



## Final Product/Process Change Notification

Document #:FPCN25336XA

Issue Date:14 Dec 2023

|                                                  |                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title of Change:</b>                          | Qualification Assembly site in UTAC Thailand for FSA3157L6X and NC7SZ66L6X                                                                                                                                                                                                                                                                                       |
| <b>Proposed First Ship date:</b>                 | 21 Mar 2024 or earlier if approved by customer                                                                                                                                                                                                                                                                                                                   |
| <b>Contact Information:</b>                      | Contact your local onsemi Sales Office or <a href="mailto:mitch.paris@onsemi.com">mitch.paris@onsemi.com</a>                                                                                                                                                                                                                                                     |
| <b>PCN Samples Contact:</b>                      | Contact your local onsemi Sales Office.<br>Sample requests are to be submitted no later than 30 days from the date of first notification, Initial PCN or Final PCN, for this change.<br>Samples delivery timing will be subject to request date, sample quantity and special customer packing/label requirements.                                                |
| <b>Additional Reliability Data:</b>              | Contact your local onsemi Sales Office or <a href="mailto:Lalan.Ortega@onsemi.com">Lalan.Ortega@onsemi.com</a>                                                                                                                                                                                                                                                   |
| <b>Type of Notification:</b>                     | This is a Final Product/Process Change Notification (FPCN) sent to customers. FPCNs are issued 90 days prior to implementation of the change.<br>onsemi will consider this change accepted, unless an inquiry is made in writing within 30 days of delivery of this notice. To do so, contact <a href="mailto:PCN.Support@onsemi.com">PCN.Support@onsemi.com</a> |
| <b>Marking of Parts/ Traceability of Change:</b> | The affected products will be identified with date code                                                                                                                                                                                                                                                                                                          |
| <b>Change Category:</b>                          | Assembly Change                                                                                                                                                                                                                                                                                                                                                  |
| <b>Change Sub-Category(s):</b>                   | Material Change, Manufacturing Site Transfer                                                                                                                                                                                                                                                                                                                     |

### Sites Affected:

| onsemi Sites | External Foundry/Subcon Sites |
|--------------|-------------------------------|
| None         | UTAC, Thailand                |

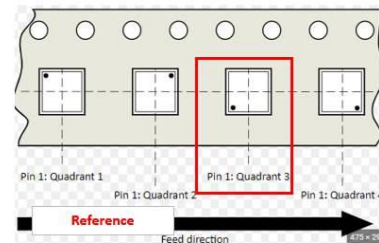
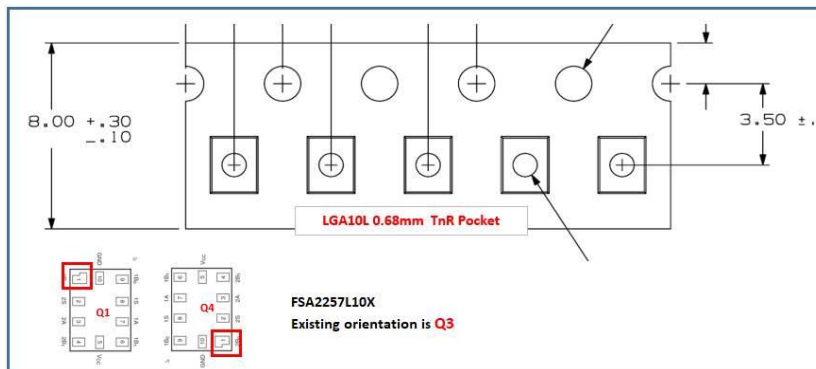
### Description and Purpose:

onsemi is announcing the qualification of new assembly site UTAC Thailand which includes new die attach, mold compound, package substrate and Carrier tape for FSA3157L6X and NC7SZ66L6X.

Product material change description:

|                           | From                                           | To                                             |
|---------------------------|------------------------------------------------|------------------------------------------------|
| Assembly Site             | HANA Thailand                                  | UTAC Thailand                                  |
| Die Attach                | DA FILM LI LE5003 P8AS 100ST                   | DAF HR5104                                     |
| Mold Compound             | MC NITTO GE100LFCG 14MMX4.6G                   | Kyosera / KE-G1250LKDS-30 BU10C                |
| Package Substrate         | PS LGAB LOGIC KINSUS                           | FAST PRINT LGA SUBSTRATE                       |
| Carrier tape              | Carrier tape for package thickness at 0.55 max | Carrier tape for package thickness at 0.68 max |
| MPQ/ PCQ                  | 5,000 pcs                                      | 3,000 pcs                                      |
| Packing PIN 1 orientation | Q3                                             | Q1                                             |

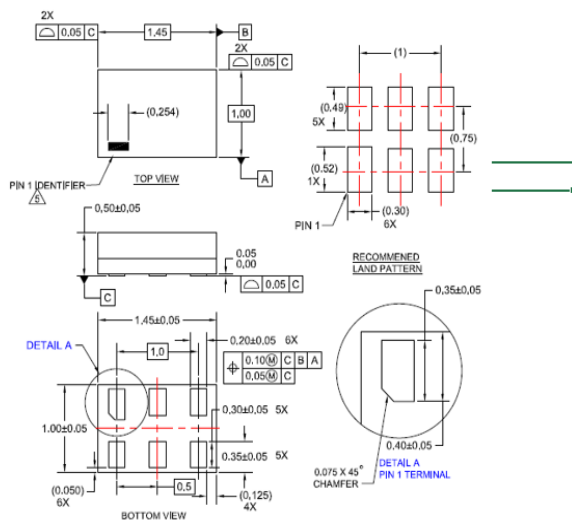
- Packing PIN 1 orientation in TnR will change from Q3 to Q1



