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Revision History

Revision	Date	Item/Section	Author/Department	Changes
1.0	2022-07-21	All pages	J. Tannenbaum/SCM	Initial Release

Scope of document

This document describes the packing details for tray and tape and reel. The Moisture Sensitivity Level is also defined in the document.

It is valid for the following products which have all an aQFN 11x11 package:

Inova Device ID	Partnumber Reel	Partnumber Tray
INAP590TAQ	INAP590TAQ-R2	INAP590TAQ-T
INAP562TAQ	INAP562TAQ-R2	INAP562TAQ-T
INAP592TAQ	INAP592TAQ-R2	INAP592TAQ-T
INAP563TAQ	INAP563TAQ-R2	INAP563TAQ-T
INAP593TAQ	INAP593TAQ-R2	INAP593TAQ-T
INAP565TAQ	INAP565TAQ-R2	INAP565TAQ-T
INAP595TAQ	INAP595TAQ-R2	INAP595TAQ-T
INAP566TAQ	INAP566TAQ-R2	INAP566TAQ-T
INAP596TAQ	INAP596TAQ-R2	INAP596TAQ-T
INAP567TAQ	INAP567TAQ-R2	INAP567TAQ-T
INAP597TAQ	INAP597TAQ-R2	INAP597TAQ-T
INAP562RAQ	INAP562RAQ-R2	INAP562RAQ-T
INAP592RAQ	INAP592RAQ-R2	INAP592RAQ-T
INAP563RAQ	INAP563RAQ-R2	INAP563RAQ-T
INAP593RAQ	INAP593RAQ-R2	INAP593RAQ-T


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1. Tray

Tray size is 176 aQFN 11x11 devices per tray.

