

<b>PCN Number:</b>	20171019001A	<b>PCN Date:</b>	Jan 19, 2018
<b>Title:</b>	Qualify TI Chengdu (CDAT) as an additional Assembly & Test site 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>	Apr 19, 2018	<b>Estimated Sample Availability:</b>	Provided upon Request
<b>Change Type:</b>			
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Assembly Process
<input type="checkbox"/>	Design	<input type="checkbox"/>	Electrical Specification
<input checked="" type="checkbox"/>	Test Site	<input checked="" 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"/>	Part number change
<b>PCN Details</b>			
<b>Description of Change:</b>			
Revision A is to announce the <b>addition</b> of new devices that were not included on the original PCN notification. These new devices are in <b>Group 2</b> in the device list below. The expected first shipment date for these new devices will be 90 days from this notice for these newly added devices only.			
Texas Instruments is pleased to announce the qualification of TI Chengdu (CDAT) as an additional Assembly & Test site for the list of devices shown below. There are no material differences between sites.			
<b>Group 1 Devices:</b>			
<b>Assembly Site</b>	<b>Assembly Site Origin</b>	<b>Assembly Country Code</b>	<b>Assembly City</b>
UTAC Thai Limited	NSE	THA	Bangkok
TI Chengdu	CDA	CHN	Chengdu
<b>Material Differences:</b>			
	<b>UTAC</b>	<b>TI Chengdu</b>	
Mount compound	PZ0031	4207123	
Mold compound	CZ0141	4222198	
<b>Group 2 Devices:</b>			
<b>Assembly Site</b>	<b>Assembly Site Origin</b>	<b>Assembly Country Code</b>	<b>Assembly City</b>
TI Clark	QAB	PHL	Angeles City
TI Chengdu	CDA	CHN	Chengdu
<b>Material Differences:</b>			
No Material Differences between sites			
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.			
<b>Reason for Change:</b>			
Continuity of Supply			
<b>Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):</b>			
None			

Anticipated impact on Material Declaration		
<input type="checkbox"/>	No Impact to the Material Declaration	<input checked="" type="checkbox"/> Material Declarations or Product Content reports are driven from production data and will be available following the production release. Upon production release the revised reports can be obtained at the site link below <a href="http://www.ti.com/quality/docs/materialcontentsearch.tsp">http://www.ti.com/quality/docs/materialcontentsearch.tsp</a>
Changes to product identification resulting from this PCN:		
Assembly Site		
UTAC Thai Limited	Assembly Site Origin (22L)	ASO: NSE
TI Clark	Assembly Site Origin (22L)	ASO: QAB
TI Chengdu	Assembly Site Origin (22L)	ASO: CDA
Sample product shipping label (not actual product label)		
<b>Topside Device marking:</b>		
Assembly site code for NSE = J, QAB = I, CDA = 8		
Product Affected : Group 1		
SN2040DSQR	SN2040DSQT	
Product Affected : Group 2		
LM2775DSGR	LM2775DSGT	

## Group 1 Qualification Report

### SN2040DSQ move to Chengdu A/T qualification

Approve Date 04-Oct-2017

### Product Attributes

Attributes	Qual Device: SN2040DSQ	QBS Product Reference: BQ24050DSQ	QBS Product Reference: BQ24055DSS	QBS Process Reference: TPS41000	QBS Package Reference: 430F2132IRHBR
Assembly Site	CHENGDU A/T	UTAC	UTAC	NSE	CDAT
Package Family	SON	SON	Thin SON	-	VQFN
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL	UL 94 V-0
Wafer Fab Supplier	MIHO 8	MIHO8	MIHO8	MIHO	TSMC WFT
Wafer Process	LBC7	LBC7	LBC7	LBC7	TSMC EMB FLASH

Attributes	QBS Package Reference: BQ24196RGER	QBS Package Reference: BQ294504DRVR	QBS Package Reference: TPS51285BRUKR	QBS Package Reference: TPS53605DSQ	QBS Package Reference: TPS53641RSBR	QBS Package Reference: TPS62140RGTR
Assembly Site	CDAT	CDAT	CDAT	CDAT	CDAT	CDAT
Package Family	VQFN	WQFN	WQFN	QFN/SON	WQFN	VQFN
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	RFAB	MIHO-8
Wafer Process	LBC7	LBC7	LBC7X	LBC7	LBC7X	LBC7X

