12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20221031004.1A

Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, Datasheet update and additional Assembly site options for select devices

Change Notification / Sample Request

Date: March 29, 2023
To: TOKYO ELECTRON DEVICE (DSTR) PCN

Dear Customer:

The purpose of Revision A is to correct a typo in the SFAB wafer diameter in the original PCN letter.

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

20221031004.1A
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
SN65LBC176DR	null
SN75179BPSR	null
SN75ALS181NSR	null
SN75179BP	null
SN65LBC180RSAR	null
SN65LBC179DR	null
SN55LBC180RSAR	null
SN75176ADR	null
SN65LBC179DRG4	null

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

PCN Number:	20221031004.1A	**PCN Date:**	March 29, 2023
Title:	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, Datasheet update and additional Assembly site options for select devices		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Jan 31, 2023	**Sample requests accepted until:**	Nov 30, 2022*

***Sample requests received after November 30, 2022 will not be supported.**

Change Type:

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

PCN Details

Description of Change:

The purpose of Revision A is to correct a typo in the SFAB wafer diameter as shown in the yellow highlight below.

Texas Instruments is pleased to announce the qualification of a new fab & process technology (RFAB, LBC7) and additional Assembly site (MLA) for selected devices listed below in the product affected section.

Current Fab Site			Additional Fab Site		
Current Fab Site	**Process**	**Wafer Diameter**	**Additional Fab Site**	**Process**	**Wafer Diameter**
DL-LIN	LBC2	150 mm	RFAB	LBC7	300 mm
DL-LIN	LBC2	200 mm			
SFAB	OI	~~200~~ **150** mm			
SFAB	JI1	~~200~~ **150** 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 & no construction differences)

Group 2 (RFAB/Process migration & MLA as an additional Assembly site, no construction differences):

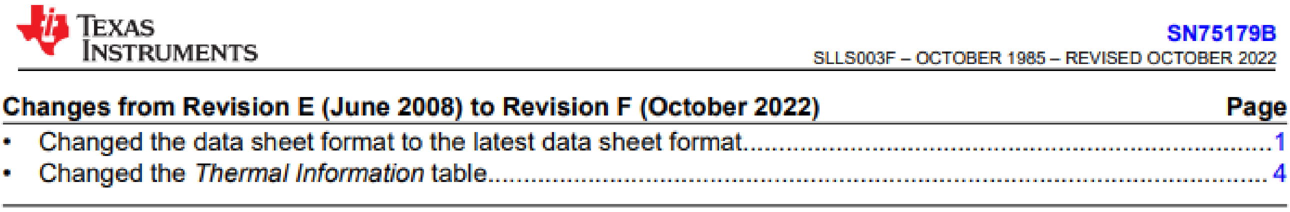
Group 3 (RFAB/Process migration & CDAT as an additional Assembly site [CARZ])

	CARZ	CDAT
Mold Compound	SID#441086	4222198
Mound Compound	SID#435143	4207123

Group 4 (RFAB/Process migration & CDAT as an additional Assembly site [CRS])

	CRS	CDAT
Mold Compound	SID#441272	4222198
Mound Compound	SID#435143	4207123

The datasheets 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.



