

PCN Number:	20180326001	PCN Date:	Mar 27, 2018																
Title:	Qualify TI Chengdu (CDAT) as an additional Assembly & Test site for select devices																		
Customer Contact:	PCN Manager	Dept:	Quality Services																
Proposed 1st Ship Date:	June 27, 2018	Estimated Sample Availability:	Provided upon Request																
Change Type:																			
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design																
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet																
<input type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change																
<input type="checkbox"/>	Mechanical Specification	<input checked="" 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 type="checkbox"/>	Wafer Fab Site																
		<input type="checkbox"/>	Wafer Fab Materials																
		<input type="checkbox"/>	Wafer Fab Process																
PCN Details																			
Description of Change:																			
<p>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. Material differences between sites are as follows.</p>																			
<table border="1"> <thead> <tr> <th>Assembly Site</th> <th>Assembly Site Origin</th> <th>Assembly Country Code</th> <th>Assembly City</th> </tr> </thead> <tbody> <tr> <td>TI Clark</td> <td>QAB</td> <td>PHL</td> <td>Angeles City</td> </tr> <tr> <td>TI Malaysia</td> <td>MLA</td> <td>MYS</td> <td>Kuala Lumpur</td> </tr> <tr> <td>TI Chengdu</td> <td>CDA</td> <td>CHN</td> <td>Chengdu</td> </tr> </tbody> </table>				Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City	TI Clark	QAB	PHL	Angeles City	TI Malaysia	MLA	MYS	Kuala Lumpur	TI Chengdu	CDA	CHN	Chengdu
Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City																
TI Clark	QAB	PHL	Angeles City																
TI Malaysia	MLA	MYS	Kuala Lumpur																
TI Chengdu	CDA	CHN	Chengdu																
Material Differences:																			
<table border="1"> <thead> <tr> <th></th> <th>TI Clark</th> <th>TI Malaysia</th> <th>TI Chengdu</th> </tr> </thead> <tbody> <tr> <td>Mount Compound</td> <td>4207768</td> <td>4205846</td> <td>4207123</td> </tr> <tr> <td>Mold Compound</td> <td>4208625</td> <td>4208625</td> <td>4222198</td> </tr> <tr> <td>Lead Finish</td> <td>NiPdAu</td> <td>NiPdAu</td> <td>NiPdAu</td> </tr> </tbody> </table>					TI Clark	TI Malaysia	TI Chengdu	Mount Compound	4207768	4205846	4207123	Mold Compound	4208625	4208625	4222198	Lead Finish	NiPdAu	NiPdAu	NiPdAu
	TI Clark	TI Malaysia	TI Chengdu																
Mount Compound	4207768	4205846	4207123																
Mold Compound	4208625	4208625	4222198																
Lead Finish	NiPdAu	NiPdAu	NiPdAu																
<p>Devices highlighted in the product affected section below may use the same material set for other TI assembly sites as TI Chengdu when the PCN expires.</p>																			
<p>Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.</p>																			
Reason for Change:																			
Continuity of Supply																			
Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):																			
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 from the TI Eco-Info website . There is no impact to the material meeting current regulatory compliance requirements with this PCN change.																

Changes to product identification resulting from this PCN:

Assembly Site		
TI Clark Philippines	Assembly Site Origin (22L)	ASO: QAB
TI Malaysia	Assembly Site Origin (22L)	ASO: MLA
TI Chengdu	Assembly Site Origin (22L)	ASO: CDA

Sample product shipping label (not actual product label)



MADE IN: Malaysia
2DC: 2d:

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) 0033317
(20L) CSO: SHE (21L) CCO:USA
(22L) ASO: MLA (23L) ACO: MYS

