

PCN Number:	20140205002	PCN Date:	02/13/2014													
Title:	Qualification of Additional Fab (DMOS6), Assembly/Test (Clark-AT) and Cu Wire Option for select MSP430FR57xx devices in the QFN Package															
Customer Contact:	PCN Manager	Phone:	+1(214)480-6037													
Dept:	Quality Services															
*Proposed 1st Ship Date:	05/13/2014	Estimated Sample Availability:	Date Provided at Sample request													
Change Type:																
<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 type="checkbox"/>	Packing/Shipping/Labeling													
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Wafer Bump Material													
<input checked="" type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>	Wafer Fab Materials													
<input type="checkbox"/>		<input type="checkbox"/>	Part number change													
PCN Details																
Description of Change:																
<p>This notification is to announce the qualification of additional fab (DMOS6), assembly/test (Clark-AT) and Cu wire option for select MSP430FR57xx devices in the QFN Package.</p> <p>Wafer Fab Differences</p> <table border="1"> <thead> <tr> <th>Currently Qualified Sites, process, wafer dia.</th> <th>Additional Site, process, wafer dia.</th> </tr> </thead> <tbody> <tr> <td>DP1DM5, E035 Process, 200mm</td> <td>DMOS6, E035 Process, 300mm</td> </tr> </tbody> </table> <p>Assembly Site Material Differences</p> <table border="1"> <thead> <tr> <th>Material</th> <th>Current Site/MLA</th> <th>Additional Site/TI Clark</th> </tr> </thead> <tbody> <tr> <td>Bond Wire Composition</td> <td>Au</td> <td>Cu</td> </tr> <tr> <td>Bond Wire Diameter</td> <td>.96 mil</td> <td>.8 mil</td> </tr> </tbody> </table> <p>Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.</p> <p>The QFN package was previously qualified at Clark-AT in 09/2009. Details are provided in the Qual Data Section.</p>				Currently Qualified Sites, process, wafer dia.	Additional Site, process, wafer dia.	DP1DM5, E035 Process, 200mm	DMOS6, E035 Process, 300mm	Material	Current Site/MLA	Additional Site/TI Clark	Bond Wire Composition	Au	Cu	Bond Wire Diameter	.96 mil	.8 mil
Currently Qualified Sites, process, wafer dia.	Additional Site, process, wafer dia.															
DP1DM5, E035 Process, 200mm	DMOS6, E035 Process, 300mm															
Material	Current Site/MLA	Additional Site/TI Clark														
Bond Wire Composition	Au	Cu														
Bond Wire Diameter	.96 mil	.8 mil														
Reason for Change:																
<p>Continuity of supply.</p> <ol style="list-style-type: none"> 1) To align with world technology trends and use wiring with enhanced mechanical and electrical properties 2) Maximize flexibility within our Assembly/Test production sites. 3) Cu is easier to obtain and stock 																
Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):																
None																

Changes to product identification resulting from this PCN:

There will be no change to topside symbol.

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Topside Symbol      : 40RHA-ECAT/REV
+-----+          :
! O                !   TI = TI LETTERS
! M430             !   YM = YEAR MONTH DATE CODE
! FR5739           !   LLLL = ASSEMBLY LOT CODE
! TI #YMS          !   S = ASSEMBLY SITE CODE
! LLLL G4          !   (PER QSS 005-120)
+-----+          !   # = DIE REVISION

O - PIN 1 (MARKED) 7 CHARACTERS MAX LINE 1
                   7 CHARACTERS MAX LINE 2

                   G4 MUST BE SYMBOLIZED WITH AN UNDERSCORE

#SYMBOL ECAT       : G4
#SYMBOL PIN 1 QUADRANT : 1
#SYMBOL DEVICE NAME1 : M430
#SYMBOL DEVICE NAME2 : FR5739
#SYMBOL LOGO       : TI
    
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Shipment Labels:

Current Fab Site

Chip Site	Chip site code (20L)	Chip country code (21L)
DP1DM5	DM5	USA

New

Chip Site	Chip site code (20L)	Chip country code (21L)
DMOS6	DM6	USA

Current Assembly Site

Assembly Site	Assembly site Origin (22L)	Assembly country Origin (23L)
TI-Malaysia	MLA	MYS

New

Assembly Site	Assembly site Origin (22L)	Assembly country Origin (23L)
CLARK-AT	QAB	PHL

Device Marking for TI Malaysia and TI Clark are the same.

