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Revision History

Revision	Date	Item/Section	Author/Department	Changes
1.0	2025-02-27	All pages	J. Tannenbaum, R. Kähnert / SCM	Initial Release
1.1				

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Scope of document

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

It is valid for the following products which have all a QFN 5x5 package:

Inova Device ID
INLT220Q-T
INLT220Q-R5

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1 Tray

The tray size is 490 QFN 5x5 devices per tray (14x35 cells).

1.1 Tray Drawing

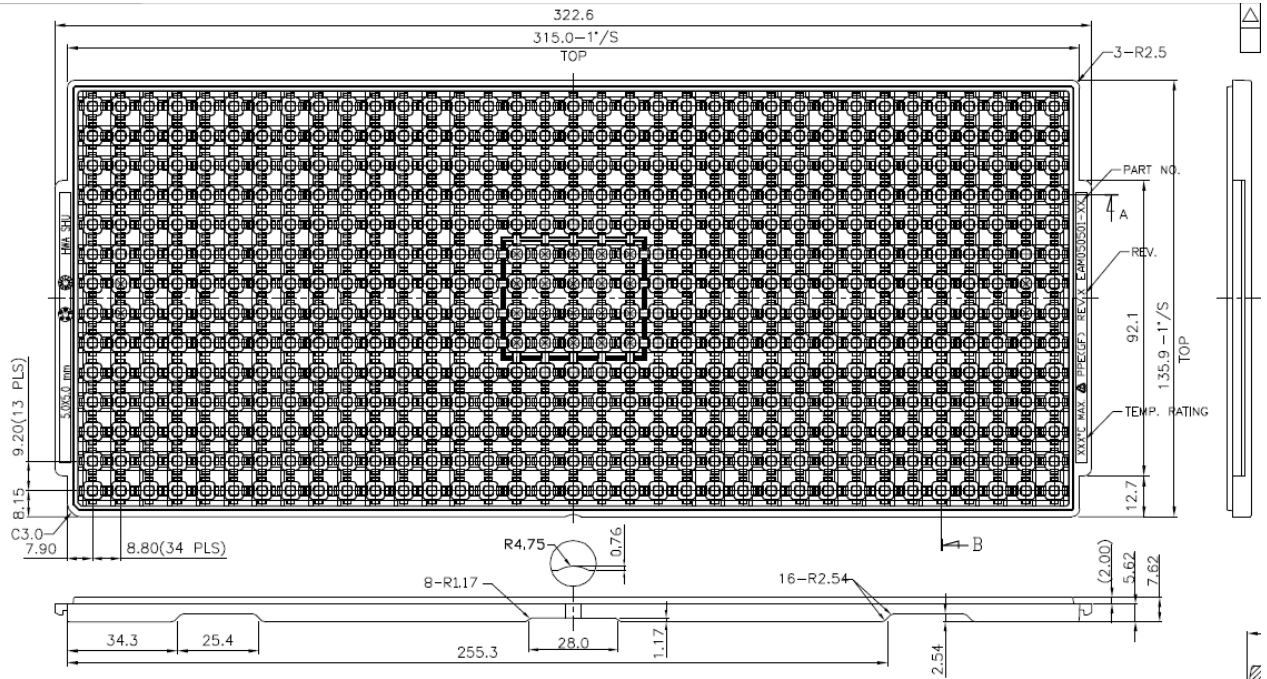
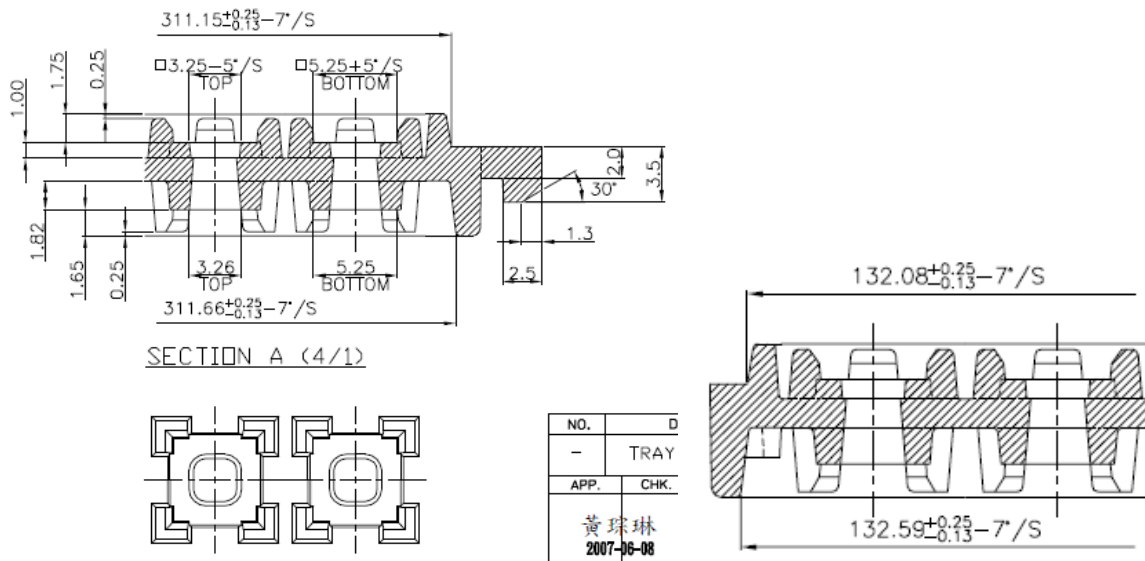