- QBS: Qual By Similarity

- Qual Device SN2040DSQ is qualified at LEVEL2-260CG

## Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: SN2040DSQ	QBS Product Reference: BQ24050DSQ	QBS Product Reference: BQ24055DSS	QBS Process Reference: TPS41000
CLHTOL	CLHTOL(FF), 125C Abs Max (36V)	1000 Hours	-	-	-	-
CLHTOL	CLHTOL (FS), 125C Abs Max (36V)	1000 Hours	-	-	-	-
CLHTOL	CLHTOL (SF), 125C Abs Max (36V)	1000 Hours	-	-	-	-
CLHTOL	CLHTOL (SS), 125C Abs Max (36V)	1000 Hours	-	-	-	-
AC	Autoclave 121C	240 Hours	-	2/152/0	2/153/0	-
AC	Autoclave 121C	96 Hours	-	-	-	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	-	Pass	Pass	-
EDR	EEPROM Data Retention (HTB), 170C	420 Hours	-	-	1/70/0	-
ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	-	-
HAST	Biased HAST, 110C/85%RH	264 Hours	-	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	3/231/0
HBM	ESD - HBM	3000 V	-	-	1/3/2000	-
CDM	ESD - CDM	1500 V	-	1/3/2000	1/3/2000	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	-
LU	Latch-up	(per JESD78)	-	1/6/2000	-	1/6/2000
PD	Physical Dimensions	--	-	-	-	-
SD	Solderability	Pb Free	-	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	1/77/0	1/77/0	2/151/0

UHAST	Unbiased HAST 110C/85%RH	264 Hours	-	-	-	-
WBP	Bond Pull	Wires	1/76/0	-	-	-
WBS	Ball Bond Shear	Wires	1/76/0	-	-	-

Type	Test Name / Condition	Duration	QBS Package Reference: 430F2132IRHBR	QBS Package Reference: BQ24196RGER	QBS Package Reference: BQ294504DRVR	QBS Package Reference: TPS51285BRUKR
CLHTOL	CLHTOL(FF), 125C Abs Max (36V)	1000 Hours	-	-	-	-
CLHTOL	CLHTOL (FS), 125C Abs Max (36V)	1000 Hours	-	-	-	-
CLHTOL	CLHTOL (SF), 125C Abs Max (36V)	1000 Hours	-	-	-	-
CLHTOL	CLHTOL (SS), 125C Abs Max (36V)	1000 Hours	-	-	-	-
AC	Autoclave 121C	240 Hours	-	-	-	-
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	-	-
EDR	EEPROM Data Retention (HTB), 170C	420 Hours	-	-	-	-
ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	-	-
HAST	Biased HAST, 110C/85%RH	264 Hours	-	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	-
HBM	ESD - HBM	3000 V	-	-	-	-
CDM	ESD - CDM	1500 V	-	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	-
LU	Latch-up	(per JESD78)	-	-	-	-
PD	Physical Dimensions	--	-	-	-	-
SD	Solderability	Pb Free	-	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0
UHAST	Unbiased HAST 110C/85%RH	264 Hours	-	-	-	-
WBP	Bond Pull	Wires	3/228/0	3/228/0	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	3/228/0	3/228/0	3/228/0	3/228/0

Type	Test Name / Condition	Duration	QBS Package Reference: TPS53605DSQ	QBS Package Reference: TPS53641RSBR	QBS Package Reference: TPS62140RGTR
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CLHTOL	CLHTOL(FF), 125C Abs Max (36V)	1000 Hours	1/47/0	-	-
CLHTOL	CLHTOL (FS), 125C Abs Max (36V)	1000 Hours	1/33/0	-	-
CLHTOL	CLHTOL (SF), 125C Abs Max (36V)	1000 Hours	1/33/0	-	-
CLHTOL	CLHTOL (SS), 125C Abs Max (36V)	1000 Hours	1/47/0	-	-
AC	Autoclave 121C	240 Hours	-	-	-
AC	Autoclave 121C	96 Hours	-	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	Pass	-	Pass
EDR	EEPROM Data Retention (HTB), 170C	420 Hours	-	-	-
ELFR	Early Life Failure Rate, 125C	48 Hours	2/1999/0	-	-
HAST	Biased HAST, 110C/85%RH	264 Hours	3/231/0	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-
HBM	ESD - HBM	3000 V	-	-	-
CDM	ESD - CDM	1500 V	2/6/2000	-	-
HTOL	Life Test, 125C	1000 Hours	3/231/0	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	2/90/0	3/231/0	-
LU	Latch-up	(per JESD78)	3/18/2000	-	-
PD	Physical Dimensions	--	3/90/0	-	-
SD	Solderability	Pb Free	3/15/2000	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0
UHASt	Unbiased HAST 110C/85%RH	264 Hours	3/231/0	-	-
WBP	Bond Pull	Wires	3/228/0	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	3/228/0	3/228/0	3/228/0