Assembly site code for TI Malaysia = K

Assembly site code for TI Clark = I

Sample product shipping label (not actual product label)

 <p>MADE IN: Malaysia 2DC: 29</p> <table border="1"> <tr> <td>MSL 2 /260C/1 YEAR</td> <td>SEAL DT</td> </tr> <tr> <td>MSL 1 /235C/UNLIM</td> <td>03/29/04</td> </tr> </table> <p>OPT: 39 ITEM: 39 LBL: 5A (L)T0:1750</p>	MSL 2 /260C/1 YEAR	SEAL DT	MSL 1 /235C/UNLIM	03/29/04		<p>(1P) SN74LS07NSR (Q) 2000 (D) 0336 (31T) LOT: 3959047MLA (4W) TKY (1T) 7523483SI2 (P) (2P) REV: (V) 0033317 (20L) CS0: SHE (21L) CCO: USA (22L) AS0: MLA (23L) ACO: MYS</p>
MSL 2 /260C/1 YEAR	SEAL DT					
MSL 1 /235C/UNLIM	03/29/04					

Product Affected:			
MSP430FR5720IRGER	MSP430FR5725IRHAR	MSP430FR5730IRGER	MSP430FR5735IRHAR
MSP430FR5720IRGET	MSP430FR5725IRHAT	MSP430FR5730IRGET	MSP430FR5735IRHAT
MSP430FR5721IRHAR	MSP430FR5726IRGER	MSP430FR5731IRHAR	MSP430FR5736IRGER
MSP430FR5721IRHAT	MSP430FR5726IRGET	MSP430FR5731IRHAT	MSP430FR5736IRGET
MSP430FR5722IRGER	MSP430FR5727IRHAR	MSP430FR5732IRGER	MSP430FR5737IRHAR
MSP430FR5722IRGET	MSP430FR5727IRHAT	MSP430FR5732IRGET	MSP430FR5737IRHAT
MSP430FR5723IRHAR	MSP430FR5728IRGER	MSP430FR5733IRHAR	MSP430FR5738IRGER
MSP430FR5723IRHAT	MSP430FR5728IRGET	MSP430FR5733IRHAT	MSP430FR5738IRGET
MSP430FR5724IRGER	MSP430FR5729IRHAR	MSP430FR5734IRGER	MSP430FR5739IRHAR
MSP430FR5724IRGET	MSP430FR5729IRHAT	MSP430FR5734IRGET	MSP430FR5739IRHAT

Qualification Data:

This qualification has been developed for the validation of this change. The qualification data will validate that the proposed change meets the applicable released technical specifications.

Qualification Device: MSP430FR5739IRHA (Approved: 1/14/2014)

Package & Die Attributes

Wafer Fab Site:	DMOS6	Wafer Diameter:	300 mm
Wafer Fab Process:	E035	MSL Level:	Level 3-260C
Assembly Site:	CLARK-AT	# Pins-Designator, Family:	40, RHA, QFN
Lead Frame (Finish, Base):	NIPDAU, Cu	Mold Compound:	4208625
Bond Wire Composition:	Cu	Mount Compound:	4205846
Bond Wire Diameter:	.8 mil		

Qualification: Plan Test Results

Reliability Test	Conditions	Sample Size / Fail		
		Lot#1	Lot#2	Lot#3
**Life Test	125C (1000 Hrs)	77/0	77/0	77/0
** Endurance: FRAM extrinsic cycle	25C, 1e ⁷ cycles, full size	77/0	77/0	77/0
**FRAM data retention and imprint	125C/85C (1000 hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 ATM (96 Hrs)	77/0	77/0	77/0
**Temp Cycle	-65C/+150C (500 Cycles)	77/0	77/0	77/0
**High Temp. Storage Bake	150C (600, 1000 Hrs)	77/0	77/0	77/0
** Biased HAST	110C/85RH (264 hrs)	77/0	77/0	77/0
ESD CDM (MSP430)	500V	3/0	3/0	3/0
ESD HBM	2000V	3/0	3/0	3/0
Latch-Up	-	6/0	6/0	6/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass	-	-
**Preconditioning: MSL 3@260C				

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