

<b>PCN Number:</b>	20210628001.1	<b>PCN Date:</b>	July 12, 2021
<b>Title:</b>	New nfBGA Tray for Select Devices		
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Oct. 12, 2021		
<b>Change Type:</b>			
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet
<input type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change
<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"/>		<input type="checkbox"/>	Wafer Bump Site
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Material
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Process
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Site
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Materials
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Process

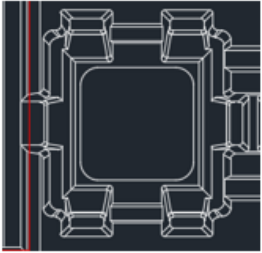
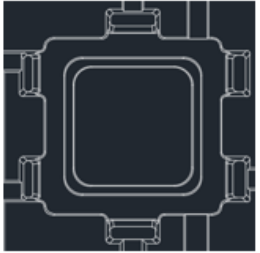
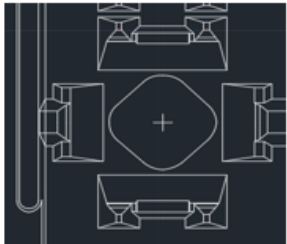
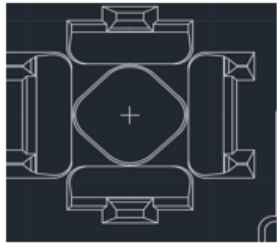
### PCN Details

#### Description of Change:

Texas Instruments is pleased to announce the qualification of a new nfBGA tray for the devices listed below. A comparison summary of the tray differences are as follows:

#### Group 1 Tray Comparison Tables:

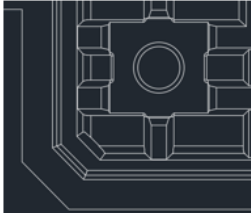
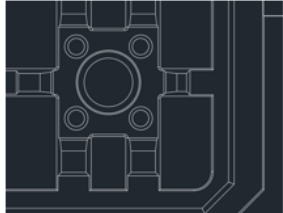
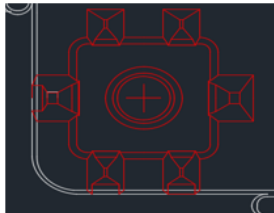
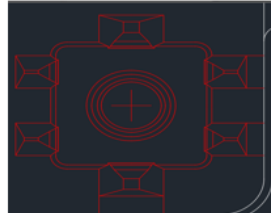
### Description of Change/Change Proposal: 10x10 BGA (thin)

	PROBLEM (FROM)	SOLUTION (TO)
	 	 
	<b>4221230-0001</b>	<b>4226481-0001</b>
Supplier	UBOT	Peak
Seating ht (TOP) (BOTTOM)	0.67 +/- 0.08 2.18 +/- 0.08	0.94 +/- 0.1 1.15 +/- 0.1
Stacking ht	2.00	1.27

ITEM DESCRIPTION	CURRENT TRAY: 4221230-0001			PROPOSED: 4226481-0001			COMMENT
	DIM	Upper Limits	Lower Limits	DIM	Upper Limits	Lower Limits	
Overall Length	322.6	322.85	322.35	322.6	322.85	322.35	NO CHANGE
Layout Length	315.0	315.25	314.75	315.0	315.25	314.75	NO CHANGE
Layout Width	135.9	136.15	135.65	135.9	136.15	135.65	NO CHANGE
Layout Length on Top Stack frame	311.15	311.40	311.02	311.15	311.40	311.02	NO CHANGE
Layout Width on Top Stack frame	132.08	132.33	131.95	132.08	132.33	131.95	NO CHANGE
Layout Length on Bottom Stack frame	311.66	311.91	311.53	311.66	311.91	311.53	NO CHANGE
Layout Width on Bottom Stack frame	132.59	132.84	132.46	132.59	132.84	132.46	NO CHANGE
End Tab Length	92.1	92.35	91.85	92.1	92.35	91.85	NO CHANGE
Overall Height	7.62	7.75	7.49	7.62	7.75	7.49	NO CHANGE
Stack Height	2.00	2.13	1.87	1.27	1.40	1.14	CHANGE
Tray Matrix No.	08x23			08x23			NO CHANGE
Pitch M	19.65	19.78	19.52	19.65	19.78	19.52	NO CHANGE
Pitch M3	13.80	13.93	13.67	13.80	13.93	13.67	NO CHANGE
Pitch M1	10.10	10.23	9.97	10.10	10.23	9.97	NO CHANGE
Pitch M2	13.40	13.53	13.27	13.40	13.53	13.27	NO CHANGE
Cavity Size	10.30	10.38	10.22	10.3	10.38	10.22	NO CHANGE
Package seating height (Top)	0.67	0.75	0.59	0.94	1.04	0.84	CHANGE
Package seating height (Bottom)	2.18	2.26	2.10	1.15	1.25	1.05	CHANGE

