

<b>PCN Number:</b>	20160602000B	<b>PCN Date:</b>	April 06. 2017
<b>Title:</b>	BGA Tray Change		
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services
<b>Change Type:</b>			
<input type="checkbox"/> Assembly Site	<input type="checkbox"/> Assembly Process	<input type="checkbox"/> Assembly Materials	
<input type="checkbox"/> Design	<input type="checkbox"/> Electrical Specification	<input type="checkbox"/> Mechanical Specification	
<input type="checkbox"/> Test Site	<input checked="" 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:

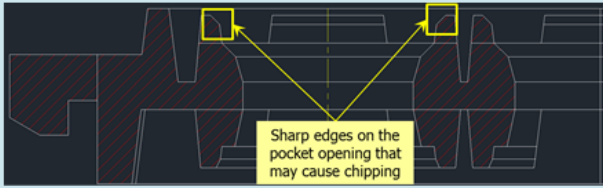
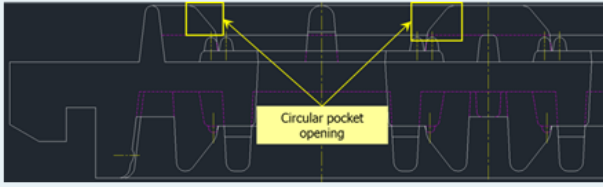
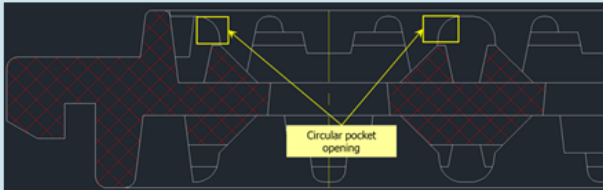
Revision B is to update the description of change to provide correction on the tray matrix for Group 1 devices.

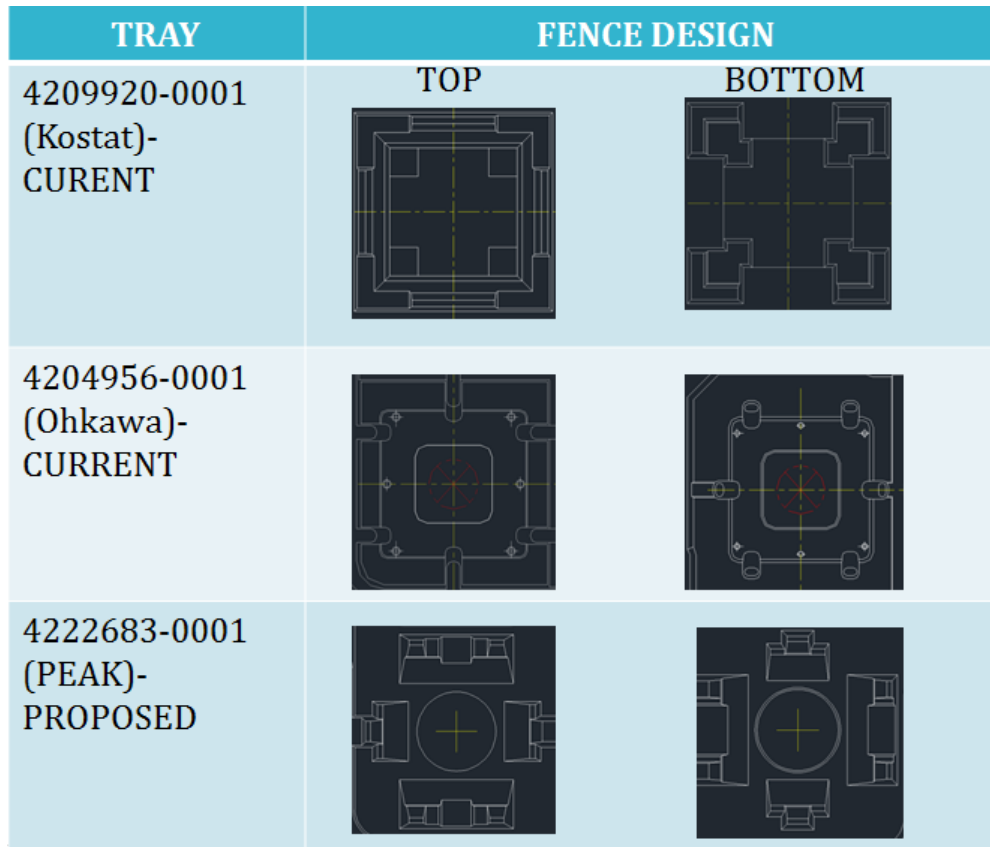
Texas Instruments is pleased to announce the qualification of PEAK tray for the devices listed under the Product Affected section. Tray comparison summary as follows:

