

ALMENEXT Sales Material

ALMEX TECHNOLOGIES Inc.

Sales group

August, 2021





Advanced Vertical Continuous Plating system (VCP)

High speed applications
&
Fine L/S applications

ALMEX TECHNOLOGIES
2021



ALMEX History

1st Generation 1998 - 2000

- Release of preliminary ALMEX VCP model

2nd Generation 2000 - 2017

- Mini-environmental design for dust reduction
- Provision of SAP plating capability

3rd Generation 2017 - Today

- Provision of leading edge capability for SAP & MSAP products

The latest generation - ALMEX

- To provide more sophisticated and high-performance functions



Market Requirements

High speed data transmission applications

- Uniform copper plating thickness (For tight impedance control)
- Uniform trace width (For good yield)
- Fine L/S FC-BGA applications(8 μ m minimum)

AiP / AoP applications

- Asymmetric copper balance between front and back of the panel

Mobile applications

- To be light, thin, short and small

Development Focus

Causes of Cu thickness deviation

- Current concentration at specific area of panel
- Unexpected current flow to another side
- Non-optimized current profile at rectifier transition zone
- Warpage of panel
 - ✓ Non-optimized fixture design
 - ✓ Bad panel loading in fixture



Technical innovations

New current supply system

- Complete current isolation between front and back side of panel
- Anode contact optimization
- Full-flat busbar

New fixture design

- New design of sacrificial plates
(To improve current concentration at panel edge)

Optimum current profile

- Sophisticated current control, especially for soft start /soft end(*) profile
(To optimize current profile at rectifier transition)

(*)ramp up and ramp down



Manufacturing
policy
for accurate
equipment

Commitment to Material Quality

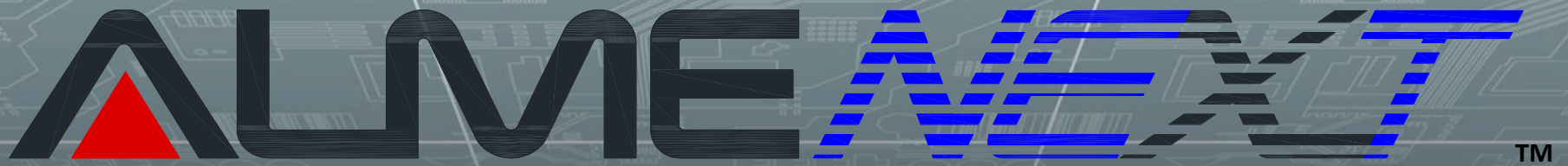
- Made-in-Japan Material/Parts (or equivalent) are proactively used for important parts that determine plating accuracy, MTBF and equipment life

Commitment to Manufacturing

- Cutting edge NC machines are used to keep accuracy
- Certification system for key operations

Commitment to Inspection

- In-house developed inspection/measurement tools are used to assure assembly accuracy



Uniformity

ALMENEXT innovations provide unprecedented uniformity

- 60% variety improvement compared to current models (*)

Measurement condition

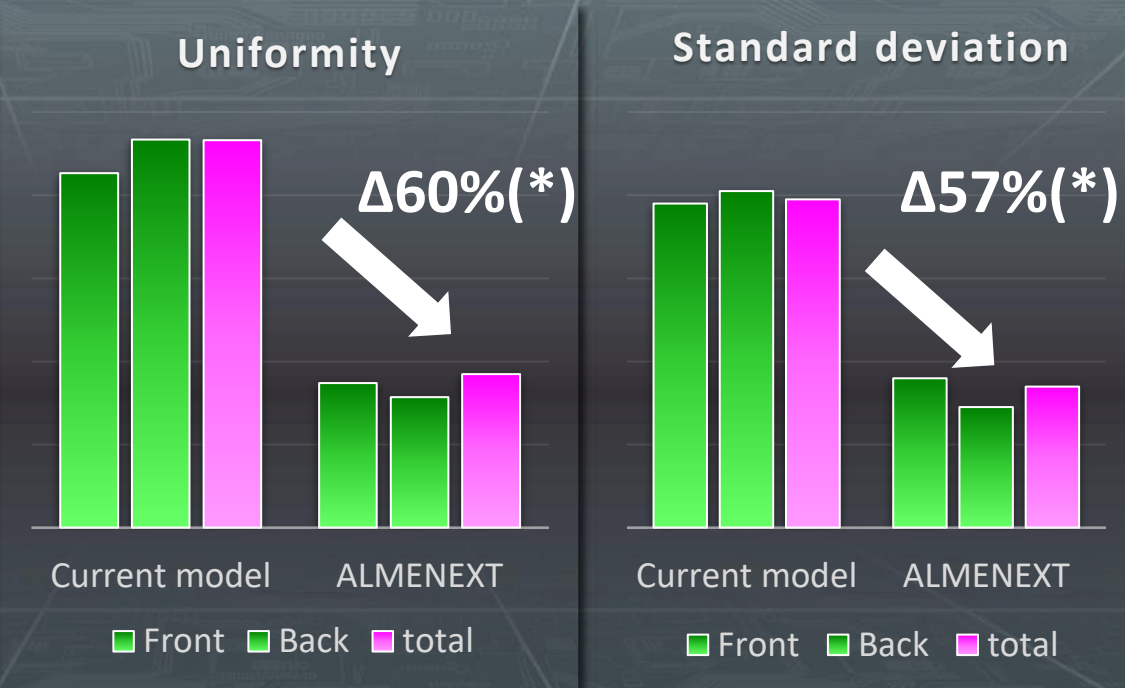
Panel size	: 510 mm x 610 mm
Current density	: 2.0 ASD
Plating thickness	: 20 μm

(*)Data of inhouse experiments (not assured)



TM

Uniformity inhouse data

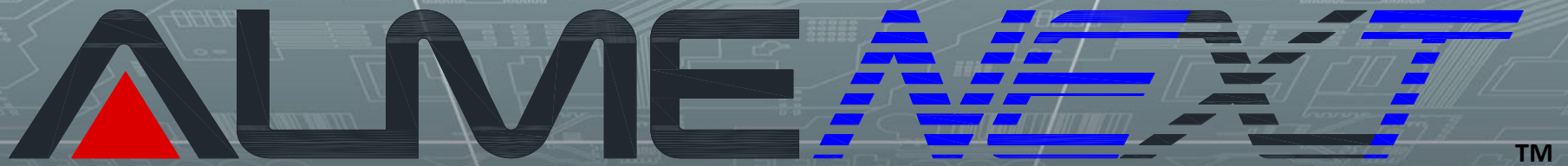


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The description for the product design, specifications, data may vary due to further development activities without prior notice. Thank you for your understanding that the data in this material may vary due to customer's test conditions.



Benefits for customers

- ✓ Improve product characteristics
- ✓ May increase the number of product units per panel
- ✓ Improve Yield
- ✓ Less inspection & measurement
- ✓ Easier process control
- ✓ Process step reduction



Release
schedule

Prototype equipment :

Available in ALMEX TECHNOLOGIES
(ready for customer experiments)

1st Product shipment :

Planning in 2022 Q3

Start of sales activities :

2021 October