PCN Number:	20150529001	**PCN Date:**	06/04/2015
Title:	Package Thickness change for 1517-Pin AAW FCBGA Package		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	09/04/2015	**Estimated Sample Availability:**	Date Provided at Sample request

Change Type:

☐	Assembly Site	☐	Design	☐	Wafer Bump Site
☐	Assembly Process	☒	Data Sheet	☐	Wafer Bump Material
☒	Assembly Materials	☐	Part number change	☐	Wafer Bump Process
☐	Mechanical Specification	☐	Test Site	☐	Wafer Fab Site
☐	Packing/Shipping/Labeling	☐	Test Process	☐	Wafer Fab Materials
				☐	Wafer Fab Process

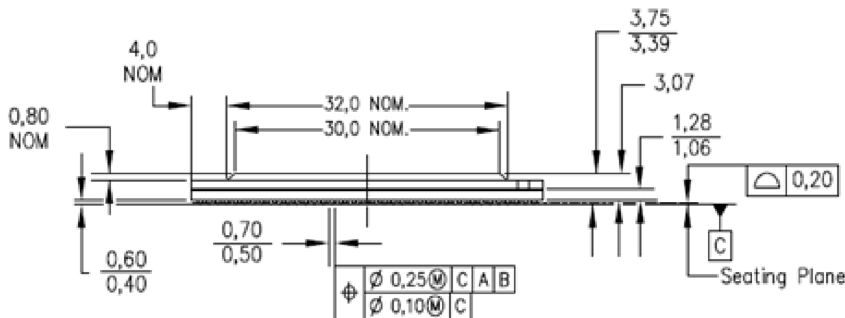
PCN Details

Description of Change:

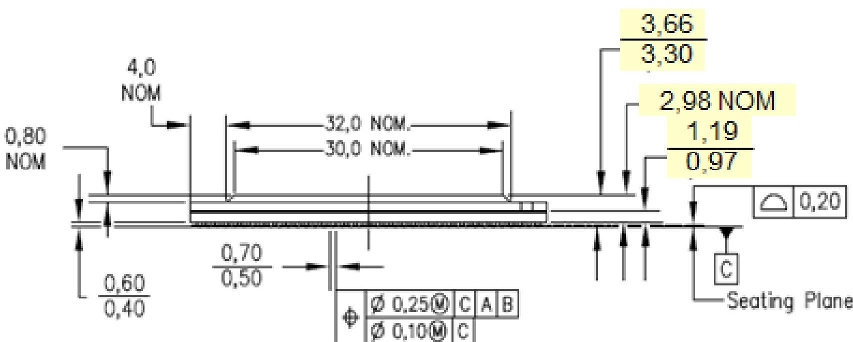
Texas Instruments Incorporated is announcing a product update to change the package thickness for the 1517-pin AAW FCBGA Package due to substrate metal layer change. Package difference as follows:

	From		To	
	Min	Max	Min	Max
Substrate Metal Layers (ML)	8ML		6ML	
Substrate thickness (mm)	1.06	1.28	0.97	1.19
Package height (mm)	3.39	3.75	3.30	3.66

From:



To:



Reason for Change:

Harmonization with Keystone II Package Standard

Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):
Package thickness as identified above. This change does not result in changes to other material or datasheet parameters in the package
Changes to product identification resulting from this PCN:
None
Product Affected:

66AK2H06BAAW2	66AK2H14BAAW2	TCI6636K2HBAAWA24T	TCI6638K2KBXAAW24
66AK2H06BAAW24	66AK2H14BAAW24	TCI6636K2HBAAWA2T	TCI6638K2KBXAAW24T
66AK2H06BAAWA2	66AK2H14BAAWA24	TCI6636K2HBDAAW2	TCI6638K2KBXAAW2H
66AK2H06BAAWA24	66AK2H14BXAAW	TCI6636K2HBSAAW2	TCI6638K2KBXAAW2L
66AK2H06BXAAW2	66AK2H14BXAAW24	TCI6636K2HBSAAW2L	TCI6638K2KBXAAW2T
66AK2H12BAAW2	66AK2HHP0BXAAW	TCI6636K2HBXAAW2	TCI6638K2KBXAAWA2
66AK2H12BAAW24	66AK2HHP0BXAAW2	TCI6636K2HBXAAWA2	TCI6638K2KBXAAWA24
66AK2H12BAAWA2	CI6638K2KBXAAWA24T	TCI6636K2HBXAAWA2T	TCI6638K2KBXAAWA2T
66AK2H12BAAWA24	ERI6636K2HBSAAW2L	TCI6638K2KBAAW2	
66AK2H12BXAAW	TCI6636K2HBAAWA2	TCI6638K2KBXAAW2	
66AK2H12BXAAW2	TCI6636K2HBAAWA24	TCI6638K2KBXAAW22H	

Qualification Data

Qualification Report for Device Families 66AK2H*AAAW*, TCI6638*AAAW, TCI6636*AAAW

Product Attributes

Attributes	Qual Device: 66AK2H* / TCI66*
Assembly Site	AMKOR-K4
Package Family	FC-BGA
Flammability Rating	UL 94 V-0
Wafer Fab Site	TSMC15
Wafer Fab Process	C28.P

Package Attributes	
Assembly Site	AMKOR-K4
Package Family	FC-BGA
Package Designator	AAW
Package Size	40 mm X 40 mm
Pin Count	1517
BGA Pitch (mm)	1.00
Substrate Material	Organic
Substrate Finish	SOP
Solder Ball Composition	SAC305
Bump Composition	Pb-free
Green Status	Pb-free & Green
Flammability Rating	UL 94 V-0

Device is qualified to preconditioning to MSL-4, 245C

Qualification Results

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

Type	Test Name / Condition	Duration	Result	Pass / Fail
UHAST	Unbiased HAST, 130C/85%RH	96 hrs	1 / 84 / 0	Pass (1)
TC	Temp Cycle, -40 / 125C	850 Cycles	3 / 231 / 0	Pass (1)
TC	Temp Cycle, -55 / 125C	700 Cycles	3 / 78 / 0	Pass (1)

THB	Bias. Temp & Humidity, 85C/85%RH @ Vdd	1000 hrs	3 / 76 / 0	Pass (2)
HTSL	Bake 150C	1000 hrs Bake	3 / 231 / 0	Pass (2)
HTOL	HTOL, Tj=125C	1000 hrs	3 / 356 / 0	Pass (2)
HBM	ESD - HBM	±1000V	1 / 3 / 0	Pass (2)
CDM	ESD - CDM	±250V	1 / 3 / 0	Pass (2)
LU	Latch-up, High Temp	±100 mA, 1.5 * Vmax @ 105C	1 / 3 / 0	Pass (2)
BLR	0/100C BLR TC, IPC-9701	Cycles to fail / IPC-9701	slope=7.04, scale=5063, 1st Fail @ 3033 Cycles	Pass (1)

Preconditioning to MSL-4, 245C was performed for unbiased HAST, THB, Temperature Cycle, and storage bake.

- The qualification device differs from the original QBS device by the number of metal layers in the substrate, 6 metal layer vs 8 metal layer. This reduction in substrate levels results in a package thickness change. Key items do not change:
  - Substrate materials, construction, and design rules remain the same
  - Package materials and assembly site remain the same
  - Die remains the same

Based on this, temperature cycling is the key reliability test to assess this change, and testing was augmented with BLR and uHAST data. These key tests performed on the 6LM device are denoted by (1) in the Pass/fail section of the table above. All other reliability tests qualified by similarity (QBS) to the original device and are noted as (2) in the table above.

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
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