	<b>Packing Specification</b> <b>INAP375xAQ</b> <b>INAP378RAQ</b>	Document: Q_packing_specification_INAP375xAQ_INAP378RAQ_1_0 Date: 2015-02-06 Page: 1 of 12
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## Revision History

Revision (Rev. x.x)	Date	Originator (Dept. Abbr._Name)	Revision History (Describe what has been changed)
1.0	30.01.2014	Q Lothar Doni	Initial Release

## 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 all aQFN104 9x9 package

<b>Inova Device ID</b>
INAP375TAQ
INAP375RAQ
INAP378RAQ

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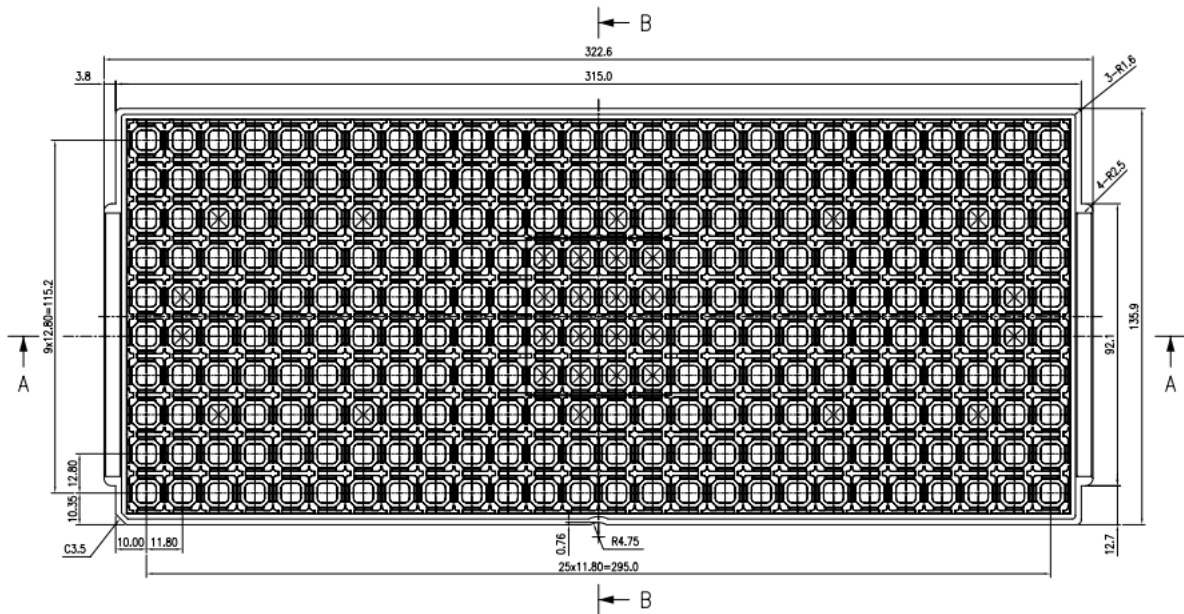
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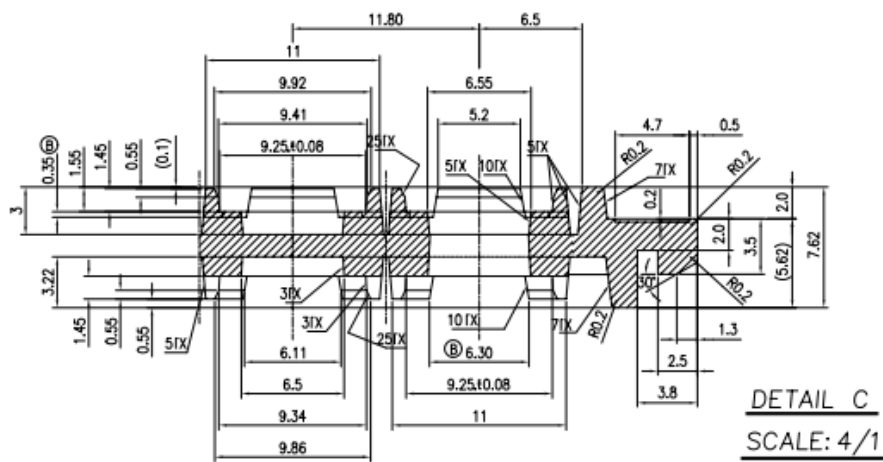
## 1. Tray

Tray size is 260 aQFN 9x9 devices per tray.


