

<b>PCN Number:</b>	20220601000.1	<b>PCN Date:</b>	June 01, 2022
<b>Title:</b>	Qualification of new Fab site (RFAB), Datasheet update 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>	Sep 1, 2022	<b>Sample requests accepted until:</b>	Jul 1, 2022*

**\*Sample requests received after July, 1 2022 will not be supported.**

<b>Change Type:</b>					
<input type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Assembly Process	<input checked="" type="checkbox"/>	Assembly Materials
<input type="checkbox"/>	Design	<input checked="" 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 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 an additional fab (RFAB), Datasheet update and assembly BOM options (FMX) for selected devices as 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
MAINEFAB	ABCD6	200 mm	RFAB	ABCD6	300 mm

Construction differences are noted below:

What	Current	Proposed
Bond Wire Composition/Diameter	Au/0.96 mil	Cu/1.0 mil

The datasheets will be changing as a result of the above mentioned changes.

Product Family	Current Datasheet Number	New Datasheet Number
UCC27282	SNVSAQ5A	SNVSAQ5B
UCC27284	SLUSE20A	SLUSE20B
UCC27288	SLUSE21A	SLUSE21B
UCC27289	SLUSDU4	SLUSDU4A

The datasheet change details can be reviewed in the datasheet revision history.

#### UCC27282 4 Revision History

Cancel

#### Changes from Revision A (January 2020) to Revision B (May 2022) Page

- Added SON 8-Pin DRM and SON 10-pin DPR packages to the Device Information table..... 1
- Added SON 8-Pin DRM and SON 10-pin DPR package images and updated the Pin Functions table..... 3
- Added SON 8-pin DRM and SON 10-pin DPR packages to Thermal Information..... 5
- Updated typical peak pullup/pulldown current from +2.5A/-3.5A to ±3A in Electrical Characteristics..... 5
- Updated I<sub>HBS</sub> typical leakage to 5.0µA and test voltage from 110V to 100V in Electrical Characteristics..... 5

## UCC27284

### 4 Revision History

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

#### Changes from Revision A (December 2021) to Revision B (April 2022) Page

- Updated typical peak pullup/pulldown current from +2.5A/-3.5A to  $\pm 3$ A in Electrical Characteristics..... 5
- Updated  $I_{HBS}$  typical leakage to 5.0 $\mu$ A and test voltage from 110V to 100V in Electrical Characteristics..... 5

## UCC27288

### 4 Revision History

#### Changes from Revision A (October 2020) to Revision B (April 2022) Page

- Updated typical peak pullup/pulldown current from +2.5A/-3.5A to  $\pm 3$ A in Electrical Characteristics..... 5
- Updated  $I_{HBS}$  typical leakage to 5.0 $\mu$ A and test voltage from 110V to 100V in Electrical Characteristics..... 5

## UCC27289

### 4 Revision History

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

#### Changes from Revision \* (December 2020) to Revision A (May 2022) Page

- Updated typical peak pullup/pulldown current from +2.5 A/-3.5 A to  $\pm 3$  A in Electrical Characteristics..... 5
- Updated  $I_{HBS}$  typical leakage to 5.0 $\mu$ A and test voltage from 110 V to 100 V in Electrical Characteristics..... 5

The links to the revised datasheets are available in the table below.

UCC27282	<a href="https://www.ti.com/lit/gpn/UCC27282">https://www.ti.com/lit/gpn/UCC27282</a>
UCC27284	<a href="https://www.ti.com/lit/gpn/UCC27284">https://www.ti.com/lit/gpn/UCC27284</a>
UCC27288	<a href="https://www.ti.com/lit/gpn/UCC27288">https://www.ti.com/lit/gpn/UCC27288</a>
UCC27289	<a href="https://www.ti.com/lit/gpn/UCC27289">https://www.ti.com/lit/gpn/UCC27289</a>

Qual details are provided in the Qual Data Section.

#### Reason for Change:

Continuity of supply and to accurately reflect device characteristics.