#### Group 1 Device: 9x9mm BGA Tray

What	From	To
Stock #/Supplier	4204956-0001/OHKAWA 4209920-0001/KOSTAT	4222683-0001/PEAK
Matrix (Column x Rows)	8x21/10x26	10x26
Surface Resistivity, Ohms/Sq.	10 <sup>5</sup> to 10 <sup>9</sup>	10 <sup>5</sup> to 10 <sup>9</sup>
Raw Material	PPE / MPPO	MPPO
Tray Color	Black	Black
Temperature Rating	150 °C	150 °C

### TRAY DESIGN CONSIDERATION and COMPARISON

TRAY	POCKET OPENING
4209920-0001 (Kostat)- CURRENT	 <p>Sharp edges on the pocket opening that may cause chipping</p>
4204956-0001 (Ohkawa)- CURRENT	 <p>Circular pocket opening</p>
4222683-0001 (PEAK)- PROPOSED	 <p>Circular pocket opening</p>



### Dimensional Comparison:

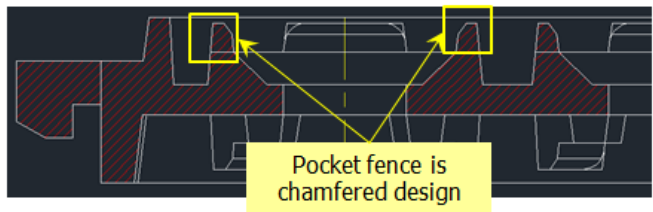
Items Description	4209920-0001 (Kostat)			4204956-0001 (Ohkawa)			4222683-0001 (PEAK)			REMARKS
	DIM	Upper Limits	Lower Limits	DIM	Upper Limits	Lower Limits	DIM	Upper Limits	Lower Limits	
Overall Length	322.6	322.85	322.35	322.6	322.85	322.35	322.6	322.85	322.35	SAME
Layout Length	315.0	315.25	314.75	315.0	315.25	314.75	315.0	315.25	314.75	SAME
Layout Width	135.9	136.15	135.65	135.9	136.15	135.65	135.9	136.15	135.65	SAME
Layout Length on Top Stack frame	311.15	311.40	311.02	311.15	311.40	311.02	311.15	311.40	311.02	SAME
Layout Width on Top Stack frame	132.05	132.30	131.92	132.05	132.30	131.92	132.08	132.33	131.95	SAME
Layout Length on Bottom Stack frame	311.66	311.91	311.53	311.66	311.91	311.53	311.66	311.91	311.53	SAME
Layout Width on Bottom Stack frame	132.56	132.81	132.43	132.56	132.81	132.43	132.59	132.84	132.46	SAME
End Tab Length	92.10	92.35	91.85	92.10	92.35	91.85	92.1	92.35	91.85	SAME
Overall Height	7.62	7.75	7.49	7.62	7.75	7.49	7.62	7.75	7.49	SAME
Stack Height	1.27	1.40	1.14	1.27	1.40	1.14	1.27	1.40	1.14	SAME
Tray Matrix No.	10x26			8x21			10x26			CHANGE
Pitch M	10.35	10.48	10.22	10.55	10.68	10.42	10.35	10.48	10.22	CHANGE
Pitch M3	12.80	12.93	12.67	7.45	7.58	7.32	12.80	12.93	12.67	CHANGE
Pitch M1	10.00	10.13	9.87	10.00	10.13	9.87	10.00	10.13	9.87	CHANGE
Pitch M2	11.80	11.93	11.67	14.75	14.88	14.62	11.80	11.93	11.67	CHANGE
Cavity opening	12.75	12.88	12.62	11.03	11.16	10.90	14.18	14.31	14.05	CHANGE
Pedestal Design	SLOPE			PEDESTAL			SLOPE			CHANGE
Package seating height (Top)	1.50	1.63	1.37	1.40	1.48	1.32	1.50	1.60	1.40	CHANGE
Package seating height (Bottom)	1.62	1.75	1.49	1.70	1.78	1.62	1.50	1.60	1.40	CHANGE