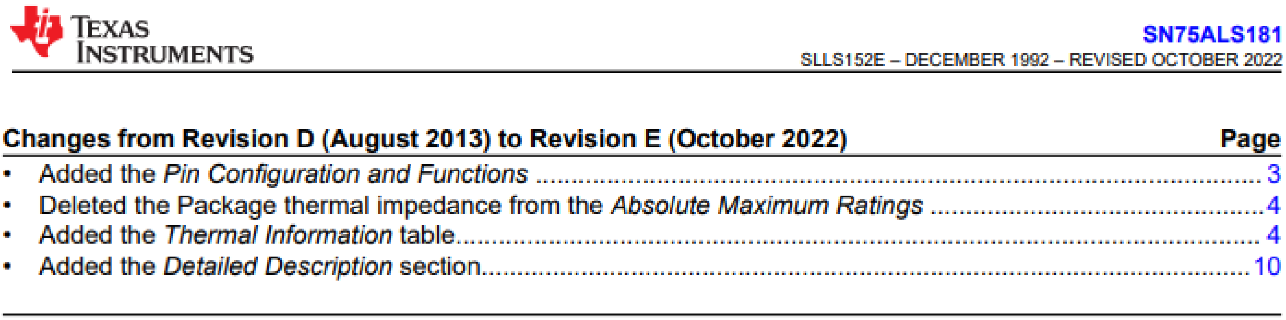
TEXAS INSTRUMENTS

SN75179B

SLLS003F – OCTOBER 1985 – REVISED OCTOBER 2022

Changes from Revision E (June 2008) to Revision F (October 2022) **Page**

- Changed the data sheet format to the latest data sheet format.... 1
- Changed the *Thermal Information* table.... 4



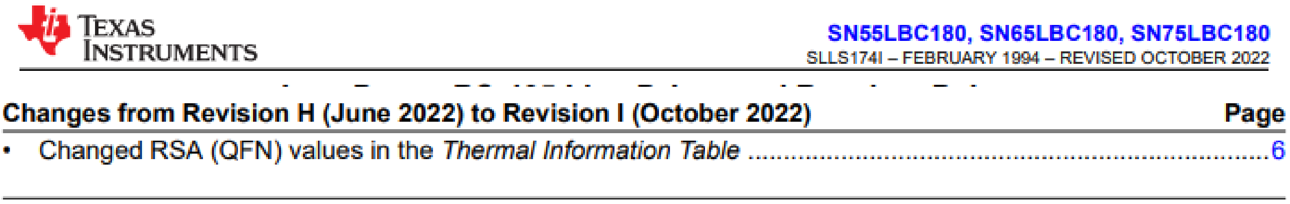
TEXAS INSTRUMENTS

SN75ALS181

SLLS152E – DECEMBER 1992 – REVISED OCTOBER 2022

Changes from Revision D (August 2013) to Revision E (October 2022) **Page**

- Added the *Pin Configuration and Functions* 3
- Deleted the Package thermal impedance from the *Absolute Maximum Ratings* 4
- Added the *Thermal Information* table.... 4
- Added the *Detailed Description* section.... 10