#### 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
MAINEFAB	CUA	USA	South Portland
<b>RFAB</b>	<b>RFB</b>	<b>USA</b>	<b>Richardson</b>

**Assembly Site Information:**

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
TI Mexico	MEX	MEX	Aguascalientes

Sample product shipping label (not actual product label)

**Group 1 Product Affected: Adding RFAB, BOM change & Datasheet update**

UCC27282D	UCC27288D	UCC27289D
UCC27282DR	UCC27288DR	UCC27289DR

**Group 2 Product Affected: Datasheet update**

UCC27282DDA	UCC27284DPRR	UCC27289DPRR
UCC27282DDAT	UCC27284DPRT	UCC27289DPRT
UCC27282DRCR	UCC27284DRCR	UCC27289DRCR
UCC27282DRCT	UCC27284DRCT	UCC27289DRCT
UCC27282DRMR	UCC27284DRMR	UCC27289DRMR
UCC27282DRMT	UCC27284DRMT	UCC27289DRMT

**Qualification Data**

**Automotive New Product Qualification Summary  
(As per AEC-Q100 and JEDEC Guidelines)**

Approve Date 12-MAY -2022

**Product Attributes**

Attributes	Qual Device: <u>UCC27282Q</u> <u>DQ1</u>	Qual Device: <u>UCC27284QD</u> <u>Q1</u>	Qual Device: <u>UCC27288D</u>	Qual Device: <u>UCC27289D</u>	QBS Reference: <u>TCAN1042HVD</u> <u>RQ1</u>	QBS Reference: <u>TCAN1051VDR</u> <u>Q1</u>	QBS Reference: <u>LM5141QRGERQ</u> <u>1</u>
Automotive Grade Level	Grade 1	Grade 1	-	-	Grade 1	Grade 1	Grade 1
Operating Temp Range (C)	-40 to 150	-40 to 150	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125
Product Function	Power Management	Power Management	-	-	Interface	Interface	Power Management

Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	MH8	MH8	RFAB
Assembly Site	FMX	FMX	FMX	FMX	FMX	FMX	UTL1
Package Group	SOIC	SOIC	SOIC	SOIC	SOIC	SOIC	QFN
Package Designator	D	D	D	D	D	D	RGE
Pin Count	8	8	8	8	8	8	24

QBS: Qual By Similarity

Qual Device UCC27282QDQ1 is qualified at MSL2 260C

Qual Device UCC27284QDQ1 is qualified at MSL2 260C

Qual Device UCC27288D is qualified at MSL2 260C

Qual Device UCC27289D is qualified at MSL2 260C

### Qualification Results

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

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: UCC27282QDQ1	Qual Device: UCC27284QDQ1	Qual Device: UCC27288D	Qual Device: UCC27289D	QBS Reference: TCAN1042HVDRQ1	QBS Reference: TCAN1051VDRQ1	QBS Reference: LM5141QRGERQ1
<b>Test Group A – Accelerated Environment Stress Tests</b>														
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	1 Step	-	-	-	-	No Fails	No Fails	-
PC	A1	JEDEC J-STD-020 JESD22A113	3	77	Preconditioning	MSL2 260C	1 Step	No Fails	-	-	-	-	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	1/77/0	-	-	-	2/154/0	1/77/0	-
HAST	A2	JEDEC JESD22-A110	3	77	Temperature Humidity Bias	85C/85%RH	1000 Hours	-	-	-	-	-	-	-
AC/U HAST	A3	JEDEC JESD22A102/ JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	1/77/0	-	-	-	2/154/0	1/77/0	-
AC/U HAST	A3	JEDEC JESD22A102/ JEDEC JESD22-A118	3	77	Unbiased HAST	110C/85%RH	264 Hours	-	-	-	-	-	-	-
TC	A4	JEDEC JESD22A104 and Appen	3	77	Temperature Cycle	-65C/150C	500 Cycles	3/231/0	-	-	-	2/154/0	1/77/0	-

