

PCN Number:	20230906004.1	PCN Date:	September 06, 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:	Dec 6, 2023	Sample requests accepted until:	October 6, 2023*

***Sample requests received after October 6, 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 checked="" 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	CD4000	150 mm	RFAB	LBC9	300 mm

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

Construction differences are as follows:

	FMX	JCETCZ	ASESH	MLA Current	MLA Proposed
Mount Compound	4147858	11204001701	EY1000063	4042500, 4147858	4147858
Mold Compound	4211880	013102024401, 131010100248	EN2000506	4211471, 4211880	4211880
Lead finish	NiPdAu	Matte Sn	Matte Sn	NiPdAu	NiPdAu

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.



CD4051B, CD4052B, CD4053B
SCHS047L – AUGUST 1998 – REVISED SEPTEMBER 2023

Changes from Revision K (March 2023) to Revision L (September 2023)

Page

- Changed the format of the *Package Information* table to include package lead size..... 1
- Changed the format of the *ESD Ratings, Electrical Characteristics, and AC Performance* to consolidate package specifications..... 5

Product Folder	Current Datasheet Number	New Datasheet Number	Link to full datasheet
CD4051B, CD4052B, CD4053B	SCHS047K	SCHS047L	http://www.ti.com/product/CD4051B

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 ₁ -	B

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
JCETCZ	JCC	CHN	Chuzhou
FMX	MEX	MEX	Aguascalientes
ASESH	ASH	CHN	Shanghai
MLA	MLA	MYS	Kuala Lumpur

Sample product shipping label (not actual product label)

TEXAS INSTRUMENTS
 MADE IN: Malaysia
 2DC: 20:
 MSL 2 /260C/1 YEAR SEAL DT
 MSL 1 /235C/UNLIM 03/29/04
 OPT:
 ITEM: 39
 LBL: 5A (L)T0:1750

(1P) SN74LS07NSR
 (Q) 2000 (D) 0336
 (31T) LOT: 3959047MLA
 (4W) TKY (1T) 7523483SI2
 (P)
 (2P) REV: (V) 0000017
 (20L) CS0: SHE (21L) CCO: USA
 (22L) ASO: MLA (23L) ACO: MYS

Product Affected:

CD4051BE	CD4052BE	CD4052BNSR	CD4053BM96
CD4051BM96	CD4052BEE4	CD4053BE	CD4053BNSR
CD4051BNSR	CD4052BM96	CD4053BEE4	

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

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: CD4051BM96	Qual Device: CD4052BM96	Qual Device: CD4053BM96	QBS Reference (Process, Product): TMLUX4051PWR	QBS Reference (Process, Product): TPS4221DBVR	QBS Reference (Process, Product): TMLUX4052PWR	QBS Reference (Package): ULQ2095AQDRQ1	QBS Reference (Package): MC33065ADR	QBS Reference (Process, Product): TMLUX4051PWRQ1	QBS Reference (Process, Product): TMLUX4052PWRQ1	QBS Reference (Process, Product): TMLUX4053PWR
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	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	-	-	-	3/231/0	-	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	-	3/231/0	3/231/0	-	-	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	3/159/0	-	-	-	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	-	-	-	3/231/0	-	-	-	-
HTOL	B1	Life Test	140C	480 Hours	-	-	-	-	3/231/0	-	-	-	-	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	-	-	-	1/77/0	-	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	-	3/2400/0	-	-	-	-	-	-
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	-	-	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-	-	-	-	-	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-	-	-	-	-	-	-	-	-
LU	E4	Latch-Up	Per JESD78	-	-	-	-	1/3/0	-	-	-	-	1/6/0	1/6/0	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	1/30/0	1/30/0	-	1/30/0	-	-	1/30/0	1/30/0	1/30/0

- QBS: Qual By Similarity
- Qual Device CD4051BM96 is qualified at MSL1 260C
- Qual Device CD4052BM96 is qualified at MSL1 260C
- Qual Device CD4053BM96 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-2110-063

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: CD4051BNSR	Qual Device: CD4052BNSR	Qual Device: CD4053BNSR	QBS Reference (Package): TL052CPS	QBS Reference (Package): SN75ALS117NS	QBS Reference (Process, Product): TMLUX4053PWR	QBS Reference (Package, Process): AM26LS32ACN	QBS Reference (Process, Product): TMLUX4051PWRQ1	QBS Reference (Process, Product): TMLUX4052PWRQ1
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	3/230/0	3/231/0	-	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	3/231/0	3/231/0	-	-	-	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	3/231/0	-	-	-	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	-	-	-	1/77/0	-
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	-	-	-	-	-	1/76/0	1/76/0	-	-
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	-	-	-	-	-	1/76/0	1/76/0	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-	-	-	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-	-	-	-	-	-	-
LU	E4	Latch-Up	Per JESD78	-	-	-	-	-	-	-	-	1/6/0	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/10/0	1/10/0	1/10/0	-	-	-	-	-	-
FTY	E6	Final Test Yield	-	-	-	-	-	-	-	-	1/1/0	-	-

- QBS: Qual By Similarity
- Qual Device CD4051BNSR is qualified at MSL1 260C
- Qual Device CD4052BNSR is qualified at MSL1 260C
- Qual Device CD4053BNSR 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-2308-005

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: CD4051BE	Qual Device: CD4052BE	Qual Device: CD4053BE	QBS Reference (Package): SN74HC595N	QBS Reference (Package, Process, Product): TPS25221DBVR	QBS Reference (Package, Process): AM26LS32ACN	QBS Reference (Process, Product): TMUX4051PWRQ1	QBS Reference (Process, Product): TMUX4052PWRQ1	QBS Reference (Process, Product): TMUX4053PWR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	3/231/0	-	-	-	-
UHAST	A3	Autoclave	121C/15psig	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	-	-	-	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	3/231/0	3/231/0	-	-	-	-
HTOL	B1	Life Test	140C	480 Hours	-	-	-	-	3/231/0	-	-	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	-	1/77/0	-	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	-	3/2400/0	-	-	-	-
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	-	-	-	-	3/9/0	1/76/0	-	-	-
WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	-	-	-	-	3/9/0	1/76/0	-	-	-
SD	C3	PB-Free Solderability	8 Hours Steam Age	-	-	-	-	3/66/0	-	-	-	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-	-	-	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-	-	-	-	-	-	-

Type	#	Test Name	Condition	Duration	Qual Device: CD4051BE	Qual Device: CD4052BE	Qual Device: CD4053BE	QBS Reference (Package): SN74HC595N	QBS Reference (Package, Process, Product): TPS25221DBVR	QBS Reference (Package, Process): AM26LS32ACN	QBS Reference (Process, Product): TMUX4051PWRQ1	QBS Reference (Process, Product): TMUX4052PWRQ1	QBS Reference (Process, Product): TMUX4053PWR
LU	E4	Latch-Up	Per JESD78	-	-	-	-	-	-	-	1/6/0	1/6/0	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/10/0	1/10/0	1/10/0	-	-	-	-	-	-
FTY	E6	Final Test Yield	-	-	-	-	-	-	-	1/1/0	-	-	-

- QBS: Qual By Similarity
- Qual Device CD4051BE is qualified at MSL1 260C
- Qual Device CD4052BE is qualified at MSL1 260C
- Qual Device CD4053BE 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-2307-070

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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