

<b>PCN Number:</b>	20191212001.1A	<b>PCN Date:</b>	April 13, 2020
<b>Title:</b>	New 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>	Mar 12 2020		
<b>Change Type:</b>			
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Assembly Process
<input type="checkbox"/>	Design	<input type="checkbox"/>	Assembly Materials
<input type="checkbox"/>	Test Site	<input checked="" type="checkbox"/>	Electrical Specification
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Mechanical Specification
<input type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>	Test Process
<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 Materials
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Process
<input type="checkbox"/>		<input type="checkbox"/>	Part number change

### PCN Details

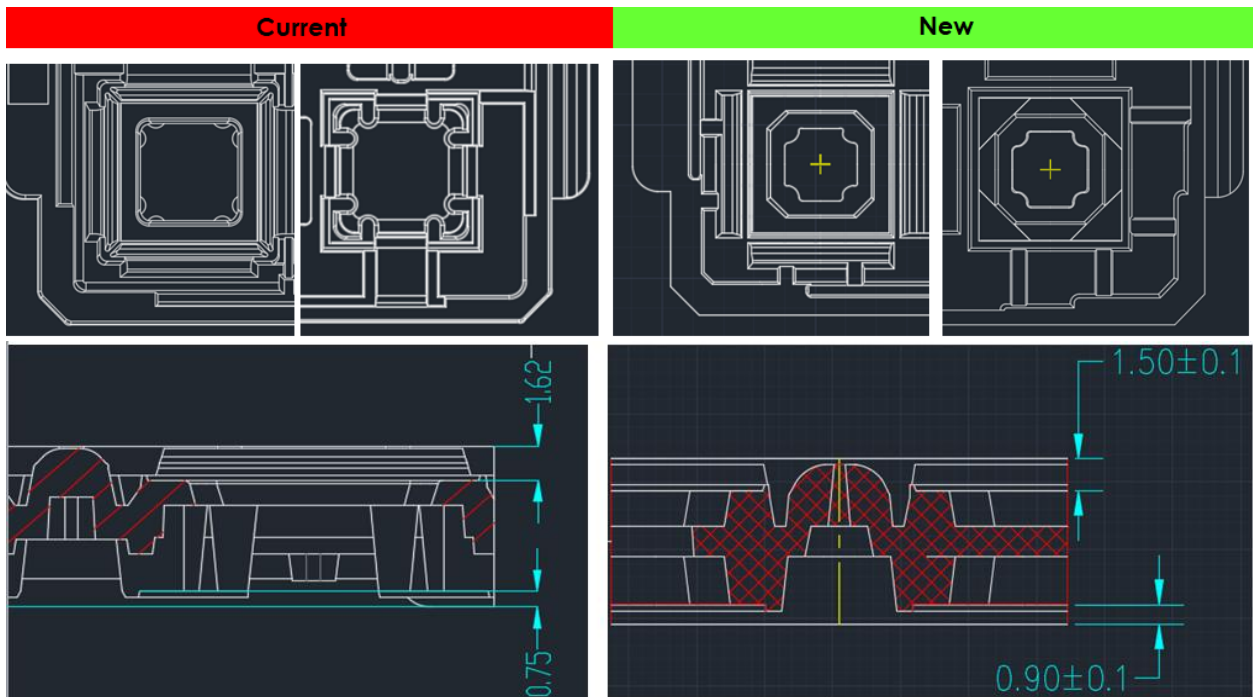
#### Description of Change:

**Revision A** is to update/correct 1) the seating height for the current tray in Group 1 description of change and 2) the cavity size (X) dimensions in the current tray group 2 dimension table located below in the description of change section. Additionally, there are a few devices in Group 1 below that are being retracted. These devices will continue to be manufactured as prior and will not be subjected to the change described in this notification. Affected devices are identified with a **strikethrough** and are highlighted in yellow in the Product Affected Section.