Figure 1 Outer dimension of tray




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Figure 2 Dimensions of tray cup

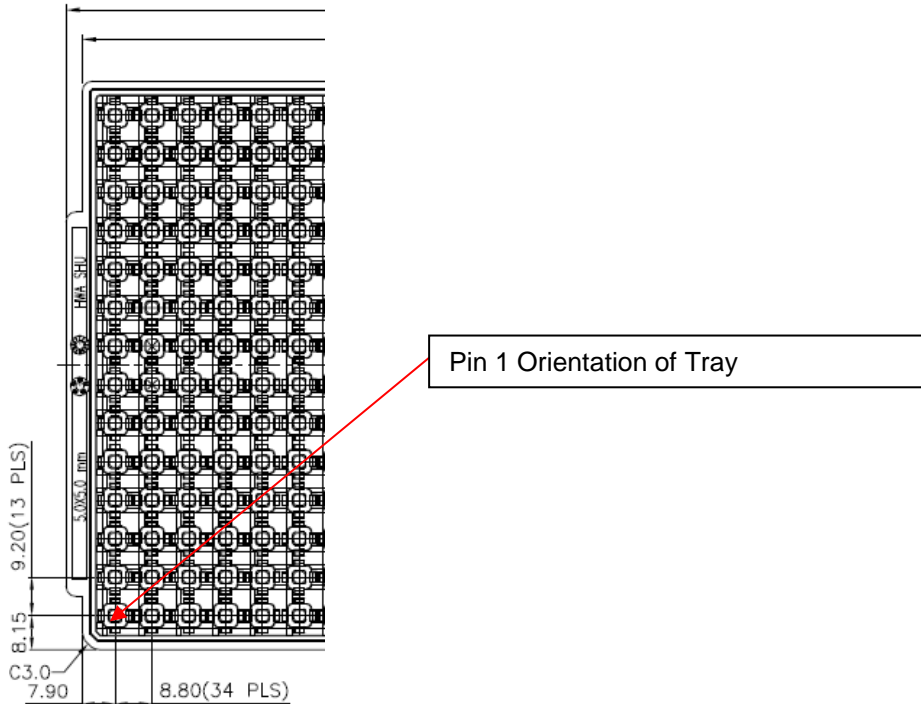


Figure 3 Pin 1 orientation of tray


The warpage of the trays is within 0.76 mm

1.2 Packing of trays

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

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

The quantity of a single tray is marked with “-T” at the Inova Part-No. The sales quantity of each tray is 490 pieces. Packing includes one tray and one cover tray sealed in MBB.