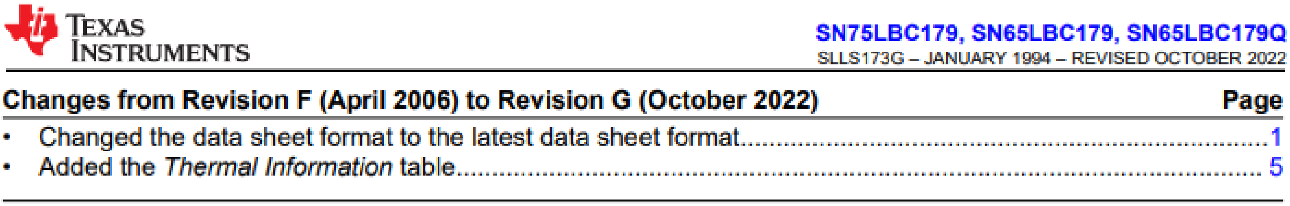
TEXAS INSTRUMENTS

SN55LBC180, SN65LBC180, SN75LBC180

SLLS174I – FEBRUARY 1994 – REVISED OCTOBER 2022

Changes from Revision H (June 2022) to Revision I (October 2022) **Page**

- Changed RSA (QFN) values in the *Thermal Information Table* 6



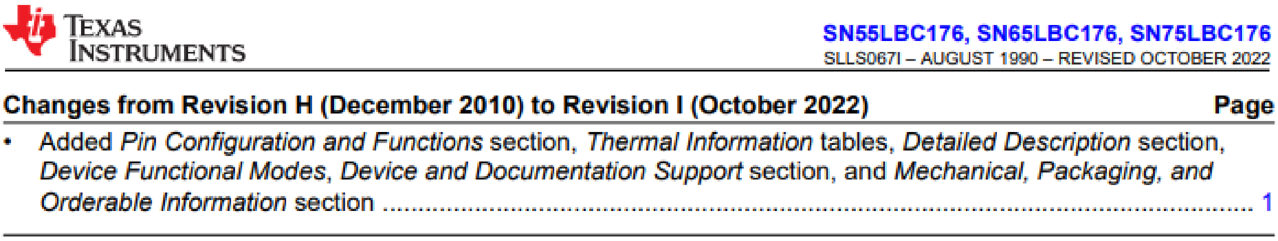
TEXAS INSTRUMENTS

SN75LBC179, SN65LBC179, SN65LBC179Q

SLLS173G – JANUARY 1994 – REVISED OCTOBER 2022

Changes from Revision F (April 2006) to Revision G (October 2022) **Page**

- Changed the data sheet format to the latest data sheet format.... 1
- Added the *Thermal Information* table.... 5



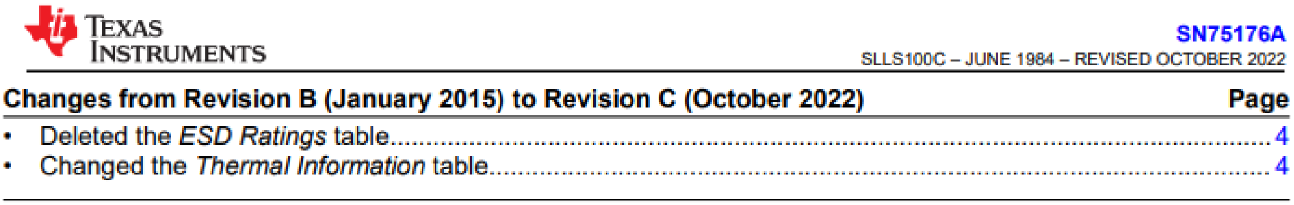
TEXAS INSTRUMENTS

SN55LBC176, SN65LBC176, SN75LBC176

SLLS067I – AUGUST 1990 – REVISED OCTOBER 2022

Changes from Revision H (December 2010) to Revision I (October 2022) **Page**

- Added *Pin Configuration and Functions* section, *Thermal Information* tables, *Detailed Description* section, *Device Functional Modes*, *Device and Documentation Support* section, and *Mechanical, Packaging, and Orderable Information* section 1



TEXAS INSTRUMENTS

SN75176A

SLLS100C – JUNE 1984 – REVISED OCTOBER 2022

Changes from Revision B (January 2015) to Revision C (October 2022) **Page**

- Deleted the *ESD Ratings* table.... 4
- Changed the *Thermal Information* table.... 4

Product Folder	**Current Datasheet Number**	**New Datasheet Number**	**Link to full datasheet**
SN75179B	SLLS003E	SLLS003F	http://www.ti.com/product/SN75179B
SN75ALS181	SLLS152D	SLLS152E	http://www.ti.com/product/SN75ALS181
SN65LBC180, SN55LBC180	SLLS174H	SLLS174I	http://www.ti.com/product/SN55LBC180
SN65LBC179	SLLS173F	SLLS173G	http://www.ti.com/product/SN75LBC179
SN65LBC176	SLLS067H	SLLS067I	http://www.ti.com/product/SN55LBC176
SN75176A	SLLS100B	SLLS100C	http://www.ti.com/product/SN75176A

Temp and Tube variants of the devices are included in EOL notice PDN# 20221031005.3

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-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
DL-LIN	DLN	USA	Dallas
SH-BIP-1	SHE	USA	Sherman
RFAB	**RFB**	**USA**	**Richardson**

