

PCN Number:	20170510000		PCN Date:	May 11 2017																
Title:	Qualification of Amkor and TI Clark as an additional Assembly and Test Sites and for select Devices																			
Customer Contact:	PCN Manager	Dept:	Quality Services																	
Proposed 1st Ship Date:	Aug 11 2017	Estimated Sample Availability:	Provided upon Request																	
Change Type:																				
<input checked="" type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Assembly Process	<input checked="" type="checkbox"/>	Assembly Materials															
<input type="checkbox"/>	Design	<input type="checkbox"/>	Electrical Specification	<input type="checkbox"/>	Mechanical Specification															
<input checked="" 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 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 Amkor and TI Clark as and additional Assembly and Test site for the devices listed below. Construction differences are as follows:																				
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>What</th> <th>PSi</th> <th>TI Clark</th> <th>Amkor</th> </tr> </thead> <tbody> <tr> <td>Mold Compound</td> <td>SID#202828</td> <td>4208625</td> <td>SID#101384766</td> </tr> <tr> <td>Lead finish</td> <td>Matte Sn</td> <td>NiPdAu</td> <td>Matte Sn</td> </tr> <tr> <td>Bond Wire, Diameter</td> <td>Au, 1.0 mils</td> <td>Au, 1.0 mils</td> <td>Cu, 0.96 Mils</td> </tr> </tbody> </table>					What	PSi	TI Clark	Amkor	Mold Compound	SID#202828	4208625	SID#101384766	Lead finish	Matte Sn	NiPdAu	Matte Sn	Bond Wire, Diameter	Au, 1.0 mils	Au, 1.0 mils	Cu, 0.96 Mils
What	PSi	TI Clark	Amkor																	
Mold Compound	SID#202828	4208625	SID#101384766																	
Lead finish	Matte Sn	NiPdAu	Matte Sn																	
Bond Wire, Diameter	Au, 1.0 mils	Au, 1.0 mils	Cu, 0.96 Mils																	
Upon expiry of this PCN TI will combine lead free solutions in a single standard part number , for the CSD58888Q5D – can ship with both Matte Sn and NiPdAu/Ag.																				
Example:																				
<ul style="list-style-type: none"> – Customer order for 7500units of CSD58888Q5D with 2500 units SPQ (Standard Pack Quantity per Reel). – TI can satisfy the above order in one of the following ways. <ul style="list-style-type: none"> I. 3 Reels of NiPdAu finish. II. 3 Reels of Matte Sn finish III. 2 Reels of Matte Sn and 1 reel of NiPdAu finish. IV. 2 Reels of NiPdAu and 1 reel of Matte Sn finish. 																				
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.																				
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 website .																	

Changes to product identification resulting from this PCN:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (21L)	Assembly City
PSI	PAC	PHL	Taguig City
TI Clark	QAB	PHL	Angeles City
Amkor	AP3	PHL	Binan

Sample product shipping label (not actual product label)

Topside Device marking (if included):

Assembly site code for PAC= E

Assembly site code for QAB = I

Assembly site code for AP3 = 3

Product Affected

Group 1 Device list: Current AT site = PSi & Clark, Additional AT site = Amkor

CSD58872Q5D	CSD58873Q3D
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Group 2 Device list: Current AT site= PSi, Additional AT site = Amkor

CSD17575Q3	CSD18532NQ5B	CSD19502Q5B	SN1607042Q5B
CSD17575Q3T	CSD18532NQ5BT	CSD19502Q5BT	

Group 3 Device list: Current AT site= PSi, Additional AT site = TI Clark

CSD58888Q5D

Qualification Report

Phase 7 Power Block Qual in Amkor P3: CSD87333Q3D, CSD87334Q3D, CSD87335Q3D Approve Date 06-February-2017

Product Attributes

Attributes	Qual Device: CSD87333Q3D	Qual Device: CSD87334Q3D	Qual Device: CSD87335Q3D
Assembly Site	AMKOR P3 A/T PHIL	AMKOR P3 A/T PHIL	AMKOR P3 A/T PHIL
Package Family	DQZ	DQZ	DQZ
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	CFAB	CFAB	CFAB
Wafer Fab Process	NEXFET-LV 30N10	NEXFET-LV 30N10	NEXFET-LV 30N10

- QBS: Qual By Similarity
- Qual Device CSD87333Q3D is qualified at LEVEL1-260C
- Qual Device CSD87335Q3D is qualified at LEVEL1-260C
- Qual Device CSD87334Q3D is qualified at LEVEL1-260C
- Device CSD87333Q3D contains multiple dies.
- Device CSD87334Q3D contains multiple dies.
- Device CSD87335Q3D contains multiple dies.

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: CSD87333Q3D	Qual Device: CSD87334Q3D	Qual Device: CSD87335Q3D
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	3/1/0 - Pass	3/1/0 - Pass	3/1/0 - Pass
PC	Preconditioning	(per the appropriate pkg level)	-	3/462/0	3/462/0
TC	**T/C -40C/125C	-40C/+125C (500,1000 Cycles)	-	3/231/0	3/231/0
TC	**T/C -55C/125C	-55C/+125C (500,1000 Cycles)	-	3/231/0	3/231/0

** Preconditioning was performed for Temperature Cycle as applicable

- 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



5x6 QFN Q5D Power Block Qualification Summary
NCH MOSFET – Gen 2.0 30-10

CSD87353Q5D Qualification Test Summary				
Stress	Conditions	Test Duration	Sample Size	Results
HTRB	150°C/80% Rated Vds	1K hrs	3 lots x 77 units	Pass
HTGB	150°C/80% Rated Vgs	1K hrs	3 lots x 77 units	Pass
THB	85°C/85%R.H./80% Rated Vds	1K hrs	3 lots x 77 units	Pass
Autoclave	121C/100% RH	96 hrs	3 lots x 77 units	Pass
Intermittent Op Life	Delta Tj = 100°C 2 min on/2 min off	10K cycles	3 lots x 77 units	Pass
Temp Cycle	-40°C to 125°C	1K cycles	3 lots x 77 units	Pass

Pass = 0/77 x 3 lots

MSL1 preconditioning performed on devices prior to THB, Autoclave, & Temp Cycle stresses

- External Visual @ 40X
- Temp Cycle: -40°C to +60°C, 5 cycles, 10 min dwell
- Bake: 24 hours @ 125°C
- Damp Heat: 168 hours @ 85°C/85% RH (Level 1)
- 3X reflow + flux + rinse, 260°C Pb free reflow temp

Original full qualification on CSD87353Q5D was run at PSi (above table). Clark assembly site is qualified by similarity since full qualification of 3 lots on CSD87350Q5D and full qualification of 1 lot on CSD87353Q5D was performed at Clark.

CSD87353Q5D Qualification Test Summary				
Stress	Conditions	Test Duration	Sample Size	Results
HTRB	150°C/80% Rated Vds	1K hrs	1 lot x 77 units	Pass
HTGB	150°C/80% Rated Vgs	1K hrs	1 lot x 77 units	Pass
THB	85°C/85%R.H./80% Rated Vds	1K hrs	1 lot x 77 units	Pass
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Temp Cycle	-40°C to 125°C	1K cycles	1 lot x 77 units	Pass

TI Information – Selective Disclosure

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