12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20141216001
Qualification of FFAB, RFAB, MIHO8 and DMOS6 as additional Fab Site options and Carsem Suzhou (CSZ) as additional Assembly/Test site options for select devices
Change Notification / Sample Request

Date: 12/18/2014
To: MOUSER PCN

Dear Customer:

This is an announcement of a change to a device(s) that is currently offered by Texas Instruments. The details of this change are on the following pages.

We request you acknowledge receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance of the change. If you require samples or additional data to support your evaluation, please request within 30 days.

The changes discussed within this PCN will not take effect any earlier than **90** days from the date of this notification, unless customer agreement has been reached on an earlier implementation of the change. This notification period is per TI's standard process.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice, contact your local Field Sales Representative or the PCN Manager (PCN_ww_admin_team@list.ti.com).

Sincerely,

PCN Team
SC Business Services
Phone: +1(214) 480-6037
Fax: +1(214) 480-6659

20141216001
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
MSP430FR5849IDA	null
MSP430FR5949IDA	null
MSP430FR5949IDAR	null
MSP430FR5949IRHAT	null
MSP430FR5969IRGZR	null
MSP430FR5969IRGZT	null
TLV62090RGTR	null
TLV62090RGTT	null
TPS2559DRCT	null
TPS54227DDA	null
TPS54227DDAR	null
TPS54228DDA	null
TPS54228DDAR	null
TPS62090RGTR	null
TPS62090RGTT	null
TPS62091RGTT	null
TPS62092RGTT	null
TPS62093RGTT	null
TPS62095RGTT	null

Technical details of this Product Change follow on the next page(s).

PCN Number:	20141216001	PCN Date:	12/17/2014
Title:	Qualification of FFAB, RFAB, MIHO8 and DMOS6 as additional Fab site options and Carsem Suzhou (CSZ) as additional an Assembly/Test site option for select devices		
Customer Contact:	PCN Manager	Phone: +1(214)480-6037	Dept: Quality Services
*Proposed 1st Ship Date:	3/17/2015	Estimated Sample Availability:	Date Provided at Sample request

Change Type:					
☒	Assembly Site	☐	Assembly Process	☒	Assembly Materials
☐	Design	☐	Electrical Specification	☐	Mechanical Specification
☒	Test Site	☒	Packing/Shipping/Labeling	☐	Test Process
☐	Wafer Bump Site	☐	Wafer Bump Material	☐	Wafer Bump Process
☒	Wafer Fab Site	☒	Wafer Fab Materials	☐	Wafer Fab Process
		☐	Part number change		

PCN Details

Description of Change:

This change notification is to announce the addition of FFAB, RFAB, MIHO8 and DMOS6 as additional Fab site options and Carsem Suzhou (CSZ) as an additional Assembly/Test site option for select devices. Material differences as follows:

Group 1 Devices: Adding MIHO8 Fab Site & CSZ Assembly Site

Fab Site:

Current Site, Process, Wafer Diameter	Additional Site, Process, Wafer Diameter
RFAB, LBC7, 300mm	MIHO8, LBC7, 200mm

Assembly Site:

Material	Clark-AT	Carsem Suzhou (CSZ)
Mount compound	4207123	435143
Mold compound	4208625	441086
Bond Wire/Diameter	Cu (1.98mil)	Cu (2.0mil)
Leadframe	4221018	442438

Group 2 Devices: Adding RFAB Fab Site

Fab Site:

Current Site, Process, Wafer Diameter	Additional Site, Process, Wafer Diameter
MIHO8, LBC7, 200mm	RFAB, LBC7, 300mm

Group 3 Devices: Adding FFAB Fab Site

Fab Site:

Current Site, Process, Wafer Diameter	Additional Site, Process, Wafer Diameter
RFAB, LBC7, 300mm	FFAB, LBC7, 200mm

Group 4 Devices: Adding DMOS6 Fab Site

Fab Site:

Current Site, Process, Wafer Diameter	Additional Site, Process, Wafer Diameter
DM5, HPE035, 200mm	DM6, HPE035, 300mm

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.

