2023 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

Management Statement of the Board

The Company adheres to the entrepreneurial spirit of "set a course mastering the challenges ahead" and promotes the "Hua Hong 520 Spirit" of "showing loyalty to and love for the motherland, always keeping the promise, being diligent and dedicated, and always fulfilling the mission". By embracing the concept of "openness, innovation, and cooperation" and driven by "bravery, perseverance, and unity", we have strengthened business operations and development, advanced production expansion, perfected the innovation system, and enhanced technological capabilities, thereby achieving stable and coordinated operation and sustainable development.

The Company firmly believes that Environmental, Social, and Governance (ESG) management has laid the foundation for sustainable and high-quality development. We have crafted ESG management objectives for 2030, focusing on water resource management, energy use management, greenhouse gas emissions management, waste emission management, and sustainable supply chain management. In identifying, assessing, and managing ESG issues, the Company takes into consideration its development strategy and external policy trends. In 2023, we added "corporate governance", "environmental management", and "intellectual property protection" as new issues and upgraded the "anti-corruption" issue to "business ethics issue" as well as the "emissions management" issue to the "emissions and waste management" issue. These adjustments better address concerns of stakeholders and ensure effectiveness of the Company's ESG management strategies and measures. In 2023, the Company passed corporate social responsibility (CSR) audit certification by the global corporate social responsibility (CSR) assessment agency Eco Vadis, covering labor, environmental management, business ethics, and sustainable procurement and received a bronze medal.

The management and practical progress of ESG issues in this report were considered and approved at the third meeting of the Board of Directors of the Company held in 28 March 2024.

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1 ESG Management System

1.1 ESG Management Structure

Based on the corporate vision of "Continuous Innovation and Empowering the Future for Global Customers", the Company established a top-down environmental, social, and governance (ESG) management structure, continues to improve the ESG management system, encourages innovation-driven development, fosters innovative talents, and strives to reduce the impact of business operation on the environment. We also make efforts to diversify the supply chain capabilities and promote the joint creation of corporate business and social values.

The Board, as the highest decision-making/management body for the Company's ESG management, is responsible for the following aspects:

a) to direct the formulation of ESG management policies and strategies of the Company and ensure that they are up to date, relevant, and in compliance with applicable legal and regulatory requirements;

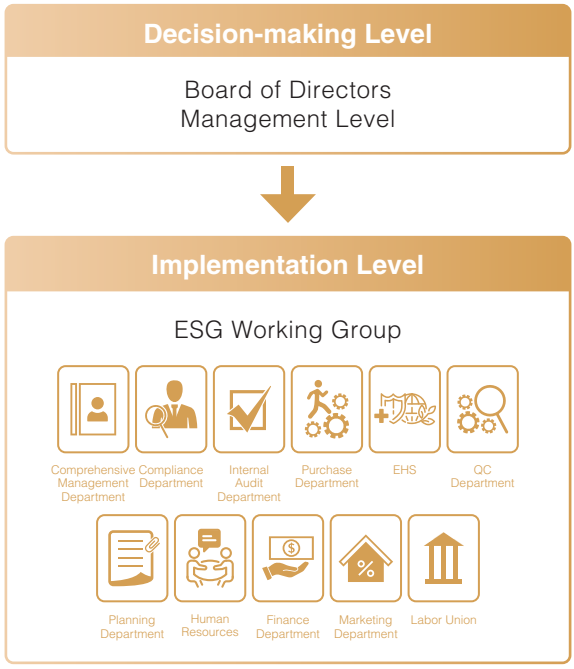
b) to direct the identification and determination of the importance of significant ESG issues of the Company;

c) to supervise the setting and implementation of the Company's ESG goals, including: setting ESG management performance goals of the Company; monitoring progress in achieving the goals; and advising on actions required to achieve the goals;

d) to review and approve the Company's annual Environmental, Social, and Governance Report and other ESG related disclosures.

The management level will be responsible for supervising the overall implementation according to the formulated ESG targets, and the ESG working group assists in development and implementation of ESG management and regularly reports to the Board on the progress of ESG key performance indicators, so as to promote the realization of the Company's ESG management targets.

ESG Management Structure



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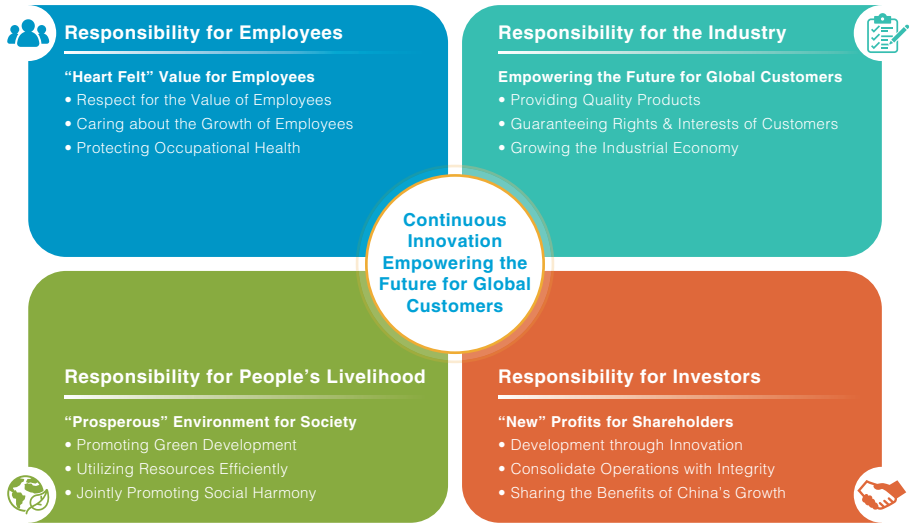
1.2 ESG management strategies and targets

The Company has integrated ESG management into its products, business operations, and corporate development and formed a complete ESG management strategy covering the four aspects of "Responsibility for Employees", "Responsibility for the Industry", "Responsibility for People's Livelihood", and "Responsibility for Investors".

ESG Management Strategies



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The Company has set ESG management targets for water use efficiency, energy use efficiency, GHG emissions, waste reduction, and conflict mineral due diligence, based on the development of its business and its ESG performance in operations. On an annual basis, the Board of Directors reviews ESG performance and achievement of the Company's ESG goals for the previous year and discloses the results in the ESG report, so as to promote the achievement of ESG management targets.

ESG Management Targets and Progress in 2023

Aspect	Target	Progress in 2023
Water resources management	The water consumed per unit product (m^3 per 8-inch wafer) in 2030 will decrease by **12%** as compared with 2015	The water consumed per unit product in 2023 was **2.83** m^3 per 8-inch wafer, decreasing by **11%** as compared with 2015
Energy consumption management	Comprehensive energy consumption per unit product (MWh per 8-inch wafer) in 2030 will decrease by **7%** as compared with 2015	Comprehensive energy consumption per unit product in 2023 was **0.30** MWh per 8-inch wafer, decreasing by **21%** as compared with 2015
GHG emissions management	GHG emissions per unit product (tCO_2e per 8-inch wafer) in 2030 will decrease by **12%** as compared with 2015	GHG emissions per unit product in 2023 was **0.14** tCO_2e per 8-inch wafer, remaining basically flat as compared with 2022
Waste discharge management	Under the philosophy of lean manufacturing management, the Company will take reduction measures to continuously reduce hazardous waste produced per unit product and non-hazardous waste produced per unit product	• Under the philosophy of lean manufacturing management, the Company continuously reduced generation of hazardous waste • The non-hazardous waste produced per unit product in 2023 was **2.36** kg per 8-inch wafer, remaining flat as compared with 2022
Wastewater Discharge Management	100% compliance on discharge	• 100% compliance on wastewater discharge in 2023
Air Emission Discharge Management	100% compliance on discharge	• 100% compliance on air emission discharge in 2023
Sustainable supply chain management	The due diligence rate on suppliers of conflict minerals will reach 100%, and the utilization rate of compliant minerals will reach 100%	• Have conducted due diligence on suppliers of "conflict minerals", with a coverage rate of **100%**, and completed the latest version of the investigation report on conflict minerals and extended minerals • According to due diligence, all suppliers are found to use compliant raw materials with the utilization rate of compliant minerals up to **100%**

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Social Recognitions in 2023

No.	Honors
	Global
1	EcoVadis Bronze Medal
	National
2	2022 Outstanding Intelligent Manufacturing Scene
3	2023 National Worker Pioneer
4	The 15th China Semiconductor Innovation Products and Technology
	Shanghai
5	First Prize in Shanghai Science and Technology Award
6	Water Efficiency Leader of Key Water-Using Enterprises in Shanghai
7	2022 Top 20 Enterprises with Corporate Social Responsibility Reports in Shanghai
8	100 Smart Factories in Shanghai
9	2023 Top 100 Innovative High-Tech Enterprises in Shanghai
10	Shanghai Outstanding Invention Gold Award
11	Shanghai Model Unit for Open and Democratic Factory Affairs Management
12	Shanghai Women's Civilization Post
13	Shanghai Worker Pioneer
14	Shanghai Model Worker's Small Home
15	Second Prize in Shanghai Industrial Water Reuse Outstanding Cases
	Jiangsu
16	Wuxi Model Unit for Happy Enterprise Construction
17	Wuxi City Model Worker's Home

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1.3 Involvement of Stakeholders

Based on the business and operational characteristics of our Company and leveraging the experience and practices in industry at home and abroad, Hua Hong Semiconductor has determined the following to be our stakeholders: our shareholders and senior management, customers, employees, government agencies and regulators, partners, communities, and the public and actively communicates with all of these stakeholders via various channels and methods, including websites, media, meetings, reports, and social activities.

Communications and Issues of Concern of Stakeholders

Key stakeholders	Description	Issues concerned	Communications and responses
Shareholders and senior management	Domestic and foreign investors holding equity and debt investments in our Company, and senior management members of the Company	• Compliant operation • Corporate governance • Risk management • Business ethics • Customer relationship management • Water resource management • Product quality and safety • R&D innovation	• Regular reviews of laws and regulations are conducted, the outcomes of which are used for revising management systems to ensure operational compliance • Publication of financial and performance reports, communication with investors through the Shanghai Stock Exchange e-interaction platform, emails, and roadshows • Robust risk management system • Improvement in anti-corruption management mechanisms • Conducting customer satisfaction surveys • The WRI Water Risk Atlas is used to assess water risk levels and develop a comprehensive water resource management system • Implementation of product quality and safety management measures • Organization of technical seminars and industry exchange meetings

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Key stakeholders	Description	Issues concerned	Communications and responses
Customers	IDMs and fabless semiconductor companies	• Data security and privacy protection • Product quality and safety • Customer relationship management • R&D innovation	• Establishment of information security and privacy protection policies • Implementation of product quality and safety management measures • Conducting customer surveys • Organization of technical seminars and industry exchange meetings
Employees	Our employees and contract personnel who serve our Company on a continuous basis	• Employee interests and welfare • Employee health and safety • Employee development and training	• Formulation of an employee handbook • Establishment of a platform for talent development and learning sharing • Organization of safety production training and health checkups • Diversification of the employee training system
Government and regulators	Manufacturing, tax, environmental protection security and other departments, local governments, SFC and other governmental or regulatory authorities	• Compliant operation • Green products • Emissions management and waste management • Energy management • Climate change mitigation and adaptation	• Robust internal control and compliance system • Green production • Research and development of low-carbon and energy-efficient products • Emissions and waste are properly managed through recycling and other methods • Collaboration with institutional inspections • Organization of energy-saving and carbon reduction initiatives

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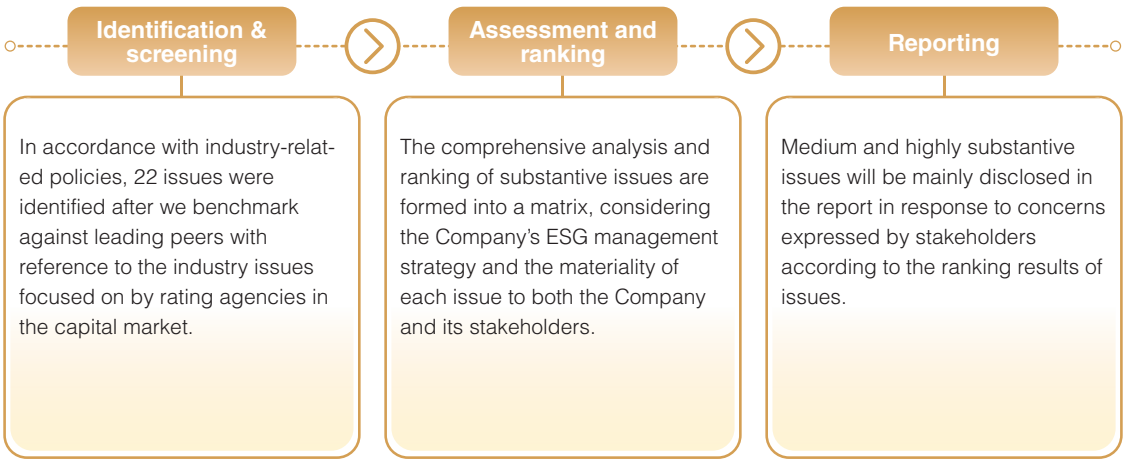
Key stakeholders	Description	Issues concerned	Communications and responses
Partners	Suppliers, research institutions, industry associations, etc.	• Industry development • Product quality and safety • R&D innovation • Sustainable supply chain management	• Active participation in industry exchanges • Optimization of product quality management • More investments in research and development • Promotion of responsible sourcing
Communities and the public	Communities in which we operate, the public and media, etc.	• Community and public benefit	• Engagement in Community activities, employee volunteer activities, public welfare activities, social cause campaigns, etc.

1.4 Identification and Analysis of Substantive Issues

The identification and analysis of substantive ESG issues represent a crucial element in ESG management. The Company has developed a comprehensive process for identifying and analyzing material issues, whereby regularly carrying out identification and screening work. In light of our ESG management strategy and business development, the Company, together with the Board of Directors and the ESG Working Group, evaluates and ranks identified substantive issues in collaboration with external experts from two dimensions: materiality to the Company; and materiality to stakeholders. In 2023, the Company identified 22 substantive issues, of which 9 were of high substantive significance to both the Company and its stakeholders.