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


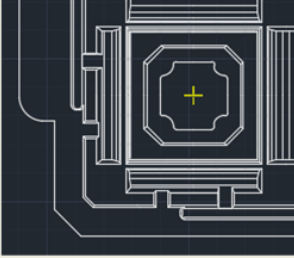
#### Group 1 Change Description - 14 x 14 TQFP Tray Change:

Tray Comparison Tables:

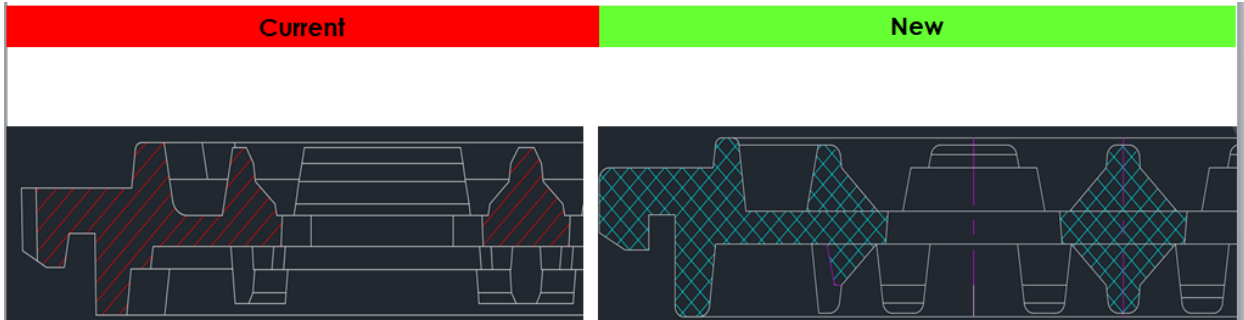


	4223432-0001	4224972-0001
Supplier	UBOT	Peak
Floor design	Circular square	Octagon
Cavity size	16.55 +/- 0.08	16.10 +/- 0.08
Seating ht	1.62 mm (top) 0.75 mm (bottom)	1.5 mm (top) 0.9 mm (bottom)

## Engineering Validation Results – Attribute Comparison

	EXISTING	PROPOSED	COMMENT
	<b>4223432-0001</b>	<b>4224972-0001</b>	CHANGE
* Supplier Part Number :	UQ1414 1.0 0615XB	ND 1414 1.0 0615 13 REV.G	CHANGE
* Gram Weight:	155	157	CHANGE
* Surface Resistivity :	10 <sup>4</sup> - 10 <sup>10</sup> ohm/sq	10 <sup>4</sup> - 10 <sup>10</sup> ohm/sq	UNCHANGE
* Package Size :	14x14x1.0	14x14x1.0	UNCHANGE
* Package Type :	TQFP	TQFP	UNCHANGE
Temperature Rating :	150C	150C	UNCHANGE
Matrix (Column X Rows) :	06x15	06x15	UNCHANGE
Fence design	Fillet	Fillet	UNCHANGE
Raw Material :	Carbon Fiber	Carbon Fiber	UNCHANGE
Color :	BLACK	BLACK	UNCHANGE
FLOOR DESIGN			CHANGE

**Group 3 Change Description - 13 x 13 BGA Tray Change:**



	4212436-0001	4224857-0001
Supplier	UBOT	Peak
Tray Fence	Chamfered	Fillet
Cavity size (LSL)	13.20 + 0.08 13.20 - 0.04	13.30 + 0.08 13.30 - 0.08
Seating ht	1.64 mm (top) 2.00 mm (bottom)	1.27 mm (top) 1.37 mm (bottom)