		dix 3													
HTSL	A 6	JEDEC JESD2 2-A103	1	45	High Temperature Storage Life	150C	1000 Hours	1/77/0	-	-	-	-	-	-	-
HTSL	A 6	JEDEC JESD2 2-A103	1	45	High Temperature Storage Life	175C	500 Hours	-	-	-	-	2/90/0	1/45/0	-	-
<b>Test Group B - Accelerated Lifetime Simulation Tests</b>															
HTOL	B 1	JEDEC JESD2 2A108	1	77	Life Test	125C	1000 Hours	-	-	-	-	-	-	-	3/231/0
HTOL	B 1	JEDEC JESD2 2-A108	1	77	Life Test	150C	1000 Hours	3/231/0	-	-	-	-	-	-	-
HTOL	B 1	JEDEC JESD2 2-A108	1	77	Life Test	150C	300 Hours	-	-	-	-	-	-	-	-
ELFR	B 2	AEC Q1000 08	1	77	Early Life Failure Rate	125C	48 Hours	-	-	-	-	-	-	-	3/2400/0
ELFR	B 2	AEC Q1000 08	1	77	Early Life Failure Rate	150C	48 Hours	1/800/0	-	-	-	-	-	-	-
<b>Test Group C - Package Assembly Integrity Tests</b>															
WBS	C 1	AEC Q1000 01	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	3/90/0	-	-	-	2/60/0	1/30/0	-	-
WBP	C 2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	3/90/0	-	-	-	2/60/0	1/30/0	-	-
SD	C 3	JEDEC JESD2 2-B102	1	15	PB Solderability	>95% Lead Coverage	-	1/15/0	-	-	-	-	-	-	-
SD	C 3	JEDEC JESD2 2-B102	1	15	PB-Free Solderability	>95% Lead Coverage	-	1/15/0	-	-	-	-	-	-	-
PD	C 4	JEDEC JESD2 2B100 and B108	1	10	Physical Dimensions	Cpk>1.67	-	3/30/0	-	-	-	2/20/0	1/10/0	-	-
<b>Test Group D - Die Fabrication Reliability Tests</b>															
EM	D 1	JESD6 1	-	-	Electromigration	-	-	Completed Per Process Technol	Completed Per Process Technol	Completed Per Process	Completed Per Process	Completed Per Process Technolo	Completed Per Process Technolo	Completed Per Process Technology	-

								ogy Requirements	ogy Requirements	s Technology Requirements	Technology Requirements	gy Requirements	gy Requirements	Requirements
TDD B	D 2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
HCI	D 3	JESD60 & 28	-	-	Hot Carrier Injection	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
NBTI	D 4	-	-	-	Negative Bias Temperature Instability	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
SM	D 5	-	-	-	Stress Migration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements

**Test Group E - Electrical Verification Tests**

ESD	E 2	AEC Q1000 02	1	3	ESD HBM	-	2000 Volts	1/3/0	1/3/0	-	-	1/3/0	1/3/0	1/3/0
ESD	E 3	AEC Q1000 11	1	3	ESD CDM	-	500 Volts	1/3/0	1/3/0	-	-	1/3/0	1/3/0	1/3/0
LU	E 4	AEC Q1000 04	1	6	Latch-Up	Per AEC Q100-004	-	1/6/0	1/6/0	-	-	1/6/0	1/6/0	1/6/0
ED	E 5	AEC Q1000 09	3	30	Electrical Distributions	Cpk >1.67 Room, hot, and cold	-	3/90/0	1/30/0	-	-	3/90/0	3/90/0	3/90/0

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

**Ambient Operating Temperature by Automotive Grade Level:**

Grade 0 (or E): -40C to +150C

Grade 1 (or Q): -40C to +125C

Grade 2 (or T): -40C to +105C Grade 3 (or I) : -40C to +85C

**E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):**

Room/Hot/Cold : HTOL, ED

Room/Hot : THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU

Room : AC/uHAST

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

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

Location	E-Mail
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