Substantive Issue Analysis Process



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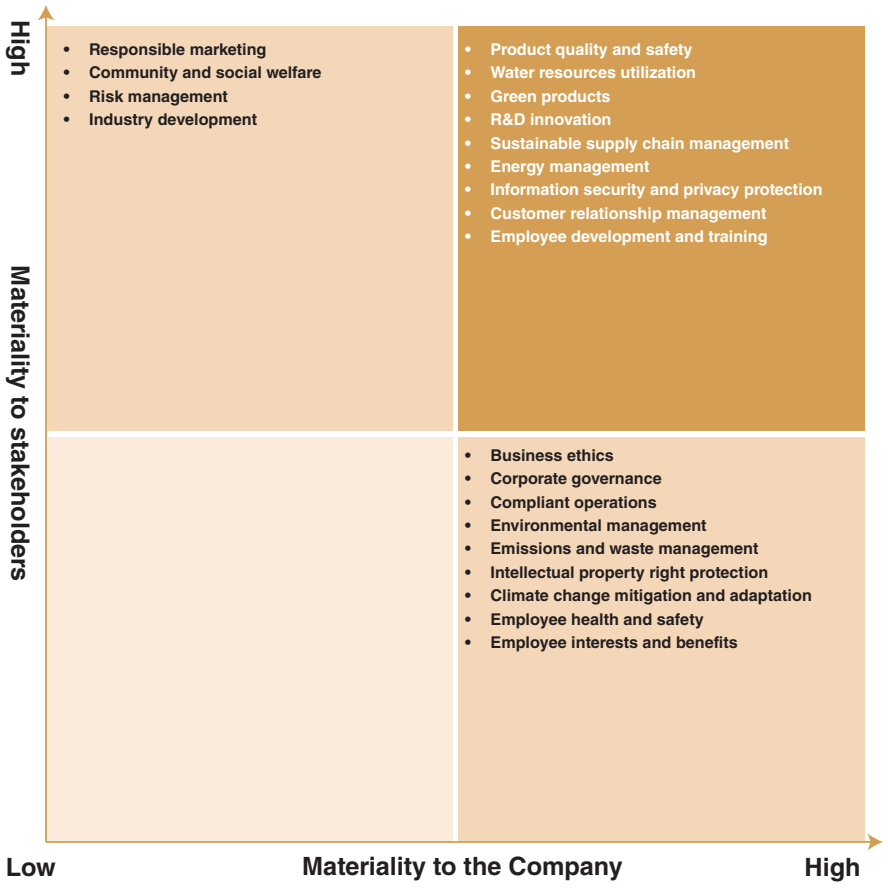
Matrix of Substantive Issues



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Descriptions on Adjustment of Issues in 2023

Issues for 2022	Issues for 2023	Explanation	Descriptions on Adjustment
——	Environmental management	In accordance with laws, regulations, and its own business nature, the Company has established a systematic management system and adopted scientific management methodologies to minimize the environmental impacts caused by its activities, aiming to achieve environmental protection.	A new issue, which better responds to stakeholders' concerns and is more in line with the Company's actual conditions.
——	Intellectual property right protection	The Company's administrative system, measures, and results pertaining to protection of its own intellectual property rights and non-infringement on others' intellectual property rights.	A new issue, which better responds to stakeholders' concerns and is more in line with the Company's actual conditions.
Anti-corruption	Business ethics	The Company's business ethics management system includes the establishment of systems and training related to anti-corruption and anti-bribery, as well as practices to regulate conduct of unfair competition, anti-trust, or anti-monopoly.	The description is adjusted to broaden the scope of issue management, including business ethics and anti-unfair competition management, which better responds to stakeholders' concerns and is more in line with the Company's actual conditions.
——	Corporate governance	The Company has established an effective governance structure to promote diversity and independence within the Board, ensuring the Company's compliant operations, as well as scientific, standardized, and transparent corporate governance.	A new issue, which better responds to stakeholders' concerns.
Emissions management	Emissions and waste management	The Company's management system and measures for the classification and treatment of wastewater, air emissions, and hazardous and non-hazardous waste, as well as reduction in discharge of wastewater, air emissions, and hazardous and non-hazardous waste, including management methods and emission data.	The description is adjusted to broaden the scope of issue management, including emissions and waste management, which better responds to stakeholders' concerns and is more in line with the Company's actual conditions.

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2 Environmental Responsibilities

Main Progress in 2023

Measures	Achievements
Technical transformation related to safety and environmental protection	A total of 46 special technical transformation projects related to safety and environmental protection An investment of RMB111.96 million in safety and environmental protection and technological transformation
Development of energy-efficient projects	The preparation of energy audit reports and clean production audit reports completed Development of 21 energy-efficient projects

2.1 Environmental Management System

Environmental Management

The Company adheres to the philosophy of environmental friendliness and sustainable development, strictly abides by the Environmental Protection Law of the People's Republic of China and other laws and regulations, and has formulated administrative systems, including the Resource and Energy Management Procedure, the Management Regulations for Water, Electricity, Steam, and Gas Metering, the Exhaust Gas Emission Management Policy, and the Waste Management Procedure. Furthermore, the Company is actively developing a number of environmental management measures, and continues to optimize environmental management procedures covering the whole life cycle, thereby improving its environmental management system.

Hua Hong Semiconductor's production and manufacturing fabs include the Shanghai Production Base[1] and the Wuxi production base[2].

Hua Hong Semiconductor Environmental Management System

Management Structure	• The management team is responsible for overseeing and managing environmental tasks • The EHS department is responsible for executing environmental management projects, and delivering regular reports on the project progress to the management
Scope of Management	• Environmental management including energy management, resource management, and emissions and waste management
Management System	• Regulations such as Resource and Energy Management Procedure, Management Regulations for Water, Electricity, Steam, and Gas Metering; Operating Norms for Industrial Waste Management; and Standard Operating Procedures for Industrial Water Supply System
Management Measures	• Relevant environmental management systems are revised according to laws and regulations to regulate environmental management procedures • Regular identification and assessment are performed over environmental risks at production bases and environmental protection and technical transformation projects are carried out, thereby reducing the environmental impacts of operation and production activities • Certification of environmental management systems is performed to actively improve our environmental management capabilities

1 The Shanghai production base includes Fab 1, Fab 2, and Fab 3.
2 The Wuxi production base includes Fab 7 and Fab 9 (under construction).

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The Company's EHS Department is responsible for coordinating its environmental management system, including formulation of management regulations, performance analysis and evaluation with respect to energy and resource use, emissions management, etc. It also assists external agencies in the audit and testing of the Company's environmental management system. Furthermore, the Company uses safety management auditing and tracking system to analyze, sort out, and list the nonconforming items against environmental protection regulations found in daily management, then follow up and record subsequent rectifications through the regular reminder function of the system.

In 2023, the Company invested RMB111.96 million in 46 safety, environmental protection, and technical transformation projects, as part of our continuing commitments to improving environmental management facilities. All plant facilities under the Company have passed ISO 14001 system certification. During the Reporting Period, no Company violation against environmental laws and regulations occurred. During the Reporting Period, the Company fully paid relevant taxes with respect to environmental protection. In the meantime, the Company experienced no incident in violation of the relevant law and regulations with respect to environmental protection.

Certification in Relation to Environmental Management of Hua Hong Semiconductor

Certified Entity	Certification Name	Validity of Certification
Hua Hong Shanghai Production Base	ISO 14001: 2015 Environmental Management System	18 April 2024
Hua Hong Wuxi Production Base	ISO 14001: 2015 Environmental Management System	18 April 2024

Green Culture

The Company continuously promotes the environmental protection concept, regularly holds environmental management sharing sessions, and organizes each production plant to share excellent environmental management cases and measures at sharing sessions, so as to strengthen employees' awareness of environmental protection and the economical use of office resources and energy.

Practice in Green Culture

Saving paper around the office	• Implementing office informatization to reduce paper consumption. • Making efforts to promote the use of recycled paper, including for printing business cards of employees, to support recycling.
Saving electricity	• Turning off the power supply when leaving work or for a long time absence. • Reasonably setting air conditioning temperature above 26℃ in summer and below 20℃ in winter.
Saving water	• Developing employees' awareness of saving water and posting water saving tips.
Waste disposal	• Classifying domestic waste in each factory into 4 categories, namely dry, wet, recyclable, and harmful waste and putting up posters for waste classification to raise employees' awareness.
Commuting	• Encouraging employees to commute by public transport. • Using new energy vehicles as shuttle buses for the Company.

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2.2 Energy Management

Types of energy consumed by the Company are mainly electric power, heat, natural gas, gasoline, and diesel. The production operations of the Company have no significant impact on the environment and natural energy resources. The Company strictly complies with the Energy Conservation Law of the People's Republic of China and other laws, regulations, and relevant provisions; sets energy conservation management goals; and formulates energy management systems. The Company continues to optimize and improve its energy management system, constantly enhancing energy efficiency by carrying out various energy-saving technical transformation projects and by using energy-saving equipment.

Energy Management System

Philosophy	• Carrying out source control and continuous improvement while satisfying and improving productivity and reducing the impact on the environment while reducing production costs.
Goal	• By 2030, the Company's comprehensive energy consumption per unit product will decrease by 7% compared with 2015.
Policy	• Resource and Energy Management Procedure • Management Regulations for Water, Electricity, Steam, and Gas Metering
Measures	• Carrying out technical transformation for energy-saving. • Regularly engaging third-party agencies to conduct energy audits of the Company. • Organizing energy-saving publicity, implementation activities, and post energy-saving signs.

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To ensure the stable supply of electricity and smooth production, the Company developed the Administrative Rules for Electricity Safety, the Emergency Response Plan for Anomalies in External Power Supply, the On-site Treatment Plan of the Power Department for Power Cut, and the Emergency Plan for Power Circuit Breaker Tripping and carried out emergency plan training and emergency drills in fabs on a regular basis. The power supply is secured through daily inspection, special system investigation, and emergency drills.

In 2023, by continuing to respond to the "One Percent" Energy Conservation and Carbon Reduction Initiative in Shanghai Industrial and Communication Industry, all factories at the Shanghai Production Base executed 15 energy-saving projects and completed preparation of energy audit reports and clean production audit reports, reinforcing the outcomes of the "energy conservation project plan of 3,000 tons of standard coal".

Energy Saving Work and Achievements in 2023

Fabs	Measures	Annual Reduction in Energy Consumption
Fab 1	• Undertaking high-efficiency refrigeration unit renovation projects, replacing old refrigeration units to improve energy efficiency	• Saved a total of approximately 800,000 kWh of electricity in 2023
	• Utilizing energy-efficient LED lighting	• Saved a total of approximately 30,000 kWh of electricity in 2023
	• Renovating the high-pressure pumps in the pure water system	• Saved a total of approximately 100,000 kWh of electricity in 2023
Fab 2	• Replacing the refrigeration unit for the refrigeration system to improve energy efficiency	• Saved a total of approximately 3.144 million kWh of electricity in 2023
	• Completing heat recovery renovations for chilled water in the refrigeration unit	• Saved a total of approximately 188,000 cubic meters of natural gas in 2023
Fab 3	• Undertaking energy-efficient renovations for high-efficiency refrigeration units	• Saved a total of approximately 2 million kWh of electricity in 2023
Fab 7	• Optimizing the number of operating facilities for organic waste gas treatment	• Saved a total of 175,200 kWh of electricity and 474,500 cubic meters of natural gas in 2023
	• Installing new RO concentrate water recycling equipment	• Saved a total of 26,000 tons of water in 2023
	• Reducing water makeup volume by regulating the RO makeup water bypass of the MAU under the summer mode of a MAU	• Saved a total of 32,898 tons of water in 2023

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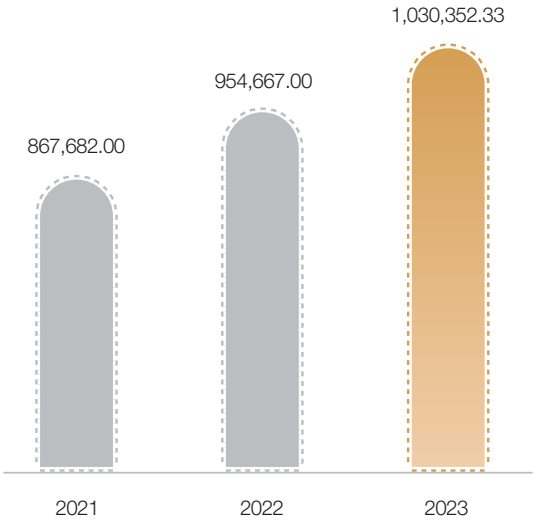
During the Reporting Period, the Company's primary energy consumption was as follows:

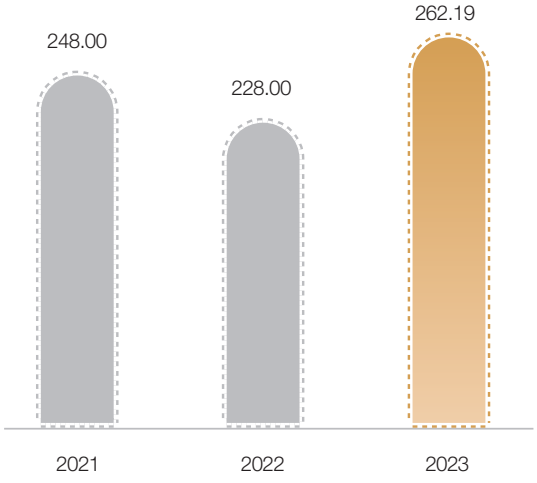
Total power consumption

Unit: MWh



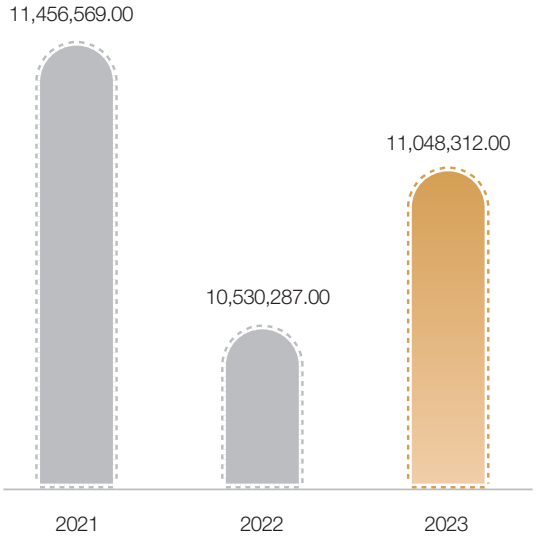
Power consumption intensity

Unit: kWh per 8-inch wafer



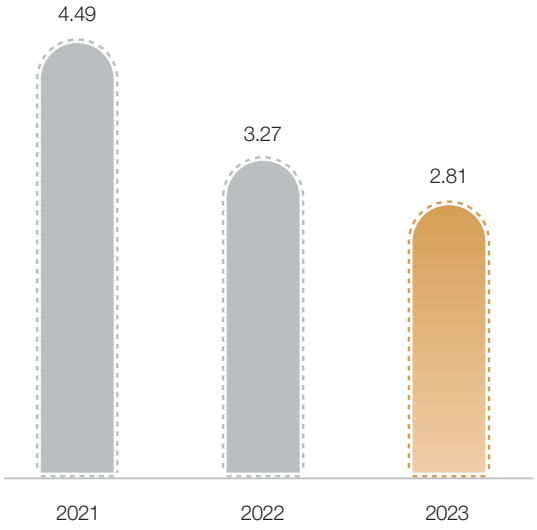
Total natural gas consumption

Unit: m^3



Natural gas consumption intensity

Unit: m^3 per 8-inch wafer



2.3 Climate Change Mitigation and Adaptation

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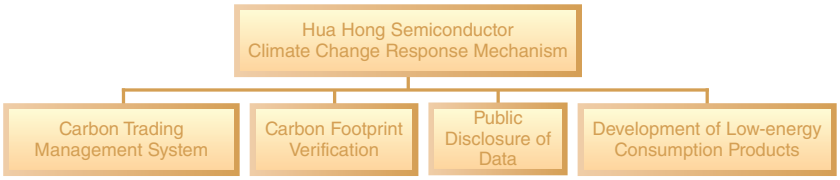
Hua Hong Semiconductor recognizes the importance of mitigating climate change for both the Company and the world. In 2023, the Company improved its management system for addressing climate change with reference to the International Sustainability Standards Board (ISSB)'s Sustainability Disclosure Standards of IFRS 2 – Climate-Related Disclosures (ISSB Climate Standards), regularly identified climate risks and opportunities, and piloted carbon emission verification. While continuing to improve energy use efficiency in production and business operations, the Company disclosed information about energy use and carbon emissions in its ESG Report. In the meantime, the Company actively developed low-energy consumption products, as part of our endeavor to facilitate achievement of China's "30 • 60" carbon peaking and carbon neutrality goals.

Hua Hong Semiconductor's Climate Change Management System

Governance	• A top-down governance framework is established, where the Board takes responsibility for formulating and coordinating climate change response strategies. This includes regular reviews over the progress of climate change management work to ensure the effectiveness of strategies and management measures, as well as reviewing target progress. • The ESG Working Group takes responsibility for implementing climate change strategies, whereby assessing, managing, and monitoring climate change management work, as well as regularly reporting work progress and related performance to the Board. • Each business department actively participates in climate change management work, contributing to the Company's efforts to reduce carbon emissions.
Strategies	
Risk management	• Based on the identification results of climate risks and opportunities, the Company develops corresponding management measures to enhance its capability to respond to climate change and capture green product opportunities.
Indicators and targets	• Scientific and reasonable climate change management targets are set with related performance and target progress disclosed in the annual ESG report, details of which are available in the section headed "ESG Management Strategy and Targets".