- For FSA3157L6X, NC7SZ66L6X

| Dimension | HANA Thailand (existing) |      |      | UTAC Thailand (new site) |      |      | Remark                                                                 |
|-----------|--------------------------|------|------|--------------------------|------|------|------------------------------------------------------------------------|
|           | Min                      | Nom  | Max  | Min                      | Nom  | Max  |                                                                        |
| A         | 0.45                     | 0.50 | 0.55 | 0.58                     | 0.63 | 0.68 | UTAC thicker than HANA                                                 |
| L         | 0.25                     | 0.30 | 0.35 | 0.20                     | 0.25 | 0.30 | Outer lead smaller than existing but still can use the same footprint. |
| L1        | 0.30                     | 0.35 | 0.40 | 0.25                     | 0.30 | 0.35 | Outer lead smaller than existing but still can use the same footprint. |
| K         | -                        | 0.05 | -    | -                        | 0.10 | -    | Still can use the same footprint.                                      |

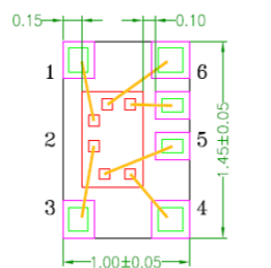
**HANA Thailand**



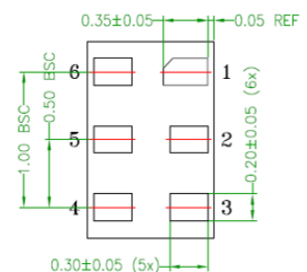
UTAC Thailand

ONS : 6L LGA 1.00x1.45 / 0.50 mm Pitch

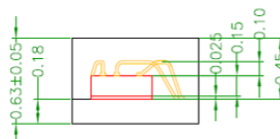
## ROUTING LAYOUT



POD IN BOTTOM VIEW



### POD IN SIDE VIEW



## DESIGN NOTES:

1. Substrate drawing will commence once net list provided.
2. Customer to check if we can use a 0.45 mm mold (existing) however package height requirement is slightly beyond customer's spec.
3. Process team to perform detailed risk assessment and process characterization.
4. May require to apply BSOB process.
5. Proposed to increase substrate thickness to 0.180 mm. for prevent warpage issue.

There is no product marking change for this type of change.



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### Reliability Data Summary:

QV DEVICE NAME: **FSA3157L6X**

RMS: **S86640, S89551, O91426**

PACKAGE: **SIP 6L LGA 1.45x1.00 mm**

| Test                                    | Specification       | Condition                                 | Interval | Test Result |
|-----------------------------------------|---------------------|-------------------------------------------|----------|-------------|
| High Temperature Operating Life         | JESD22-A108         | Ta=125°C, 100 % max rated Vcc             | 1008 hrs | 0 / 231     |
| High Temperature Storage Life           | JESD22-A103         | Ta= 150°C                                 | 1008 hrs | 0 / 231     |
| Preconditioning                         | J-STD-020 JESD-A113 | MSL 1 @ 260 °C                            |          | 0 / 693     |
| Temperature Cycling                     | JESD22-A104         | Ta= -65°C to +150°C                       | 500 cyc  | 0 / 231     |
| Highly Accelerated Stress Test          | JESD22 A110         | TA= +130°C, RH = 85%, PSIG= 18.8, bias    | 96 hrs   | 0 / 231     |
| Unbiased Highly Accelerated Stress Test | JESD22-A118         | T= +130°C, RH=85%, p = 18.8 psig unbiased | 96 hrs   | 0 / 231     |
| Solderability                           | JSTD002             | Ta = 245°C, 5 sec                         |          | 0 / 45      |
| Physical Dimensions                     | JESD22-B120         |                                           |          | 0 / 30      |

### Electrical Characteristics Summary:

Electrical characteristics are not impacted.

### List of Affected Parts:

**Note:** Only the standard (off the shelf) part numbers are listed in the parts list. Any custom parts affected by this PCN are shown in the customer specific PCN addendum in the PCN email notification, or on the **PCN Customized Portal**.

| Part Number | Qualification Vehicle |
|-------------|-----------------------|
| NC7SZ66L6X  | FSA3157L6X            |
| FSA3157L6X  | FSA3157L6X            |

**PCN Product List Addendum for:**

**Customer Contact Name:** Drop box Digi-Key

**Customer Contact Email:** [digikey.supplierinfo@digikey.com](mailto:digikey.supplierinfo@digikey.com)

Appendix A: Changed Products

PCN#: FPCN25336XA  
Issue Date: Dec 14, 2023

DIKG: DIGI-KEY

| Product    | Customer Part Number | Qualification Vehicle | New Part Number | Replacement Supplier |
|------------|----------------------|-----------------------|-----------------|----------------------|
| NC7SZ66L6X |                      | FSA3157L6X            | N/A             |                      |
| FSA3157L6X |                      | FSA3157L6X            | N/A             |                      |