MATERIAL DESCRIPTION	EXISTING	PROPOSED	COMMENT
		4212436-0001	4224857-0001
* Supplier Name :	UBOT	Peak	CHANGE
* Supplier Part Number :	UB13131.40820XB	NX BG1313 1.74 0820 13	CHANGE
* Gram Weight:	110	132.5	CHANGE
* Surface Resistivity :	1 exp5 - 1 exp11	1 exp5 - 1 exp11	NO CHANGE
* Package Size :	13x13	13x13	NO CHANGE
* Package Type :	BGA	BGA	NO CHANGE
Temperature Rating :	150C	150C	NO CHANGE
Matrix (Column X Rows) :	8x20	8x20	NO CHANGE
Raw Material :	Carbon fiber	Carbon fiber	NO CHANGE
Thickness :	7.62 mm	7.62	NO CHANGE
Color :	BLACK	BLACK	NO CHANGE
Floor Design	Yes	Yes	NO CHANGE

ITEM DESCRIPTION	4212436-0001 UB13131.40820XB			4224857-0001 NX BG1313 1.74 0820 13			COMMENT
	DIM	Upper Limits	Lower Limits	DIM	Upper Limits	Lower Limits	
	Overall Length	322.6	322.85	322.35	322.6	322.85	
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	1.27	1.40	1.14	1.27	1.40	1.14	NO CHANGE
Tray Matrix No.	08x20			08x20			NO CHANGE
Pitch M	15.45	15.58	15.32	15.45	15.58	15.32	NO CHANGE
Pitch M3	15.00	15.13	14.87	15.00	15.13	14.87	NO CHANGE
Pitch M1	15.00	15.13	14.87	15.00	15.13	14.87	NO CHANGE
Pitch M2	15.00	15.13	14.87	15.00	15.13	14.87	NO CHANGE
Distance of tray singulation from corner of tray	34.30	34.55	34.05	34.30	34.55	34.05	NO CHANGE
Tray singulation width	25.40	25.53	25.27	25.40	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)	13.20	13.28	13.16	13.30	13.38	13.22	CHANGE
Cavity Size (Y)	13.20	13.28	13.16	13.30	13.38	13.22	CHANGE
Pedestal Design	SLOPE			SLOPE			NO CHANGE
Package seating height (Top)	1.64	1.71	1.57	1.27	1.37	1.17	CHANGE
Package seating height (Bottom)	2.00	2.05	1.92	1.35	1.45	1.25	CHANGE

<b>Reason for Change:</b>
New tray offers improved centering of device in tray pocket
<b>Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):</b>
None

<b>Changes to product identification resulting from this PCN:</b>			
New tray			
<b>Product Affected:</b>			
<b>Group 1 Device list:</b>			
DS90C387AVJD/NOPB	MSP432E401YTPDT	TM4C129ENCPDTT3	TMS320F28378SPZPS
DS90C387RVJD/NOPB	RDX2528APDT	TMGHPE035PDT	TMS320F28379SPZPS
DS90C387VJD/NOPB	RDX2705APDT	TMS320F28062PZPS	TMS320F28379SPZPT