The Company regularly undertakes identifications of climate change risks, so that the climate change response mechanism can be constantly improved, as part of our active response to the risks and opportunities brought by climate change.

Identification and Response to Climate Change Risks and Opportunities

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Major Risks and Opportunities of Climate Change as Identified			Potential Financial Impacts	Response Measures
Risks	**Transition Risks**	**Reputation Risks** Transitioning to a low-carbon economy, the PRC government and various stakeholders expect companies to take active actions in response to climate change and to enhance the transparency of information disclosure. As a result, any company that fails to respond effectively to these propositions from the stakeholders would be exposed to negative impacts on its own reputation.	Decreased Business Revenue	– Categorizing climate change mitigation and adaptation into work priorities for all business departments. – Actively participating in the Shanghai Development and Reform Commission's carbon emissions trading work and conducting regular carbon accounting work.
		Policy and Legal Risks The PRC has set carbon neutrality targets, and regulatory scrutiny on corporate carbon emissions will continue to intensify in the future. If the Company fails to meet regulatory requirements in environmental management, it may face risks of litigation and fines, which could lead to defaults.	Increased Operating Costs	– Developing a climate change management system in reference to the ISSB Climate Standards. – Communicating with stakeholders about climate change as a substantive issue through channels such as ESG reports.
		Market Risks In recent years, customers and consumers have become increasingly conscious about product sustainability, which is constantly changing the external market environment in which businesses operate. If the Company's products and services cannot effectively and timely adapt to these market changes, our operations will be impacted.	Decreased Business Revenue	– Developing low-power consumption products and actively communicating with customers and consumers about the green attributes of said products.
	Physical Risks	**Acute Physical Risk** The increase in natural disasters including typhoons and floods caused by climate change may affect the Company's wafer fab operations, resulting in economic losses.	Increased Operating Costs; Reduced Value of Fixed Assets	– Formulating emergency response plans for extreme weather events. – Regularly conducting emergency drills and training for natural disaster incidents.
		Chronic Physical Risks Persistent high-temperature weather and sea-level rise caused by climate change may lead to disruptions in business operations, resulting in financial losses.	Increased Operating Costs; Reduced Value of Fixed Assets	

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Major Risks and Opportunities of Climate Change as Identified		Potential Financial Impacts	Response Measures
Opportunities	**Resource Use Efficiency** Resource use efficiency shall be improved, including the efficiency of energy and water resources, which can help the Company reduce costs during operations.	Reduced Operating Costs	– Actively adopting green office and operations measures. – Integrating ecological and environmental concepts into the design stage of new plant premises to reduce the use of various resources during construction and operation.
	Energy Sources A higher utilization rate of more low-emission/clean energy in operational activities can help reduce the risk of rising energy prices in the future.	Reduced Operating Costs	– Continuously increasing investment in green research, development, and innovation.
	Products and Services Amid the transition to a low-carbon economy, the Company is presented with new market opportunities as demand is increasing for green, low-power consumption products among customers and consumers.	Increased Business Revenue	– Continuously improving the environmentally friendly and green attributes of products. – Reducing the generation of hazardous substances with green technologies and materials, minimizing environmental impact. – Developing products with lower power consumption and higher efficiency to help downstream industries improve energy efficiency and reduce carbon emissions. – Providing integrated services in product design, research and development, and production.

The Company's GHG emissions mainly come from direct GHG emissions, generated from the use of natural gas, small amounts of petroleum and diesel, and indirect GHG emissions from outsourced electricity and thermal power. The Company carries out GHG emission reduction work from the management level and the technical level to reduce carbon emissions generated in its operation activities, thereby lessening the impact on climate change.

The Shanghai Production Base is recognized as a "carbon emission quota management unit" by the Shanghai municipal government and actively responds to government policies by conducting regular carbon investigations. During the Reporting Period, the Company undertook third-party verification of the 2022 carbon emission data for Fab 1, Fab 2, and Fab 3 at the Shanghai Production Base to enhance our carbon emission data management capability.

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2.4 Resource Management

Sustainable Water Management

The Company sets water management goals and formulates water management strategies in strict accordance with laws and rules and other relevant regulations, including the Water Law of the People's Republic of China, the Shanghai Administrative Measures for Water Conservation, and the Jiangsu Water Conservation Ordinance. It also introduces higher-efficiency equipment and processes, continuously optimizes water resources management measures, and enhances its water consumption efficiency.

Water Resource Management System

Goal

- By 2030, the Company aims to reduce water consumed per unit product by 12% as compared to 2015.

Policy

- Management Regulations for Water Use
- Standard Operating Procedures for Industrial Water Supply System
- Tap Water Anomaly Handling Procedure

Measures

- Monitor the supply and quality of water resources in operating areas.
- Establish and maintain comprehensive ledger management, regularly conducting statistics, analysis, and improvement of utilisation.
- Implement water-saving technological upgrades and wastewater reuse.
- Organize water-saving promotion activities and post water-saving signs.

Semiconductor manufacturing process necessitates adherence to water quality standards and involves substantial water consumption, resulting in a significant impact on the availability of natural water resources. The Company constantly monitors the risk of water resources in areas where we operate through the "Aqueduct Water Risk Atlas", an external tool from the World Resources Institute (WRI). We analyze the rationality of water consumption for production and the operation of our fabs and the possible impact of the water intake and formulate effective measures to reduce risks and ensure that water resources can support the Company's sustainable development.

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WRI Risk Monitoring Results and Countermeasures of the Company

Water risk monitoring indicators	• Type of physical risks: Water consumption risk, drought, decline of groundwater water level, etc.. • Condition of physical risks: Coastal erosion, untreated water. • Laws, regulations and reputation risks: Quality of drinking water, sanitary conditions, etc..
Monitoring results	• High-risk area: Wuxi Fab and Shanghai Fab.
Countermeasures	• Relying on water monitoring sites for each fab, the Company has conducted water balance tests on a regular basis to calculate the process water, recycled water, wastewater, and domestic water use of each fab. • The Company records the flow, volume, and recycling of water resources, so as to analyze whether there is any abnormal utilization of water resources and predict the reasonable allocation of water resources among water-consuming units. • Build green buildings, upgrade or replace equipment with high water consumption, and enhance water consumption efficiency. • Expand the sources of water resources, recycle air-conditioning condensate, organic wastewater, etc., and transform recycled water into industrial water. • Carry out water-saving awareness publicity activities and post water-saving signs.

Water used by the Company comes to a large extent from the municipal water supply in addition to a smaller amount of recycled water and air conditioning condensate from the pure water manufacturing process.

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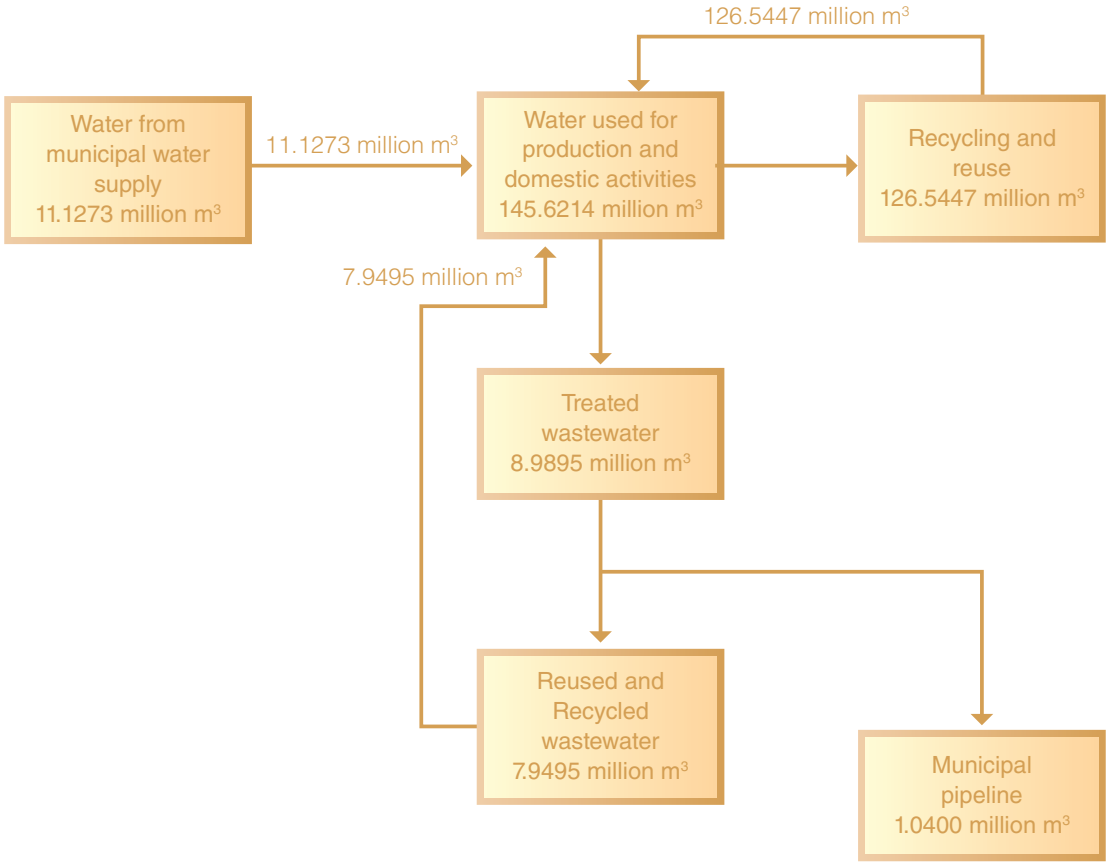
Overview of Water Used for Production and Operation of the Company in 2023



During the Reporting Period, the Company undertook several water-saving and wastewater reuse activities. In 2023, it was awarded the medal and certificate of honor titled as "Water Efficiency Leader of Key Water-Using Enterprises in Shanghai" jointly issued by the Shanghai Municipal Commission of Economy and Informatization and the Shanghai Water Authority. In addition, it received the second prize for "Shanghai Industrial Water Reuse Excellent Case" jointly awarded by the Labor Union of Shanghai Water Authority, the Shanghai Office for Water Saving, and the Shanghai Water Supply Management Office.

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Water Resources Management Work and Achievements in 2023

Action	Measures	Achievements
• Reclaimed water reuse project	• Additional reclaimed water recycling facilities were installed, and turbidity removal membranes and special RO membranes were used to improve the quality of water output from the system, ensuring the requirements for use in the pure water system are met	In 2023, a total of 275,940 tons of water was saved
• Saving RO makeup water	• Water makeup volume was reduced by regulating the RO makeup water bypass of the MAU without affecting the indoor AMC in the cleanroom	In 2023, a total of 32,898 tons of water was saved
• Recycling of RO concentrated water	• Additional RO concentrated water recycling equipment was installed to increase the treatment amount of recycled water	In 2023, a total of 26,000 tons of water was saved
• Recycling of sampling water from the online instrument	• The sampling water from the online water quality testing instrument was collectively recovered in the intermediate water tank and reused for the spray water system	In 2023, a total of 9,125 tons of water was saved
• Adjusting OAC unit makeup water flow	• Diaphragm valves and flow meters were installed to adjust the makeup water amount according to actual needs, saving water	In 2023, a total of 55,845 tons of water was saved
• RCM product water reuse project	• The organic reclaimed water pipeline was installed to substitute reclaimed water for tap water for washing	In 2023, a total of 14,600 tons of water was saved

Raw Materials Management

The Company primarily uses raw materials including silicon slices, quartz, target materials, and chemicals. To streamline management, the Company has established management systems, including the Raw Materials Shelf Life Control Policy, the Risk Identification and Response Measures for Key Materials, the Key Materials Risk Analysis Table, and the Materials Management Department's Management Standards for Chemical Storage and Gas-based Operations, to standardize the raw materials management procedures. The Company encourages employees to reduce waste rates by means of technical innovation, constant optimization, and recommendations on optimization, thereby enhancing the efficient utilization of raw materials.

2.5 Emissions and Waste Management

In order to meet emission standards and reduce impact on the environment, the Company has standardized the management of air emissions, wastewater, and waste discharge in strict accordance with the Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution, the Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Wastes, Law of the People's Republic of China on the Prevention and Control of Soil Pollution, Law of the People's Republic of China on the Prevention and Control of Water Pollution, as well as other laws and regulations and relevant provisions. During the Reporting Period, no incident of excessive or illegal discharge of pollutants by the Company has occurred, nor has any litigation case arising from the above types of incidents occurred.

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Air Emission Discharge Management

The Company strictly complies with national and local discharge requirements, such as the Discharge Standards of Pollutants for Semiconductor Industry (DB31/374-2006) and Jiangsu Discharge Standards for Semiconductor Industry (DB32/3247-2020), and sets a management goal of achieving 100% compliance on discharge. The Company has formulated improved testing plans and management measures for air emissions discharged during production, including sulfuric acid mist (H_2SO_4), hydrogen chloride (HCl), nitric oxide (NOx), ammonia (NH_3), and volatile organic compounds (VOCs). The Company has further developed testing plans for major air emissions according to the production situation and regularly carried out testing and evaluation to ensure compliance of air emissions.

Air Emissions Management

Type		Treatment Method
Air Emissions	Acid air emission	Up-to-standard discharge after removing most of the components through pretreatment and centralized treatment of the washing tower.
	Alkaline air emission (mainly ammonia gas)	Purification through a washing tower.
	Organic air emission	Purification through activated carbon adsorption, or combustion after concentration.
	Air Emissions containing dust (mainly small particulates of silicon dioxide)	Removal through a dust-extraction unit

The Company has standardized the requirements for online monitoring and management of organic waste gas and improved on-site supervision capacity of its fabs. The Company's waste gas treatment facilities are maintained at a high level of treatment efficiency through annual overhaul and other measures. In addition, the Company optimized and improved the treatment technology of its organic waste gas treatment system, constantly enhanced the treatment efficiency of the system, and reduced the emission of organic waste gas.

Waste Management

The Company adheres to the principles of "reduction from the source" and "circular economy". Besides standardizing the identification and strict classification of generated waste, the Company adopts proper management methods to handle waste, aiming to maximize the waste recycling rate.

The Company maintains consistently high standards and strict requirements in the implementation of the waste management system by formulating the Waste Management Procedure, the Code of Practice for Industrial Waste Management, and other management regulations, as well as crafting all-around management procedures for waste management to standardize waste management operations. Through the unified environmental protection management system of the government, waste treatment is recorded and managed to ensure all transportation records are traceable and controllable. In every year since 2017, the Company has carried out work to reduce the discharge of various hazardous wastes to constantly reduce the impact of hazardous waste emissions on the environment.

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Classification and Treatment Methods of Waste

Categories		Treatment Method
Non-hazardous waste	Domestic waste and kitchen garbage	Entrusting the environmental sanitation departments in the places where we operate for unified disposal on a regular basis
	Raw materials for production and office supplies	Recycling within plant premises
	Such as sludge	Landfilling, and brick manufacturing
Hazardous waste	Such as waste acid, waste isopropanol, waste phosphoric acid, and organic waste liquid	handled by suitable enterprises, or reused in other industries, for a higher reuse rate
	Such as waste glass bottles, 200L chemical barrels, and waste liquid from laboratory	Physical-chemical treatment
	Such as cleaning cloths, plastic bottles, waste activated carbon, waste resin, and arsenic-containing waste	Incineration

Wastewater Discharge Management

The Company strictly complies with the relevant laws and regulations governing wastewater discharge for all of the jurisdictions in which its factories operate and sets a management goal of achieving 100% compliance on discharge. The Shanghai Production Base is in compliance with the Discharge Standard of Water Pollutants for Electronic Industry (GB39731-2020), the Integrated Wastewater Discharge Standard (DB31/199-2018), and the Waste Water Quality Standards for Discharge to Municipal Sewers (GBT 31962-2015) – Grade B Standard. The Wuxi Production Base is in compliance with the Jiangsu Discharge Standards for Semiconductor Industry (DB32/3247-2020), the Integrated Wastewater Discharge Standard (GB8978-1996), and the Waste Water Quality Standards for Discharge to Municipal Sewers (GB/T31962-2015) and formulates the Management System for Drainage and Waste. The Company also reduces the generation of wastewater by continuously optimizing manufacturing processes and wastewater recovery.