### 1.1 Tray Drawing

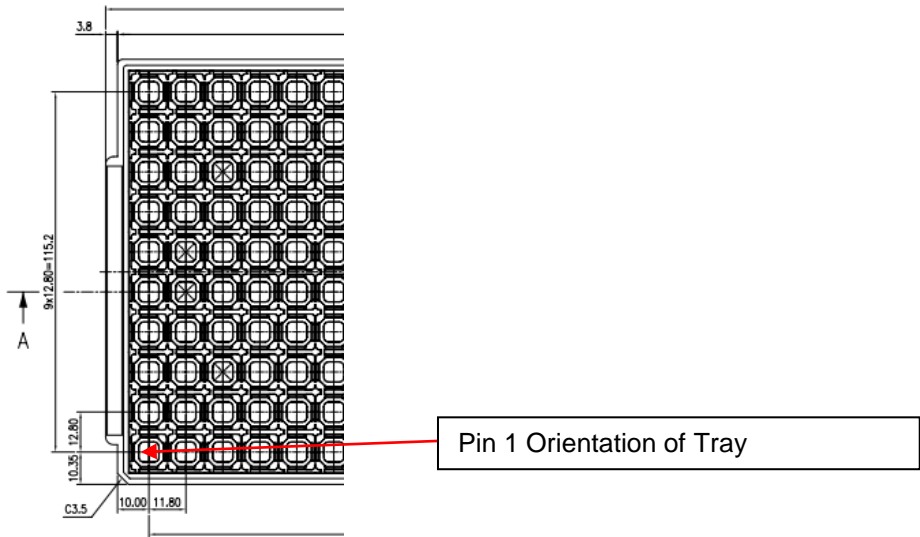


**Figure 1** Outer dimension of tray



**Figure 2** Dimensions of tray cup

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**Figure 3** Pin 1 orientation of tray


The warpage of the trays is < 0.76mm

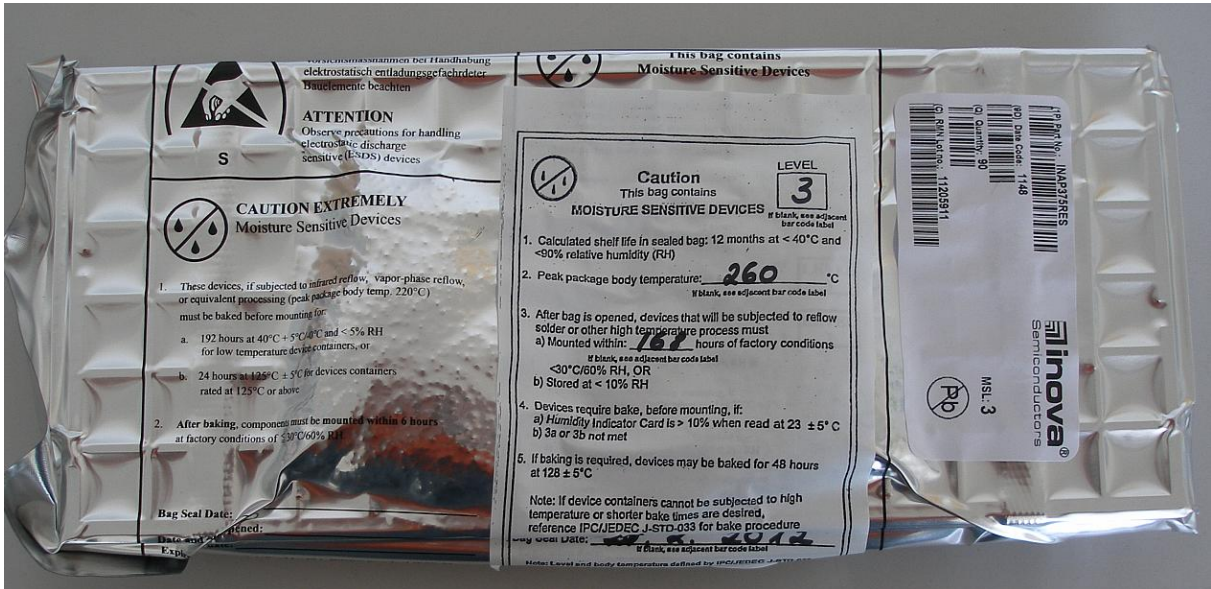
**1.2 Packing of trays**

The parts and the trays are baked and dry sealed. MSL is 3. Each packing unit is labeled.



