

艾森股份 Jiangsu Aisen Semiconductor Material (688720 CH)

先进封装电子化学品稳步推进，向晶圆制造和显示面板延伸

Advanced Packaging of Electronic Chemicals Steadily Advancing & Extending to Wafer Manufacturing and Display Panels

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热点速评 Flash Analysis

(Please see APPENDIX 1 for English summary)

- **公司主要包括电镀液及配套试剂、光刻胶及配套试剂两大产品板块。**公司围绕电子电镀、光刻两个半导体制造及封装过程中的关键工艺环节，产品广泛应用于集成电路、新型电子元件及显示面板等行业。电镀液是半导体制造过程中的核心材料之一，由主盐、导电剂、络合剂及各类电镀添加剂组成。公司主要提供 g/i 线光刻胶产品，覆盖晶圆制造、先进封装及显示面板等应用领域。公司下游客户涵盖了长电科技、通富微电、华天科技、日月新等国内集成电路封测头部厂商以及国巨电子、华新科等国际知名电子元件厂商。
- **受益于光刻胶等高毛利产品销售，2023 年前三季度公司净利润大幅增长。**2020-2022 年公司营业收入分别为 2.09、3.14、3.24 亿元，同比增长 18.41%、50.65%、2.95%；归母净利润分别为 0.23、0.35、0.23 亿元，同比增长 36.58%、49.87%、-33.45%。2023Q1-Q3 公司实现营业收入 2.48 亿元，同比下降 2.23%，归母净利润 0.19 亿元，同比增长 116.10%。2020-2023Q1-Q3 公司毛利率分别为 35.81%、29.25%、23.33%、28.40%。
- **公司以封装领域技术为基础，逐步向显示面板、晶圆制造等领域延伸。**先进封装电镀方面，公司产品先进封装用电镀铜基液（高纯硫酸铜）已在华天科技正式供应；先进封装用电镀锡银添加剂已通过长电科技的认证，尚待终端客户认证通过；先进封装用电镀铜添加剂正处于研发及认证阶段。先进封装光刻方面，公司以光刻胶配套试剂为切入点，其中公司自研先进封装用 g/i 线负性光刻胶已通过长电科技、华天科技认证并实现批量供应。公司在封装领域技术积累的基础上，产品研发方向逐步向显示面板、晶圆制造等领域延伸。其中，OLED 阵列制造正性光刻胶已通过京东方两膜层认证且实现小批量供应，目前正在进行京东方的全膜层测试认证；晶圆制造 i 线正性光刻胶已在华虹宏力进行小批量供应。
- **募投项目将提高公司电子化学品的供应能力。**2023 年公司 IPO 募集资金净额为 5.4 亿元用于年产 12000 吨半导体专用材料项目、集成电路材料测试中心项目及补充流动资金。其中“年产 12000 吨半导体专用材料项目”新项目目前已投产，处于产能爬坡阶段。
- **风险提示。**扩产项目进度不及预期；下游需求不及预期；下游验证进度低于预期的风险。

1. 公司以封装领域技术为基础，逐步向从晶圆制造、显示面板等领域延伸

1.1 公司主要包括电镀液及配套试剂、光刻胶及配套试剂两大产品板块

公司主要包括电镀液及配套试剂、光刻胶及配套试剂两大产品板块。公司主要从事电子化学品的研发、生产和销售业务，围绕电子电镀、光刻两个半导体制造及封装过程中的关键工艺环节，产品广泛应用于集成电路、新型电子元件及显示面板等行业。电镀液是半导体制造过程中的核心材料之一，由主盐、导电剂、络合剂及各类电镀添加剂组成。光刻胶可分为 PCB 光刻胶、显示面板光刻胶和集成电路光刻胶（可细分为晶圆制造、先进封装），公司主要提供 g/i 线光刻胶产品，覆盖晶圆制造、先进封装及显示面板等应用领域。公司下游客户涵盖了长电科技、通富微电、华天科技、日月新等国内集成电路封测头部厂商以及国巨电子、华新科等国际知名电子元件厂商。