**Group 2 Device: 10x10mm BGA Tray**

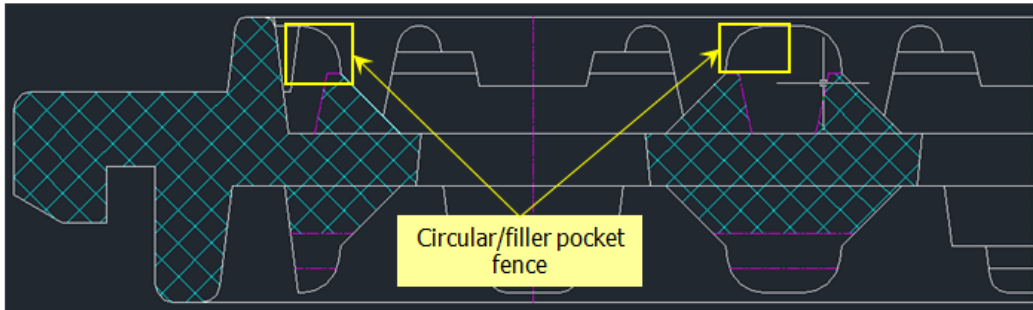
What	From	To
Stock #/Supplier	4211727-0001/KOSTAT	4222660-0001/PEAK
Matrix (Column x Rows)	8x21	8x23
Surface Resistivity, Ohms/Sq.	10 <sup>5</sup> to 10 <sup>9</sup>	10 <sup>5</sup> to 10 <sup>9</sup>
Raw Material	PES	MPPO
Tray Color	Black	Black
Temperature Rating	150 °C	150 °C