**Figure 4** Label of tray


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**Figure 5** ESD protective dry bag for a tray



**Figure 6** Opened ESD bag with contents

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The boxes in which the trays are placed vary depending on the number of devices that have been ordered. Box label is identical to dry bag label.

Tray and packing material are anti static material.

A desiccant and humidity indicator is packed in the dry bag.

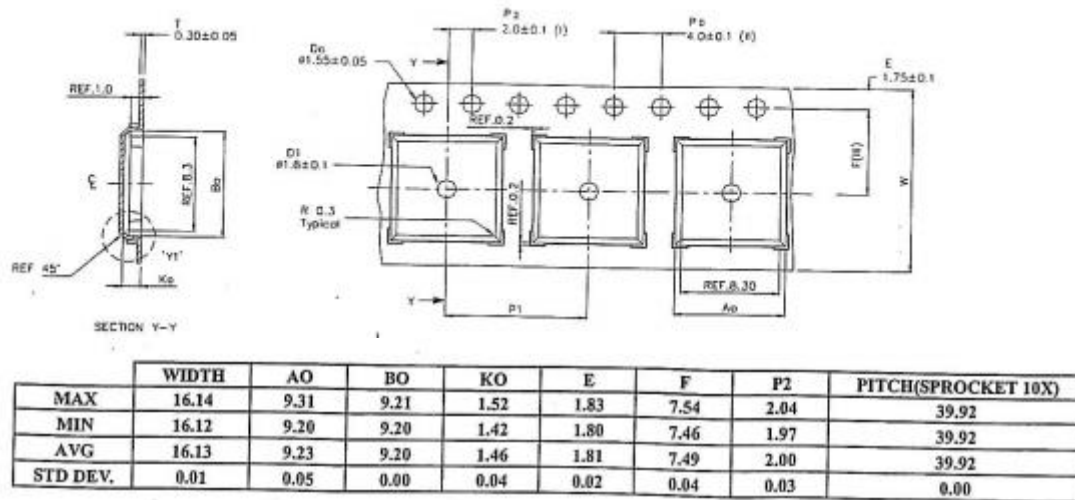
The tray is heat resistant up to 150°C for an exposure of up to 24h.



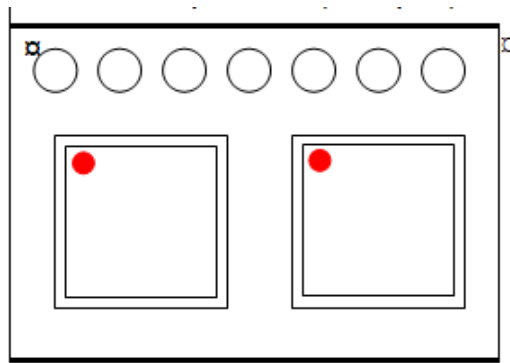
## 2. Tape and Reel

Reel size is 2000 aQFN 9x9 devices per reel.