表 1 公司主要产品及技术特点

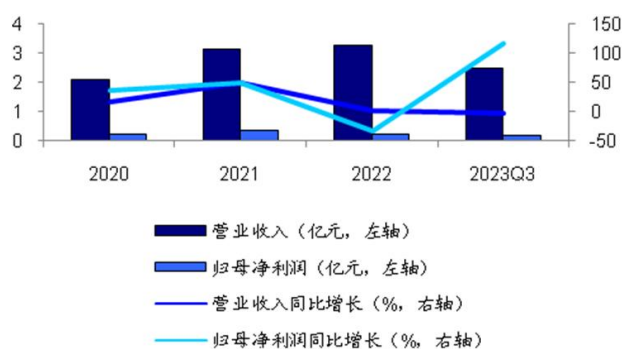
产品系列	应用工序	产品类别	公司产品应用技术特点	产品主要用途
电镀液及 配套试剂	电镀	电镀液	镀层致密、碳硫含量低、可焊性优秀，电镀液使用寿命长且不含铅，符合环保趋势，解决无铅电镀液体系带来的锡须问题。 产品达到国际竞品相同性能水平，凸块结合力强、高度均匀性好、电流密度及生产效率高。	利用电化学原理在基材表面沉积一层金属，从而满足电子产品的可焊性、导电性等特定功能需求。 主要用于 Bumping 凸块制作。
	电镀前处理	电镀前处理用 化学品	使用温度低、工艺时间短、不损伤塑封体和引脚基材。采用基于水溶性材料形成水基清洗产品，替代传统有机溶剂体系，符合环保趋势。	用于电镀前处理，包括去毛刺（溢料）、除油、去氧化、活化等，确保基材表面洁净平整，保证后续电镀的镀层质量。
	电镀后处理	电镀后处理用 化学品	基于独特的有机螯合剂和采用微酸性缓冲体系，经过多次 260 度高温回流焊后仍然保持镀层光亮不变色；退镀产品替代传统硝酸和硝酸铁添加剂体系，使用寿命长，符合环保趋势	用于电镀后处理，包括中和残留的酸性镀液、形成保护层、退除治具上的镀层等。
光刻胶及 配套试剂	涂胶曝光	光刻胶 附着力促进剂	主要面向先进封装、平板显示等国外企业所垄断的细分市场，部分产品已通过下游客户认证，满足均匀性、感光度等十余项测试指标要求。 对标美国杜邦垄断市场的产品，采用特定官能团的硅烷组合及其配比，提高了光刻胶、钝化膜或 PI 膜等涂层与各种底材之间的结合力。	用于图像转移或先进封装凸块开口制作。 用于提高光刻胶涂布后与晶圆之间的附着力。
	显影	显影液	采用独特的缓蚀剂组合及其配比，极大地降低了显影液对基材的腐蚀，提高了不同制程条件下成品的良率；实用性好，具有较好的显影选择比及均匀性，显影时间窗口宽，未曝光区域损失较小。	用于溶解改性后光刻胶的可溶部分。
	蚀刻	蚀刻液	采用无机酸、双氧水体系和独特的缓冲配方，使得蚀刻速率稳定，保证蚀刻性能。此外，采用独特的蚀刻加速和抑制剂使得不同批次产品的蚀刻速率精准控制，保证产品的批次稳定性。 安全节能，工艺温度更低；采用独特的金属缓蚀剂组合及其配比，极大地降低了光刻胶去除剂对金属基材的腐蚀，有效保护各种金属基材，提高了不同制程条件下成品的良率；去胶能力强、去胶速度快，去胶后无胶残留。	有选择性地去除晶圆表面沉积的材料。 去除完成使用功能的光刻胶及完成光刻工序的残胶。

资料来源：公司招股说明书，HTI

1.2 2023 年前三季度公司净利润实现较快增长

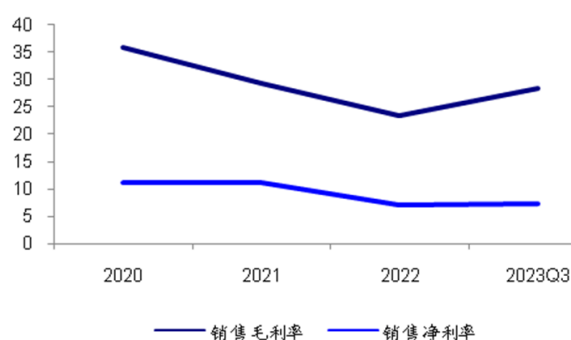
受益于光刻胶等高毛利产品销售，2023 年公司净利润大幅增长。2020-2022 年公司营业收入分别为 2.09、3.14、3.24 亿元，同比增长 18.41%、50.65%、2.95%；归母净利润分别为 0.23、0.35、0.23 亿元，同比增长 36.58%、49.87%、-33.45%。2023 年前三季度公司实现营业收入 2.48 亿元，同比下降 2.23%，归母净利润 0.19 亿元，同比增长 116.10%。2020-2023Q1-3 公司毛利率分别为 35.81%、29.25%、23.33%、28.40%。2023 年前三季度净利润大幅增长主要系：（1）光刻胶等高毛利产品销售收入规模逐步提高，拉动了公司利润的增长；（2）国内主要化工原料价格的下降，公司毛利率水平较上年提高显著；（3）对收入影响较大的锡球产品毛利率较低，对利润影响较小。2023 年锡材价格下降导致公司锡球收入大幅下降，但对利润的影响有限。