<b>DS90C387VJDX/NOPB</b>	SC4C1290KCPDTI2	TMS320F28065PZPS	TSB12LV01BPZT
DS90CF388AVJD/NOPB	SC4C1290KCPDTI3	TMS320F28065UPZPS	TSB12LV26PZT
DS90CF388VJD/NOPB	SC4C1294NCPDTI2	TMS320F28066PZPS	TSB41LV06APZP
DS90CR481VJD/NOPB	SCANSTA112VS/NOPB	TMS320F28067PZPS	TSB42AB4PDT
DS90CR482VS/NOPB	<b>SCANSTA112VSX/NOPB</b>	TMS320F28069PZPS	TSB43AB21AIPDTEP
<b>DS90CR482VSX/NOPB</b>	TM4C1290NCPDTT3	TMS320F28069UPZPS	TSB43AB21APDT
DS90CR483AVJD/NOPB	TM4C1292NCPDTI3	TMS320F28075PZPS	TSB43AB22APDT
DS90CR483VJD/NOPB	TM4C1292NCPDTT3	TMS320F28075PZPT	TSB43AB22PDT
<b>DS90CR483VJDX/NOPB</b>	TM4C1294KCPDTI3	TMS320F28076PZPS	TSB43AB23IPDTEP
DS90CR484AVJD/NOPB	TM4C1294KCPDTT3	TMS320F28374SPZPS	TSB43AB23PDT
DS90CR484VJD/NOPB	TM4C1294NCPDTI3	TMS320F28374SPZPT	TVP5158IPNP
DS90CR485VS/NOPB	TM4C1294NCPDTT3	TMS320F28375DPZPS	TVP5158PNP
DS90CR486VS/NOPB	TM4C129CNPDTT3	TMS320F28375SPZPS	X2595A2PDT
F28PLC90DPZPS	TM4C129DNCPDTI3	TMS320F28375SPZPT	X2702EEPHIPDT
FDC5000PZPT	TM4C129DNCPDTT3	TMS320F28376SPZPS	XFF28377SPZPS
LM9740CCVS/NOPB	TM4C129EKCPDTI3	TMS320F28376SPZPT	XIO2001IPNP
LM9779CCVS/NOPB	TM4C129EKCPDTT3	TMS320F28377SPZPS	XIO2001PNP
LM9833CCVJD/NOPB	TM4C129ENCPDTI3	TMS320F28377SPZPT	

**Group 3 Device list:**

AM1806EZCE3	AM3354BZCED60	TMS320C6746EZCED4	TMS320DM365ZCE27
AM1806EZCE4	AM3356BZCEA60	TMS320C6748EZCE3	TMS320DM365ZCE30
AM1806EZCEA3	AM3358BZCE60	TMS320C6748EZCE4	TMS320DM365ZCED30
AM1806EZCED4	DMVA1ZCE	TMS320C6748EZCEA3	TMS320DM365ZCEF
AM1808EZCE3	DMVA25ZCE	TMS320C6748EZCED4	TMS320DM367ZCE
AM1808EZCE4	DMVA2ZCE	TMS320C6748EZCED4E	TMS320DM367ZCE30
AM1808EZCEA3	DMVA2ZCED	TMS320DM335DZCE216	TMS320DM367ZCED
AM1808EZCED4	OMAPL138EZCE3	TMS320DM335ZCE216	TMS320DM367ZCED30
AM3351BZCE30	OMAPL138EZCE4	TMS320DM335ZCE270	TMS320DM367ZCEF
AM3351BZCE60	OMAPL138EZCEA3	TMS320DM355CZCE216	TMS320DM368ZCE
AM3351BZCEA30	OMAPL138EZCEA3D	TMS320DM355CZCEA21	TMS320DM368ZCE48
AM3351BZCEA60	OMAPL138EZCED4	TMS320DM355DZCE135	TMS320DM368ZCED
AM3352BZCE30	OMAPL138EZCED4E	TMS320DM355DZCE216	TMS320DM368ZCED48F
AM3352BZCE60	OMAPL138EZCEML	TMS320DM355DZCE270	TMS320DM368ZCEDF
AM3352BZCEA30	SM32DM355GCEM216EP	TMS320DM355DZCEA21	TMS320DM368ZCEDUP
AM3352BZCEA60	SN12065850BZCE	TMS320DM355ZCE135	TMS320DM368ZCEF
AM3352BZCED30	SN12095260BZCE	TMS320DM355ZCE216	TMS320DM369ZCE
AM3352BZCED60	TLK3131ZWQ	TMS320DM355ZCE270	TMS320DM369ZCED
AM3354BZCE60	TMS320C6746EZCE3	TMS320DM355ZCEA216	TMS320DM369ZCEDF
AM3354BZCEA60	TMS320C6746EZCEA3	TMS320DM365ZCE21	TMS320DM369ZCEF