**Group 2 Tray Comparison Tables:**

**Description of Change/Change Proposal: 6x6 BGA**

	PROBLEM (FROM)	SOLUTION (TO)
	 	 
	<b>4218374-0001(UBoT)</b>	<b>4226235-0001(peak)</b>
Supplier	UBOT	Peak
Stacking ht	2.00	1.27
Cavity size	6.20	6.25
Seating ht top bottom	2.00 2.00	1.35 1.32

ITEM DESCRIPTION	CURRENT TRAY : 4218374-0001			PROPOSED: 4226235-0001			COMMENT
	DIM	Upper Limits	Lower Limits	DIM	Upper Limits	Lower Limits	
Overall Length	322.6	322.85	322.35	322.6	322.85	322.35	NO CHANGE
Layout Length	315.0	315.25	314.75	315.0	315.25	314.75	NO CHANGE
Layout Width	135.9	136.15	135.65	135.9	136.15	135.65	NO CHANGE
Layout Length on Top Stack frame	311.15	311.40	311.02	311.15	311.40	311.02	NO CHANGE
Layout Width on Top Stack frame	132.08	132.33	131.95	132.08	132.33	131.95	NO CHANGE
Layout Length on Bottom Stack frame	311.66	311.91	311.53	311.66	311.91	311.53	NO CHANGE
Layout Width on Bottom Stack frame	132.59	132.84	132.46	132.59	132.84	132.46	NO CHANGE
End Tab Length	92.1	92.35	91.85	92.1	92.35	91.85	NO CHANGE
Overall Height	7.62	7.75	7.49	7.62	7.75	7.49	NO CHANGE
Stack Height	2.00	2.13	1.87	1.27	1.40	1.14	CHANGE
Tray Matrix No.	10x25			10x25			NO CHANGE
Pitch M	9.00	9.13	8.87	9.00	9.13	8.87	NO CHANGE
Pitch M3	13.10	13.23	12.97	13.10	13.23	12.97	NO CHANGE
Pitch M1	8.70	8.83	8.57	8.70	8.83	8.57	NO CHANGE
Pitch M2	12.40	12.53	12.27	12.40	12.53	12.27	NO CHANGE
Distance of tray singulation from corner of tray	34.3	34.55	34.05	34.3	34.55	34.05	NO CHANGE
Tray singulation width	25.40	25.53	25.27	25.4	25.53	25.27	NO CHANGE
Tray Lifting surface height	2.54	2.67	2.41	2.54	2.67	2.41	NO CHANGE
Cavity Size (X)	6.20	6.33	6.12	6.25	6.33	6.17	CHANGE
Cavity Size (Y)	6.20	6.33	6.12	6.25	6.33	6.17	CHANGE
Pedestal Design	FLOOR SUPPORT			FLOOR SUPPORT			NO CHANGE
Package seating height (Top)	2.00	2.08	1.92	1.35	1.45	1.25	CHANGE
Package seating height (Bottom)	2.00	2.08	1.92	1.32	1.42	1.22	CHANGE

**Reason for Change:**

New tray offers improvement on tray warpage, chipping, stuck up caused by current tray