图1 公司 2020-2023Q1-3 营收和归母净利润变化



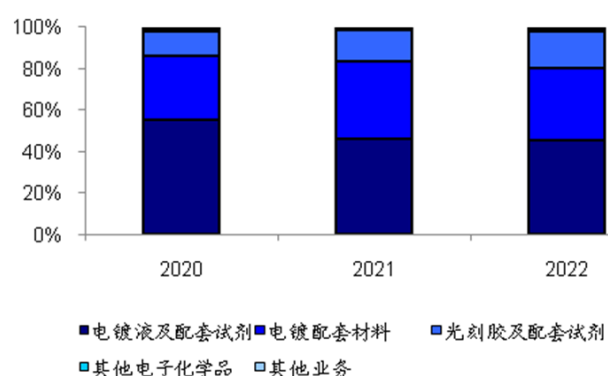
资料来源：WIND，HTI

图2 公司 2020-2023Q1-3 毛利率、净利率变化 (%)



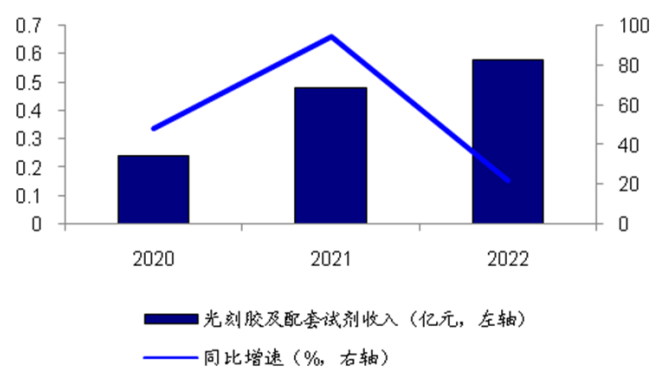
资料来源：WIND，HTI

图3 公司 2020-2022 年产品收入结构



资料来源：WIND，HTI

图4 2020-2022 年公司光刻胶及配套试剂销售规模增长



资料来源：WIND，HTI

1.3 公司以封装领域技术为基础，逐步向从晶圆制造、显示面板等领域延伸

公司以封装领域技术为基础，逐步向显示面板、晶圆制造等领域延伸。先进封装电镀方面，公司产品先进封装用电镀铜基液（高纯硫酸铜）已在华天科技正式供应；先进封装用电镀锡银添加剂已通过长电科技的认证，尚待终端客户认证通过；先进封装用电镀铜添加剂正处于研发及认证阶段。先进封装光刻方面，公司以光刻胶配套试剂为切入点，目前公司自研先进封装用 g/i 线负性光刻胶已通过长电科技、华天科技认证并实现批量供应。公司在封装领域技术积累的基础上，产品研发方向逐步向显示面板、晶圆制造等领域延伸。其中，OLED 阵列制造正性光刻胶已通过京东方两膜层认证且实现小批量供应，目前正在进行京东方的全膜层测试认证；晶圆制造 i 线正性光刻胶已在华虹宏力进行小批量供应。

2. 募投项目将提高公司电子化学品的供应能力，巩固行业领先地位

募投项目将提高公司电子化学品的供应能力，巩固行业龙头位置。2023 年公司公开发行股票数量 2203 万股，募集资金净额为 5.4 亿元用于年产 12000 吨半导体专用材料项目、集成电路材料测试中心项目及补充流动资金。“年产 12000 吨半导体专用材料项目”生产的产品将供应长电科技、通富微电、华天科技、日月新、飞思卡、恩智浦、宇芯、安森美等下游客户，新项目目前已投产，处于产能爬坡阶段

