

PCN Number:	20211109001.1	PCN Date:	November 10, 2021
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Title: THVD1400/THVD1420 Design Change and Datasheet Updates

Customer Contact: [PCN Manager](#) **Dept:** Quality Services

Proposed 1st Ship Date: Feb 10, 2022 **Estimated Sample Availability:** Date provided at sample request.

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

PCN Details

Description of Change:

This notification is to inform of a design change to THVD1400/THVD1420 devices. Affected devices are listed in the Product Affected section of this document.

The design change is to improve HBM ESD to 4kV.

The datasheet will be changing as a result of the above mentioned changes. The datasheet change details can be reviewed in the datasheet revision history. The link to the revised datasheet is available in the table below.



THVD1400, THVD1420
SLLSF78B – DECEMBER 2020 – REVISED OCTOBER 2021

Changes from Revision A (April 2021) to Revision B (October 2021)	Page
• Updated IEC ESD Contact rating from 8 kV to 12 kV in the <i>Features</i> section.....	1
• Changed HBM rating for non-bus pins from 1kV to 4kV in the <i>ESD Ratings table</i>	4
• Changed the IEC ESD contact rating for bus pins from 8kV to 12kV in the <i>ESD Ratings [IEC] table</i>	4
• Updated the V_{IH} max specification for the logic input pins from V_{CC} to 5.5 V in the <i>Recommended Operating Conditions table</i>	5
• Updated IEC ESD Contact rating from 8 kV to 12 kV in the <i>Features Description</i> section.....	13
• Updated IEC ESD Contact rating from 8 kV to 12 kV in the <i>Transient Protection</i> section.....	17

Product Family	Current Datasheet Number	New Datasheet Number	Link to full datasheet
THVD1400, THVD1420	SLLSF78A	SLLSF78B	http://www.ti.com/product/THVD1400

Qual details are provided in the Qual Data Section.

Reason for Change:

HBM ESD improvement

Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):

Die Rev designator will change as shown in the table and sample label below:

Current	New
Die Rev [2P]	Die Rev [2P]
A	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:
LBL: 5A (L)T0:1750 39

(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: Design Change and datasheet updates

THVD1400DR	THVD1420DR
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Qualification Report

Approve Date 08-Oct-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>THVD1400D (PG2.0)</u>	Qual Device: <u>THVD1420D (PG2.0)</u>	QBS Product Reference: <u>THVD1400D</u>	QBS Product Reference: <u>THVD1420D</u>	QBS Process Reference: <u>TPSS1217DSC</u>	QBS Package Reference: <u>SN65HVDA1040AODR Q1</u>
AC	Autoclave 121C	96 Hours	-	-	-	-	3/231/0	3/231/0
CDM	ESD - CDM	1500 V	1/3/0	1/3/0	-	-	-	-
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass	Pass	-	-
HAST	Biased HAST 130C/85%RH	96 Hours	-	-	-	-	3/231/0	3/231/0
HBM	ESD - HBM (All Pins)	4000 V	1/3/0	1/3/0	-	-	-	-
HBM	ESD - HBM (Pins 6,7)	16000 V	1/3/0	1/3/0	-	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-	-	3/231/0
HTOL	Life Test, 135C	635 Hours	-	-	-	-	3/231/0	-
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	-	-	-	3/135/0
HTSL	High Temp Storage Bake, 170C	420 Hours	-	-	-	-	3/231/0	-
LU	Latch-up	(Per JESD78)	1/6/0	1/6/0	-	-	-	-
TC	Temperature Cycle - 65/150C	500 Cycles	-	-	1/77/0	1/77/0	3/231/0	3/231/0
WBP	Bond Pull	Wires	-	-	1/76/0	1/76/0	-	3/90/0
WBS	Wire Bond Shear	Wires	-	-	1/76/0	1/76/0	-	3/90/0

- QBS: Qual By Similarity

- Qual Devices THVD1420D and Device THVD1400D are 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

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