In terms of pollution discharge and information disclosure, the Company carried out online monitoring and management of wastewater, with relevant data of the Shanghai Production Base and the Wuxi Production Base disclosed on the environmental information disclosure platform, thus improving transparency of environmental information for the Company.

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Wastewater Discharge Management

	Testing Indicators	Treatment Method
Wastewater	pH, COD, ammonia nitrogen, fluorine ion, etc.	Discharged through a pipeline into a designated urban sewage pipe network after treatment and meeting relevant standards

2.6 Green Products

Green products refer to safe, environment-friendly, and high-quality products manufactured in the closed-loop process of product design, manufacturing, use, scrapping, and reuse during which the green concept is always considered. Green products are also characterized by low resource and energy consumption, low pollutant emissions, low toxicity and less harm, and easy recycling, treatment, and reuse. Through special technologies, green production, and the use of clean energy, the Company creates green "core" products and continues to improve product efficiency with reduced energy consumption and waste production during manufacturing, thereby minimizing environmental impact.

Pathway to Green Products

Special technologies

The "green" concept is integrated into the technological research and development phase, whereby continuing to develop low-power consumption, high-performance, highly reliable, and highly integrated technology platforms.

Green production

Use of green products and energy-saving technological transformation reduce energy consumption and waste generation in product production processes, enhancing the green attributes of products.

Clean energy

End-use product energy efficiency is improved by developing energy-efficient products through technological innovation.

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Green Product Production

Based on the environmental footprint of the full life-cycle of a product, the Company identifies the potential improvement links for the green attributes during raw materials procurement, product production, and product transportation. By adhering to the philosophy of lean manufacturing management, implementing green procurement principles, improving technological processes, and other measures, the Company continues to reduce the environmental impact of product production and enhance the green attributes of its products.

Environmental Management for the Full Life Cycle of Products

Warehousing of Raw Materials	Product Production	Product Transportation	End-user Products	Disposal
• Carry out hazardous substance examination and systematic control on raw materials • Review the qualification and environmental compliance of suppliers and require suppliers to sign the Environmental Protection Undertaking	• Choose production equipment with low energy consumption and high performance • Implement water recovery projects to improve the overall recycling rate of water • Adhere to the philosophy of lean manufacturing management, minimizing the generation of waste	• Recycle and reuse product packaging materials to reduce the consumption of packaging materials and waste generation	• By helping customers produce low energy consumption products, reduce the environmental impact of the use of end-user electronic products	• The wafers produced by the Company are monitored for harmful substances, which means that the end-user electronic products manufactured by using the wafers have less impact on the environment after disposal • Recyclable waste during production is handed over to qualified third parties for recycling

Seizing the Clean Energy Opportunity

With the accelerated adjustment of the global energy structure, promoting the use of clean energy has become the focus of development for more and more enterprises. Hua Hong Semiconductor has actively seized the opportunity of clean energy and applied its main process platforms in different application fields to facilitate the development of green products in the downstream supply chain.

The Company has accumulated substantial technology and experience in the manufacturing process for upstream components in the new energy application field, such as new energy power generation, etc., which can effectively support its energy transformation and development. The Company's semiconductor components for new energy, which are already at the international advanced level, utilize the technology and reliability of the 8-inch wafer production platform, with gradual transitioning to the 12-inch process platform. Hua Hong Semiconductor focuses on development of the "8-inch + 12-inch" wafer production strategy, vigorously implementing core development of the advanced "Specialty IC + Power Discrete" product mix, and fully supporting the high-quality supply capacity of components for the new energy infrastructure and application fields. Hua Hong Semiconductor's power discrete, non-volatile memory, and analog and power management processes play an important role in supporting the development of end-user products in new energy application fields, such as new energy vehicles, photovoltaic energy storage, energy-saving household appliances, etc.

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Products for Supporting Clean Energy Development

Power Discrete

Power discrete are important devices for new energy power generation and new energy applications. For example, a large number of IGBTs, MOSFETs, and other devices are required for PV and wind power generation equipment, electric vehicles, and electric two-wheelers.

The Company has accumulated a large number of customers in this field and has maintained good partnerships with leading enterprises in the field for a long time to conduct in-depth development and cooperation together. So far, the revenue of power discrete devices has contributed a significant part of the Company's revenue.

Non-volatile Memory Process

Non-volatile memory processes are is widely used in chip applications such as MCUs and ASICs, and these chips are also widely applied to new energy-based power generation equipment.

According to IC Insights, the automotive market accounts for more than 30% of the global MCU consumption market. All of Hua Hong's fabs have passed the IATF 16949 automotive quality management system certification, making important contributions to supporting the local manufacturing of automotive semiconductors.

New Energy Components involved in Development Projects and Application Areas

Product	Application Area	Proportion of Revenue
Power Discrete	Photovoltaic and wind power generation equipment, electric vehicles, electric bicycles, etc.	39.4%
Non-volatile Memory Process	New energy generation equipment, electric vehicles, etc.	35.9%

In 2023, the Company held the "Core Connectivity, Vehicle Connectivity, and Chain Connectivity" Automotive Chip Ecosystem Cooperation Conference, joining forces with nearly a hundred businesses in the integrated circuit, automotive component, and vehicle assembly sectors, to promote cooperation in the automotive chip ecosystem and foster collaborative industry development under the spirit of "identifying opportunities in industrial development by amassing the power of technical innovation". Pursuant to the "8-inch + 12-inch" and forward-looking "Special IC + Power Discrete" strategies, the Company's automotive electronics business has been expanding, with products continuing to expand in the new energy sector, propelling the low-carbon green development.

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Development Progress of Technologies Boosting New Energy Transformation in 2023

Automotive Electronics	Industrial New Energy	High-end Consumer Electronics
• Collaboration along the supply chain assists customers in accelerating introduction of their products into related module factories and vehicle manufacturing enterprises. • Direct collaboration is established with mainstream domestic automotive manufacturers, focusing on mature chip substitution for key and challenging projects. This partnership aims to build a sustainability ecosystem that ensures multi-dimensional cooperation. Recommended mature chip types cover various areas, including the automotive power system, body control, cabin, chassis and safety, remote control and communication, ADAS, and charging stations, thereby achieving mass supply. • A company-level automotive electronics database is established and continuously improved.	• Key power device products have achieved mass supply, significantly increasing market share. With the government enacting a national strategy and rendering strong support for the dual-carbon economy, the new energy market is poised for promising growth in the future.	• Collaboration with well-known domestic appliance brands aims to increase the domestic substitution rate and continue the push for expansion of high-end consumer electronics business. • Well-known domestic appliance brands, manufacturing products such as IGBT, display touch control chips, fingerprint lock chips, and motor control on the Company's process platform, have gradually expanded into the market for large household appliances, including air conditioners and refrigerators.

In the future, the Company will further promote the development of silicon-based power devices capable of achieving higher energy efficiency and initiate development of compound semiconductor power devices characterized by high power density and low energy consumption. This will provide continuously optimized solutions for products applied to the clean energy sector, such as variable frequency household appliances, new energy vehicles, and further improve energy efficiency.

3 Employee-Related Responsibilities

Major Developments in 2023

Measures	Achievements
Safe Production	100% of our employees and contractors signed the Safety Responsibility Letter and the Letter of Commitment on Safety and Environmental Protection, respectively.
Employee training	100% employee training coverage. 135.6 training hours per person.

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3.1 Rights and Benefits of Employees

Rights and Interests of Employees

Hua Hong Semiconductor strictly complies with laws and regulations including the Labor Law of the PRC and the Law on Employment Contracts of the PRC. We insist on fair employment, implement the principle of equal pay for equal work, and ensure that employees are not discriminated against or treated differently based on non-work factors including age, gender, place of birth, religious belief, marital status, or disability. We prohibit the employment of child labor or forced labor.

The Company has formulated relevant management regulations, including the Employment Procedures and the Management Procedures for Trainees. The Company strictly checks the identity information of employees and never employs adolescents under the age of 16. If such a situation is identified and verified, it will be immediately suspended and investigated for rectification, targeting at the omission of links around the recruitment review process so that such process can be improved. As at the end of the Reporting Period, the Company had 6,863 regular employees. The Company has experienced no illegal or non-compliant incidents in connection with employee recruitment and dismissal, work hours and holidays, job promotion and equal opportunities, anti-discrimination and diversity, the employment of child labor or forced labor, nor had any litigation in connection with the aforesaid matters.

Overview on Employee Rights and Interests

Recruitment and Dismissal	Remuneration	Working Hours and Vacation System	Democratic Participation
• Recruitment: Adhering to the principle of fairness, equity and openness; • Dismissal: The Company and employees go through the dismissal procedure according to relevant laws, regulations, and the Dismissal Management Procedure.	• The Company provides competitive salaries for employees, which are higher than the minimum wage in the place of operation.	• A standard working hours system is adopted. A comprehensive or flexible working hours system is adopted for certain positions with the approval of the government labor and personnel authorities; • Based on holidays and festivals specified by the government, supplementary annual leaves are provided for employees.	• Establishing labor union, employee congress, etc. to ensure the democratic participation of employees in the Company's decision-making.

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Employee Diversity

The Company attaches great importance to the diversity of employees and believes that a diversified talent pool can enhance dynamics in the team, which will constantly improve the efficiency of research and production, driving business growth of the Company. Through diverse recruitment channels, the Company provides employment opportunities for talent from different cultural backgrounds, educational backgrounds, and technical specialties.

Practice of Employee Diversity

Gender Diversity

- Upholding the principle of "gender equality" in recruitment, employment, and promotion, the Company incorporates employee aptitude and performance assessments into the standards of employment and promotion.

Age Diversity

- Upholding the principle of "age equality", the Company provides job and promotion opportunities for employees of different age groups.

Functional Diversity

- The Company offers various positions and levels in management, technology, and functional support, allowing employees to choose based on their own development plans.

The Company formulates relevant regulations and procedures and continues to create an open, inclusive, respectful, and diverse employment environment. We respect the lifestyle of all kinds of employees and try to provide them with convenient conditions to meet their living habits. The Company is also committed to creating better office and service facilities for employees and improving their happiness.

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Employee Care

The Company persistently cares about the well-being of its employees by integrating employee care into its daily practices, including provision of fringe benefits and caring initiatives in areas such as office environment, diet, accommodation, and transportation, as part of our commitments to creating a warm, loving, and vibrant working environment for them.

Measures for Employee Care

Office	• The ventilation system is installed in all offices and additional air purification devices added to improve office air quality. • Green space increased in office areas.
Diet	• There are staff canteens and coffee shops in factory zones. • Establishing a food safety supervision team, adopting the mode of centralized purchasing of food materials and qualified supply chain management, and inviting employees and department representatives to carry out supervision. • Publishing the canteen food cooking guideline to manage balanced nutrition, oil and salt control, for the employees' diet in the canteens.
Accommodation	• Construction of dormitory with private bathrooms, 24-hour supply of hot water, and WIFI network, etc. • The dormitory area has a library, computer room, snooker room, laundry, TV room, HIVE BOX, and other facilities.
Travel	• Providing all employees with travel allowance. • Providing free commuter bus services between the park, subway stations, and the dormitory. • Creating a commuting route for employees living in the transit-challenged areas and arranging commuter bus services for departments which need to have such services on weekends.
Extending solicitude	• Organizing holiday celebrations and activities during festive periods as a gesture of extending our solicitude.
Health checkup	• Offering annual health check-ups for all employees, including screenings for multiple types of cancer.

In addition, the Company established the Employee Assistance Mechanism, under which we provide assistance for needy employees at special festivals such as Spring Festival, Labor Day, and Mid-Autumn Festival, in addition to routine expression of sympathy and solicitude to injured or families of diseased employees; and we give timely care and support to employees who suffer a significant misfortune and help them overcome their plight as soon as possible through multiple forms of assistance including donation, support, care, and nursing.

In terms of care for female employees, the Company organizes a special physical examination every year, continuously improving human-based management of lactating employees, and providing relevant service facilities to ensure convenience for pregnant employees and lactating employees at work.

Employee Communication

An unblocked communication channel is favorable to the establishment of harmonious labor relations. The Company is committed to building and improving employee communication and feedback mechanisms, has formulated the Employee Communication Rules, and encouraged multi-way communication between the Company and employees, between officers and subordinate officers, and among employees.

The Company utilizes various communication channels, including satisfaction surveys, forums for young employees, an OA online platform, and one-on-one departmental communications, to understand the feedback and suggestions of employees. Meanwhile, the Company has established a labor union, and employee representative meetings are regularly convened as part of our active efforts to communicate with employees.

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3.2 Employee Health and Safety

The Company attaches great importance to occupational health and safety of employees and strictly complies with the Law of the People's Republic of China on Prevention and Control of Occupational Diseases, the Production Safety Law of the People's Republic of China, the Regulation on Work-Related Injury Insurances, as well as other laws, regulations, and provisions. The Company has established a complete occupational health and safety system that meets the safety goal of "zero accident for production safety", defining the occupational health and safety policy, to provide employees with a good working environment and ensure their occupational health. During the Reporting Period, there were zero work-related injuries or deaths, occupational diseases, or fire accidents.

Occupational Health and Safety Management System

Occupational Health and Safety Management Policy			
The Company strictly complies with the laws and regulations pertaining to safety, health, and environmental protection; makes efforts for clean production; carries out continuous improvement; creates a safe, healthy, and comfortable working environment for employees; and strenuously pursues the highest goal of "zero accidents" and sustainable operation, becoming a model corporate citizen in the world.			
System Construction	• The Company has established the Safe Production Committee; implemented the Committee's Safe Production Responsibility System; and implemented the Regular Safety Meeting System. • All employees at all levels are required to sign the Safety Responsibility Letter, so as to implement the Safe Production Responsibility System for the staff.	**Management Factors**	• Emergency response to hazards/ environmental factors. • Special equipment and posts. • Chemicals management. • Occupational health monitoring and Protection.
Internal Audit, Inspection, and Hazard Identification	• Safety technology transformation. • Establishing a dual prevention work mechanism of hierarchical control of safety risks and management or hazard identification.	**Construction of a Safety Culture**	• Safety awareness and safety training. • Emergency drills.

Safe Production

The Company pays great attention to safety assurance of employees in the production process, strictly abides by the Production Safety Law of the People's Republic of China, and formulates the Implementation Measures for the Production Safety Responsibility System of the Production Safety Committee. We also established the safe production committee and the weekly production safety meeting system to continue the optimization of various management procedures and facilitate construction of the corporate safety culture, ensuring stable operation of the Company's safe production system. So far, the Shanghai Production Base and the Wuxi Production Base both have passed certification of the ISO 45001 International Occupational Health and Safety Management System.

Name of production base	ISO 45001 Certification	Term of Validity
Shanghai Production Base and Wuxi Production Base	Certified	18 April 2024

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The Company actively implemented standardization, systematization, and intelligent construction of safety work and optimized the production safety responsibility system of all employees. In accordance with the principle of "one post with one responsibility" and "whoever takes charge and uses shall take the responsibility", the Company has compiled a Safety Responsibility Letter covering all staff by combining the post functions. Meanwhile, contractors of the Company are required to sign the "Letter of Commitment on Safety and Environmental Protection", so as to make every department and every employee take their respective responsibility and optimize the production safety responsibility system of all employees. In 2023, 100% of our employees and contractors signed the Safety Responsibility Letter and the Letter of Commitment on Safety and Environmental Protection, respectively.