表 2 公司募投投资项目

项目名称	项目投资总额 (万元)	拟使用募集资金投入金额 (万元)	建设周期
年产 12000 吨半导体专用材料项目	25000.00	21076.83	42 个月
集成电路材料测试中心项目	45000.00	28372.88	24 个月
补充流动资金	5000.00	5000.00	-

资料来源：公司公告《关于调整募集资金投资项目拟使用募集资金金额的公告》，HTI

APPENDIX 1

Summary

The company mainly includes two product segments: electroplating solution and supporting reagents, photoresist and supporting reagents. The company focuses on two key processes in semiconductor manufacturing and packaging, electronic electroplating and lithography, and its products are widely used in industries such as integrated circuits, new electronic components, and display panels. Electroplating solution is one of the core materials in semiconductor manufacturing process, composed of main salt, conductive agent, complexing agent, and various electroplating additives. The company mainly provides G/I line photoresist products, covering applications such as wafer manufacturing, advanced packaging, and display panels. The company's downstream customers include leading domestic integrated circuit packaging and testing manufacturers such as Changdian Technology, Tongfu Microelectronics, Huatian Technology, and Sun Moon New, as well as internationally renowned electronic component manufacturers such as Guoju Electronics and Huaxin Technology.

Benefiting from the sales of high gross profit products such as photoresists, the company's net profit increased significantly in 2023Q1-Q3. From 2020 to 2022, the company's operating revenue was RMB 209mn, RMB 314mn, and RMB 324mn respectively (YoY +18.41%, 50.65%, and 2.95%); The net profit was RMB 23mn, RMB 35mn, and RMB 23mn respectively (YoY +36.58%, 49.87%, and -33.45%). In 2023Q1-Q3, the company achieved revenue of 248mn RMB (YoY -2.23%), and net profit of 19mn RMB (YoY +116.10%). The gross margin of the company from 2020 to 2023Q1-Q3 is 35.81%, 29.25%, 23.33%, and 28.40%, respectively.

The company is based on packaging technology and gradually extends to fields such as display panels and wafer manufacturing. In terms of advanced packaging electroplating, the company's advanced packaging electroplating copper base solution (high-purity copper sulfate) has been officially supplied by Huatian Technology; The advanced tin plating silver additive for packaging has been certified by Changdian Technology, and it is still pending certification from end customers; The advanced electroplating copper additive for packaging is currently in the research and certification stage. In terms of advanced packaging lithography, the company takes the use of photoresist matching reagents as the entry point. Among them, the company's self-developed advanced packaging negative photoresist for g/i line has passed the certification of Changdian Technology and Huatian Technology and achieved batch supply. Based on the accumulation of technology in the packaging field, the company's product research and development direction is gradually extending to fields such as display panels and wafer manufacturing. Among them, OLED array manufacturing positive photoresist has passed BOE's two film layer certification and achieved small batch supply. Currently, BOE is conducting full film layer testing and certification; The i-line positive photoresist for wafer manufacturing has been supplied in small quantities by Huahong Hongli.

The fundraising project will enhance the company's supply capacity of electronic chemicals. The net amount of funds raised from the company's IPO in 2023 is 540mn RMB, which will be used for the annual production of 12000 tons of semiconductor special materials projects, integrated circuit material testing center projects, and supplementary working capital. The new project of "Annual Production of 12000 Tons of Semiconductor Special Materials Project" has been put into operation and is in the stage of capacity ramp up.

Risks: The progress of the expansion project is not as expected; Downstream demand falls short of expectations; The risk of downstream validation progress falling below expectations.

APPENDIX 2

ESG Comments

Environmental:

艾森股份污染物均达标排放，未发生环境污染事故（事件）

Social:

公司具体的技术创新机制如下：1）建立了有效激励机制；2）加大研发费用投入力度，保证创新机制运行；3）重视人才引进，加强研发队伍建设。

Governance:

艾森股份取得核心产品的关键技术，并已实现了先进封装、晶圆制造和 OLED 显示领域电子化学品的技术突破

附录 APPENDIX

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分析师股票评级

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中性，未来 12-18 个月内预期相对基准指数变化不大，基准定义如下。根据 FINRA/NYSE 的评级分布规则，我们会将中性评级划入持有这一类别。

弱于大市，未来 12-18 个月内预期相对基准指数跌幅在 10% 以上，基准定义如下

各地股票基准指数：日本 - TOPIX, 韩国 - KOSPI, 台湾 - TAIEX, 印度 - Nifty100, 美国 - SP500; 其他所有中国概念股 - MSCI China.

