

<b>PCN Number:</b>	20180918002.1	<b>PCN Date:</b>	Sep 20, 2018
<b>Title:</b>	Qualification of TSMC-F10 as an additional Wafer Fab Site option for devices in the LBC7 Process Technology		
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Dec 20, 2018	<b>Estimated Sample Availability:</b>	Date provided at sample request.
<b>Change Type:</b>			
<input type="checkbox"/> Assembly Site	<input type="checkbox"/> Assembly Process	<input type="checkbox"/> Assembly Materials	
<input type="checkbox"/> Design	<input 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 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 its TSMC-F10 fabrication facility as an additional Wafer Fab source for the selected devices listed in "Product Affected" section.

Current Sites			Additional Sites		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
TSMC-WF3 (Fab 3)	LBC7	200mm	TSMC-F10 (Fab 10)	LBC7	200mm

Qual details are provided in the Qual Data Section.

#### Reason for Change:

Continuity of Supply

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

None

#### Changes to product identification resulting from this PCN:

##### Current

Chip Site	Chip Site Origin (20L)	Chip Site Country Code (21L)	Chip Site City
TSMC-WF3 (Fab 3)	TS5	TWN	Hsinchu

##### New Fab Site

Chip Site	Chip Site Origin (20L)	Chip Site Country Code (21L)	Chip Site City
<b>TSMC-F10 (Fab 10)</b>	<b>TSS</b>	<b>CHN</b>	<b>Shanghai</b>

Sample product shipping label (not actual product label)



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) TO: 1750**




(1P) **SN74LS07NSR**  
(Q) **2000** (D) **0336**  
(31T) LOT: 3959047MLA  
(4W) TKY (1T) 7523483S12  
(P)  
(2P) REV: (V) 0033317  
(20L) CS0: SHE (21L) CCO: USA  
(22L) AS0: MLA (23L) ACC: MYS

#### Product Affected Group:

BQ33110RHBR	BQ40Z60RHBR	BQ40Z60RHBT	SN9010RHBR
BQ33110RHBT			

## Qualification Report

### Qualification of BQ40Z60RHB (firmware spin of BQ9010RHB (Trinity)) With TSMC FAB10 Instead of FAB3 Approve Date 04-Jun-2018

#### Product Attributes

Attributes	Qual Device: BQ40Z60RHB	QBS Product Reference: BQ9000R SM	QBS Process Reference: MSP430F5510IRGC	QBS Process Reference: TPS2543QRTE	QBS Package Reference: MSC1202Y3RHHR	QBS Package Reference: ONET4291VARGPR	QBS Package Reference: SN65LVCP40RGZ	QBS Package Reference: TPA5050R SA
Assembly Site	CLARK	CLARK	MLA (TIM)	CLARK-AT	CLARK-AT	CLARK-AT	CLARK-AT	CLARK-AT
Package Family	QFN	QFN	VQFN	TQFN	QFN	QFN	QFN	QFN
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	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB, TSMC FAB 10	RFAB, TSMC FAB 10	TSMC-10	RFAB	TSMC-WF2	JAZZ	FFAB	DMOS5
Wafer Process	0.18UM EFLASH, LBC7	0.18UM-28L-EFLASH, LBC7	TSMC EMB FLASH	LBC7	0.5 3P3M	RFSIGE	BICOM3	1833C05X4

- QBS: Qual by Similarity
- Qual Device BQ40Z60RHB is qualified at LEVEL2-260C
- Device BQ40Z60RHB contains multiple dies.

#### Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: BQ40Z60RHB	QBS Product Reference: BQ9000R SM	QBS Process Reference: MSP430F5510IRGC	QBS Process Reference: TPS2543QRTE	QBS Package Reference: MSC1202Y3RH HR	QBS Package Reference: ONET4291VA RGPR	QBS Package Reference: SN65LVCP40RGZ	QBS Package Reference: TPA5050R SA
AC	Autoclave 121C	96 Hours	-	3/231/0	3/231/0	3/231/0	1/77/0	-	1/77/0	-
ED	Electrical Distributions	Cpk>1.67 Room, Hot, & Cold	-	-	-	3/90/0	-	-	-	-
ED	Electrical Characterization	Per Datasheet Parameters	-	Pass	-	-	-	-	-	-
ELFR	Early Life Failure Rate, 150C	24 Hours	-	-	3/2400/0	3/2640/0	-	-	-	-
ELFR	Early Life Failure Rate BI, 125C	8 Hours	-	-	3/2400/0	-	-	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	4/112/0	3/231/0	3/231/0	-	1/77/0	1/77/0	1/77/0
HBM	ESD - HBM	1000 V	-	3/9/0	3/9/0	1/3/0	-	-	-	-
CDM	ESD - CDM	1000 V	-	2/6/0	-	1/3/0	-	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-	-	-	-	-
HTOL	Life Test, 140C	480 Hours	-	1/77/0	-	-	-	1/77/0	-	1/77/0
HTOL	Life Test, 150C	408 Hours	-	-	3/231/0	3/231/0	-	-	-	-
HTOL	Life Test, 155C	240 Hours	-	-	-	-	-	-	1/77/0	-
HTSL	High Temp. Storage Bake, 175C	500 Hours	-	-	-	3/149/0	-	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	3/231/0	3/231/0	-	1/77/0	-	1/77/0	-
LU	Latch-up	(per JESD78)	-	5/30/0	3/18/0	1/6/0	-	-	-	-
NVM	Non Volatile Memory Endurance, 105C	20000 Cycles	-	-	3/42/0	-	-	-	-	-
NVM	Non Volatile Memory Endurance, Room Temp	20000 Cycles	-	-	3/84/0	-	-	-	-	-
PD	Physical Dimensions	--	-	-	-	3/90/0	1/5/0	1/5/0	1/5/0	1/5/0
SD	Surface Mount Solderability	8 Hours Steam Age	-	4/88/0	-	-	-	-	-	-
SD	Surface Mount Solderability	Pb Free	-	-	-	2/30/0	-	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0	1/77/0	1/77/0	1/77/0	-
TS	Thermal Shock -65/150C	500 Cycles	-	-	-	-	-	-	-	-
WBP	Bond Pull	Wires	-	-	-	-	1/76/0	1/76/0	1/76/0	1/76/0
WBP	Bond Strength	Wires	-	1/5/0	-	-	-	-	-	-
WBS	Bond Shear	Wires	-	-	-	-	1/76/0	1/76/0	1/76/0	1/76/0

- 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 you can contact your local Field Sales Representative.

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