

<b>PCN Number:</b>	20160630000B	<b>PCN Date:</b>	Dec. 1, 2016												
<b>Title:</b>	Qualification of AMKOR P3 as Additional Assembly and Test Site for Select LSON-CLIP Package Devices														
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services												
<b>Change Type:</b>															
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design												
<input checked="" type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Wafer Bump Site												
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Data Sheet												
<input type="checkbox"/>	Mechanical Specification	<input checked="" type="checkbox"/>	Part number change												
<input type="checkbox"/>	Packing/Shipping/Labeling	<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												
<b>PCN Details</b>															
<b>Description of Change:</b>															
Texas Instruments Incorporated is announcing the qualification of AMKOR P3 as Additional Assembly and Test Site for select devices listed in the "Product Affected" Section. Current assembly sites and Material differences are as follows.															
<table border="1"> <thead> <tr> <th>Assembly Site</th> <th>Assembly Site Origin</th> <th>Assembly Country Code</th> <th>Assembly Site City</th> </tr> </thead> <tbody> <tr> <td>TI Clark</td> <td>QAB</td> <td>PHL</td> <td>Angeles City, Pampanga</td> </tr> <tr> <td><b>Amkor P3</b></td> <td><b>AP3</b></td> <td><b>PHL</b></td> <td><b>Biñan, Laguna</b></td> </tr> </tbody> </table>				Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City	TI Clark	QAB	PHL	Angeles City, Pampanga	<b>Amkor P3</b>	<b>AP3</b>	<b>PHL</b>	<b>Biñan, Laguna</b>
Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City												
TI Clark	QAB	PHL	Angeles City, Pampanga												
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<b>Material Differences:</b>															
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	TI Clark	AMKOR P3													
Mold compound	4208625	101390791													
Mount compound (Controller side)	4220838 (95Pb/5Sn)	101361478 (Epoxy)													
Lead finish	NiPdAu	Matte Sn													
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.															
<b>Reason for Change:</b>															
Continuity of supply.															
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>															
None															
<b>Anticipated impact on Material Declaration</b>															
<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 <a href="#">TI ECO website</a> .												
<b>Changes to product identification resulting from this PCN:</b>															

Revision B is to update the product ECAT value resulting from this PCN. We apologize for any inconvenience this may have caused.

Sample product shipping label (not actual product label)

Assembly Site:

TI-CLARK	Assembly Site Origin (22L)	ASO: QAB	ECAT: G4 ECAT: E4
AMKOR P3	Assembly Site Origin (22L)	ASO: AP3	ECAT: G3 ECAT: E3

Sample product shipping label to show code location (not actual product label)

TEXAS INSTRUMENTS  
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)T0:1750

(P) E3

(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

ECAT: E4 = NiPdAu  
ECAT: E3 = Matte Sn

ASSEMBLY SITE CODES: TI-CLARK = I , AP3 = 3

**Product Affected:**

HPA01110DQPR	TPS53319DQPT	TPS53355DQPT	TPS56221BDQPT
HPA01111DQPR	TPS53353DQPR	TPS56121BDQPR	TPS56221DQPR
SN1109022DQPR	TPS53353DQPT	TPS56121BDQPT	TPS56221DQPT
TPS53318DQPR	TPS53355ADQPR	TPS56121DQPR	
TPS53318DQPT	TPS53355ADQPT	TPS56121DQPT	
TPS53319DQPR	TPS53355DQPR	TPS56221BDQPR	

## Qualification Report

### Amkor AP3 Phase 6 HPS DQP Clip QFN Offload from Clark to Amkor

Date: 06/30/2016

**Product Attributes**

Attributes	Qual Device: TPS53319DQP	Qual Device: TPS53355DQP	Qual Device: TPS56121BDQP
Assembly Site	AP3 (AMKOR P3)	AP3 (AMKOR P3)	AP3 (AMKOR P3)
Package Family	SON	SON	SON
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	CFAB, MIH0 8	CFAB, DMOS5	CFAB, DMOS5

Attributes	Qual Device: TPS53319DQP	Qual Device: TPS53355DQP	Qual Device: TPS56121BDQP
<b>Wafer Fab Process</b>	FET_NCH_LV_GEN2.0, LBC7	FET_NCH_LV_GEN2.0, LBC7	FET_NCH_LV_GEN2.0, LBC7

- QBS: Qual By Similarity
- Qual Device TPS53319DQP, TPS53355DQP, TPS56121BDQP is qualified at LEVEL2-260C
- Device TPS53319DQP, TPS53355DQP, TPS56121BDQP contains multiple dies.

### Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: TPS53319DQP	Qual Device: TPS53355DQP	Qual Device: TPS56121BDQP
ED	Electrical Characterization, side by side	Per Datasheet Parameters	1/30/0	1/30/0	-
FLAM	Flammability (UL 94V-0)	Flammability/Method A	-	-	3/15/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	3/231/0
PD	Physical Dimensions	(per mechanical drawing)	-	-	3/30/0
SD	Solderability	Pb Free Solder	-	-	3/75/0
TC	Temperature Cycle, -55/125C	700 Cycles	3/231/0	1/77/0	3/231/0
XRAY	X-ray	(top side only)	1/5/0	1/5/0	1/5/0

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
  - 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/>

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	<a href="mailto:PCNAmericasContact@list.ti.com">PCNAmericasContact@list.ti.com</a>
Europe	<a href="mailto:PCNEuropeContact@list.ti.com">PCNEuropeContact@list.ti.com</a>
Asia Pacific	<a href="mailto:PCNAsiaContact@list.ti.com">PCNAsiaContact@list.ti.com</a>
Japan	<a href="mailto:PCNJapanContact@list.ti.com">PCNJapanContact@list.ti.com</a>