In addition, the Company improved systematic procedure management based on its operation experience, established and perfected safety management systems such as safety accident/incident/hidden danger troubleshooting and tracking system, and implemented a special equipment registration system, equipment terminal infrared detection and recording system, etc. Data records are kept to ensure implementation of corrective measures, thereby standardizing implementation of procedures and enhancing the Company's safety management efficiency and safety operation level.

Safety Risk Prevention Facilities and Measures for Employees

Fire fighting facilities:

Comprehensive systems are installed, including automatic fire extinguishing system, automatic fire alarm system, smoke control system, fire broadcasting system, evacuation indications, and emergency lighting system.

Alarming and monitoring system:

Our clean work areas are equipped with toxic, hazardous, and flammable gas alarming systems, liquid leakage detection system, and extremely early smoke detection systems.

Emergency measures:

An emergency response team (ERT) is established and receives specialized skill training, and emergency response plans are formulated for different disasters. Furthermore, special action drills are regularly organized and identified issues are promptly rectified.

In 2023, Hua Hong Semiconductor advanced the Three-Year Special Rectification Action Plan for Production Safety (2023-2025), covering hazardous chemicals, construction projects, fire safety, gas, electricity, and special equipment, with a total of 397 safety hazards successfully rectified.

Chemical Safety Management

With regard to safety protection of chemicals, the Company has formulated a number of management policies and operation procedures, including the Chemicals Management Procedure, the Chemical Substance Review Procedure, the Special Emergency Plan for Chemical Leakage, the Inspection and Registration System for Chemicals Coming In and Out of the Warehouse, the Safety Management Rules for Hazardous Chemicals, the Management Measures for Chemical Turn-on, etc., to regulate the chemical management procedures as well as to enhance chemical safety compliance.

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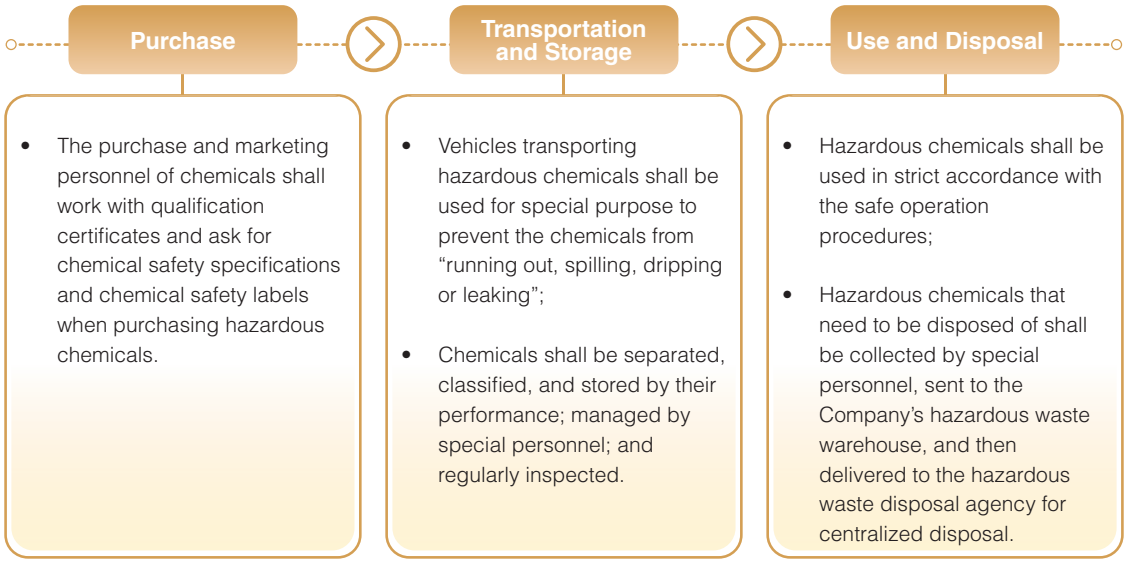
Hazardous Chemicals Used in the Manufacturing of Hua Hong Semiconductor Chips

Type	Name
Flammable liquid	Isopropanol, photoresist, and diesel
Oxidants and organic peroxides	Hydrogen peroxide
Toxic chemicals	Phosphine and fluorine
Corrosive chemicals	Sulfuric acid, hydrochloric acid, hydrofluoric acid, phosphoric acid, mixed acid, ammonia water, and sodium hydroxide
Compressed and liquefied gas	Hydrogen, methane, silane, nitrogen, oxygen, argon, helium, ammonia, and chlorine

The Company has established a factory chemical review committee to comprehensively evaluate the environmental protection and safety qualifications as well as the risk prevention and control capabilities of chemical suppliers in advance. The Company employs the chemical substance management system to: manage the handling, storage, and disposal of chemicals; control the maximum storage quantity of chemicals; and dynamically monitor their use and consumption. In addition, the Company endeavors to eliminate on-site hazard sources and reduce safety risks from the source by giving priority to the use of new technologies and by replacing toxic and flammable hazardous chemicals with non-toxic chemicals.

Hazardous Chemicals Management Procedure



Protection of Employees' Occupational Hazard Factors

In order to provide occupational health protection for employees, the Company identifies occupational hazard factors of employees and formulates corresponding countermeasures in strict accordance with the Law of the People's Republic of China on Prevention and Control of Occupational Diseases and other laws and regulations. The Company's job positions involving occupational hazard factors mainly include ion implantation, diffusion, etching, chemical mechanical grinding, power gasification, and other positions involving equipment operation.

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Identification and Protection of Employees' Occupational Hazard Factors

Job Positions with Occupational Hazards	Occupational Hazard Factors	Countermeasures	Occupational health monitoring
Ion implantation, diffusion, etching, chemical mechanical grinding, power gasification, and other positions involving equipment operation.	Fluorine and its inorganic compounds, hydrofluoric acid, hydrochloric acid, nitric acid, sulfuric acid, phosphoric acid, ammonia water, hydrogen peroxide, arsenic and its compounds, phosphorus and its compounds, isopropanol, etc.	• The equipment in the clean room is automatically operated in a closed space and is equipped with a closed process exhaust system. • Provide employees with personal protective articles and emergency response devices, regularly checking such articles and devices to ensure their effectiveness.	• Annual occupational health monitoring and assessment of current occupational hazards. • Strict pre-employment, on-the-job, and post-employment medical examinations for employees at positions exposed to occupational disease hazards.

In addition, the Company engages external organizations to test the occupational hazards in its production environment every year, so as to ensure that the occupational exposure limits for harmful factors are not exceeded in the production environment. The Company informs all employees of the test results. Over the course of research, development, and production, the Company persistently has upheld the green chemistry philosophy, thereby continuously reducing the occupational hazard exposure risk of employees.

The Company provides an annual health check-up for all employees, including multiple cancer screenings and other items, and establishes employee health records to systematically track changes in employees' health status. In 2023, the Company established the "Health Defense Column", while simultaneously carrying out various activities to promote a healthy lifestyle for employees, such as health lectures on the theme of "How to stay away from the risk of "hypertension, hyperlipemia and hyperglycemia", "Guidelines for People Infected with COVID-19 at Home", and "Prevention of facial paralysis in alternate seasons", to encourage the employees to live and work in a healthy way.

Construction of Production Safety Culture

In order to carry out the construction of a production safety culture and strengthen the staff's awareness of the safety culture, the Company organized a series of activities such as "Production Safety Month", "Safety & Health Cup", and "Fire Protection Month" and carried out activities such as production safety publicity, education, and training, as well as safety knowledge and skills competitions. Various safety publicity and demonstration activities have effectively enhanced the safety awareness and safety knowledge reserve of employees and motivated all staff to fulfill their safety commitments and responsibilities.

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Actions for Construction of Production Safety Culture in 2023

Action Name	Content and Effect
Strengthening safety training	• 131 safety education and training sessions were organized and held on the primary responsibility for production safety, enrolling over 28,000 participants with the participation rate in safety education and training reaching 100% and the certificate holding rate for employees reaching 100%.
Enhancing emergency response capability	• Each production base organized and implemented more than 385 comprehensive and special emergency plan drills, enrolling more than 29,770 participants. • Complete the expert review and filing of production safety emergency plans, establish and improve the required documents, such as rapid emergency response procedures to abnormal conditions for production base, as well as organize weekly training, quarterly practice, and annual competition. • Hold ERT personal skills and ERT firefighting skills competitions and build an emergency management system communication platform by carrying out activities. • Organize and carry out the "Fire Protection Month" fire knowledge display board publicity, firefighting skill training, evacuation and escape drills for all staff, and enhance the staff's safety awareness and emergency response ability.
Safety Technical Transformation Assessment	• Conduct annual evaluation of required safety and technical skills, and organize learning and exchange activities. • Conduct assessment activities to select typical investigation cases for hidden hazards.

3.3 Employee Development and Training

Employee Training

The Company has established a sound employee education and training system and formulated the Operating Procedure of Internal Training System Review, the Education and Training Procedure, and department-level training procedures, which are constantly adjusted according to strategic development and employee needs, to meet the all-round and multi-level training needs of employees in different positions.

The Company has established training facilities (with special training rooms and equipment for each plant site), learning and sharing platforms (including an online training registration management platform, training material, and position-specific question bank and multimedia learning courseware, etc.) and where necessary, uses external resources for ensuring employees learning and development.

In 2023, the Company continuously carried out a "Special Training Camp for Newly-hired Recent College Graduates" training program. In addition to the refining and concentration of professional theory and practical training in three major series of courses, namely "new era", "new revelation" and "new talents", the Company offered courses regarding corporate culture and political literacy as well as organized visits to bases of Chinese revolution, which helped its new employees quickly integrate into the team and meet the challenges of their future work with full enthusiasm.

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Employee System

Trainees	Training Contents	2023 Performance
Grass-roots managers	Role recognition, self-management, management of others, and working management	• Percentage of employees trained: 100% • Average training hours per employee: 135.6 hours
Front-line managers	Develop management skills of front – line shift and team leaders, cultivate a front-line management team with high quality and high business ability, and lay a solid foundation for the Company's management	
Newly-employed university students	Career quality, corporate culture, introduction to special skills, and other courses	
Front-line employees	Courses about theory and practical training of the semiconductor manufacturing module	

Career Development

The Company has clear and transparent promotion channels for employees, regularly evaluates employee performance providing employees with feedback on individual performance, and offers personal career development plans for the development of employees. According to industrial practice, the Company has set three professional categories, namely, management, technology, and functional support and has established corresponding job training. Employees may continuously develop their careers in a single professional title category according to their own specialties, potential, and desires. In addition, they are able to shift from technology to management.

In continuing to push forward with high-quality development and improve its high-quality talent pool, the Company focuses on refining its comprehensive capabilities through specialized training, technical exchanges, and lectures, so as to constantly improve the talent cultivation mechanism.

In addition, the Company has formulated the Implementation Measures for Academic Education Subsidy, which encourages employees to improve their professional and technical knowledge and provided 18 employees with on – the-job academic education subsidies in 2023, so as to promote work performance and efficiency improvement, continuously training high-quality talent that meets the current and future needs of the Company, further improving its comprehensive competitiveness.

As of the end of the reporting period, the overall employee turnover rate of the Company[3] was approximately 10.0%. Specifically, the employee turnover rates by gender, age and region are as follows.

Employee Turnover Rate of Hua Hong Semiconductor in 2023

Category	Turnover rate (%)
Male employees	11.3%
Female employees	7.1%
Employees aged below 30	14.0%
Employees aged 30 to 50	7.5%
Employees aged above 50	1.9%
Employees in mainland China	10.0%
Employees from overseas	9.7%

3 Employee Turnover Rate= number of resigned employees in the category/total number of employees in the category * 100%

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4 Products and Services

Main Progress in 2023

Measures	Achievements
Innovation and R&D	• 672 patent applications • 12 approved papers
Product quality	• Selected as a shortlist for the nomination award of the 5th China Quality Award • Awarded 2022 Shanghai Key Product Quality Improvement Achievement Award (Second Prize)
Customer service	• Average score of customer satisfaction in the questionnaire of 8.97 (full score: 10 points)

4.1 Product R&D and Innovation

Construction of an Innovative Technology R&D System

Continuous innovation and R&D are crucial requirements for the sustained growth of an enterprise and serve as strategic support for promoting high-quality development. The Company abides by the Law of the People's Republic of China on Progress of Science and Technology, the Patent Law of the People's Republic of China, and the requirements of other laws and regulations. Guided by its vision of "Continuous Innovation and Empowering the Future for Global Customers", the Company consistently benchmarks itself against international standards, promotes integrated innovation in processes, devices, design, and products and strives to build industry-leading specialized technological capabilities.

In 2023, the Company embarked on a patent layout for "Automotive-Grade Memory" and continued to promote integrated innovation in processes, devices, design, and products. We concentrated our efforts on key research and development projects, accelerating the development of differentiated advanced technologies. We also made continuous progress in the development of new power discrete devices, leveraging patents as barriers to proactively position itself in industry-leading research areas.

R&D System of Hua Hong Semiconductor in 2023

R&D Strategy	R&D Achievements
• "8-inch +12-inch" and advanced "Specialty IC + Power Discrete" strategies. • To deepen the high-quality development of diversified specialized process platforms, such as Embedded/ Standalone Non-Volatile Memory, Power Device, and Analog & PM, and Logic &RF.	• Completed the development of a number of advanced specialty ICs and high-end power discrete devices, and achieved mass production of over 200,000 wafers of new products. • Achieved significant breakthroughs in the indicators and product performance of key devices, such as image sensors and embedded flash memory, enabling the Group to gradually expand in the automotive electronics supply chain.

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R&D Innovation Honors of Hua Hong Semiconductor in 2023

√ Successfully listed on the **list of "2022 Excellent Intelligent Manufacturing Scenarios"** jointly announced by the Ministry of Industry and Information Technology, the National Development and Reform Commission, the Ministry of Finance, and the State Administration for Market Regulation.

√ "A new type of mirror floating gate flash memory storage unit and application (一種新型鏡像浮柵閃存存儲單元及應用)" was awarded the **first prize of the Shanghai Science and Technology Award** by the Shanghai Municipal People's Government.

√ The "Development and Industrialization of 12-inch IGBT Complete Manufacturing Process" project won the **"15th China Semiconductor Award for Innovative Products and Technologies"** award by the China Semiconductor Industry Association.

√ Successfully selected as one of the **"100 Intelligent Factories in Shanghai"** by the Shanghai Economic and Information Commission.

Intellectual Property Protection

The Company complies with the Patent Law of the People's Republic of China, the Copyright Law of the People's Republic of China, the Trademark Law of the People's Republic of China, and other laws and regulations and places equal emphasis on both quantity and quality when it comes to promoting intellectual property rights. We have formulated the Management Regulations for Intellectual Property, to regulate the management of our intellectual property rights.

The Company sets annual targets for patent applications and actively maintains its own intellectual property rights. At the same time, the Company promises that it will never infringe upon the intellectual property rights of any enterprise or individual and will keep confidential all technological information regarding products of upstream and downstream partners. To avoid infringement of third-party intellectual property rights, the Company conducts reputational and potential risk audits on customers before accepting product orders and has entered into several technology licensing agreements with major technical companies.

As at the end of 2023, the Company has applied for a total of 8,969 patents in China and overseas and has obtained 4,427 patents.

Intellectual Property Achievements and Honors of Hua Hong Semiconductor in 2023

√ 672 patent applications

√ 270 patents granted

√ Hua Hong Wuxi was listed on the "Wuxi High-Tech Zone Intellectual Property List" for 2023

√ Hua Hong Wuxi ranked 2nd in the "Top 20 New Invention Patents in 2022"

√ Hua Hong Wuxi ranked 6th in the "Top 30 Accumulated Invention Patents in 2022"

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4.2 Product Quality and Safety

Quality Management System

The Company has been deepening and improving its quality management system to enhance management efficiency of the "R&D – Mass Production – Quality Control" process, especially in the face of challenging market fluctuations. We have formulated the Quality Manual, Quality Management Procedures, Code of Practice for Quality Objective Management, Supplier Management Regulations, and other rules to carry out quality management work. In 2023, the Company carried out evaluation activities with the theme of "Zero Defect of Characteristic Processes and High-quality Development of Hua Hong", during which a total of 2,578 projects were reviewed and completed. The outcomes have been remarkable in terms of efficiency improvement, supply chain safety, energy conservation and emission reduction, talent development, and safety production.