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:

Sample Product Shipping Label (not actual product label)

Group 1 Devices: Fab Site & Assembly Site change

Fab Site

Current Chip Site	Chip Site Code (20L)	Chip Country Code (21 L)
RFAB	CSO: RFB	USA
New Chip Site	Chip Site Code (20L)	Chip Country Code (21 L)
MIHO8	CSO: MH8	JPN

Assembly Site

Current Assembly Site		
Clark-AT	Assembly Site Origin (22L)	ASO: QAB
Additional Assembly Site		
Carsem Suzhou (CSZ)	Assembly Site Origin (22L)	ASO: CSZ

Group 1 Assembly Site Codes:

- TI CLARK =I, Carsem Suzhou (CSZ) = F

Group 2 Devices: Fab Site Codes

Fab Site

Current Chip Site	Chip Site Code (20L)	Chip Country Code (21 L)
MIHO8	CSO: MH8	JPN
New Chip Site	Chip Site Code (20L)	Chip Country Code (21 L)
RFAB	CSO: RFB	USA

Group 3 Devices: Fab Site Codes

Fab Site

Current Chip Site	Chip Site Code (20L)	Chip Country Code (21 L)
RFAB	CSO: RFB	USA
New Chip Site	Chip Site Code (20L)	Chip Country Code (21 L)
FR-BIP-1	CSO: TID	DEU

Group 4 Devices: Fab Site Codes

Fab Site

Current Chip Site	Chip Site Code (20L)	Chip Country Code (21 L)
DP1DM5	CSO: DM5	USA
New Chip Site	Chip Site Code (20L)	Chip Country Code (21 L)
DMOS6	CSO: DM6	USA

Product Affected Group 1: (Adding MIHO Fab Site & CSZ Assembly Site)

TPS2559DRCR	TPS2559DRCT

Product Affected Group 2: (Adding RFAB Fab Site)

SN1101004DDAR	TPS54227DDA	TPS54228DDA
SN1101005DDAR	TPS54227DDAR	TPS54228DDAR

Product Affected Group 3: (Adding FFAB Fab Site)

TLV62090RGTR	TPS62090RGTT	TPS62092RGTR	TPS62093RGTT
TLV62090RGTT	TPS62091RGTR	TPS62092RGTT	TPS62095RGTR
TPS62090RGTR	TPS62091RGTT	TPS62093RGTR	TPS62095RGTT

Product Affected Group 4: (Adding DMOS6 Fab Site)			
MSP430FR58471IRHAR	MSP430FR5857IRHAT	MSP430FR59471IRHAR	MSP430FR5957IRHAT
MSP430FR58471IRHAT	MSP430FR5858IDA	MSP430FR59471IRHAT	MSP430FR5958IDA
MSP430FR5847IDA	MSP430FR5858IDAR	MSP430FR5947IDA	MSP430FR5958IDAR
MSP430FR5847IDAR	MSP430FR5858IRHAR	MSP430FR5947IDAR	MSP430FR5958IRHAR
MSP430FR5847IRHAR	MSP430FR5858IRHAT	MSP430FR5947IRHAR	MSP430FR5958IRHAT
MSP430FR5847IRHAT	MSP430FR5859IDA	MSP430FR5947IRHAT	MSP430FR5959IDA
MSP430FR5848IDA	MSP430FR5859IDAR	MSP430FR5948IDA	MSP430FR5959IDAR
MSP430FR5848IDAR	MSP430FR5859IRHAR	MSP430FR5948IDAR	MSP430FR5959IRHAR
MSP430FR5848IRHAR	MSP430FR5859IRHAT	MSP430FR5948IRHAR	MSP430FR5959IRHAT
MSP430FR5848IRHAT	MSP430FR58671IRGZR	MSP430FR5948IRHAT	MSP430FR5967IRGZR
MSP430FR5849IDA	MSP430FR58671IRGZT	MSP430FR5949IDA	MSP430FR5967IRGZT
MSP430FR5849IDAR	MSP430FR5867IRGZR	MSP430FR5949IDAR	MSP430FR5968IRGZR
MSP430FR5849IRHAR	MSP430FR5867IRGZT	MSP430FR5949IRHAR	MSP430FR5968IRGZT
MSP430FR5849IRHAT	MSP430FR5868IRGZR	MSP430FR5949IRHAT	MSP430FR59691IRGZR
MSP430FR5857IDA	MSP430FR5868IRGZT	MSP430FR5957IDA	MSP430FR59691IRGZT
MSP430FR5857IDAR	MSP430FR5869IRGZR	MSP430FR5957IDAR	MSP430FR5969IRGZR
MSP430FR5857IRHAR	MSP430FR5869IRGZT	MSP430FR5957IRHAR	MSP430FR5969IRGZT