Product Affected

MSP430F2101IRGER	MSP430F2350IRHAT	MSP430F2234TRHAT	MSP430G2444IRHA40T
MSP430F2101IRGET	MSP430F2350TRHAR	MSP430F2252IRHAR	MSP430G2544IRHA40R
MSP430F2101TRGER	MSP430F2350TRHAT	MSP430F2252IRHAT	MSP430G2544IRHA40T
MSP430F2111IRGER	MSP430F2370IRHAR	MSP430F2252TRHAR	MSP430G2744IRHA40R
MSP430F2111IRGET	MSP430F2370IRHAT	MSP430F2252TRHAT	MSP430G2744IRHA40T
MSP430F2111TRGER	MSP430F2370TRHAR	MSP430F2254IRHAR	MSP430G2755IRHA40R
MSP430F2111TRGET	MSP430F2370TRHAT	MSP430F2254IRHAT	MSP430G2755IRHA40T
MSP430F2121IRGER	MSP430FR2110IRLLR	MSP430F2254TRHAR	MSP430G2855IRHA40R
MSP430F2121IRGET	MSP430FR2110IRLLT	MSP430F2254TRHAT	MSP430G2855IRHA40T
MSP430F2121TRGER	MSP430FR2111IRLLR	MSP430F2272IRHAR	MSP430G2955IRHA40R
MSP430F2121TRGET	MSP430FR2111IRLLT	MSP430F2272IRHAT	MSP430G2955IRHA40T
MSP430F2131IRGER	MSP430FR2433IRGER	MSP430F2272TRHAR	MSP430V203IRGER
MSP430F2131IRGET	MSP430FR2433IRGET	MSP430F2272TRHAT	MSP430V205IRHAR
MSP430F2131TRGER	MSP430FR2532IRGER	MSP430F2274IRHAR	MSP430V303IRHAR
MSP430F2131TRGET	MSP430FR2532IRGET	MSP430F2274IRHAT	MSP430V325IRHAR
MSP430F2232IRHAR	MSP430FR2533IRHBR	MSP430F2274TRHAR	MSP430V347IRHAR
MSP430F2232IRHAT	MSP430FR2533IRHBT	MSP430F2274TRHAT	MSP430V372IRHA40R
MSP430F2232TRHAR	MSP430FR2632IRGER	MSP430F2330IRHAR	MSP430V593IRHAR
MSP430F2232TRHAT	MSP430FR2632IRGET	MSP430F2330IRHAT	TPS65235-1RUKR
MSP430F2234IRHAR	MSP430FR2633IRHBR	MSP430F2330TRHAR	TPS65235-1RUKT
MSP430F2330TRHAT	MSP430F2234IRHAT	MSP430FR2633IRHBT	
MSP430F2350IRHAR	MSP430F2234TRHAR	MSP430G2444IRHA40R	

Qualification Report

Qualification of TI Chengdu A/T as Second Source Assembly Site for Select MSP430 QFN Devices

Approval Date: 03/07/2018

Product Attributes

Attributes	Qual Device: <u>MSP430G2755IRHA40R</u>	QBS Package Reference: <u>MSP430FR2633IRHB</u>	QBS Package Reference: <u>MSP430G2553IRHB</u>
Assembly Site	CDAT	CDAT	CDAT
Package Family	VQFN	VQFN	VQFN
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	TSMC-F10	DMOS6	TSMC-F10

- QBS: Qual By Similarity

- Qual Devices qualified at LEVEL2-260C: MSP430G2755IRHA40R

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>MSP430G2755IRHA40R</u>	QBS Package Reference: <u>MSP430FR2633IRHB</u>	QBS Package Reference: <u>MSP430G2553IRHB</u>
AC	Autoclave 121C	96 Hours	3/231/0	-	-
HAST	Biased HAST, 110C/85%RH	264 Hours	-	3/231/0	3/77/0
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	3/231/0	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	-