1.1 Tray drawing

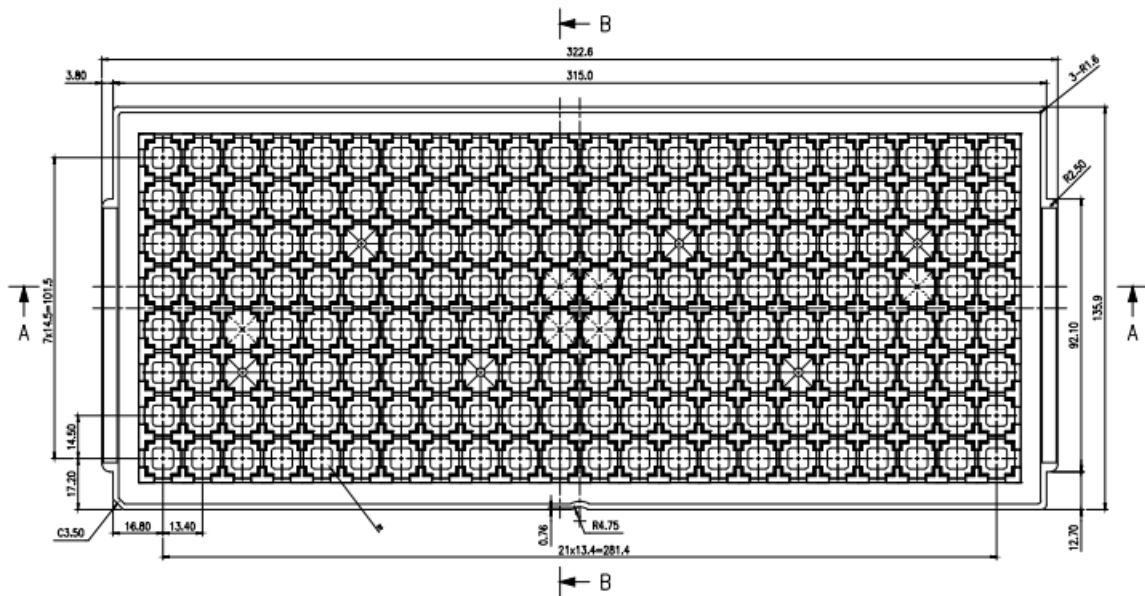


Figure 1 Outer dimension of tray

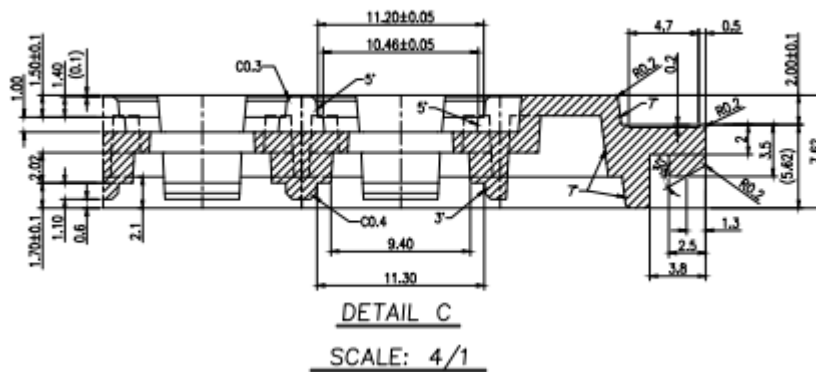


Figure 2 Dimensions of tray cup

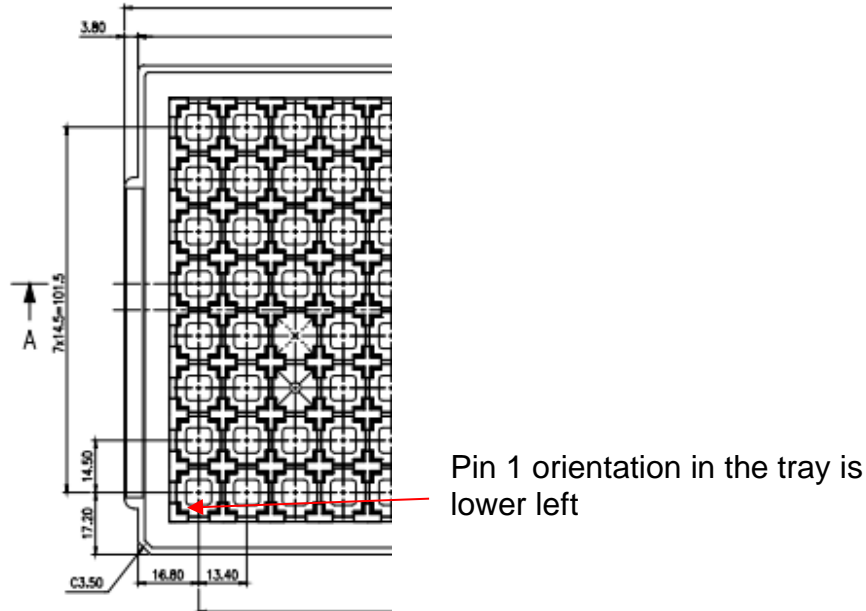


Figure 3 Pin 1 orientation in the tray

The warpage of the tray is $< 0.76\text{mm}$

1.2 Packing of tray

The parts and the trays are baked and dry sealed. MSL is 3.

Tray and packing material are antistatic material. A desiccant and humidity indicator are packed in the Moisture Barrier Bag (MBB). The tray is heat resistant up to 125°C and the Bag Seal Date is mentioned on the MBB.

The quantity of single tray is marked with “-T” at the Inova Part-No. The sales quantity of each tray is 176 pieces. Packing includes one tray and one cover tray sealed in MBB.



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Figure 4 ESD protective MBB for a single tray

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1.3 Labeling of tray

The Inova Standard Label is nonspecific. The code used is "Barcode 128". The dimensions of the label are 105mm x 51mm. The Inova Standard Label is needed on each MBB and Cardboard. Each label includes the following information:

Table 1 Overview of label content

Data identifier	Description	Content / Example	Barcode
(1P)	Inova Part No.	Main product number: e.g. "INAP590TAQ-T"	✓
(1T)	Inova Lot-No.	Batch number (Lot#): e.g. "7IVT36690.000"	✓
(9D)	Date Code	Date Code (Abbreviation on the Order: DC): e.g. "1851"	✓
(Q)	Quantity	Content of one packing unit: 176 pcs.	✓
(1C)	Lot no. (supplier)	Individual production lot Number from supplier	(✓)
(14D)	Expiration Date	<i>Leave this field empty for trays</i>	✓
(16D)	Manufacturing Date	Shrink-wrap date of Bag Seal layout: YYYYMMDD	✓
---	Picture1	Inova Logo (fix)	---
---	Picture2	"bleifrei" / "leadfree" (fix)	---
---	Picture3	"MSL3" (fix)	---
---	Picture4	"Confidential"*	---

**Print only needed for HDCP Parts*

Data identifier and description are not variable.