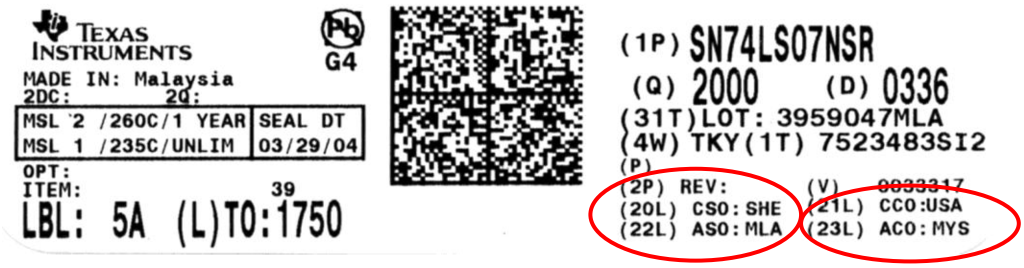
Die Rev:

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

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
FMX	MEX	MEX	Aguascalientes
CARZ	CSZ	CHN	Jiangsu
CRS	CRS	MYS	Jelapang, Ipoh
MLA	**MLA**	**MYS**	**KUALA LUMPUR**
CDAT	**CDA**	**CHN**	**Chengdu**

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)TO:1750

Pb
G4

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

Product Affected:

Group 1 Device list (RFAB/Process migration & no construction differences)

SN75179BP	SN75179BPSR	SN75ALS181NSR	SN75ALS181NSRG4
SN75179BPE4			

Group 2 Device list (RFAB/Process migration & MLA as an additional Assembly site, no construction differences)

SN75176ADR	SN65LBC176DR	SN75176ADRE4	SN65LBC176DRG4
SN75179BDR	SN65LBC179DR	SN75179BDRG4	SN65LBC179DRG4

Group 3 Device list (RFAB/Process migration & CDAT as an additional Assembly site [CARZ])

SN65LBC180RSAR

Group 4 Device list (RFAB/Process migration & CDAT as an additional Assembly site [CRS])

SN55LBC180RSAR

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

Qualification Report
Approve Date 10-October-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN65LBC176DR	Qual Device: SN65LBC179DR	Qual Device: SN55LBC180RSAR	QBS Reference: TCAN1044VDRQ1	QBS Reference: TCAN1044VDRQ1	QBS Reference: TPS51217DSCR	QBS Reference: TLIN10283DRBRQ1	QBS Reference: TLIN10285DRBRQ1	QBS Reference: TCAN1043DQ1	QBS Reference: TPS2590RSAR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	3/231/0	-	-	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	1/77/0	2/154/0	-	1/77/0	2/154/0	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	3/231/0	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	3/231/0	-	-	-	1/77/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	1/77/0	2/154/0	-	1/77/0	2/154/0	3/231/0	-
TC	A4	Temperature Cycle	-55C/150C	1000 Cycles	-	-	-	-	-	-	-	1/77/0	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	3/231/0	-	-	-	1/77/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	1/77/0	2/154/0	-	1/77/0	1/77/0	3/231/0	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	1/77/0	2/154/0	-	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	-	-	3/231/0	-	-	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	1/45/0	2/90/0	-	-	-	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	-	-	-	-	1/45/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	1/77/0	2/154/0	-	-	-	1/77/0	-
HTOL	B1	Life Test	135C	635 Hours	-	-	-	-	-	3/231/0	-	-	-	-
HTOL	B1	Life Test	150C	1000 Hours	-	-	-	-	-	-	1/77/0	2/154/0	-	-
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	1/76/0	1/76/0	1/76/0	-	-	-	-	-	-	1/3/0
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	1/15/0	-	-	1/15/0	1/15/0	-

- QBS: Qual By Similarity
- Qual Device SN65LBC176DR is qualified at MSL1 260C
- Qual Device SN65LBC179DR is qualified at MSL1 260C
- Qual Device SN55LBC180RSAR is qualified at MSL2 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