Ratings Definitions (from 1 Jul 2020):

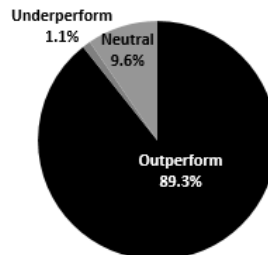
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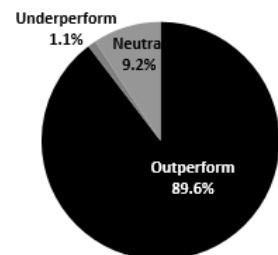
Outperform: The stock's total return over the next 12-18 months is

评级分布 Rating Distribution

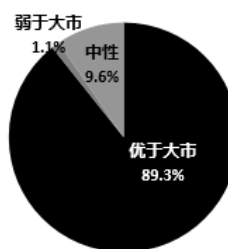
Most Recent Full Quarter



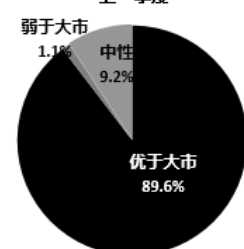
Prior Full Quarter



最新季度



上一季度



expected to exceed the return of its relevant broad market benchmark, as indicated below.

Neutral: The stock's total return over the next 12-18 months is expected to be in line with the return of its relevant broad market benchmark, as indicated below. For purposes only of FINRA/NYSE ratings distribution rules, our Neutral rating falls into a hold rating category.

Underperform: The stock's total return over the next 12-18 months is expected to be below the return of its relevant broad market benchmark, as indicated below.

Benchmarks for each stock's listed region are as follows: Japan – TOPIX, Korea – KOSPI, Taiwan – TAIEX, India – Nifty100, US – SP500; for all other China-concept stocks – MSCI China.

截至 2023 年 9 月 30 日海通国际股票研究评级分布

	优于大市	中性 (持有)	弱于大市
海通国际股票研究覆盖率	89.3%	1.1%	9.6%
投资银行客户*	3.9%	5.8%	10.0%

*在每个评级类别里投资银行客户所占的百分比。

上述分布中的买入，中性和卖出分别对应我们当前优于大市，中性和落后大市评级。

只有根据 FINRA/NYSE 的评级分布规则，我们才将中性评级划入持有这一类别。请注意在上表中不包含非评级的股票。

此前的评级系统定义（直至 2020 年 6 月 30 日）：

买入，未来 12-18 个月内预期相对基准指数涨幅在 10%以上，基准定义如下

中性，未来 12-18 个月内预期相对基准指数变化不大，基准定义如下。根据 FINRA/NYSE 的评级分布规则，我们会将中性评级划入持有这一类别。

卖出，未来 12-18 个月内预期相对基准指数跌幅在 10%以上，基准定义如下

各地股票基准指数：日本 – TOPIX, 韩国 – KOSPI, 台湾 – TAIEX, 印度 – Nifty100; 其他所有中国概念股 – MSCI China.

Haitong International Equity Research Ratings Distribution, as of September 30, 2023

	Outperform	Neutral (hold)	Underperform
HTI Equity Research Coverage	89.3%	1.1%	9.6%
IB clients*	3.9%	5.8%	10.0%

*Percentage of investment banking clients in each rating category.

BUY, Neutral, and SELL in the above distribution correspond to our current ratings of Outperform, Neutral, and Underperform.

For purposes only of FINRA/NYSE ratings distribution rules, our Neutral rating falls into a hold rating category. Please note that stocks with an NR designation are not included in the table above.

Previous rating system definitions (until 30 Jun 2020):

BUY: The stock's total return over the next 12-18 months is expected to exceed the return of its relevant broad market benchmark, as indicated below.

NEUTRAL: The stock's total return over the next 12-18 months is expected to be in line with the return of its relevant broad market benchmark, as indicated below. For purposes only of FINRA/NYSE ratings distribution rules, our Neutral rating falls into a hold rating category.

SELL: The stock's total return over the next 12-18 months is expected to be below the return of its relevant broad market benchmark, as indicated below.

Benchmarks for each stock's listed region are as follows: Japan – TOPIX, Korea – KOSPI, Taiwan – TAIEX, India – Nifty100; for all other China-concept stocks – MSCI China.

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