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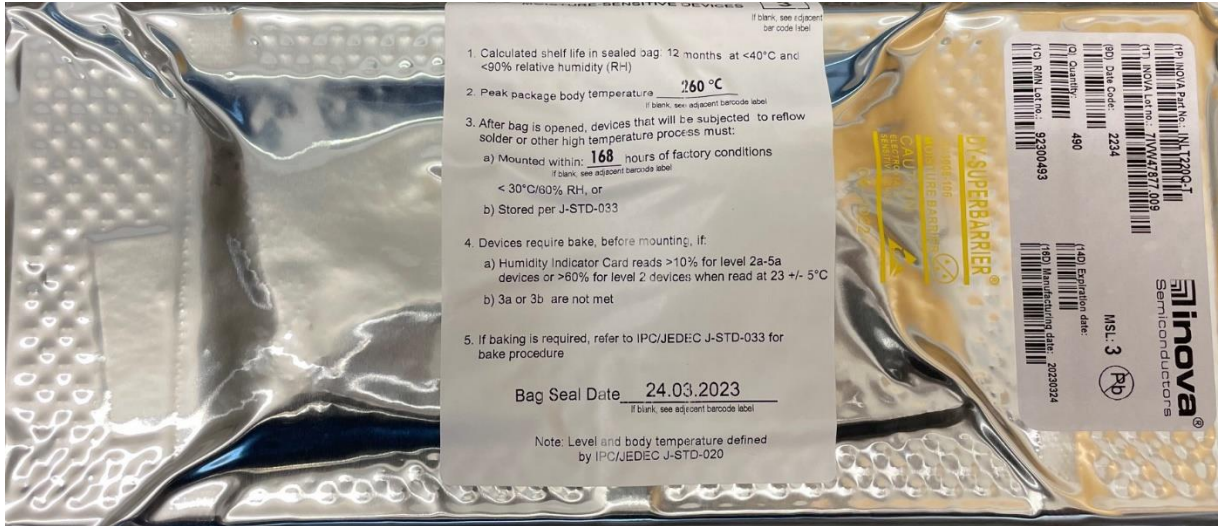



Figure 4 ESD protective drypack for a single tray

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1.3 Labeling of trays

The Inova Standard Label is nonspecific. The code used is “Barcode 128”. The dimensions of the label are 105 mm x 51 mm. 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. "INLT220Q-T"	✓
(1T)	Inova Lot-No.	Batch number (Lot#): e.g. "71VW47877.000"	✓
(9D)	Date Code	Date Code (Abbreviation on the Order: DC): e.g. "2439"	✓
(Q)	Quantity	Content of one packing unit: 490 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)	---

Data identifier and description are not variable.








(1P) INOVA Part No: INLT220Q- T 	
(1T) INOVA Lot No.: 71VW47877.000 	
(9D) Date Code: 2439 	MSL: 3 
(Q) Quantity: 490 	(14D) Expiration date: - 
(1C) ASE Lot No.: 92000038 	(16D) Manufacturing date: 20241024 

Figure 5 Label of a single tray (INLT220Q-T)

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2 Tape and Reel

The reel size is 13" and it includes 5,000 QFN20 5x5 devices per reel.

