed below in the product affected section.

Current Fab Site			Additional Fab Site		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
SFAB	J12 or IMP-C60 or OI	150 mm	RFAB	LBC9	300 mm

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

Construction differences are as follows (There no BOM table for groups 2 and 3):

Group 1 Device BOM Table (RFAB/Process migration/BOM Option only):

	Current	Additional
Bond Wire Composition, diameter	Au, 0.96	Cu, 1.0
Mount Compound	4042500	4147858
Mold Compound	4042503	4211880

The datasheets (C2308113) will be changing as a result of the above mentioned changes. The datasheet change details can be reviewed in the datasheet revision history. The links to the revised datasheets are available in the table below.



SN75ALS197

SLLS045C – JANUARY 1989 – REVISED OCTOBER 2023

Changes from Revision B (May 1995) to Revision C (October 2023)

Page

- Changed the numbering format for tables, figures, and cross-references throughout the document..... 1



SN65175, SN75175

SLLS145D – OCTOBER 1990 – REVISED OCTOBER 2023

Changes from Revision C (November 2006) to Revision D (October 2023)

Page

- Changed the numbering format for tables, figures, and cross-references throughout the document..... 1

Changes from Revision C (May 1995) to Revision D (October 2023) Page

- Changed the numbering format for tables, figures, and cross-references throughout the document..... 1

Changes from Revision C (February 2002) to Revision D (October 2023) Page

- Changed the numbering format for tables, figures, and cross-references throughout the document..... 1

Changes from Revision K (October 2018) to Revision M (October 2023) Page

- Changed Device Information table to the *Package Information* table..... 1
- Updated the *Thermal Information* table..... 5

Changes from Revision E (April 2000) to Revision F (October 2023) Page

- Changed the numbering format for tables, figures, and cross-references throughout the document..... 1

Changes from Revision C (May 1995) to Revision D (October 2023) Page

- Changed the numbering format for tables, figures, and cross-references throughout the document..... 1

Changes from Revision D (May 1995) to Revision E (October 2023) Page

- Changed the numbering format for tables, figures, and cross-references throughout the document..... 1

Product Folder	Current Datasheet Number	New Datasheet Number	Link to full datasheet
SN75ALS197	SLLS045B	SLLS045C	http://www.ti.com/product/SN75ALS197
SNx5175	SLLS145C	SLLS145D	http://www.ti.com/product/SN65175
SN75ALS175	SLLS131C	SLLS131D	http://www.ti.com/product/SN75ALS175
MC3486	SLLS097C	SLLS097D	http://www.ti.com/product/MC3486
AM26C32	SLLS104L	SLLS104M	http://www.ti.com/product/AM26C32
SNx5173	SLLS144E	SLLS144F	http://www.ti.com/product/SN55173
SN75ALS173	SLLS132C	SLLS132D	http://www.ti.com/product/SN75ALS173
SN75ALS193	SLLS008D	SLLS008E	http://www.ti.com/product/SN75ALS193

Qual details are provided in the Qual Data Section.

Reason for Change:

These changes are part of our multiyear plan to transition products from our 150-millimeter and 200-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			

Changes to product identification resulting from this PCN:

Fab Site Information:

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

Die Rev:

Current	New
Die Rev [2P]	Die Rev [2P]
A, L, C, F, -	-

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
FMX	MEX	MEX	Aguascalientes
MLA	MLA	MYS	Kuala Lumpur

Sample product shipping label (not actual product label)

Product Affected:

Group 1 Device list (RFAB/Process migration/BOM Option only):

SN75173N

Group 2 Device list (RFAB/Process migration plus TI Malaysia as additional Assembly site):

AM26C32IDR	MC3486DR	SN75175N	SN75ALS193N
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AM26C32IDR	SN75173DR	SN75175NSR	SN75ALS193N
MC3486DR	SN75175DR	SN75ALS193DR	SN75ALS197DR

Group 3 Device list (RFAB/Process migration only):