Qualification Report
Approve Date 10-October-2022

Qualification Results

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

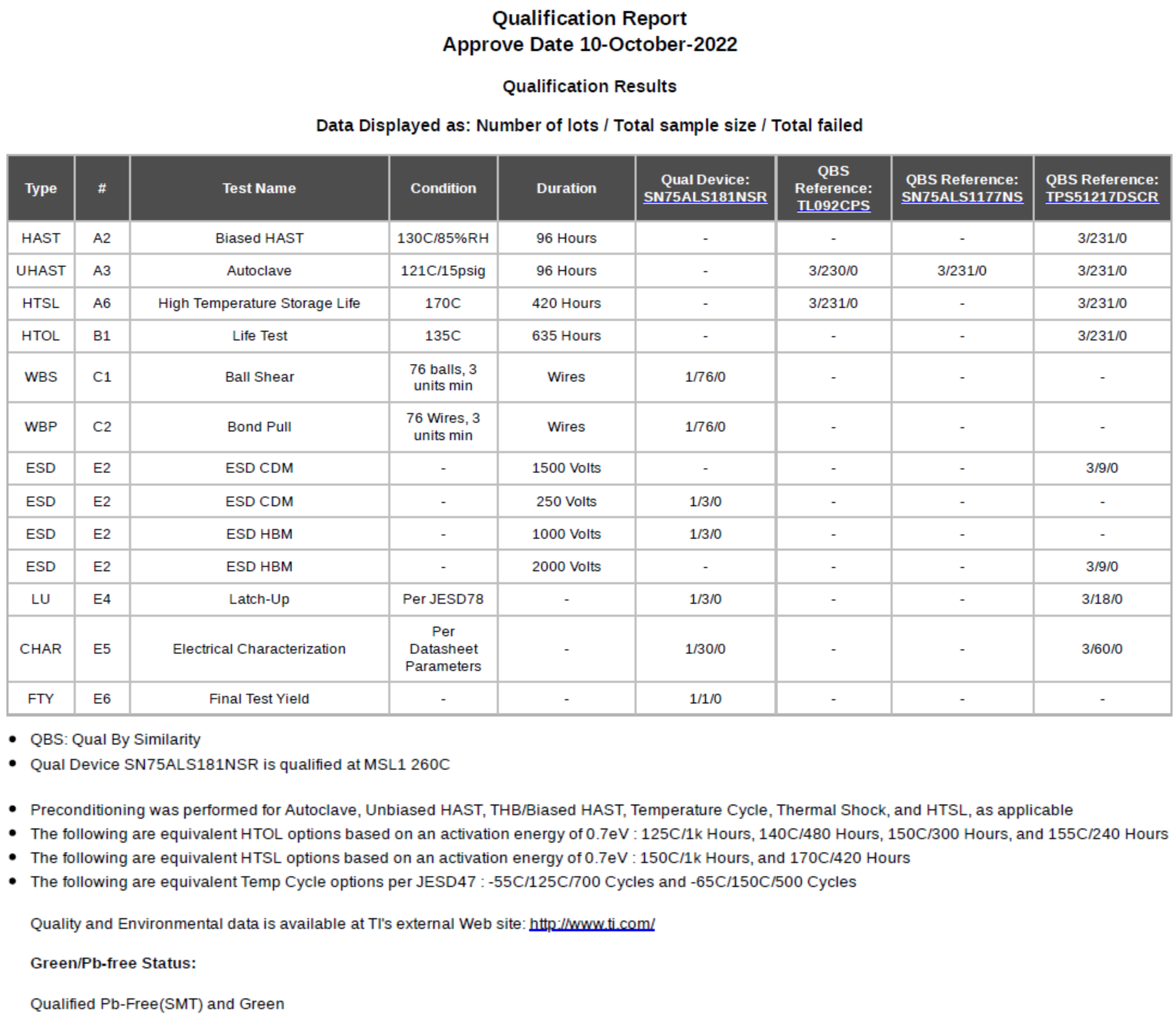
Type	#	Test Name	Condition	Duration	Qual Device: SN75176ADR	Qual Device: SN75179BDR	Qual Device: SN75179BP	Qual Device: SN75179BPSR	QBS Reference: TCAN1044VDRQ1	QBS Reference: TCAN1044VDRQ1	QBS Reference: TL092CPS	QBS Reference: TPS51217DSCR	QBS Reference: SE555P	QBS Reference: SN104571P	QBS Reference: TPIC6A596NE
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	3/231/0	-	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	1/77/0	2/154/0	-	-	-	-	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	-	-	-	-	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	-	3/230/0	3/231/0	-	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	1/77/0	2/154/0	-	-	-	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	-	-	-	3/231/0	3/231/0	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	3/231/0	3/231/0	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	1/77/0	2/154/0	-	-	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	-	-	3/231/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	-	-	-	3/231/0	3/231/0	-	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	1/45/0	2/90/0	-	-	-	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	-	-	-	-	3/135/0	3/135/0	3/135/0
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	-	1/77/0	2/154/0	-	-	-	-	3/231/0
HTOL	B1	Life Test	135C	635 Hours	-	-	-	-	-	-	-	3/231/0	-	-	-
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	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	-	-	-	-	-	-	-
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	-	1/15/0	-	-	3/45/0	3/45/0	3/45/0
SD	C3	PB Solderability	Precondition w.155C Steam Age (8 hrs +/- 15 minutes)	-	-	-	-	-	-	1/15/0	-	-	3/45/0	3/45/0	3/45/0
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	-	1/15/0	-	-	3/45/0	3/45/0	3/45/0
SD	C3	PB-Free Solderability	Precondition w.155C Steam Age (8 hrs +/- 15 minutes)	-	-	-	-	-	-	1/15/0	-	-	3/45/0	3/45/0	3/45/0
