

Revision History

Revision (Rev. x.x)	Date	Originator (Dept. Abbr._Name)	Revision History (Describe what has been changed)
0.1	19.08.2016	Q Lothar Doni	Initial Release of preliminary version
1.0	29.03.2018	L Juliane Tannenbaum	Revision of layout, graphics, information, added labeling

Scope of this 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 aQFN151 11x11 package:

Inova Device ID
INAP560/590TAQ
INAP561/591TAQ
INAP562/592TAQ
INAP563/593TAQ
INAP565/595TAQ

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1. Tray

Tray size is 176 aQFN 11x11 devices per tray.

1.1 Tray drawing

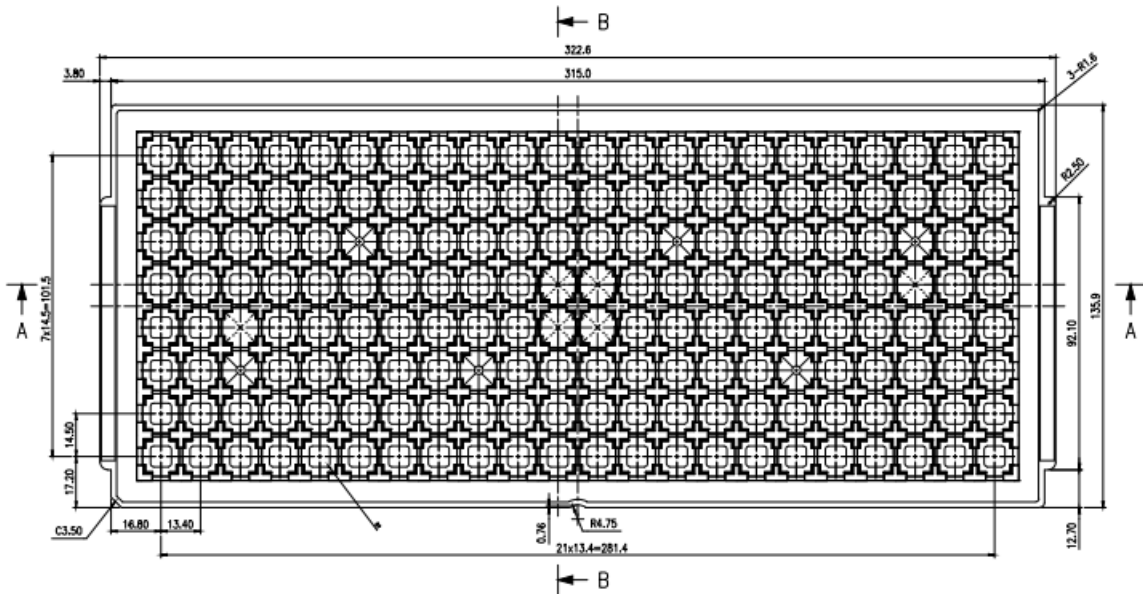


Figure 1 Outer dimension of tray