AM26C32IDBR	AM26C32IPWR	SN75ALS173NSR	SN75ALS175NSR
AM26C32INSR	AM26C32IPWRG4	SN75ALS173NSRG4	

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

TI Information
Selective Disclosure

Qualification Report

RedBull RS485 Wave 0T4R Part 13/14
Approve Date 25-September-2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: AM26C32IDBR	Qual Device: AM26C32INSR	Qual Device: AM26C32IPWR	QBS Reference (Process, Product): AM26C32IDR	QBS Reference (Process): TLV9982ID	QBS Reference (Package): SN74LVC8T245DBR	QBS Reference (Package): TPS2074DB	QBS Reference (Package): SN74LVC8T245NSR	QBS Reference (Package): TCA6418PW	QBS Reference (Package): TCANI043ADRO1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	1/77/0	-	-	3/231/0	1/77/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	1/77/0	-	-	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	-	-	-	-	-	1/77/0	3/231/0	3/231/0	3/231/0	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	3/231/0	3/231/0	3/231/0	1/77/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	-	-	1/77/0	-	-	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	3/2400/1 ¹	-	-	-	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	-	3/2400/1 ¹	-	-	-	-	-
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	1/76/0	1/76/0	1/76/0	-	-	-	-	-	-	-
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	1/76/0	1/76/0	1/76/0	1/76/0	-	-	-	-	-	-
ESD	E2	ESD CDM	-	2000 Volts	1/3/0	1/3/0	1/3/0	1/3/0	-	-	-	-	-	-
ESD	E2	ESD HBM	-	3000 Volts	-	-	-	1/3/0	-	-	-	-	-	-
LU	E4	Latch-Up	Per JESD78	-	-	-	-	1/3/0	-	-	-	-	-	-
CHAR	E5	Electrical Characterization	Min, Typ, Max Temp	-	-	-	-	1/30/0	-	-	-	-	-	-

Type	#	Test Name	Condition	Duration	Qual Device: AM26C32IDBR	Qual Device: AM26C32INSR	Qual Device: AM26C32IPWR	QBS Reference (Process, Product): AM26C32IDR	QBS Reference (Process): TLV9982ID	QBS Reference (Package): SN74LVC8T245DBR	QBS Reference (Package): TPS2074DB	QBS Reference (Package): SN74LVC8T245NSR	QBS Reference (Package): TCA6418PW	QBS Reference (Package): TCANI043ADRO1
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	-	-	1/30/0	-	-	-	-	-	-

- QBS: Qual By Similarity
- Qual Device AM26C32IDBR is qualified at MSL1 260C
- Qual Device AM26C32INSR is qualified at MSL1 260C
- Qual Device AM26C32IPWR is qualified at MSL1 260C

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

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

TI Qualification ID: R-CHG-2212-055

[1]-Die EOS

1 unit – Unresolved- Reran another group from same fab/assembly lot and passed.

Qualification Report

RedBull RS485 Wave 0T4R Part 14/14
Approve Date 26-September-2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN75ALS173NSR	Qual Device: SN75ALS175NSR	Qual Device: SN75ALS193DR	Qual Device: SN75ALS193N	Qual Device: SN75ALS197DR	QBS Reference (Process): TLV9062UD	QBS Reference (Package): SN74LVC8T245NSR	QBS Reference (Package): TL494JDR	QBS Reference (Package): ICAN1043ADRD01	QBS Reference (Package): ICAN1043ADRD01
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	3/231/0	3/231/0	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	-	-	-	-	-	-	3/231/0	3/231/0	3/231/0	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	3/231/0	-	3/135/0	1/77/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	-	-	-	3/231/0	-	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	-	3/231/0	-	-	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	-	-	3/2400/1 ¹	-	-	-	-
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	1/76/0	1/76/0	1/76/0	1/76/0	1/76/0	-	-	-	-	-
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	1/76/0	1/76/0	1/76/0	1/76/0	1/76/0	-	-	3/228/0	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	-	-	-	-	3/30/0	1/10/0
ESD	E2	ESD CDM	-	250 Volts	1/3/0	1/3/0	1/3/0	1/3/0	1/3/0	3/9/0	-	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-	-	-	-	-	-	-	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	-	-	-	-	-	-	-	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	1/30/0	-	-	-	-	-	-	-
FTY	E6	Final Test Yield	-	-	1/1/0	1/1/0	-	1/1/0	1/1/0	-	-	-	-	-

- QBS: Qual By Similarity
- Qual Device SN75ALS173NSR is qualified at MSL1 260C
- Qual Device SN75ALS175NSR is qualified at MSL1 260C
- Qual Device SN75ALS193DR is qualified at MSL1 260C
- Qual Device SN75ALS193N is qualified at NOT CLASSIFIED NOT CLASSIFIED
- Qual Device SN75ALS197DR is qualified at MSL1 260C

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

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

TI Qualification ID: R-CHG-2212-056

[1]-Die EOS

1 unit - Unresolved- Reran another group from same fab/assembly lot and passed.