**TRAY DESIGN CONSIDERATION and COMPARISON**

**Tray Pocket: Current**



**Tray Pocket: Proposed**

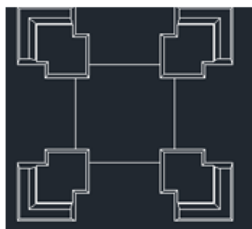


**Tray Fence: Current**

**LIVE BUG**

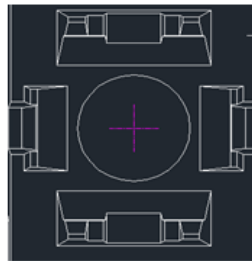


**DEAD BUG**

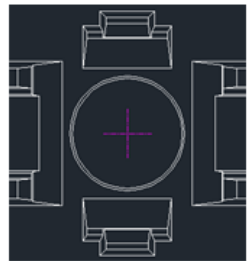


**Tray Pocket: Proposed**

**LIVE BUG**



**DEAD BUG**



**Dimensional Comparison:**

DESCRIPTION	4211727-0001 (KOSTAT)			PEAK TRAY			REMARKS
	DIM	Upper Limits	Lower Limits	DIM	Upper Limits	Lower Limits	
Overall Length	322.6	322.85	322.35	322.6	322.85	322.35	UNCHANGE
Layout Length	315.0	315.25	314.75	315.0	315.25	314.75	UNCHANGE
Layout Width	135.9	136.15	135.65	135.9	136.15	135.65	UNCHANGE
Layout Length on Top Stack frame	311.15	311.40	311.02	311.15	311.40	311.02	UNCHANGE
Layout Width on Top Stack frame	132.08	132.33	131.95	132.08	132.33	131.95	UNCHANGE
Layout Length on Bottom Stack frame	311.66	311.91	311.53	311.66	311.91	311.53	UNCHANGE
Layout Width on Bottom Stack frame	132.59	132.84	132.46	132.59	132.84	132.46	UNCHANGE
End Tab Length	92.10	92.35	91.85	92.1	92.35	91.85	UNCHANGE
Overall Height	7.62	7.75	7.49	7.62	7.75	7.49	UNCHANGE
Stack Height	2.00	2.13	1.87	2.00	2.13	1.87	UNCHANGE
Tray Matrix No.	8x21			8x23			CHANGE
Pitch M	11.95	12.08	11.82	19.65	19.78	19.52	CHANGE
Pitch M3	16.00	16.13	15.87	13.80	13.93	13.67	CHANGE
Pitch M1	11.00	11.13	10.87	10.10	10.23	9.97	CHANGE
Pitch M2	14.65	14.78	14.52	13.40	13.53	13.27	CHANGE
Cavity Size	10.20	10.28	10.12	10.30	10.38	10.22	CHANGE
Pedestal Design	SLOPE			SLOPE			UNCHANGE
Package seating height (Top)	1.59	1.72	1.46	1.50	1.60	1.40	CHANGE
Package seating height (Bottom)	1.09	1.22	0.96	1.50	1.60	1.40	CHANGE

**Reason for Change:**

Business Continuity

**Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):**

None

**Anticipated impact on Material Declaration**

No Impact to the Material Declaration  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:**

Not Applicable

**Product Affected: Group 1 (9x9mm BGA)**

LM4F232H5BBFIG	TM4E1115E6ZRBE0	TM4C123GH6ZRBI	TM4E123GH6ZRBI
LM4FS1EH5BBCIGR	TM4E1115E6ZRBE0R	TM4C123GH6ZRBI7	TM4E123GH6ZRBI7
LX4F232H5BBFIGB0	TM4E1117E6ZRBE0	TM4C123GH6ZRBI7R	TM4E123GH6ZRBI7R
LX4FS1GH5BBFIGB0	TM4E1117E6ZRBE0R	TM4C123GH6ZRBIR	TM4E123GH6ZRBIR
PSNB5072C2ZNB	TM4E111BE6ZRBE0	TM4C123GH6ZRBT	TM4E1G31H6ZRBI
SNB5072C1ZNBR	TM4E111BE6ZRBE0R	TM4C123GH6ZRBT7	TM4E1G31H6ZRBI7
SNB5072CZNBR	TM4E1231H6ZRBI	TM4C123GH6ZRBT7R	TM4EA231H6ZRBI7
SNB5072CZNBTF	TM4E1231H6ZRBI7R	TM4C123GH6ZRBTR	TM4EA231H6ZRBI7R
TM4C123BH6ZRBI	TM4E1231H6ZRBIR	TM4E1111E6ZRBE0	UCD90240ZRB
TM4C123BH6ZRBI7	TM4E1237H6ZRBI	TM4E1111E6ZRBE0R	UCD90240ZRB R
TM4C123BH6ZRBI7R	TM4E1237H6ZRBI7R	TM4E1113E6ZRBE0	UCD90240ZRBTF
TM4C123BH6ZRBIR	TM4E1237H6ZRBIR	TM4E1113E6ZRBE0R	