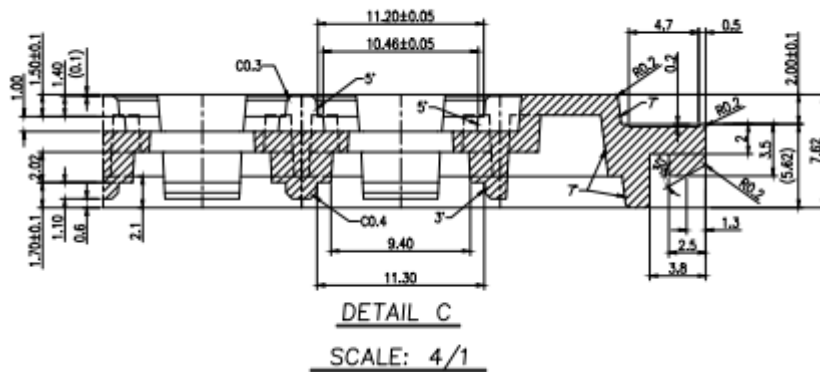


Figure 2 Dimensions of tray cup

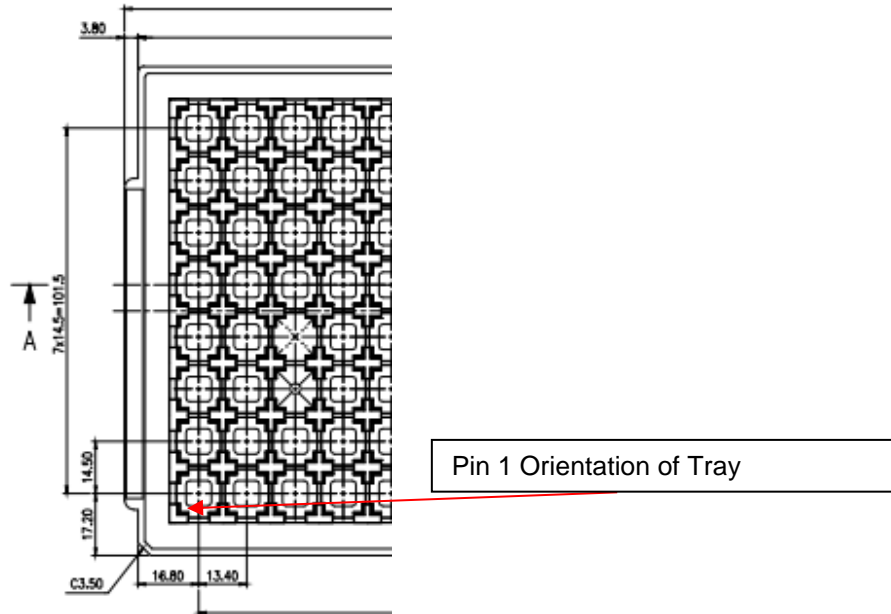


Figure 3 Pin 1 orientation of tray

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


1.2 Packing

Each single tray is marked with “-T” at the Inova Part-No. and have a content of 176 pcs.

Barcode Label is “Code 128”.

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 is packed in the dry bag. The tray is heat resistant up to 150°C for an exposure of up to 24h.

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Each packing unit is labeled with the following information:

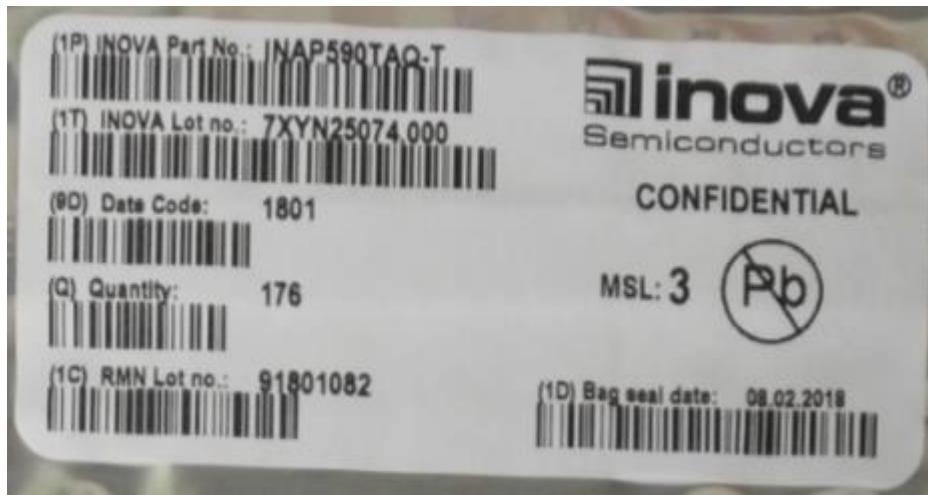


Figure 4 Label of a single tray (INAP5XXTAQ-T)