Group 1: Qualification Report
TPS2559DRC (MIHO/DBUMP/CARZ AT)
Approved 09/24/2014

Product Attributes

Attributes	Qual Device: TPS2559DRC	QBS Package: SN1010017RSAR2-CU
Assembly Site	CARSEM SUZHOU	CARSEM SUZHOU
Package Family	QFN	QFN
Wafer Fab Site	MIHO	MIHO
Wafer Fab Process	LBC7	LBC7

- QBS: Qual By Similarity
- Qual Device TPS2559DRC 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: TPS2559DRC	QBS Package: SN1010017RSAR2-CU
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0	-
AC	Autoclave 121C	96 Hours	-	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96 Hours	1/77/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	2/154/0	3/231/0
HTOL	Life Test, 150C	300 Hours	3/231/0	-
ELFR	Early Life Failure Rate, 125C	48 Hours	3/2400/0	-
WBS	Ball Bond Shear	Wires	3/228/0	-
SD	Surface Mount Solderability	Pb Free	3/66/0	-
PD	Physical Dimensions	--	3/45/0	-
HBM	ESD - HBM	4000 V	3/9/0	-
CDM	ESD - CDM	2000 V	3/9/0	-
LU	Latch-up	(per JESD78)	1/6/0	-
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass

- 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
Reference Qualification Data: LBC7 Process at RFAB
Approved 06/03/2014

Product Attributes

Attributes	Qual Device: TPS22993PRLW	QBS Process: TPS54620RGYR	QBS Process: CD3230A0YFF
Wafer Fab Site	RFAB	RFAB	RFAB
Wafer Fab Process	LBC7	LBC7	LBC7
Wafer Diameter	200mm	200mm	200mm

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

Type	Test Name / Condition	Duration	QBS Product: TPS22993PRLW	QBS Process: TPS54620RGYR	QBS Process: CD3230A0YFF
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0	-	3/250/0
AC	Autoclave 121C	96 Hours	3/267/0	6/230/0	-
UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	2/169/0
TC	Temperature Cycle, -55/125C	700 cycles	-	-	2/164/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/269/0	6/231/0	-
HTSL	High Temp Storage Bake 150C	1000 Hours	3/273/0	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	6/231/0	3/239/0
HTOL	Life Test, 125C	1000 Hours	-	-	3/240/0
HTOL	Life Test, 150C	300 Hours	1/79/0	-	-
HTOL	Life Test, 155C	240 Hours	-	6/228/0	-
HBM	ESD - HBM	1000 V	1/3/2000	3/9/2000	3/9/2000
CDM	ESD - CDM	250 V	1/3/2000	3/9/2000	3/9/2000
LU	Latch-up	(per JESD78)	1/6/2000	6/18/2000	3/36/0
ED	Electrical Characterization.	Per Datasheet Parameters	1/Pass	-	3/Pass

Group 3: Qualification Report
FFAB LBC7
Approved 10/31/2007

Product Attributes

Attributes	Qual Device: TCA6416PW
Assembly Site	MLA
Package Family	TSSOP
Flammability Rating	UL 94 V 0
Wafer Fab Site	FFAB
Wafer Fab Process	LBC7

- QBS: Qual By Similarity
- Qual Device TCA6416PW is qualified at LEVEL1-260C

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

Type	Test Name / Condition	Duration	Qual Device: TCA6416PW
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0
AC	Autoclave 121C	96 Hours	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0
HTSL	High Temp Storage Bake 150C	1000 Hours	3/231/0
HTOL	Life Test, 150C	300 Hours	3/348/0
HBM	ESD - HBM	1000 V	1/3/0
CDM	ESD - CDM	500 V	1/3/0
LU	Latch-up	(per JESD78)	1/9/0
ED	Electrical Characterization	Per Datasheet Parameters	Pass

- 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 4: Qualification Report
HPE035 DMOS6 transfer on MSP430FR5969 (Wolverine)
Approved 12/15/2014