- 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

THIS INFORMATION RELATING TO QUALITY AND RELIABILITY IS PROVIDED "AS IS." Product information detailed in this report may not accurately reflect TI's current product materials, processes and testing used in the construction of the TI products. Customers are solely responsible to conduct sufficient engineering and additional qualification testing to determine whether a device is suitable for use in their applications. Using TI products outside limits stated in TI's datasheet may void TI's warranty. See TI's Terms of Sale at "<http://www.ti.com/lscs/ti/legal/termsofsale.page>"

Qualification Report

TPS65235-1RUK Qualification

Approve Date 03/13/2018

Product Attributes

Attributes	Qual Device: <u>TPS65235-1RUK</u>	QBS Product Reference: <u>TPS65235-2RUK</u>	QBS Process Reference: <u>TPS51217DSC</u>	QBS Package Reference: <u>TPS51285BRUKR</u>	QBS Package Reference: <u>TPS53641RSBR</u>
Assembly Site	CDAT	CDAT	CLARK-AT	CDAT	CDAT
Package Family	QFN/SON	QFN/SON	QFN/SON	QFN/SON	QFN/SON
Flammability Rating	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
Wafer Process	LBC7	LBC7	LBC7	LBC7X	LBC7X

- QBS: Qual By Similarity

- Qual Device TPS65235-1RUK is qualified at LEVEL2-260C

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>TPS65235-1RUK</u>	QBS Product Reference: <u>TPS65235-2RUK</u>	QBS Process Reference: <u>TPS51217DSC</u>	QBS Package Reference: <u>TPS51285BRUKR</u>	QBS Package Reference: <u>TPS53641RSBR</u>
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass	-	-
HBM	ESD - HBM	4000 V	1/3/0	-	-	-	-
CDM	ESD - CDM	1500 V	1/3/0	-	3/9/0	-	-
LU	Latch-up	(per JESD78)	1/6/0	-	3/18/0	-	-
HTOL	Life Test, 135C	635 Hours	-	-	3/231/0	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	1/77/0	3/231/0	-	3/231/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	-	-
AC	Autoclave, 121C	96 Hours	-	-	3/231/0	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	-	1/77/0	3/231/0	3/231/0	3/231/0
WBP	Bond Pull	Wires	-	-	-	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	-	-	-	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

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Qualification Report

Qualification of CDAT Second Source QFN Assembly Site for MSP430FR2633 and MSP430FR2111 Device Families

Approved – 03/22/2018

Product Attributes

Attributes	Qual Device: <u>MSP430FR2100IRLLR</u>	Qual Device: <u>MSP430FR2633IRHB</u>	QBS Package Reference: <u>TPS65262RHBR</u>
Assembly Site	CDAT	CDAT	CDAT
Package Family	VQFN	VQFN	VQFN
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	DMOS6	DMOS6	RFAB
Wafer Process	HPE035	HPE035	LBC7

- QBS: Qual By Similarity
- Qual Device MSP430FR2633IRHB is qualified at LEVEL2-260C.
- Qual Device MSP430FR2100IRLLR is qualified at LEVEL2-260C.

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>MSP430FR2100IRLLR</u>	Qual Device: <u>MSP430FR2633IRHB</u>	QBS Package Reference: <u>TPS65262RHBR</u>
AC	Autoclave 121C	96 Hours	-	3/231/0	-
HAST	Biased HAST, 110C/85%RH	264 Hours	-	3/231/0	-
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	3/231/0	-
SD	Solderability	Pb Free	-	-	3/66/0
TC	Temperature Cycle, - 65/150C	500 Cycles	3/231/0	3/231/0	-
WBP	Bond Pull	Wires	-	3/228/0	-
WBS	Ball Bond Shear	Wires	-	3/228/0	-

- Preconditioning was performed for Autoclave, Biased HAST, Temperature Cycle, and HTSL.
 - 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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For questions regarding this notice, e-mails can be sent to the regional contacts shown below or your local Field Sales Representative.

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Asia Pacific	PCNAsiaContact@list.ti.com
Japan	PCNJapanContact@list.ti.com