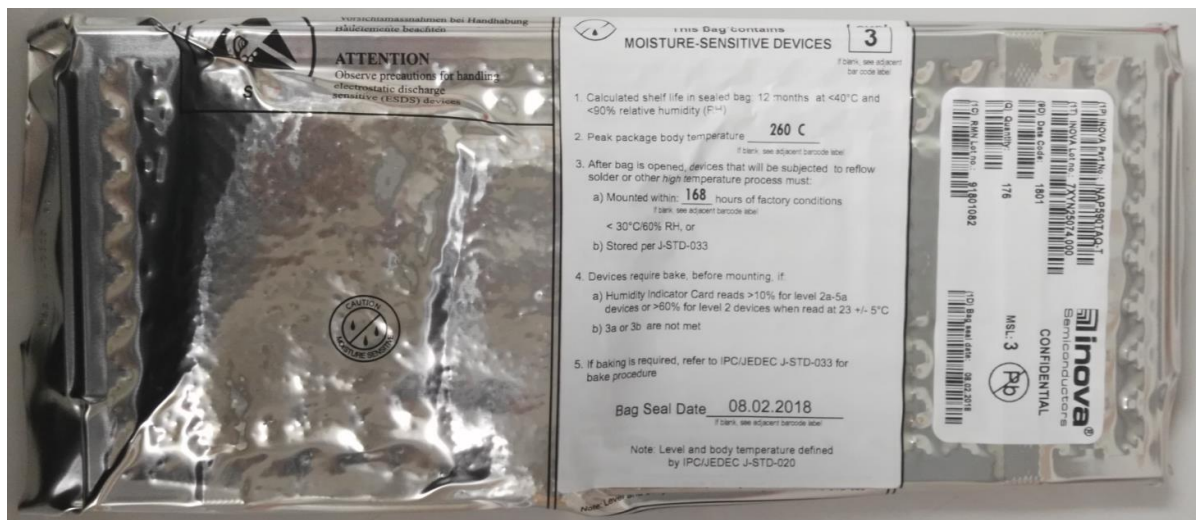


Figure 5 ESD protective dry bag for a tray



Figure 6 Opened ESD bag with contents

2. Tape and Reel

Reel size is 13" including 2000 aQFN 11x11 devices per reel. A maximum of two different lotnumber or datecodes for each reel is possible.