2.1 Tape and Reel drawing

2.1.1 Reel information

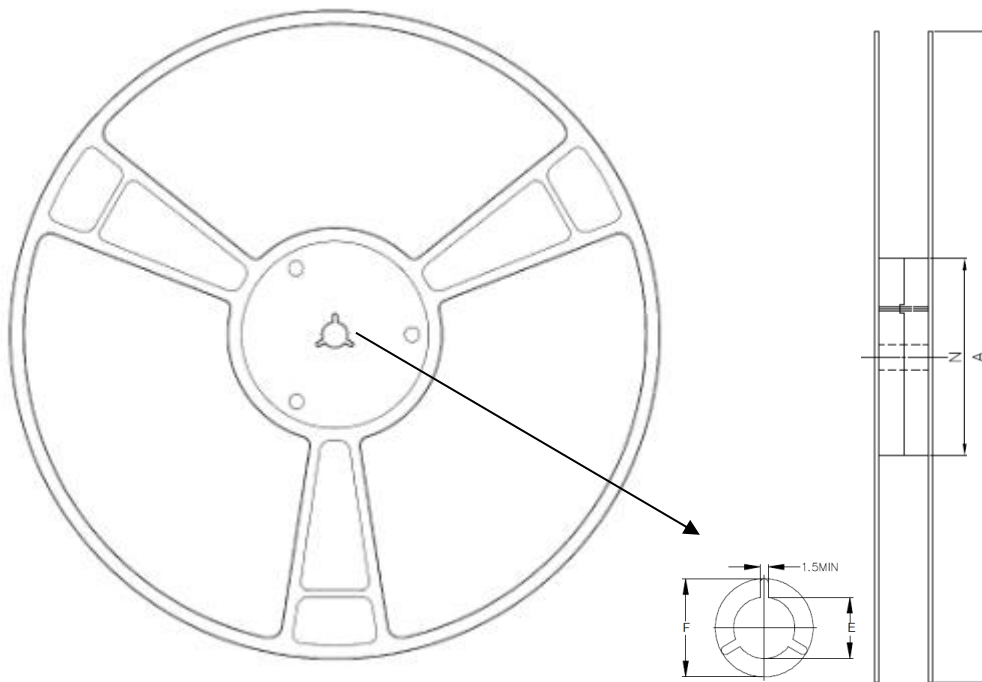


Figure 6 Reel drawing

Table 2 Reel dimension detailed

Tape Width mm	Reel Diameter A mm	HUB Diameter N mm	Arbor Hole F in mm	Arbor Hole E in mm
12	330 +/- 2.0	100 +/- 2.0	20.0 min	13.0 +0.5/-0.2

2.1.2 Carrier Tape

Figure 7 Carrier tape drawing

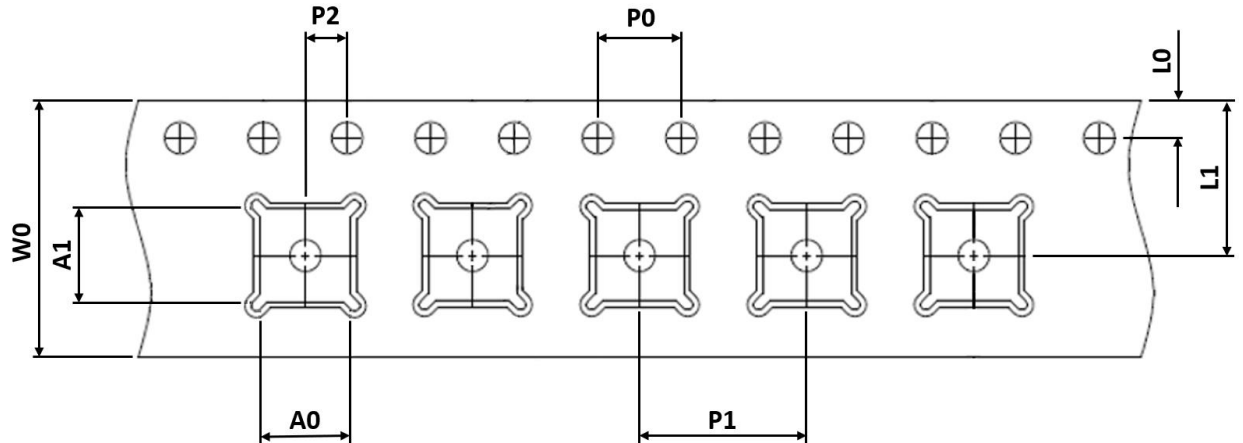


Table 3 Carrier tape dimensions

	Dimensions in mm
P0	4.0 +/- 0.1
P1	8.0 +/- 0.1
P2	2.0 +/- 0.1
W0	12.0 +/- 0.3
A0	5.25 +/- 0.3
A1	5.25 +/- 0.3
L0	1.75 +/- 0.10
L1	7.25 +/- 0.10

(according DIN EN 60286-3:2019-08)