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

None

**Changes to product identification resulting from this PCN:**

New tray

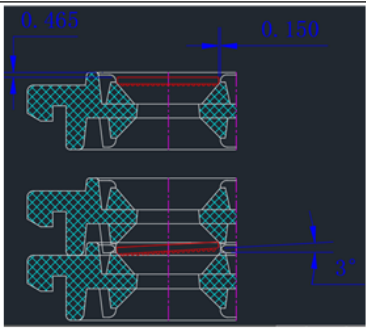
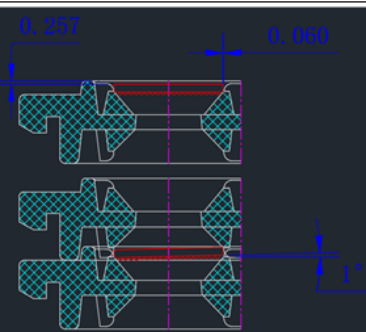
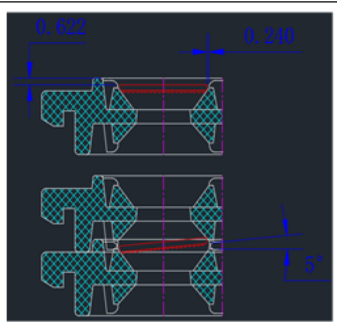
**Group 1 Product Affected:**

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TM4C1290NCZADI3	TM4C1299KCZADI3	TM4C129DNCZADT3	TM4C129XNCZADT3
TM4C1290NCZADT3	TM4C1299KCZADT3	TM4C129ENCZADT3	TM4E129BNCZADI3
TM4C1292NCZADT3	TM4C1299NCZADI3	TM4C129LNCZADT3	TM4E129BNCZADT3
TM4C1294NCZADT3	TM4C1299NCZADT3	TM4C129XKCZADI3	TM4E129XNCZADI3
TM4C1297NCZADI3	TM4C129CNCZADT3	TM4C129XKCZADT3	

**Group 2 Product Affected:**

MSP430FR59941IZVW	MSP430FR5994IZVW	TLV320AIC34IZAS
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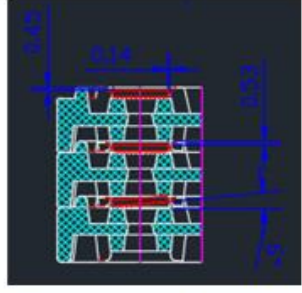
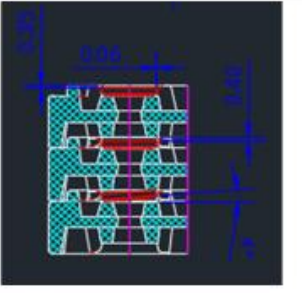
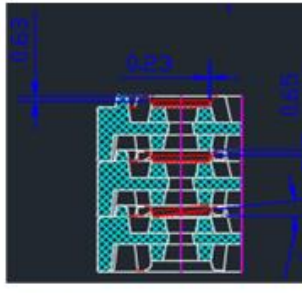
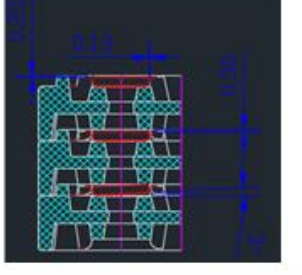
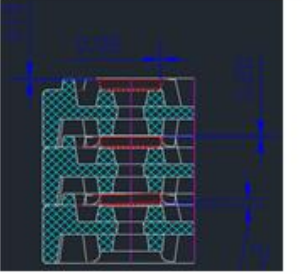
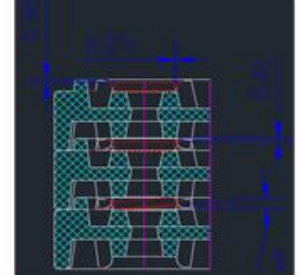
**Group 1 FIT analysis:**

	NOMINAL PKG vs NOMINAL TRAY	MAXIMUM TRAY vs MINIMUM PACKAGE	MINIMUM TRAY vs MAXIMUM PACKAGE
ZAD			

**REMARKS:**

- Rotation is less than 10 degrees
- Lateral distance clearance is less than 0.5 mm

**Group 2 FIT analysis:**

	NOMINAL PKG vs NOMINAL TRAY	MAXIMUM TRAY vs MINIMUM PACKAGE	MINIMUM TRAY vs MAXIMUM PACKAGE
ZVW			
ZAS			

**REMARKS:**

- Rotation is less than 10 degrees
- Lateral distance clearance is less than 0.5 mm

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