Certified Subject	Certification	Term of Validity
Hua Hong Shanghai Production Base	ISO 9001 Quality Management System	21 May 2024
	IECQ QC 080000 Hazardous Substances Process Management System	11 December 2026
	IATF 16949 Quality Management System for Automotive Industry	21 May 2024
Hua Hong Wuxi Production Base	ISO 9001 Quality Management System	11 November 2025
	IECQ QC 080000 Hazardous Substances Process Management System	11 December 2026
	IATF 16949 Quality Management System for Automotive Industry	7 May 2026

The Company strictly adheres to the Zero Defects concept, with the quality assurance department responsible for overall planning, execution, and implementation of product quality and safety management, reporting to management and the Board on the relevant work. By organizing regular quality management review meetings, promoting the implementation of product quality monitoring, and strengthening customer communication, the Company aims to ensure that product quality meets expectations and provide high-quality products to the market.

In 2023, the quality assurance department collaborated with the research and development, production, safety and environmental protection, and marketing departments to conduct monitoring and testing over our entire product lifecycle covering "R&D – Production – After-sales", so as to predict and analyze potential anomalies, take timely corrective actions, and prevent product quality risks.

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Achievements in Quality Management in 2023

Quality Management	Achievement
Customer Certifications	√ Successfully passed audits from 14 automotive customers and 25 key customers, completing pre-qualification for leading global automotive electronics manufacturers. √ Made breakthroughs in the construction of financial IC card security system, passed EMVCO certification audits, and obtained customer recognition in terms of the quality system.
Reliability Management	√ Established comprehensive process assessment schemes for 40nm and below advanced process nodes, laying the theoretical foundation for subsequent process verification.
Yield Management	√ Resolved 15 systematic issues in process baselines across various platforms throughout the year, achieving stable yields of 97% or higher for major production platforms.
New Product Quality Management	√ Introduced over 500 new products throughout the year, with more than 30 products meeting automotive-grade specifications. √ Completed the transition of 8 products and technologies from R&D to mass production throughout the year.

In 2023, the Company organized both the theme activity of "Zero Defect of Characteristic Processes and High-quality Development of Hua Hong" and the Quality Month activity. With the goal of "Building the Foundation of Quality, Pursuing the Path of Excellence (築質量之基, 行卓越之路)", all departments and employees in Shanghai and Wuxi worked together to carry out a series of activities such as executive lectures, quality knowledge training, knowledge competitions, quality-themed essay submissions, and quality-themed debate competitions, to promote the Company's high-quality development and pursuit of excellence in quality.

To further enhance its quality management level and inspire employee engagement in learning, the Company organized a series of online activities such as "Zero Defects Quality Awareness Training" and "Quality Knowledge Competition" for all employees, so as to instill the concept of "High Quality and Zero Defects" in the minds of every employee and solidify their quality consciousness.

Quality Management Awards and Honours of Hua Hong Semiconductor in 2023

√ Second Prize for 2022 Shanghai Key Product Quality Improvement Achievement Award

√ Manufacturing Department of Fab 1 received the "Excellent Level" award in the Shanghai On-site Management Innovation Activity

√ Fab 2 was selected as a shortlist for the nomination award of the 5th China Quality Award

√ Fab 3 was awarded the title of Shanghai Intelligent Factory and recognised as a national-level demonstration site

Product Safety Assurance

In terms of product safety assurance, the Company has established a hazardous substance management system, conducted regular risk assessments of hazardous substances and compliance evaluations with applicable laws and regulations, and formulated the Hazardous Substances Management Procedure and the three-level management system to effectively control the hazardous substances in products.

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Hazardous Substance Control System

Process	Measures
Product R&D	The Company incorporates the management of hazardous substances into the product R&D process to reduce the risk of using hazardous substances from the source.
Raw materials testing	Suppliers are required to provide the product test report for hazardous substances, sign the Letter of Commitment on Product and Environmental Protection. We conducted sampling tests on certain raw materials to ensure the safety of raw materials.
Product hazardous substance control certification	A third-party organization is entrusted to carry out testing in accordance with the Directive on Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations ("RoHS") and the Regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals ("REACH") on a yearly basis to ensure that our products meet the requirements of relevant certification standards.

Management of Nonconforming Products

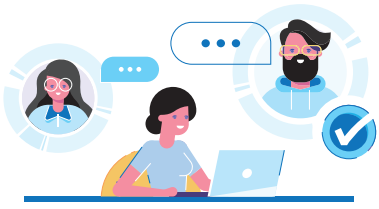
For nonconforming products, the Company has formulated the policy of Nonconforming Product Control Procedure for management and has established an optimal product recall system. For products that meet the warranty conditions, our customers may return or exchange any nonconforming products within the warranty period. During the reporting period, the failure rate of the Company's products on the end-user side was less than one in a billion.

4.3 Customer Relationship Management

Customer service system

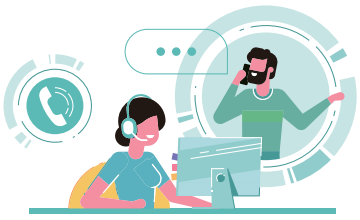
The Company adheres to the concept of "providing customers with more convenient and safe services" and consistently follows the Law of the People's Republic of China on the Protection of Consumer Rights and Interests. It has formulated the Customer Complaint Handling Procedure, listened to customer feedback, and employed various methods, including proactive communication, establishing complaint channels, and conducting satisfaction surveys, to continuously enhance customer service effectiveness.

Customer Service System



Customer Communication

- Adopt multiple methods of communication with customers, including customer survey, regular quarterly/annual business reviews, technical seminar and training.



Customer Complaint

- Establish customer complaint channels and formulate the Customer Complaint Handling Procedure, handle and feed back customer complaints in a timely manner.

Customer Satisfaction Survey

- Carry out satisfaction surveys on a sampling basis annually and formulate an improvement plan according to the survey results. Satisfaction Survey.

The Company maintains smooth customer complaint channels and has formulated the Customer Complaint Handling Rules to standardize the process and response measures for customer complaint and the implementation of corrective and preventative measures. Customers may make a complaint and give feedback to the Company through e-mail, hotline, letter, and other channels. During the Reporting Period, the Company received 4 complaints from customers, all of which were properly handled and resolved to the satisfaction of the customers.

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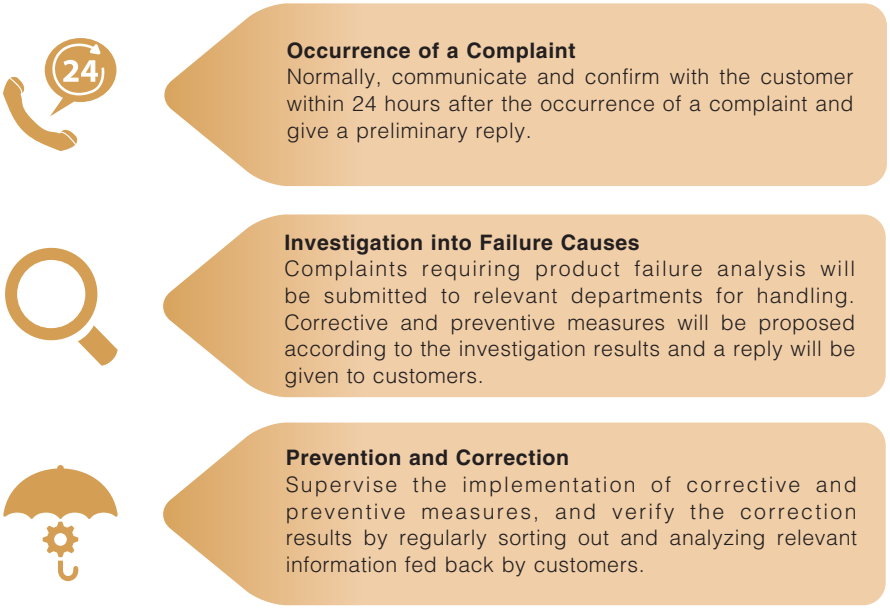
Customer Complaint Handling Procedure



The Company conducts customer satisfaction surveys on a regular basis. In 2023, the Company carried out a customer satisfaction survey in the form of questionnaire to collect customer opinions. The average score of customer satisfaction in the questionnaire was 8.97 (full score: 10 points), representing an increase of 0.11 points compared to 2022. Overall, customer satisfaction has remained relatively stable. The management of the Company reviews the annual satisfaction survey results, organizes the difference analysis and implements improvement measures, and feeds corresponding improvement measures and results back to customers.

Information Security and Privacy Protection

The Company strictly complies with the Cyber Security Law of the People's Republic of China, the Cryptography Law of the People's Republic of China, the Regulation on the Administration of Commercial Cipher Codes, and other laws, regulations, and provisions and has developed information security management rules such as the Information Security System Manual and the Statement of Applicability (SOA). Meanwhile, we continuously optimize our organizational structure and management processes. We implement measures such as organizing centralized learning for employees, conducting publicity and warning education, and ensuring the implementation of relevant measures to continuously enhance their awareness and further strengthen the protection and control of data and information, so as to prevent any incidents of unauthorized disclosure.

The Company established the Information Security Committee, which is fully responsible for the information security protection work of the Company. The Company has established an Information Security Management System (ISMS), which controls information security risks from information asset management, personnel security, physical control, logic control, and other aspects to ensure information security and is ISO 27001 certified (valid until February 2025). In 2023, the Company did not experience any complaints or incidents related to the infringement of customer privacy or loss of customer data.

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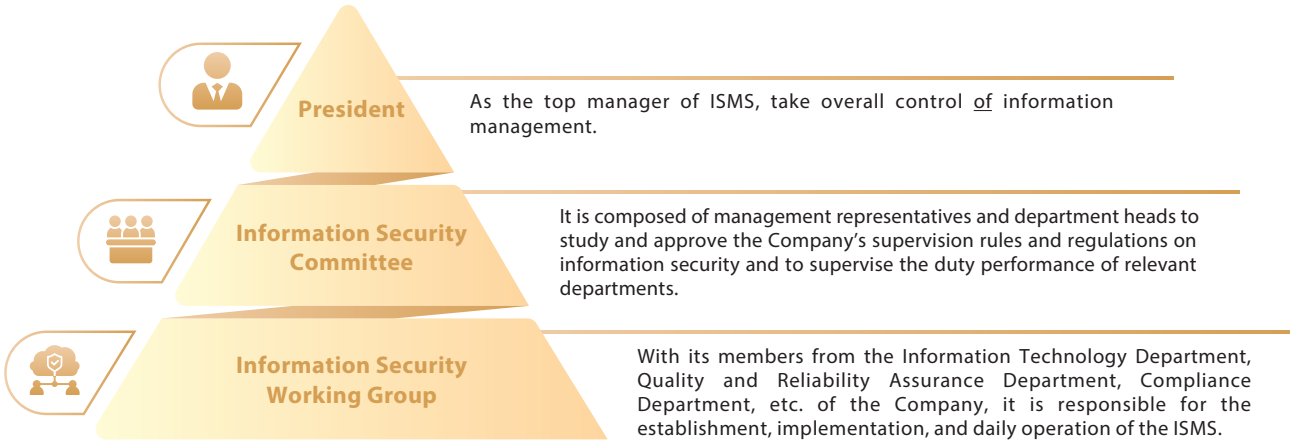
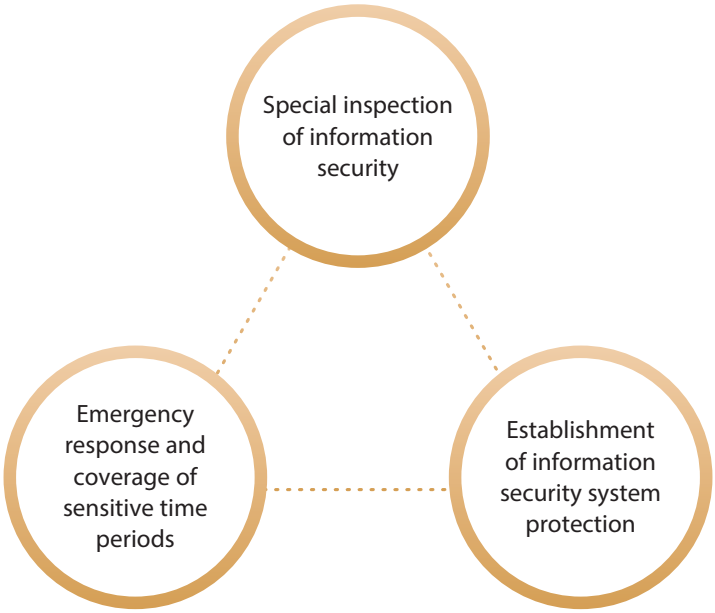
ISMS Structure



Hua Hong Semiconductor's Key Initiatives in Information Security in 2023



In 2023, the Company carried out a series of trainings in relation to information security protection in various production and operation bases to enhance employees' knowledge and capabilities in preventing information leaks and strengthen their ability to respond effectively. By doing so, we have built a strong workforce that serves as a solid foundation for ensuring information security.

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Information Security Protection Training in 2023

Theme	Coverage	Participants
ISMS Training 2023Q1	Shanghai & Wuxi Production Bases	8,233
ISMS Training 2023Q2		6,554
ISMS Training 2023Q3		6,476
ISMS Training 2023Q4		6,919
Confidentiality and Information Security Compliance Training		6,802
Enterprise Information Security and Trade Secret Protection Training		1,044

Responsible Marketing

Integrity, accuracy, and fact-based communication and promotion are the company's responsibilities towards its customers. The Company strictly abides by the Trademark Law of the People's Republic of China, the Advertising Law of the People's Republic of China, and other laws and regulations. We execute product label management in accordance with compliant procedures and establish unified and regulated product labeling standards with our customers. We ensure compliance awareness is integrated throughout the whole process of contract formulation, business development, and both internal and external marketing activities, thereby eliminating the possibility of improper marketing due to subjective factors.

No incidents of violations concerning the use of labels and promotional information occurred within the Company during the Reporting Period.

5 Responsible Business Operation

Main Progress in 2023

Measures	Achievements
Responsible Supply Chain	Through multi-dimensional risk assessment, multi-channel research, scientific planning, and categorization, the Group has made every effort to promote supply chain management. For example, 69 suppliers of raw materials/equipment/components were audited.
Conflict Minerals	A total of 11 suppliers were involved in the due diligence, covering 100% of suppliers that are involved in "conflict minerals". No supplier was found to be involved in "conflict minerals" during the due diligence. The suppliers who do not use conflict minerals account for 100%, as verified by the third-party organization.
Economic Performance	Social contribution per share for 2023 was RMB3.59.

5.1 Responsible Value Chain

Sustainable Supply Chain Management

The Company primarily relies on suppliers of silicon wafers, chemicals, and gases. The Company is committed to reducing supply chain risks by complying with industry standards of conduct, such as the Code of Conduct of the Responsible Business Alliance (RBA), and formulating supply chain management systems, such as the Supplier Risk Identification, Planning, and Control Management Procedure and the Social Responsibility Requirements for Suppliers. By leveraging the Group's advantages of integration, the Company conducts multi-dimensional supplier risk assessment, multi-channel research, scientific planning, and categorisation.

Major Suppliers of Hua Hong Semiconductor

Type of Suppliers	Numbers
Silicon wafers	16
Chemicals	54
Gases	33

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Cooperation with suppliers that demonstrate good social responsibility performance is a prerequisite for the Company to achieve stable production and operation. The Company has established a management system applicable to all suppliers and covering supplier selection and access, supplier review and evaluation, support for supplier growth, and supplier elimination.