### 2.1 Tape and Reel drawings



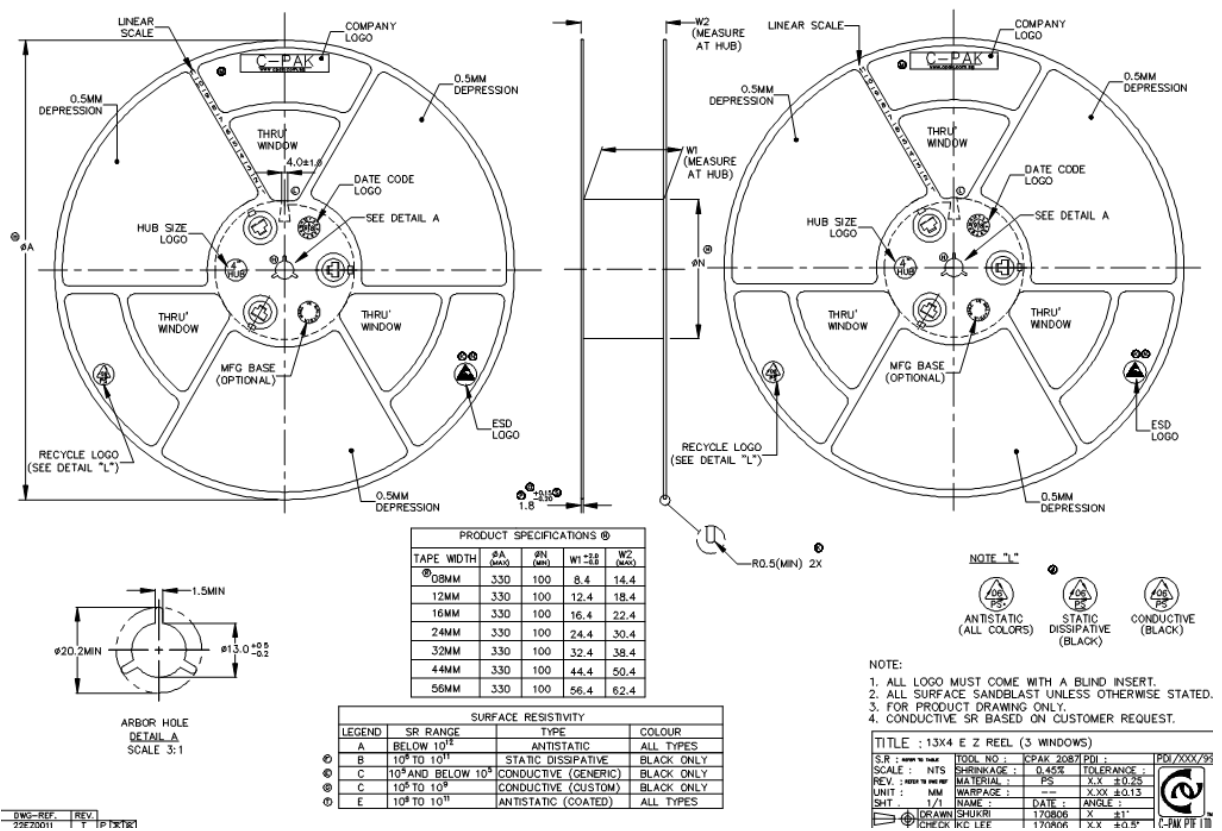
**Figure 6** Tape dimensions



**Figure 7** Pin 1 orientation in reel

**Tape leader and trailer dimensions**

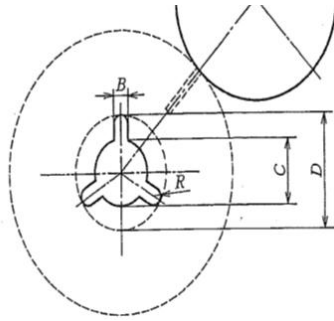
- There is a leader of 400mm. The whole leader consists of empty compartments covered by tape
- There is a trailer of 400mm . The whole trailer consists of empty compartments covered by tape.



**Figure 8** Reel dimensions

Tape Width	Reel Diameter	HUB Diameter	Reel Inside Width	Reel Outside Width	Reel Inside Width	Reel Outside Width
W mm	A mm	N mm	W1 mm	W2 mm (minimum)	W3 mm (maximum)	W3 mm (maximum)
16	330	100	16.4	22.4	18.4	22.4

**Table 1** Reel dimension detailed



**Figure 9** Reel hole Dimensions


Real Hole Dimension (mm)			
<b>B</b>	1.5	More than 1.5mm	2.0 mm ± 0.5mm
<b>D</b>	20.2	More than 20.2mm	21.0 mm ± 0.8mm
<b>C</b>	13	More than 13.0mm	13.0 mm ± 0.2mm
<b>R</b>	0.75	0.5 * B	1.0 mm

**Table2** Reel hole dimension detailed

**2.2 Tape and Reel Surface Resistivity**

Tape: Surface Resistivity ASTM D-257  $10^5$  ohms/sq  
 Surface Tape: Surface Resistivity ASTM D257  $\leq 10^{11}$  Ohms/ sq.  
 Reel: Below  $10^{12}$  ohms/sq



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### 2.3 Packing of Reels



Figure 10 Label of dry bag



Figure 11 ESD protective dry bag of reel

Reel and packing material are anti static material.  
Packing also contains desiccant and humidity indicator card identical to trays.



**Figure 12** Contents of dry bag for reel



**Figure 13** Packing of one reel  
Box label is identical to reel label.

### 3. Moisture Sensitivity Level of Device

The moisture sensitivity level of the devices is as following

Device ID	MSL
INAP375TAQ	3
INAP375RAQ	3
INAP378RAQ	3

**Table2** 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  $125^{\circ}\text{C} \pm 5^{\circ}\text{C}$