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	1/10/0	2/20/0	-	-	3/30/0	3/30/0	3/30/0
ESD	E2	ESD CDM	-	1500 Volts	-	-	-	-	-	-	-	3/9/0	-	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	1/3/0	1/3/0	1/3/0	-	-	-	-	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	1/3/0	-	-	-	-	-	-	-	-	-
ESD	E2	ESD HBM	-	15000 Volts	1/3/0	-	-	-	-	-	-	-	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	-	-	-	-	3/9/0	-	-	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	1/3/0	-	-	-	-	-	3/18/0	-	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	-	-	-	-	-	3/60/0	-	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-	2/60/0	-	-	-	3/90/0	-	3/90/0
FTY	E6	Final Test Yield	-	-	1/1/0	1/1/0	1/1/0	1/1/0	-	-	-	-	-	-	-

- QBS: Qual By Similarity
- Qual Device SN75176ADR is qualified at MSL1 260C
- Qual Device SN75179BDR is qualified at MSL1 260C
- Qual Device SN75179BP is qualified at NOT CLASSIFIED NOT CLASSIFIED
- Qual Device SN75179BPSR 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:



Qualification Report
Approve Date 10-October-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN75ALS181NSR	QBS Reference: TL092CPS	QBS Reference: SN75ALS1177NS	QBS Reference: TPS51217DSCR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	3/230/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	3/231/0	-	3/231/0
HTOL	B1	Life Test	135C	635 Hours	-	-	-	3/231/0
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	-	-	-
ESD	E2	ESD CDM	-	1500 Volts	-	-	-	3/9/0
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	3/9/0
LU	E4	Latch-Up	Per JESD78	-	1/3/0	-	-	3/18/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-	3/60/0
FTY	E6	Final Test Yield	-	-	1/1/0	-	-	-

- QBS: Qual By Similarity
- Qual Device SN75ALS181NSR 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

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

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

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