**Product Affected: Group 2 (10x10mm BGA)**

ADS4449IZCR	TMS320C5504AZCHA12	TMS320C5517AZCH22	TMS320F2809GGMS
ADS4449IZCRR	TMS320C5505AZCH10	TMS320C5517AZCHA20	TMS320F2809ZGMA
ADS58H40IZCR	TMS320C5505AZCH12	TMS320C5517AZCHA22	TMS320F2809ZGMS
ADS58H40IZCRR	TMS320C5505AZCH15	TMS320C55SGCHA	TMS320VC5504XZCH
ADS58H43IZCR	TMS320C5505AZCHA10	TMS320C55SZCHA	TMS320VC5504YZCH
ADS58H43IZCRR	TMS320C5505AZCHA12	TMS320F28015ZGMA	TMS320VC5504ZCH
SM320VC5510AZPHA2	<del>TMS320C5505AZCHR10</del>	TMS320F2801ZGMA	TMS320VC5505MZCH
SN95031B3ZCS	TMS320C5514AZCH10	TMS320F2802ZGMA	TMS320VC5505ZCH
SN95031B3ZCSR	TMS320C5514AZCH12	TMS320F2802ZGMS	TMS320VC5510AGPHA2
SN95031B4ZCS	TMS320C5514AZCHA12	TMS320F2806ZGMA	<del>TMS32C5517AZCHA20R</del>
SN95031B4ZCSR	TMS320C5515ASGCHA	TMS320F2806ZGMS	TPS65920A2ZCH
SNBC027B4ZCS	TMS320C5515ASZCHA	<del>TMS320F2806ZGMSR</del>	<del>TPS65920A2ZCHR</del>
<del>SNBC027B4ZCSR</del>	TMS320C5515AZCH10	TMS320F2808GGMA	TPS65930A2ZCH
TMS320C5504AZCH10	TMS320C5515AZCH12	TMS320F2808GGMS	<del>TPS65930A2ZCHR</del>
TMS320C5504AZCH12	TMS320C5515AZCHA10	TMS320F2808ZGMA	
TMS320C5504AZCH15	TMS320C5515AZCHA12	TMS320F2808ZGMS	
TMS320C5504AZCHA10	TMS320C5517AZCH20	TMS320F2809GGMA	

# Group 1 Device Qualification Data



Revision: A

EQ# :  
A/T Site:

## BGA JEDEC Tray Qualification Summary

Reference (QSS 003-008, 009-006, 014-102)

Supplier:	<u>PEAK</u>	
Vendor Part No:	<u>TXBG0909 1.0 1026 6</u>	
TI Part No:	<u>4222683-0001</u>	(If available)
Weight/tray (g):	<u>153.5 Grams</u>	
Material:	<u>MPPO</u>	
Package Description	<u>BGA 9x9</u>	(yes/no)
Package Designator:	<u>ZRB</u>	
Result:	<u>PASS</u>	
Date:	<u>24-May-16</u>	

I. First Article Inspection Test	<u>PASS</u>	(Pass/Fail)
II. Dimensional Test	<u>PASS</u>	
III. Manufacturability Test	<u>PASS</u>	
IV. Bake & Surface Resistivity Test	<u>PASS</u>	
V. Fit Analysis	<u>PASS</u>	
VI. Drop Test	<u>PASS</u>	
VII. Strap test	<u>PASS</u>	

## Group 2 Device Qualification Data



Revision: A

EQ# : \_\_\_\_\_  
A/T Site: \_\_\_\_\_

### BGA JEDEC Tray Qualification Summary

Reference (QSS 003-008, 009-006, 014-102)

Supplier:	<b>PEAK</b>	
Vendor Part No:	<b>TXBG1010 1.2 0823 6</b>	
TI Part No:	<b>4222660-0001</b>	(If available)
Weight/tray (g):	<b>145.5 Grams</b>	
Material:	<b>MPPO</b>	
Package Description	<b>BGA 10x10</b>	(yes/no)
Package Designator:	<b>AAP</b>	
Result:	<b>PASS</b>	
Date:	<b>16-May-16</b>	

I. First Article Inspection Test	PASS	(Pass/Fail)
II. Dimensional Test	PASS	
III. Manufacturability Test	PASS	
IV. Bake & Surface Resistivity Test	PASS	
V. Fit Analysis	PASS	
VI. Drop Test	PASS	
VII. Strap test	PASS	

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>