Product Attributes

Attributes	MSP430FR5949IDA	MSP430FR5956IRHA	MSP430FR5969IRGZ	MSP430FR5739IRHA	MSP430FR5739IDA
Device	Qual Device	Qual Device	Qual Device	QBS Device	QBS Device
Assembly Site	TAI	TI-CLARK	TI-CLARK	TI CLCARK	TAI
Package Family	TSSOP	VQFN	VQFN	VQFN	TSSOP
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Site	DM6	DM6	DM6	DM6	DM6
Wafer Fab Process	HPE035	HPE035	HPE035	HPE035	HPE035

- QBS: Qual By Similarity
- Qual Device families MSP430FR5949IDA, MSP430FR5956IRHA, MSP430FR5969IRGZ are qualified at LEVEL3-260C in DM6.

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device #1 MSP430FR5949IDA	Qual Device #2 MSP430FR5956IRHA	Qual Device #3 MSP430FR5969IRGZ	QBS Device #4 MSP430FR5739IRHA	QBS Device #5 MSP430FR5739IDA
HTOL*	Hi Temp Oper Life 125C	1000 Hours	QBS Qual Device #3	QBS Qual Device #3	3 / 231 / 0	3 / 231 / 0	QBS Device #4
HBM	ESD-HBM	1000V, 1500V** 2000V**, 2500V**, 3000V**, 4000V**	QBS Qual Device #3		1 / 3 / 0	1 / 3 / 0	1 / 3 / 0
CDM	ESD - CDM	250V, 500V**, 750V**, 1000V**	1 / 3 / 0	1 / 3 / 0	1 / 3 / 0	1 / 3 / 0	1 / 3 / 0
LU	25C / 1.5*Vcc	±200mA	QBS Device #3	QBS Device #3	1 / 3 / 0	1 / 3 / 0	1 / 3 / 0
LU	85C / 1.5*Vcc	±100mA	QBS Device #3	QBS Device #3	1 / 3 / 0	1 / 3 / 0	1 / 3 / 0
FRAM*	Intrinsic Endurance -40C	1E13 Cycles	QBS Device #3	QBS Device #3	3 / 36 / 0	NA	NA
FRAM*	Intrinsic Endurance 125C	1E13 Cycles	QBS Device #3	QBS Device #3	3 / 36 / 0	3 / 36 / 0	QBS Device #4
FRAM*	Intrinsic Endurance 25C	1E13 Cycles	QBS Device #3	QBS Device #3	3 / 36 / 0	3 / 36 / 0	NA
FRAM*	Intrinsic Endurance 85C	1E13 Cycles	QBS Device #3	QBS Device #3	3 / 36 / 0	3 / 36 / 0	QBS Device #4
FRAM*	Data retention / imprint	1000 Hours	QBS Device #3	QBS Device #3	3 / 231 / 0	3 / 231 / 0	QBS Device #4
TC*	Temp Cycle, -65C/150C	500 Cycles	QBS Device #5	QBS Device #4	QBS Device #4	3 / 231 / 0	3 / 231 / 0
BHAST*	110C, 85%RH	264 Hours	NA	QBS Device #4	QBS Device #4	3 / 231 / 0	NA
BHAST*	130C, 85%RH	96 Hours	QBS Device #5	NA	NA	NA	3 / 231 / 0
HTSL*	150C	1000 Hours	QBS Device #5	QBS Device #4	QBS Device #4	3 / 231 / 0	3 / 231 / 0
AC*	121C, 2 ATM	96 Hours	QBS Device #5	QBS Device #4	QBS Device #4	3 / 231 / 0	3 / 231 / 0

- *Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, HTOL, and data retention / imprint, as applicable
- **Indicates supplementary data that extends beyond the qualification requirement
- All Tests listed above passed
- Device #3 represents the qualification vehicle for the "silicon" reliability tests listed above, including the FRAM and HTOL tests.
- Device #4 and #5 represent the qualification vehicle for the packaging reliability tests listed above, including TC, BHAST, HTSL, and AC.

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	PCNAmericasContact@list.ti.com
Europe	PCNEuropeContact@list.ti.com
Asia Pacific	PCNAsiaContact@list.ti.com
Japan	PCNJapanContact@list.ti.com