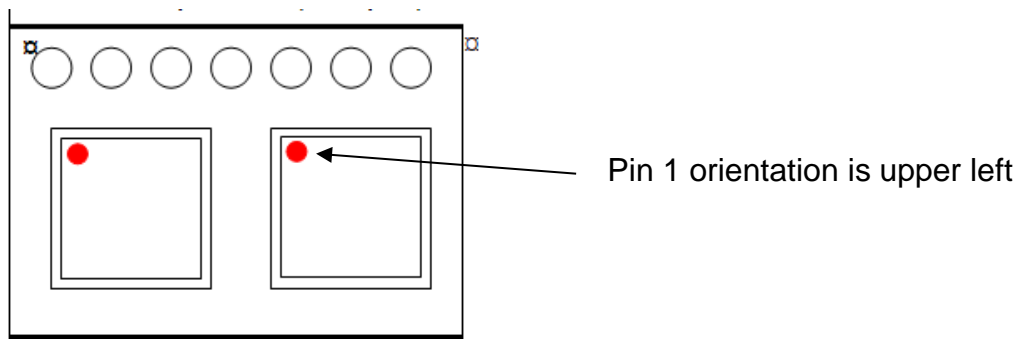



Figure 8 The Pin 1 orientation in reel

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2.1.3 Leader / Trailer

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

2.2 Packing of Reels

The content quantity of a reel for INLT220Q is 5,000 parts. The reel has an own article number which ends with –R5 in the Inova part number (one reel with 5,000 parts). A maximum of 2 different wafer lots and date codes is allowed per reel. If a reel contains 2 different lot numbers and date codes, 2 labels need to be pasted on it.

Reel and packing material are made of anti-static materials. The packing also contains a desiccant and a humidity indicator card.

2.3 Labeling of Reel

2.3.1 Label Information and content


The Inova Standard Label is nonspecific. The code used is “Barcode 128”. The dimensions of the label are 105 mm x 51 mm. Each label includes the following information:

Table 4 Overview of label content

Data identifier	Description	Content / Example	Barcode
(1P)	Inova Part No.	Main product number: e.g. "INLT220Q-R5"	✓
(1T)	Inova Lot-No.	Batch number (Lot#): e.g. "71VW47877.000"	✓
(9D)	Date Code	Date Code (Abbreviation on the Order: DC): e.g. "2439"	✓
(Q)	Quantity	Content of one packing unit: 5,000 pcs.	✓
(1C)	Lot no. (supplier)	Individual production lot Number from supplier	(✓)
(14D)	Expiration Date	Expiration Date of MSL3 Packaging*	✓
(16D)	Manufacturing Date	Shrink-wrap date of Bag Seal: layout: YYYYMMDD	✓
---	Picture1	Inova Logo (fix)	---
---	Picture2	"bleifrei" / "leadfree" (fix)	---
---	Picture3	"MSL3" (fix)	---

* 1 Year after Bag Seal Date

Data identifier and description are not variable.

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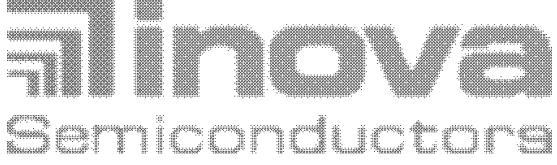



<p>(1P) INOVA Part No: INLT220Q- R5 </p> <p>(1T) INOVA Lot No.: 71VW47877.000 </p> <p>(9D) Date Code: 2439 </p> <p>(Q) Quantity: 5000 </p> <p>(1C) ASE Lot No.: 92000038 </p>	<div style="text-align: right;">  </div> <p style="text-align: right; font-size: 24pt; font-weight: bold;">MSL: 3</p> <div style="text-align: right;">  </div> <p>(14D) Expiration date: 20251023 </p> <p>(16D) Manufacturing date: 20241024 </p>
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Figure 9 Inova Label of reel, MBB and outer box (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



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Figure 11 Label on MBB



Figure 12 Label on cardboard

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3 Moisture Sensitivity Level of Device

The moisture sensitivity level of the devices is as following

Table 5 Overview of Moisture Sensitivity Level

Device ID	MSL
INLT220Q-T	3
INLT220Q-R5	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 $23\text{ °C} \pm 5\text{ °C}$
- The shelf life after opening the sealed bag has expired

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

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

- Tray: 125 °C - 8 hours