### Group 1 Device Fit Analysis:

#### FIT ANALYSIS

PKG	NOMINAL TRAY vs NOMINAL PACKAGE	MINIMUM TRAY MAXIMUM PACKAGE	MAXIMUM TRAY vs MINIMUM PACKAGE
PZP, PDT, PNP, NEZ, PZT			

- X and Y clearance is not greater than 0.5 mm
- Rotation angle is less than 10 degrees

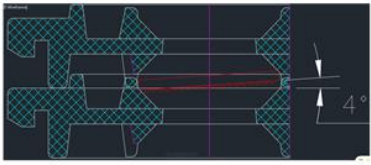
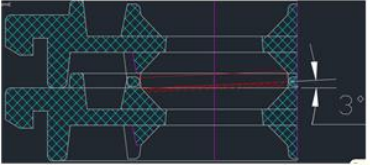
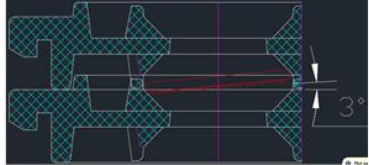
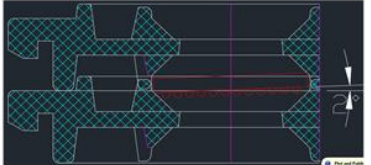
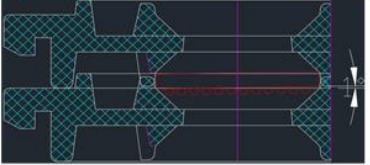
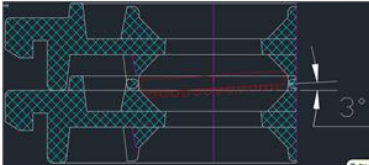
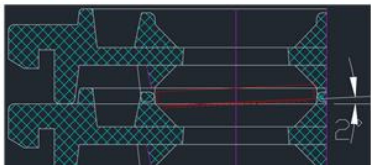
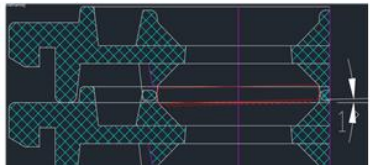
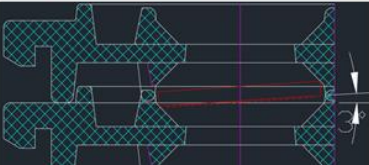
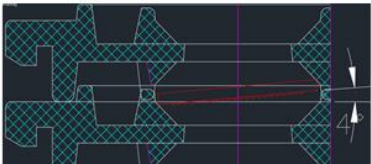
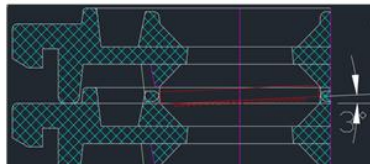
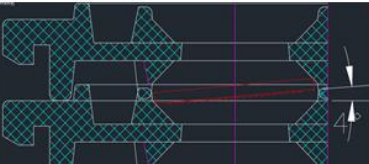
### Group 3 Device Fit Analysis:

#### FIT ANALYSIS

PACKAGE	NOMINAL TRAY vs NOMINAL PACKAGE	TRAY MINIMUM vs PACKAGE MAXIMUM	TRAY MAXIMUM vs PACKAGE MINIMUM
ZCE/GCE			
ZWQ			
ZXK			
ZAA			

- X and Y clearance is not greater than 5 mm

## FIT ANALYSIS

PACKAGE	NOMINAL TRAY vs NOMINAL PACKAGE	TRAY MINIMUM vs PACKAGE MAXIMUM	TRAY MAXIMUM vs PACKAGE MINIMUM
ZCE/GCE			
ZWQ			
ZXK			
ZAA			

- Angle is less than 10degrees

8

For questions regarding this notice, e-mails can be sent to the 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>
WW PCN Team	<a href="mailto:PCN_ww_admin_team@list.ti.com">PCN_ww_admin_team@list.ti.com</a>

### IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for,

and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale ([www.ti.com/legal/termsofsale.html](http://www.ti.com/legal/termsofsale.html)) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.