Supply Chain Management System

Supply Chain Management	Actions
Supplier selection and access	• The Company formulated the Social Responsibility Requirements for Suppliers in accordance with the RBA and put forward requirements for suppliers in five aspects: labor, health and safety, environmental protection, business ethics, and management system; • Suppliers with outstanding performance in terms of environment, labor, and ethics will be preferred in supply and procurement; • In addition to requiring all cooperating suppliers to comply with the Social Responsibility Requirements for Suppliers, the Company also requires its upstream suppliers to recognize and manage in accordance with the Social Responsibility Requirements for Suppliers.
Supplier review and evaluation	• The Company has formulated the Supplier Risk Identification, Planning, and Control Management Procedure to carry out comprehensive evaluation and control on the environmental and social risks of suppliers every year, so as to identify the environmental and social risks of suppliers and formulate corresponding countermeasures; • Suppliers with major violation records are required to carry out a third-party risk audit in terms of their social responsibilities and provide the certificate of passing the audit, or they may be disqualified as suppliers; • The Company's anti-corruption policy covers all suppliers, requiring them to comply with anti-corruption requirements and confirming their compliance at the time of annual evaluation.
Support for supplier growth	• The Company carries out regular publicity trainings on the theme of "CSR" and "RBA Code of Conduct" for suppliers every year, including environment, labor, ethics, etc.; • The supplier training program carried out in 2023 covered suppliers of silicon wafers, chemicals, gas, target materials, and other categories. The Company conducts on-site audits and assessments and collaborates with relevant departments to organize presentations for suppliers, ensuring that they are aware of the Company's product quality requirements and standards, while providing technical support to suppliers to help them improve their product quality.
Supplier elimination	• The Company urges the suppliers with poor performance in terms of environment, labor, and ethics to rectify and confirm that their rectification meets the requirements. Suppliers who fail to meet the rectification requirements will be disqualified.

In addition, the manufacturing process of semiconductor silicon wafers requires a significant amount of water resources and semiconductor manufacturing is associated with high levels of pollution. Failure to address issues such as pollution emissions and wastewater treatment during the production process further threatens water resource sustainability. Therefore, the Company has undertaken actions and performance assessments related to water resource management for its silicon wafer suppliers to mitigate the impact of their production operations on water sources. In 2023, the Company achieved a 100% coverage rate for water resource investigations conducted on its silicon wafer suppliers.

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Overview of the Social Responsibility Requirements for Suppliers of Hua Hong Semiconductor

Labor	• Free choice of occupation • Youth employees • Working hours	• Salaries and benefits • Humane treatment • Non-discrimination	• Free association
Occupation and Health	• Occupational safety • Emergency plan • Occupational injuries and diseases	• Hygiene management • Physically demanding work • Machine-related protection	• Public health, canteen, and dormitories • Communication of health and safety
Environmental Protection	• Environment-related permits and reports • Preventing pollution and saving resources • Hazardous substances	• Solid waste • Air emissions • Material restrictions	• Management of water resources • Energy consumption and greenhouse gas emissions
Business Integrity	• Operation with integrity • No illegitimate interests • Information disclosure	• Intellectual property rights • Fair trade, advertisement, and competition • Confidentiality on identities	• Responsible procurement of minerals • Privacy
Management System	• Duties and responsibilities of management • Legal and customer requirements • Risk assessment and management	• Performance indicators with implementation plans and measures • Training • Communication	• Employee feedback, participation, and complaints • Review and assessment • Corrective measures

In 2023, the Company further enhanced its automotive electronic supply chain management system, fostering collaborative cooperation among upstream and downstream enterprises within the ecosystem, with an aim to establish a reliable and efficient automotive electronic chip supply chain.

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Supply Chain Management Initiatives at Hua Hong Semiconductor in 2023

Supplier Access	Supplier Evaluation	Supplier Diversity
• Introduced 28 new domestic suppliers to strengthen the cooperation with excellent domestic suppliers in width and depth.	• Conducted more than 500 investigations on related enterprises, including more than 100 on-site visits, and established contacts with nearly 20 domestic key suppliers. • Conducted water resource management assessment on its silicon wafer suppliers with 100% coverage.	• Made every effort to promote supply chain diversification, resulting in an increase of 20.2% in the diversification rate of "8-inch + 12-inch" raw material suppliers to 65.4% as compared with that of 2022. • Increased the diversification rate of 8-inch raw material suppliers by 20.1% to 72%, of which the diversification rate of target materials and silicon wafers exceeded 90%. • Increased the diversification rate of 12-inch raw material suppliers by 20.4% to 55%

The external environment affects the stability of raw material supply. To mitigate supply chain risks, the Company has implemented various measures to improve the percentage of raw materials purchased from local suppliers through on-site research and increased sourcing efforts. In addition, the Company has established an effective emergency response system. To ensure sustained, safe, and stable operations, the Company has taken various measures, including improving equipment self-maintenance capabilities, cultivating more sources of income while reducing expenditure, cutting costs while increasing efficiency, closely monitoring market demand, continuously optimizing its product portfolio, and further enhancing the production flexibility of its advanced manufacturing platforms.

Responsible Minerals Management

"Conflict Minerals" are obtained by local armed militias by way of long-time forced labor, child labor, and damaging the environment and ecology. Such metals are also the main capital source of illegal armed organizations. According to the Dodd-Frank Wall Street Reform and Consumer Protection Act and research reports of certain international nongovernmental organizations, such minerals are likely to be used for electronic and electrical products, such as mobile phones and computers, in ICT industries.

Metal mineral resources such as gold (Au), tantalum (Ta), tungsten (W), tin (Sn) and cobalt (Co) will be involved in the Company's production and operation process. The Company has formulated the Conflict Minerals Management Policy in accordance with the Dodd-Frank Wall Street Reform and Consumer Protection Act, to avoid the procurement and financing of minerals that have significant negative social and environmental impacts.

In addition to self-management, the Company carries out traceability and due diligence on its suppliers in accordance with internationally recognized investigation frameworks such as the Responsible Minerals Initiative (RMI) and the Organization for Economic Co-operation and Development (OECD) Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas and requires all suppliers to promise not to purchase "conflict minerals" in conflict-affected and high-risk areas, so as to ensure the safety of minerals in the supply chain.

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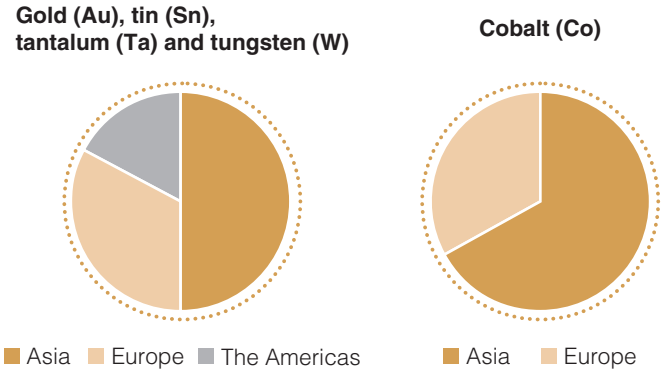
Conflict Minerals Management Policy of Hua Hong Semiconductor

The Company takes global social and environmental responsibility as its goal and follows green procurement principles and has promised to undertake the following social and environmental responsibilities in its metal supply chain:

1. Suppliers whose raw materials contain gold (Au), tantalum (Ta), tungsten (W), and tin (Sn) are required to purchase materials according to the Responsible Minerals Policy, while suppliers whose raw materials contain cobalt (Co) are required to disclose the smelters of cobalt.
2. We undertake to cause our suppliers to provide the declaration that they do not use gold (Au), tantalum (Ta), tungsten (W), tin (Sn), and cobalt (Co) from "conflict minerals" and to issue the Conflict Minerals Reporting Template (CMRT) and the Extended Minerals Reporting Template (EMRT) to suppliers as part of our conflict minerals investigation questionnaire.

More than 50% of gold, tin, tantalum and tungsten used by the Company in its production process are from Asia, with over 33% from Europe, and the remaining portion from the Americas. Two-thirds of the cobalt used comes from Asia, while one third is from Europe. During the Reporting Period, none of the gold (Au), tantalum (Ta), tungsten (W), or tin (Sn) used by the Company was from the regions with armed conflict.

Types and Sources of Minerals Used



In 2023, the Company conducted conflict minerals questionnaire surveys on 11 suppliers involving minerals, achieving a 100% response rate and coverage. The Company requires its suppliers to trace the origin of minerals and provide information about smelters. If it is determined that the conflict minerals used by a supplier originate from illegal sources in conflict-affected and high-risk areas, the Company discontinues the procurement of non-compliant materials from that supplier and requires that supplier to rectify within a specified timeframe, ensuring that both the supplier and its upstream raw materials comply with the Company's conflict minerals management requirements.

In 2023, no major issues concerning child labor, human rights violations, forced labor, ecological damage, etc. were found during the supply chain due diligence. 100% of the Company's suppliers do not use conflict minerals, as verified by the third-party organization.

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5.2 Anti-Corruption and Bribery

The Company is committed to fostering a corporate culture of integrity, honesty, fairness, and transparency. It strictly complies with the laws and regulations, such as the Anti-Unfair Competition Law of the People's Republic of China and the Interim Provisions on Prohibition of Commercial Bribery, as well as relevant provisions, and has formulated the Undertaking System on Anti-Corruption and Business Ethics, the Anti-Corruption and Anti-Bribery Policy, and other internal management regulations, specifying that all partners and suppliers shall sign the Undertaking Against Commercial Bribery and that all employees shall sign the Undertaking on Business Ethics.

All employees (including part-time employees), senior management, and Board members are required to abide by relevant laws and regulations and practice and behave with integrity, diligence, and self-discipline. Corruption and bribery in all forms are prohibited, including:

Anti-Corruption and Anti-bribery Policy of Hua Hong Semiconductor

- prohibiting commercial bribery and maintaining fair competition order;
- prohibiting seeking for illegitimate benefits through taking advantage of influence in position and work;
- never violating financial management and operation regulations, or seeking personal gain in the name of the Company; prohibiting practicing fraud to undermine the legitimate interests and reputation of the Company;
- prohibiting any receipt of presents, cash gifts, securities and monetary items that may cause a negative influence on work.

The Company is committed to creating a sound business ethics environment by regularly introducing warning articles and cases in internal publications and providing training activities on anti-corruption and business ethics. The Company focuses on creating a strong foundation for an ethical culture, nurturing the values of integrity and ethics among its employees. In May 2023, Signing Ceremonies for the "Undertaking on Business Ethics" were held in Shanghai and Wuxi, targeting the department heads and above, to further reinforce the commitment to ethical conduct and create a positive and transparent atmosphere within the Company.

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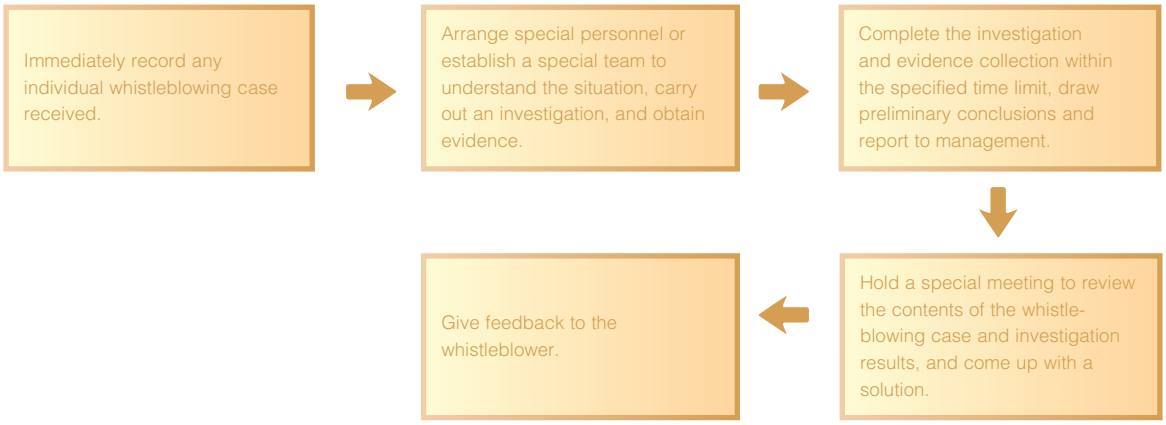
The Company supports employee self-supervision and reporting to maintain a clean and ethical working environment. It provides defined whistle-blowing channels, including E-mail, hotline, and mailbox, to allow employees to make real-name or anonymous complaints and whistle-blowing. The Company comprehensively handles whistle-blowing calls and letters at any time to achieve early detection, resolution, and control, as well as appropriate treatment.

The Company has established comprehensive business ethics supervision and whistle-blowing case handling procedures. Whistle-blowing is thoroughly investigated and evidence is collected, and after review, feedback is provided to the whistleblower regarding the course of action taken. In terms of whistleblower protection, all information related to whistleblowers will be kept strictly confidential. The Company protects the employees or external personnel from unfair treatment such as dismissal, demotion, suspension, intimidation, harassment, or any other form of retaliation for whistle-blowing through legal channels.

Business Ethics Supervision and Whistle-blowing Case Handling Procedures



During the Reporting Period, no corruption, bribery, extortion, fraud, or money-laundering event has occurred to the Company, nor has any litigation case arising from the above matters occurred.

5.3 Risk Management

The Company has established the Rules about Comprehensive Control of Risks that covers all business processes, and conducted regular identification, analysis, and assessment of risk lists to form a long-term mechanism. The Company employs a layered and business line-based approach to prevent its major risks in various areas and implements the control and management of major risks in a targeted manner.

At the organizational level, under the authorization of the Audit Committee and management, the Company has established a risk management organizational structure that aligns with the latest "Three-Line Model" of risk management by the Institute of Internal Auditors (IIA). This structure incorporates the Company's specific characteristics and clearly defines the division of responsibilities for addressing major risks, including the responsible leaders, leading departments, and their respective roles. The internal audit department reports annually to the Audit Committee on key aspects of internal controls, risk management priorities, risk assessments, and corresponding control measures, to ensure a closed-loop approach to addressing major risks.

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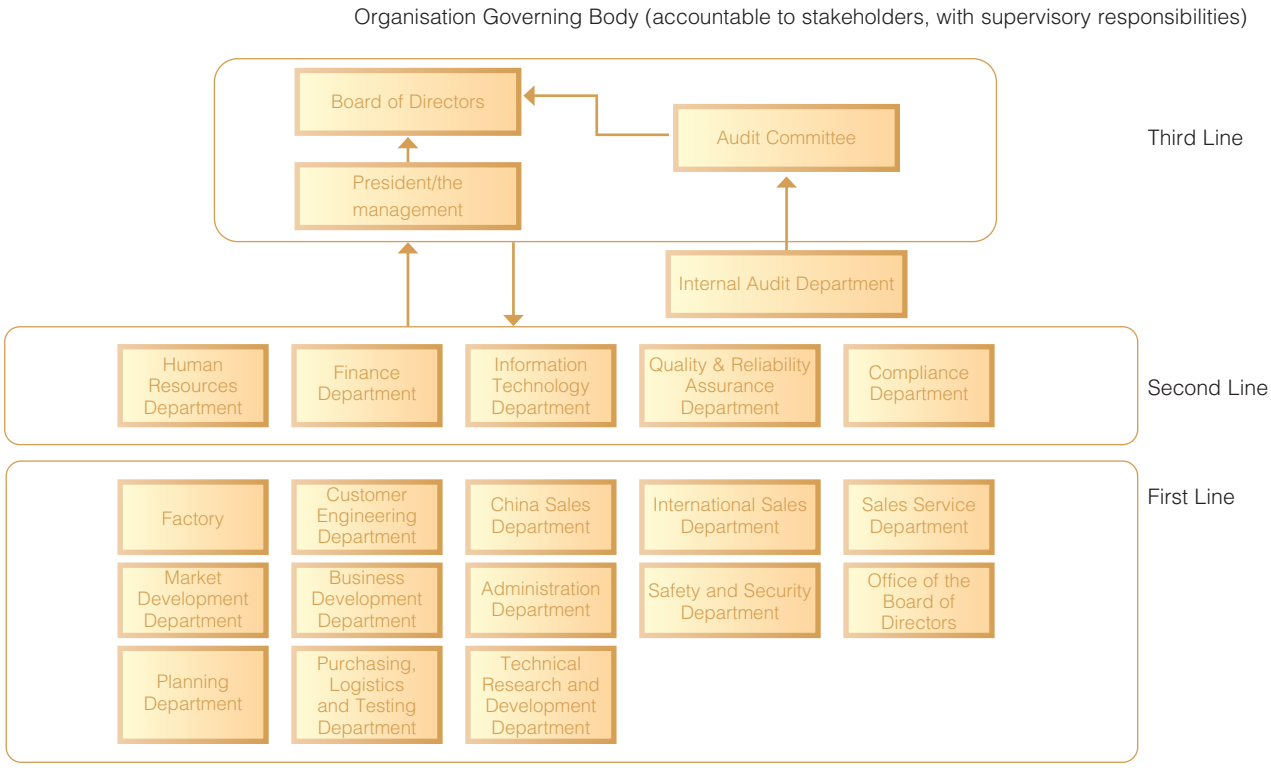
Hua Hong Semiconductor's Three Lines of Defence for Risk Management in the Economic Sector



Functions of the First Line: to provide products/services to customers and manage risks;
Functions of the Second Line: to provide expertise, support, monitoring, and challenge on risk-related matters;
Functions of the Third Line: to provide independent and objective confirmation and advice on all matters related to the achievement of objectives.