2.1 Tape and Reel drawings

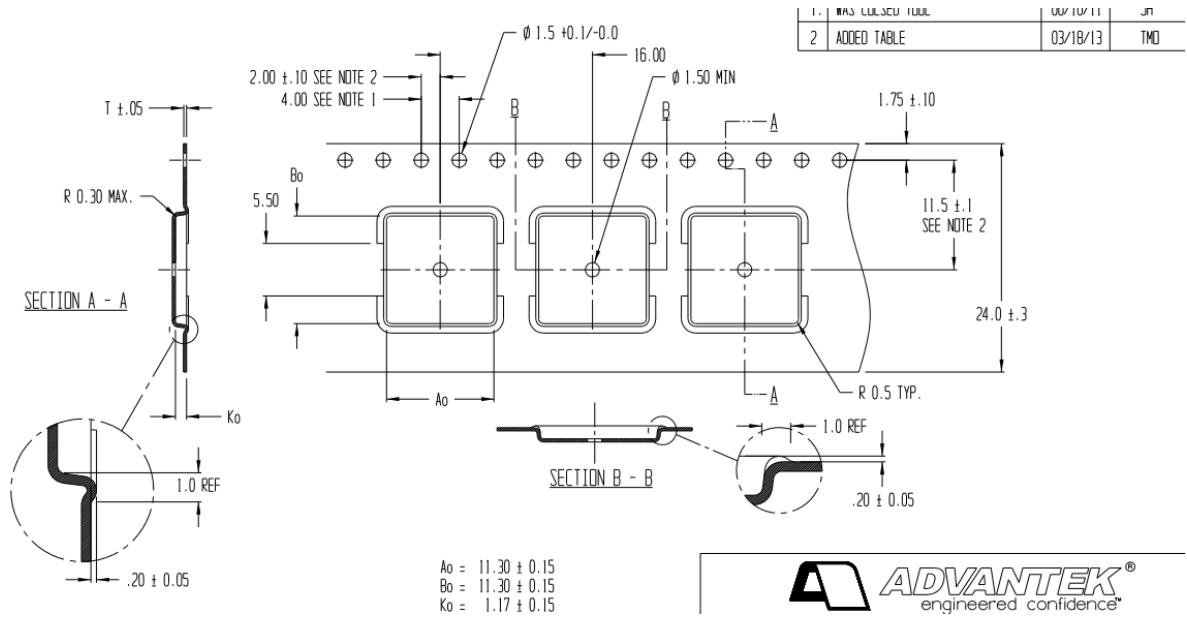


Figure 7 Tape dimensions

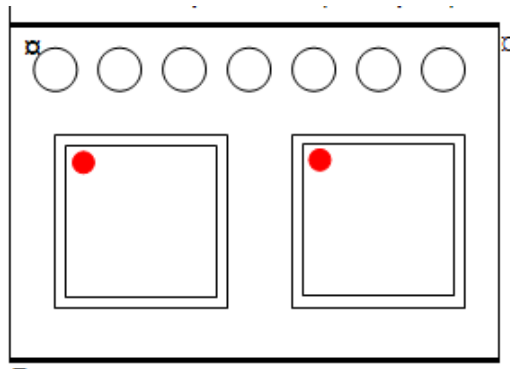


Figure 8 Pin 1 orientation in reel

Tape leader and trailer dimensions

- 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.

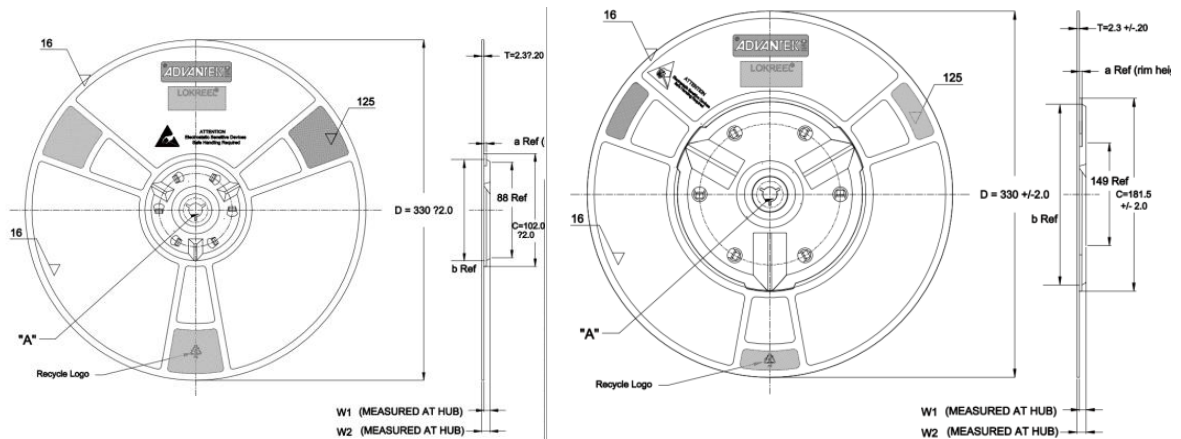
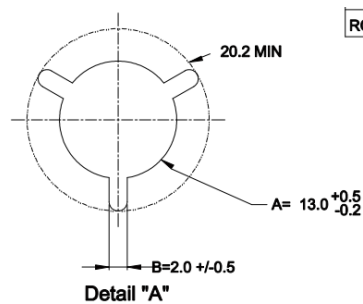


Figure 9 Reel dimensions

Tape Width W mm	Reel Diameter A mm	Reel Inside Width W1 mm	Reel Outside Width W2 mm (minimum)	Ref (rim height) a mm	Ref b mm
24	330	24.4	32.2	1.5	172

Table 1 Reel dimension detailed




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Figure 10 Reel hole dimension detailed

2.2 Tape and Reel surface resistivity

Tape: $\leq 10^{12}$ ohms/sq
Surface Tape: $\leq 10^{12}$ ohms/ sq.
Reel: $\leq 10^{12}$ ohms/sq

2.3 Packing

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

The content quantity of a reel for INAP5XXTAQ 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).