- 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

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

## Group 2 Qualification Report

### LM2775DSG CDAT Qualification

Approve Date 14-Jan-2018

#### Product Attributes

Attributes	Qual Device: <u>LM2775DSGR</u>	QBS Product Reference: <u>LM2775DSGR</u>	QBS Process Reference: <u>SH8350BCA0PAPG4 TIPI</u>	QBS Package Reference: <u>BQ294504DRVR</u>
Assembly Site	CDAT	CLARK	TIPI	CDAT
Package Family	QFN / SON	QFN / SON	HTQFP	QFN / SON
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB
Wafer Process	LBC8LV	LBC8LV	LBC8LV	LBC7

Attributes	QBS Package Reference: <u>TMP468AIRGT</u>	QBS Package Reference: <u>TPS22975DSG</u>	QBS Package Reference: <u>TPS53641RSBR</u>
Assembly Site	CDAT	CDAT	CDAT
Package Family	QFN / SON	QFN / SON	QFN / SON
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	RFAB	RFAB
Wafer Process	LBC8LV	LBC7	LBC7X

- QBS: Qual By Similarity

- Qual Device LM2775DSGR is qualified at LEVEL2-260CG

#### Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>LM2775DSGR</u>	QBS Product Reference: <u>LM2775DSGR</u>	QBS Process Reference: <u>SH8350BCA0PAPG4 TIPI</u>	QBS Package Reference: <u>BQ294504DRVR</u>
ED	Electrical Characterization	Per Datasheet Parameters	Pass	-	Pass	-
HBM	ESD - HBM	2500 V	-	1/3/0	-	-
CDM	ESD - CDM	1500 V	-	1/3/0	1/5/0	-
LU	Latch-up	(per JESD78)	-	1/6/0	3/48/0	-
HTOL	Life Test, 125C	1000 Hours	-	1/77/0	3/224/0	-
HTOL	Life Test, 150C	300 Hours	-	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	3/231/0	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	-	-
AC	Autoclave 121C	96 Hours	1/77/0	-	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	1/77/0	1/75/0	3/231/0	3/231/0
PD	Physical Dimensions	(per mechanical drawing)	-	-	-	-

SD	Solderability	Pb Free	-	-	-	-
WBP	Bond Pull	Wires	-	-	-	3/228/0
WBS	Ball Bond Shear	Wires	-	-	-	3/228/0

Type	Test Name / Condition	Duration	QBS Package Reference: <u>TMP468AIRGT</u>	QBS Package Reference: <u>TPS22975DSG</u>	QBS Package Reference: <u>TPS53641RSBR</u>
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	-
HBM	ESD - HBM	2500 V	3/9/0	-	-
CDM	ESD - CDM	1500 V	-	1/3/0	-
LU	Latch-up	(per JESD78)	3/36/0	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-
HTOL	Life Test, 150C	300 Hours	3/231/0	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/140/0	-	3/231/0
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0	-	-
UHAST	Unbiased HAST 130C/85%RH	96 Hours	3/231/0	-	-
AC	Autoclave 121C	96 Hours	-	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0
PD	Physical Dimensions	(per mechanical drawing)	3/90/0	3/15/0	-
SD	Solderability	Pb Free	3/108/0	-	-
WBP	Bond Pull	Wires	3/108/0	-	3/228/0
WBS	Ball Bond Shear	Wires	3/108/0	-	3/228/0

- 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

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 regional contacts shown below or your local Field Sales Representative.

Location	E-Mail
USA	<a href="mailto:PCNAmericasContact@list.ti.com">PCNAmericasContact@list.ti.com</a>
Europe	<a href="mailto:PCNEuropeContact@list.ti.com">PCNEuropeContact@list.ti.com</a>
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