Qualification Report
RedBull RS485 Wave 0T4R Part 5/12
Approve Date 25-September-2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: MC3486DR	Qual Device: SN75173DR	Qual Device: SN75173N	Qual Device: SN75175DR	Qual Device: SN75175N	Qual Device: SN75175NSR	QBS Reference (Process): TLV9062ID	QBS Reference (Package): TLV9022QDRQ1	QBS Reference (Package): PCM1801U	QBS Reference (Package): SN74LVC8T245NSR
HAST	A2	Biased 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	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-	3/135/0	3/231/0	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	-	-	-	-	-	-	3/2400/1 ¹	-	-	-
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	1/76/0	1/76/0	1/76/0	1/76/0	1/76/0	1/76/0	-	-	-	-
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	1/76/0	1/76/0	1/76/0	1/76/0	1/76/0	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	-	-

Type	#	Test Name	Condition	Duration	Qual Device: MC3486DR	Qual Device: SN75173DR	Qual Device: SN75173N	Qual Device: SN75175DR	Qual Device: SN75175N	Qual Device: SN75175NSR	QBS Reference (Process): TLV9062ID	QBS Reference (Package): TLV9022QDRQ1	QBS Reference (Package): PCM1801U	QBS Reference (Package): SN74LVC8T245NSR
ESD	E2	ESD CDM	-	250 Volts	1/3/0	1/3/0	1/3/0	1/3/0	1/3/0	1/3/0	-	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	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	Min. Typ. Max Temp	-	1/30/0	1/30/0	-	1/30/0	-	-	-	-	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	-	1/30/0	-	-	-	-	-	-
FTY	E6	Final Test Yield	-	-	1/1/0	1/1/0	1/1/0	1/1/0	1/1/0	1/1/0	-	-	-	-

- QBS: Qual By Similarity
- Qual Device MC3486DR is qualified at MSL1 260C
- Qual Device SN75173DR is qualified at MSL1 260C
- Qual Device SN75173N is qualified at NOT CLASSIFIED NOT CLASSIFIED
- Qual Device SN75175DR is qualified at MSL1 260C
- Qual Device SN75175N is qualified at NOT CLASSIFIED NOT CLASSIFIED
- Qual Device SN75175NSR is qualified at MSL1 260C

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

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

TI Qualification ID: R-CHG-2205-026

[1]-Die EOS

1 unit – Unresolved- Reran another group from same fab/assembly lot and passed.

Qualification Report
Approve Date 28-November-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: AM26C32IDR	QBS Reference: TMUX1108PWR	QBS Reference: TMUX1208PWR	QBS Reference: TLV9062ID	QBS Reference: SN74HCT540N	QBS Reference: UHQ2003AQDRO1	QBS Reference: ADS900E	QBS Reference: SN74LVC8T245NSR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	3/231/0	-	3/231/0	-	-
UHA	A3	Autoclave	121C, 2 atm	96 Hours	-	2/154/0	1/77/0	-	-	-	-	-
UHA	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	3/231/0	3/231/0	-	-
UHA	A3	Unbiased HAST	130C	96 Hours	-	-	-	3/231/0	-	-	-	-
TC	A4	Temperature Cycle	-65/150C	500 Cycles	-	2/154/0	1/77/0	3/231/0	3/231/0	3/231/0	1/74/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	3/135/0	-	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	2/154/0	1/77/0	3/231/0	3/231/0	-	-	3/231/0
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	-	3/231/0	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	3/231/0	-	-	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	3/2400/1 ¹	-	-	-	-
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	8 Hours Steam Age	-	-	-	-	3/66/0	3/66/0	-	-	-
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	-	-	-	3/66/0	3/66/0	-	-	-
ESD	E2	ESD CDM	-	1500 Volts	-	-	1/3/0	-	-	-	-	-
ESD	E2	ESD CDM	-	2000 Volts	1/3/0	1/3/0	-	-	-	-	-	-
ESD	E2	ESD CDM	-	250 Volts	-	-	-	3/9/0	-	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	-	-	-	3/9/0	-	-	-	-
ESD	E2	ESD HBM	-	3000 Volts	1/3/0	-	-	-	-	-	-	-
ESD	E2	ESD HBM	-	5000 Volts	-	1/3/0	1/3/0	-	-	-	-	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	1/6/0	1/6/0	3/18/0	-	-	-	-
CHAR	E5	Electrical Characterization	Min, Typ, Max Temp	-	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	3/90/0	-	-	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-	-	3/90/0	-	-
FTY	E6	Final Test Yield	-	-	1/1/0	-	-	-	-	-	-	-

- QBS: Qual By Similarity
- Qual Device AM26C32IDR 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-2205-027

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

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