Figure 5 Label of a single tray (INAP590TAQ-T)

2. Tape and Reel

Reel Size [mm] = 13 - 0.2/+0.5

Reel content: 2000 aQFN 11x11 devices

2.1 Tape and Reel information

2.1.1 Carrier Tape

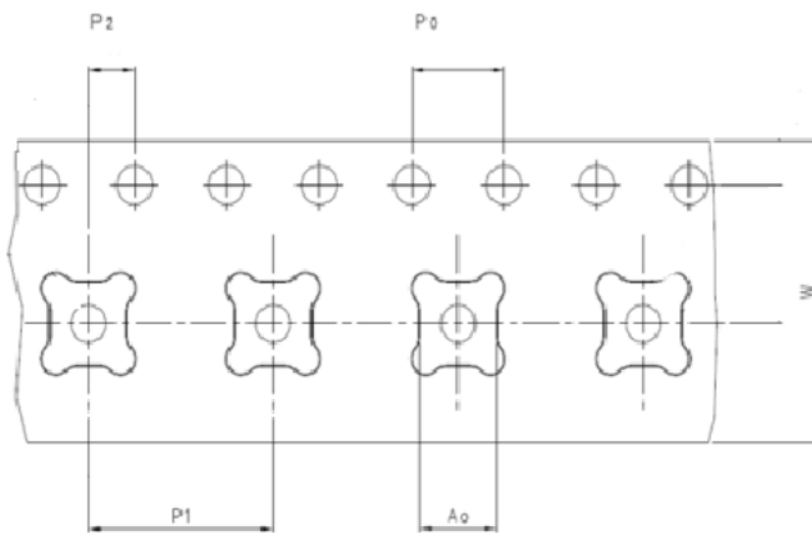


Figure 6 Carrier tape drawing

Table 2 Carrier tape dimensions

	Dimensions in mm
P0	4.0 +/- 0.1
P1	16.0 +/- 0.1
P2	2.0 +/- 0.1
W	24.0 +/- 0.3
A0	according DIN EN 60286-3:2019-08

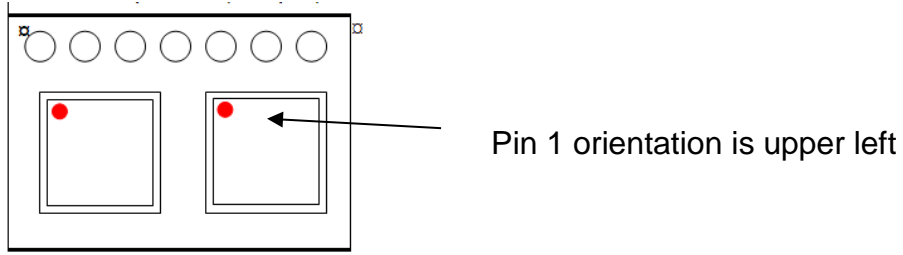


Figure 7 Pin 1 orientation in reel

2.1.2 Reel information

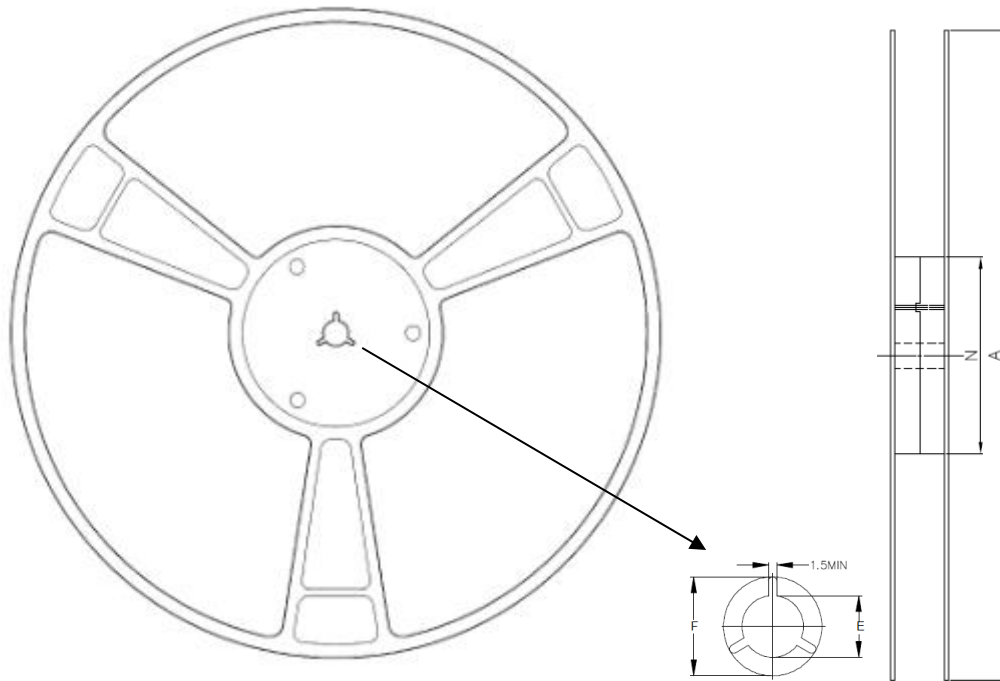



Figure 8 Reel drawing

Table 3 Reel dimension detailed

Tape Width mm	Reel Diameter A mm	HUB Diameter N mm	Arbor Hole F in mm	Arbor Hole E in mm
24	330 +/- 2.0	100 +/- 2.0	20.0 min	13.0 +0.5 / -0.2

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2.1.3 Leader / Trailer

- There is a leader of 400mm. The whole leader consists of empty compartments covered by tape
- There is a trailer of 400mm. The whole trailer consists of empty compartments covered by tape.

