

PCN Number:	20220926001.1	PCN Date:	September 28, 2022
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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: Dec 28, 2022 **Sample requests accepted until:** Oct 28, 2022*

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

Change Type:					
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Assembly Materials
<input checked="" type="checkbox"/>	Design	<input checked="" type="checkbox"/>	Electrical Specification	<input type="checkbox"/>	Mechanical Specification
<input type="checkbox"/>	Test Site	<input checked="" 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 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	LBC3S	150 mm	RFAB	LBC9	300 mm
DL-LIN	LBC3S	200 mm			

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

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.

SN65HVD20, SN65HVD21, SN65HVD22, SN65HVD23, SN65HVD24
SLLS552G – DECEMBER 2002 – REVISED SEPTEMBER 2022



4 Revision History

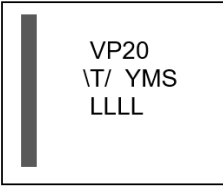
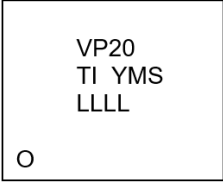
NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Revision F (November 2016) to Revision G (August 2022)	Page
• Deleted the Available Options table.....	4
• Changed the D (SOIC) values in the <i>Thermal Information</i>	8

Product Folder	Current Datasheet Number	New Datasheet Number	Link to full datasheet
SN65HVD20	SLLS552F	SLLS552G	https://www.ti.com/product/SN65HVD20
SN65HVD21	SLLS552F	SLLS552G	https://www.ti.com/product/SN65HVD21
SN65HVD22	SLLS552F	SLLS552G	https://www.ti.com/product/SN65HVD22
SN65HVD23	SLLS552F	SLLS552G	https://www.ti.com/product/SN65HVD23
SN65HVD24	SLLS552F	SLLS552G	https://www.ti.com/product/SN65HVD24

There are no material differences between Assembly sites.

Group 1 Package Marking differences:

	TI Mexico	TI Malaysia
	 <p>VP20 \T/ YMS LLLL</p> <p>\T/ = TI LOGO YM = YEAR MONTH DATE CODE LLLL = ASSEMBLY LOT CODE S = ASSEMBLY SITE CODE █ = PIN 1 STRIPE</p>	 <p>VP20 TI YMS LLLL</p> <p>O</p> <p>TI = TI LETTERS YM = YEAR MONTH DATE CODE LLLL = ASSEMBLY LOT CODE S = ASSEMBLY SITE CODE O = PIN 1 DOT</p>
Pin 1 marking	Stripe	Dot

Tube versions of the devices are included in EOL notice PDN# 20220926002.3

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-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
DL-LIN	DLN	USA	Dallas
RFAB	RFB	USA	Richardson




Die Rev:

Current	New
Die Rev [2P]	Die Rev [2P]
B, C	-

Assembly Site Information:

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

Sample product shipping label (not actual product label)

MADE IN: Malaysia
 2DC: 20:

MSL 2 / 260C / 1 YEAR	SEAL DT
MSL 1 / 235C / UNLIM	03/29/04

OPT: 39
 ITEM: LBL: 5A (L)T0:1750

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

Product Affected:

SN65HVD20DR	SN65HVD22DR	SN65HVD23DR	SN65HVD24DR
SN65HVD21DR	SN65HVD22DRG4		

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

Qualification Report Approve Date 13-Jun-2022

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

Type	Test Name / Condition	Duration	Qual Device: SN65HVD20DR	QBS Process Reference: TLIN2029DQ1	QBS Package Reference: TCAN1042HVDRQ1 (PG 2.2)	QBS Package Reference: TCAN1042HVDRQ1 (PG 2.0)
-	ESD HBM (Pins 5,6,7)	16000V	1/3/0	-	-	-
-	ESD HBM (all Pins)	4000V	1/3/0	-	-	-
-	Moisture Sensitivity (Cu Wire)	(Level 1-260C)	1/12/0	1/12/0	-	-
AC	Autoclave 121C	96 Hours	-	3/231/0	-	-
CDM	ESD - CDM	1500 V	1/3/0	1/3/0	1/3/0	-
ED	Electrical Characterization	Per Datasheet Parameters	1/30/0	3/90/0	1/30/0	3/90/0
ELFR	Early Life Failure Rate, 125C	48 Hours	-	4/3440/1 ⁽¹⁾	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	-	-
HTOL	Life Test, 140C	480 Hours	-	3/231/0	-	-
HTSL	High Temp Storage Bake 150C	1000 Hours	-	2/90/0	-	-
HTSL	High Temp Storage Bake 175C	500 Hours	-	1/45/0	-	-
LI	Lead Pull to Destruction	Leads	-	1/24/0	-	-
LU	Latch-up	(per JESD78),	1/6/0	1/6/0	1/6/0	-
PD	Physical Dimensions	Cpk>1.67	-	3/30/0	-	-
SD	Solderability	Pb Free Solder	-	1/15/0	-	-
SD	Solderability	Pb Solder	-	1/15/0	-	-
TC	Temperature Cycle - 65/150C	500 Cycles	-	3/231/0	1/77/0	-
WBP	Bond Pull	76 Wires, 3 units min	1/76/0	-	-	-
WBS	Ball Bond Shear	76 balls, 3 units min	1/76/0	-	-	-

- QBS: Qual By Similarity
 - Qual Device SN65HVD20DR is qualified at LEVEL1-260C

- 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

(1) QEM-EVAL-1710-00388. EOS. Discounted

Qualification Report
Approve Date 14-September-2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: SN65HVD22DR	Qual Device: SN65HVD24DR	Qual Device: SN65HVD21DR	Qual Device: SN65HVD23DR	QBS Reference: TLIN2029DQ1	QBS Reference: TCAN1042HVDRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	3/231/0	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	3/231/0	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	3/231/0
TC	A4	Temperature Cycle	-65/150C	1000 Cycles	-	-	-	-	3/210/0	3/210/0
TC	A4	Temperature Cycle	-65/150C	500 Cycles	-	-	-	-	3/231/0	3/231/0
TC	A4	Temperature Cycle	-65C/150C	1000 Cycles	-	-	-	-	3/210/0	3/210/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	2/90/0	3/135/0
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	1/45/0	-
HTOL	B1	Life Test	140C	480 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	3/2400/0
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	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	-	-	3/30/0	3/30/0
ESD	E2	ESD CDM	-	1500 Volts	-	-	-	-	1/3/0	-
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	1/3/0	1/3/0	-	-
ESD	E2	ESD HBM	-	12000 Volts	1/3/0	1/3/0	1/3/0	1/3/0	-	-
ESD	E2	ESD HBM	-	4000 Volts	-	-	-	-	1/3/0	-
ESD	E2	ESD HBM	-	8000 Volts	-	-	-	-	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	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	-	-	3/90/0	-

- QBS: Qual By Similarity
- Qual Device SN65HVD22DR is qualified at MSL1 260C
- Qual Device SN65HVD24DR is qualified at MSL1 260C
- Qual Device SN65HVD21DR is qualified at MSL1 260C
- Qual Device SN65HVD23DR 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
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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

[1]-QEM-EVAL-1710-00385. EOS. Discounted

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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