



Process/Product Change Notification Form

Doc no: QF-2 Rev A04

PCN No:	68
Notice Date:	30 September 2023
Title:	Qualification of UBM Plating process

Type of Change:	<input type="checkbox"/> Product	<input checked="" type="checkbox"/> Process/Material	<input type="checkbox"/> Other:
Level of Change	<input checked="" type="checkbox"/> Major	<input type="checkbox"/> Minor	<input type="checkbox"/> Information Only
PCN SUBMISSION PURPOSE:	<input checked="" type="checkbox"/> For Approval		<input type="checkbox"/> For Customer Notification Only

Products Affected: All WLCSP (Wafer level CSP) products (Please refer to the table in description of change section)

Reason for Change: Supplier material discontinuation as described below,

- UBM
 - Transitioning to the Cu plated UBM process as the NiV/Cu Etchant Surfactant used for sputtered UBM etching during bumping is being discontinued by supplier.
- RDL
 - Transitioning to the Cu Plated RDL process as SiTime is the only customer for ASE using the current Ti/Al/Ti sputter process.

Additional Information:

- In May 2023, SiTime's part # SiT1587AITJ3-18E-0032.768000Q with the device type (SIE 1P1M) went through all required qualification tests with no failures.
- SiT1587AITJ3-18E-0032.768000Q is the qual vehicle used the qualify Cu plated UBM process. This part is equivalent to SiT1581.



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Description of Change:

- Details of the change are compared as shown below,

	Product (As-Is)	Product (To-Be)	Product (As-Is)	Product (To-Be)
Device Type	SIE 1P1M		SIE 2P2M	
Product	SiT1576 / SiT1580 / SiT1581 / SiT1566 / SiT1568 SiT1569 / SiT1572 / SiT1573 / SiT1579		SiT8021 / SiT3901 / SiT1552 / SiT1532 / SiT1533 / SiT1534	
Wafer Size	8	8	8	8
Ball Type	Ball Drop	Ball Drop	Ball Drop	Ball Drop
Passivation 1 (Type / Thickness)	HD8820 - 5um	HD8820 - 7.5um	HD8820 - 5um	HD8820 - 7.5um
RDL (Type / Thickness)	n/a	n/a	Sputter Ti 0.2um/Al 1.5um/Ti 0.2um	Sputter Ti 1k/Cu 2k Plating Cu 4um
UBM (Type / Thickness)	Sputter Ti 0.2um/NiV 0.325um/ Cu 0.8um	Sputter Ti 1k/ Cu 2k Plating Cu 8.6um	n/a	n/a
Passivation 2 (Type / Thickness)	n/a	n/a	HD8820 - 5um	HD8820 - 7.5um
UBM (Type / Thickness)	n/a	n/a	Sputter Al 0.4um/ NiV 0.325um / Cu 0.8um	Sputter Ti 1k/Cu 2k Plating Cu 8.6um

Device Type	AS-IS (SPUTTER RDL/UBM)	TO-BE (PLATED RDL/UBM)
SIE 2P2M	<p style="text-align: center;">PBO</p>	<p style="text-align: center;">CPM</p>
SIE 1P1M	<p style="text-align: center;">PB1</p>	<p style="text-align: center;">BOX</p>

PBO, PB1, CPM & BOX are ASECL's internal package codes.

Qualification Details:

Products listed under device type “SIE 1P1M” are considered as qualified by similarity to SiT1587AITJ3-18E-0032.768000Q which was qualified in May 2023. Due to which, no additional qualification is required.

Products listed as device type “SIE 2P2M” are expected to finish all qualification tests by April 30, 2024. Qualification vehicle used would be SiT8021. All other products identified under device type SIE 2P2M would be qualified by similarity to SiT8021.

Customer samples are planned to be available from March 20, 2024. Customers who want samples for their internal evaluation are required to place the orders by Dec 15, 2023.



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Last time buy orders are required to be placed by 03/31/2024. The last shipment of product tied to the last time buy orders, is expected by 09/30/2024.

Proposed Change Implementation date:	September 30, 2024
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First Planned Ship Date:	September 30, 2024
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Effect of Change: <input checked="" type="checkbox"/> None <input type="checkbox"/> Description below (ea. Product Quality, Performance, Reliability)
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Document/s Attached: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes

PCN Coordinator:	GUNASEGARAN ARCHUNAN
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Job Title:	SR QUALITY MANAGER
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Customer Acknowledgement:

For Major change, SiTime requires approval from customer by signing this document or approval by email to the respective Sales. For any further clarifications, kindly contact SiTime sales support at salesupport@sitime.com for assistance. If SiTime does not receive any response by October 31st, 2023, it will be considered as acceptance of this change.

For customers managed by distributors, it is the distributor's responsibility to ensure their end customers are notified and approval is obtained according to PCN requirements.

No approval is required for PCN customer notification only.

Acknowledged by	:
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Date	:
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Customer's Company	:
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Remove this Signature Box for customer notification only.

Change Level Description: (as per JESD46):

Major Change: Process/Product change affecting the form, fit, function, quality and reliability of the product. Customer acknowledgement is requested.

Minor Change: Process/Product change does not affect the form, fit, function, quality and reliability of the product. Customer acknowledgement is requested.

Information Only: Customer response is not required.