2.2 Packing of Reel

The content quantity of a reel for INAP5XXXAQ always is 2000 parts. The reel has an own article number which ends with –R2 in the Inova part number (one reel with 2000 parts). A maximum of 2 different wafer lots and date codes is allowed. If one reel contains 2 different lot numbers and date codes, 2 labels are pasted on it.

Reel and packing material are of anti-static material. Packing also contains desiccant and humidity indicator card.

2.3 Labeling of Reel

2.3.1 Label Information and content

Inova Standard label is nonspecific. The code using is “Barcode 128”. Each label includes the following information:


Table 4 Inova Standard Label

Data identifier	Description	Content / Example	Barcode
(1P)	Inova Part No.	Main product number: e.g. "INAP590TAQ-R2"	✓
(1T)	Inova Lot-No.	Batch number (Lot#): e.g. "71VP24595.000"	✓
(9D)	Date Code	Date Code (Abbreviation on the Order: DC): e.g. "1801"	✓
(Q)	Quantity	Content of one packing unit	✓
(1C)	Lot no. (supplier)	Individual production lot number from supplier	(✓)
(16D)	Manufacturing Date	Date of manufacturing – layout: YYYYMMDD	✓
(14D) *	Expiration date	Date of expiry - layout: YYYYMMDD	✓
---	Picture1	Inova Logo (fix)	---
---	Picture2	"bleifrei"/"leadfree" (fix)	---
---	Picture3	"MSL3" (fix)	---
---	Picture4	"Confidential!"**	---

* One year after bag seal date

**Print only needed for HDCP parts

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Data identifier and description are not variable.



Figure 9 Inova Label of reel, MBB and cardboard (barcode 128)

2.3.2 Label position

The Inova Standard Label is placed on each reel, MBB and cardboard. In case of 2 different production lots, 2 different labels for mother and child lot are pasted on reel, MBB and cardboard.



Figure 10 Label on reel


	<p align="center">Customer Packing Specification APIX3 11x11</p>	<p>Document: Q_packing_specification_APIX 3_aQFN11x11_customer_1.0. docx Date: 2022-07-21 Page: 11 of 12</p>
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Figure 11 Label on MBB



Figure 12 Label on cardboard

3. Moisture Sensitivity Level (MSL) of Device

The moisture sensitivity level of the devices is as following:

Table 5 Overview of Moisture Sensitivity Level

Partnumber Reel	Partnumber Tray	MSL
INAP590TAQ-R2	INAP590TAQ-T	3
INAP562TAQ-R2	INAP562TAQ-T	3
INAP592TAQ-R2	INAP592TAQ-T	3
INAP563TAQ-R2	INAP563TAQ-T	3
INAP593TAQ-R2	INAP593TAQ-T	3
INAP565TAQ-R2	INAP565TAQ-T	3
INAP595TAQ-R2	INAP595TAQ-T	3
INAP566TAQ-R2	INAP566TAQ-T	3
INAP596TAQ-R2	INAP596TAQ-T	3
INAP567TAQ-R2	INAP567TAQ-T	3
INAP597TAQ-R2	INAP597TAQ-T	3
INAP562RAQ-R2	INAP562RAQ-T	3
INAP592RAQ-R2	INAP592RAQ-T	3
INAP563RAQ-R2	INAP563RAQ-T	3
INAP593RAQ-R2	INAP593RAQ-T	3

3.1 Shelf Life in Sealed Bag

The shelf life of devices in sealed bags is 12 months when stored at <40°C and <90% RH.

3.2 Shelf Life after Opening of Bag

The shelf life after opening the sealed bag is 168 hours at <30°C and 60% RH.

3.3 Baking of devices

The devices need to be baked when

- The humidity indicator is $\geq 10\%$ at $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$
- The shelf life after opening the sealed bag has expired

If bake is required, refer to IPC/JEDEC J-STD-033 for bake procedure in general.

For this device the maximum bake temperature and the bake time is:

- Tray: 125°C - 8 hours
- Reel: 40°C – 8 days