Figure 11 Contents of dry bag for reel


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Figure 12 ESD protective dry bag of reel



Figure 13 Packing of one reel

The cardboard has the dimensions: 35 cm x 35 cm x 4,5 cm (L x W x H) and it's closed with an ESD-Label.

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2.4 Labeling

Two types of labels may be possible:

- Inova standard label with barcode 128 -> on each reel, drybag and cardboard

Optional, if further information are required:

- Inova semiconductors provide a customer specific label with barcode 39 -> on each drybag and cardboard

2.4.1 Inova standard label

Inova standard label is nonspecific. The code using is "Barcode 128". Each label includes the following information:


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. "7IVP24595.000"	✓
(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	(✓)
(1D)	Bag Seal Date	Shrink-wrap date of Bag Seal: layout: DDMMYY	✓
---	Picture1	Inova Logo (fix)	---
---	Picture2	"bleifrei"/"leadfree" (fix)	---
---	Picture3	"MSL3" (fix)	---

Data identifier and description are not variable.



Figure 14 Example of Inova standard label with barcode 128

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2.4.1 Customer specific label

Customer specific label includes some specific information from Inova customers. All label have the same layout. The code using is "Barcode 39". The content can be different.

Data identifier	Description	Content / Example	Barcode
(V)	Supplier ID	Supplier Number from Customer: e.g. "48250016"	✓
(P)	Customer Part No.	Customer specific part number: e.g. "56881470"	✓
(Q)	Quantity	Content of one packing unit	✓
(1K)	Customer Purchase Order No.	Customer Purchase order Number and Date (find in document head of order acknowledgement/delivery note/invoice): e.g. "XYZ No. 382"	✓
(11K)	Packaging ID (unit identification No.)	Ongoing Packaging ID Number for identification of each delivery: e.g. "100999-2116-1"	✓
(1T)	Lot-No.	Batch number (Lot#): e.g. "SIV604012.6"	✓
(9D)	Date Code	Date Code (Abbreviation on the Order: DC): e.g. "1623"	✓

Data identifier and description are not variable. The labels can be peeled-off due to sandwich paper technology.

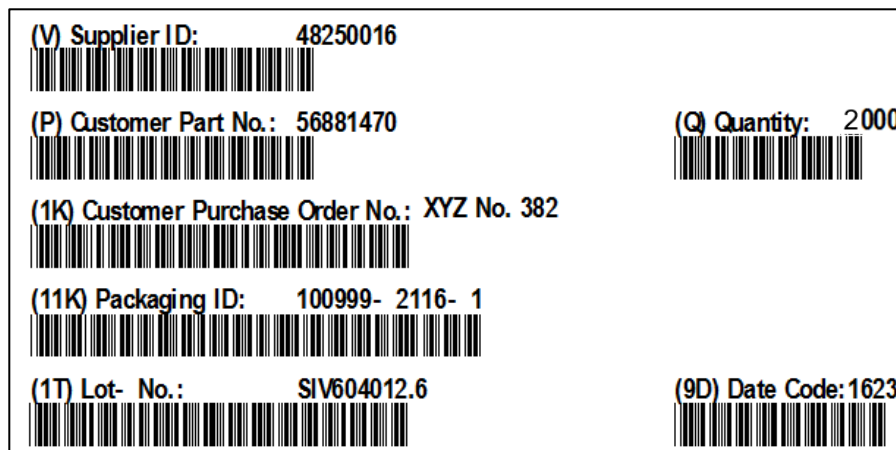



Figure 15 Example of customer specific label with barcode 39

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3. Moisture Sensitivity Level of device

The moisture sensitivity level of the devices is as following

Device ID	MSL
INAP560/590TAQ	3
INAP561/591TAQ	3
INAP562/592TAQ	3
INAP563/593TAQ	3
INAP565/595TAQ	3

Table 2 Overview of Moisture Sensitivity Level

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, the devices may be baked for 48hours at $125^{\circ}\text{C} \pm 5^{\circ}\text{C}$