Based on the "three-line model" of risk management and taking into account the principle of comprehensiveness and importance, the Company continuously optimizes its risk map by consolidating certain similar risk factors, resulting in the identification of 59 key risk factors. The Company also comprehensively prevents and supervises its internal and external risks. In 2023, the Company conducted annual risk assessments at its Shanghai and Wuxi bases. Through methods such as questionnaires, interviews, seminars, on-site inspections, and data analysis, the Company identified and analysed risk areas, with focuses on R&D, product quality, supply chain management, and talent reserves and development, to generate an annual risk management report.

Risk Management System of Hua Hong Semiconductor

Risk assessment	Risk reporting	Communication and training
We identify and analyze risk areas through methods such as questionnaires, interviews, and seminars and score the risk areas to generate an annual risk management report.	We implement a quarterly risk communication and reporting mechanism, where each business unit collects and reports risk events within their respective areas on a quarterly basis or as needed.	From time to time, we organize risk line management meetings, conduct risk training, and communicate risk issues across business units and at the company level.

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Risk Response Mechanism of Hua Hong Semiconductor

Risk Category	Risk Factor	Countermeasures
Strategy	Strategic planning	The Company formulated strategic objectives from top to bottom and appropriately deconstructed and implemented such objectives in specific business models of corporate operation, to ensure the accomplishment of strategic objectives.
Operation	Research and development	The Company continuously improves the R&D project management system, conducts comprehensive monitoring on R&D project initiation, implementation, and post-evaluation, constantly enhances the ability of project managers, and develops new ethnologies and products with commercial value in a timely manner.
	Product quality	Relying on the production quality system, we comprehensively implement excellent performance management, strictly adhere to the Zero Defects concept and ensure the delivery of green and high-quality products in a timely manner to ensure the quality stability of all products, especially automotive-grade products, and continuously improve customer satisfaction.
	Talent reserve and development	We set up the talent resume database, carried out a talent inventory, continuously explored recruitment channels, optimized the salary structure, and improved the supporting welfare policies to comprehensively enhance the Company's attraction and employee satisfaction.
	Supply chain	The Company enhances its right to speak in the industry supply chain through its technological advantages, signs medium- and long-term strategic agreements with suppliers, sets a safe inventory level for each production material, regularly reviews the rationality of the safe inventory level, makes timely adjustments according to market changes, and continuously evaluates suppliers' capacity and product quality to ensure stability of the supply chain.
	Information security	The Company has established its information security framework and management policy; implements the risk evaluation procedure for information security every year; and continuously monitors all kinds of key information through the data protection system (DLP), so as to maintain the optimal interests of the Company, its shareholders, its customers, its suppliers, and its employees.
	Environment	We design management procedures based on our observation, assessment, and control of environmental factors and list major environmental factors.
Environment and Safety	Safety check	Safety checks focusing on troubleshooting and fault diagnosis are carried out continuously and regularly.
	Occupational health	We have developed the goals, indicators, and program management forms for our environmental and occupational health and safety programs, in accordance with the Company's established goals, indicators, and program management procedures for health, safety, and environment ("HSE").

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5.4 Compliance in Business Operation

The Company respects and complies with applicable local laws and regulations. For details of specific laws, regulations, and related policies, please refer to the "List of Laws, Regulations, and Relevant Policies Observed by the Company" in the Appendix. The Company closely monitors the promulgation and amendment of laws and regulations, identifies regulations relevant to its operations and production, and promptly improves internal policies and management systems to ensure that its operations are in compliance with laws and regulations. The Company has established an internal audit department, which conducts regular audits of the supply chain procurement, business ethics, anti-corruption, and other areas to ensure the compliance of business activities.

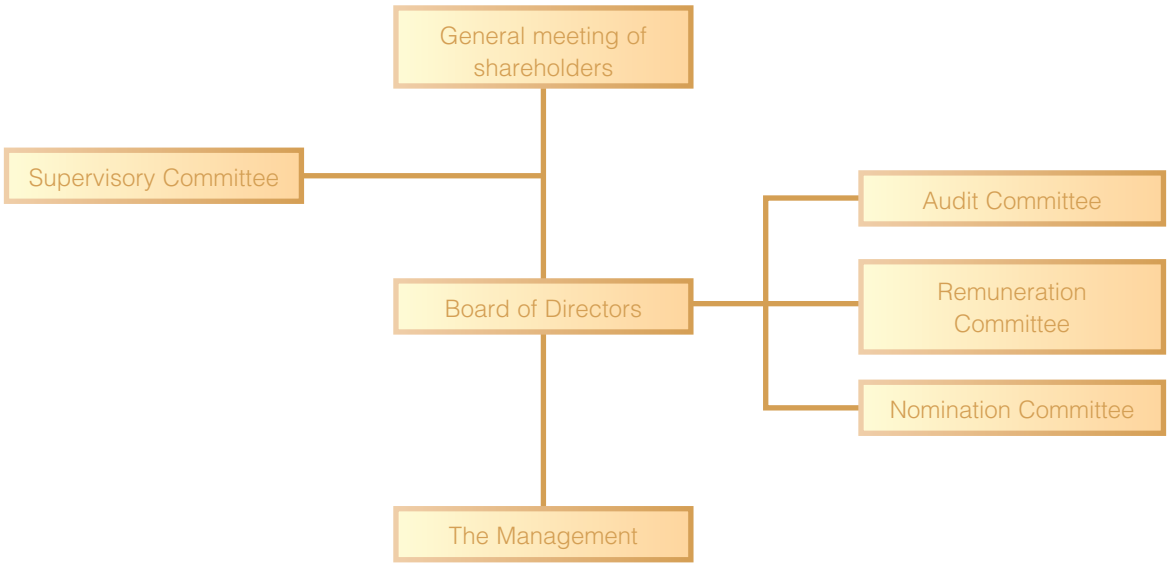
5.5 Corporate Governance

Corporate Governance

The Company has established various regulations and systems, including the Articles of Association, Rules of Procedure for Shareholders' General Meeting, and Rules of Procedure for the Board of Directors, in accordance with laws and regulations, such as the Company Law of the People's Republic of China and the Securities Law of the People's Republic of China. In 2023, the Company was listed on the STAR Market of the Shanghai Stock Exchange. To comply with legal requirements, such as the Guidelines for Corporate Governance of Listed Companies and the Administrative Measures for the Disclosure of Information of Listed Companies, the Company updated the Articles of Association and other corporate governance rules, ensuring standardized operations within the Company.

The Company has established a well-structured governance structure consisting of the general meeting of shareholders, the Board, their respective specialized committees (including the Audit Committee, Remuneration Committee, and Nomination Committee), and the management personnel, leading to a governance mechanism of checks and balances where powers and responsibilities of the organs of control, decision-making, and execution are clearly defined and well-coordinated with each other.

Corporate Governance Structure



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Composition of the Board of Directors and Supervisory Committee and data of related meetings held

Composition of the Board and Supervisory Committee	Data of related meetings held
7 Directors on the Board	5 general meetings held A total of 18 proposals considered
Among them, 3 are independent Directors	10 meetings of the Board held A total of 31 proposals considered

In terms of the regulation of information disclosure, the Company has formulated the Information Disclosure Management System and other management documents to ensure the truthful, accurate, timely, fair, and complete disclosure of relevant information, thereby ensuring that stakeholders have access to the necessary information. During the Reporting Period, the Company promptly reported relevant matters and ensured the quality of information disclosure in accordance with the requirements of information disclosure standards.

Protection of Investors' Rights and Interests

As a listed company on the Main Board of the Stock Exchange of Hong Kong Limited and the STAR Market of the Shanghai Stock Exchange, the Company strictly complies with the requirements of the Companies Ordinance of Hong Kong, the Main Board Listing Rules of the Hong Kong Stock Exchange, the Administrative Measures for the Disclosure of Information of Listed Companies of the China Securities Regulatory Commission (CSRC), the Rules Governing the Listing of Stocks on the Science and Technology Innovation Board of Shanghai Stock Exchange, and other laws, regulations, and relevant policy requirements. The Company has established an investor relations management team to maintain communication and interaction with various stakeholders, ensuring that investors' reasonable demands are addressed.

The Company communicates with the capital market through multiple channels about the Company's business operation and management status, financial position, product technology, major issues, and other information, based on the principle of "equal treatment of all investors", the requirement on "compliance information disclosure", and the standard of "honest and trustworthy operation and interactive communication". The Company also proactively discloses information related to the Company of concern by investors and fully protects the legitimate rights and interests of investors.

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Investor Communication Channel

To ensure the protection of shareholders' rights and interests, the Company has formulated reasonable profit distribution policies and dividend plan to proactively return to shareholders and provide sustainable and steady returns to investors.

In 2023, the Company held one annual general meeting and four special general meetings of shareholders, at which 18 resolutions were passed by voting. All shareholders of the Company were invited to participate in the above meetings, including all small and medium-sized investors, ensuring the participation rights of small and medium-sized investors. Furthermore, the Company held four performance exchange meetings during the Reporting Period.

6 Industry and Community

Main Progress in 2023

Measures	Achievements
Industry Development	• Held the "Core Connectivity, Vehicle Connectivity, and Chain Connectivity" Automotive Chip Ecosystem Cooperation Conference to promote the cooperation and high-quality development of the automotive chip ecosystem
Volunteer Service and Charity	• Conducted welfare visits to nursing homes for 18 consecutive years • Organized four sessions of integrated circuit-themed science popularization activities

2023 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

6.1 Industry Development

The Company actively participated in the industry co-development activities to facilitate high-quality development of the IC industry and actively attended the industry summit to jointly promote high-quality development of the industry.

In 2023, the Company held the "Core Connectivity, Vehicle Connectivity, and Chain Connectivity" Automotive Chip Ecosystem Cooperation Conference, joining forces with nearly a hundred businesses in the integrated circuit, automotive components, and assembled vehicles sectors to promote cooperation of the automotive chip ecosystem and foster collaborative industry development under the spirit of "identifying opportunities in industrial development by amassing the power of technical innovation".

6.2 Volunteer Service and Charity

In order to enhance safety awareness of community residents, for six years the Company has provided the "First Aid Course for Accidents" in the community where the headquarters operates, including First Aid knowledge and cardiopulmonary resuscitation.

The Company is enthusiastic in public welfare undertaking and has organized employees to regularly visit the elderly in the community nursing home every year, to chitchat, make wontons, and carry out activities, so as to entertain and care for the elderly. The Company has been visiting the Meixin Nursing Home for 18 consecutive years, demonstrating its commitment to volunteer service. Furthermore, the Company encourages employees to utilize their mornings by volunteering at community kindergartens, to actively embody the "Hua Hong 520 Spirit" through practical actions.

The Company is dedicated to youth education. During the Zhangjing Science Hall Science Festival themed "Enlightening with Light, Exploring with Children (以光育光, 探索'童'行)", the Company organized four sessions of integrated circuit-themed science popularization activities. Through informative lectures and educational courses, over 130 children were introduced to the process of chip manufacturing and the everyday applications of chips in daily life. The Company also donated school bags and sporting goods to Lada Primary School in Temuli Town, Butuo County, Liangshan Yi Autonomous Prefecture, Sichuan Province *(四川省凉山彝族自治州布拖縣特木里鎮拉達小學), and the students. In 2023, the Company launched a paired-up assistance in poverty alleviation program and donated RMB50,000 to Youqiao Village, Chongming District, Shanghai.

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7 Appendix

7.1 Quantitative Performance

Environment

Performance Indicators	Unit	2021	2022	2023
Emissions				
Total air emissions	10,000 m^3	2,319,307	2,391,024	2,747,929
Nitrogen oxide (NOx) emissions	Kg	36,857	32,650	33,719
Sulfur dioxide (SO_2) emissions	Kg	2,239	3,546.12	5,251.56
Total wastewater discharge	10,000 m^3	704	832	898
Total hazardous waste[1]	Ton	17,363	20,385	20,797
Hazardous waste produced per unit output	Kg/8-inch wafers	4.96	4.88	5.29
Total non-hazardous waste[2]	Ton	8,981	9,864	9,269
Non-hazardous waste produced per unit output	Kg/8-inch wafers	2.57	2.36	2.36
Use of Energy and Resources				
Total electricity consumed[1]	MWh	867,682	954,667	1,030,352
Natural gas consumed[1]	m^3	11,456,569	10,530,287	11,048,312
Gasoline consumed[1]	L	/	/	43,949
Diesel consumed[1]	L	/	/	15,911
Heat purchased[1]	GJ	/	/	134,940
Hydrogen[1]	m^3	/	/	1,149,860
Integrated energy consumption[3]	MWh	991,663	1,065,002	1,168,170
Integrated energy consumed per unit output	MWh/8-inch wafers	0.28	0.25	0.30
Total water consumed[4]	m^3	15,707,212	18,010,226	19,076,734
Of which: Water from municipal water supply	m^3	8,928,040	10,284,063	11,127,266
Wastewater reused	m^3	6,788,287	7,726,163	7,949,468
Water consumed per unit product[5]	m^3/8-inch wafers	2.55	2.46	2.83
Recycled/reused water	m^3	86,119,337	107,163,560	126,544,660
Total packaging materials used for the shipment of finished products	Ton	253.5	313.32	336.92
Packaging materials used for the shipment of per unit finished product	Kg/8-inch wafers	0.07	0.07	0.09
Recycled packaging materials used for the shipment of finished products	Ton	48.5	54.9	66.33
GHG Emission				
GHG emissions[6]	Ton of CO_2 equivalent	713,649	497,938	537,070
Of which: Direct GHG emissions	Ton of CO_2 equivalent	24,803	24,877	22,881
Indirect GHG emissions[7]	Ton of CO_2 equivalent	697,899	473,060	514,189
GHG emissions per unit output	Ton of CO_2 equivalent/ 8-inch wafers	0.21	0.12	0.14

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Notes:

1 In 2023, the expansion project of the Wuxi Production Base was put into operation, resulting in an increase in energy consumption, waste gas, waste water, hazardous and non-hazardous waste generation.

2 Non-hazardous waste include sludge produced in wastewater treatment and general waste.

3 Integrated energy consumption included electricity purchased, natural gas, gasoline, diesel, heat purchased, and hydrogen.

4 Total water consumption = water consumption from municipal water supply + wastewater reuse.

5 In calculation, water consumed per unit product only includes water from the municipal water supply.

6 GHG emissions are calculated in accordance with the GB/T 32150 General Guideline for Calculation and Reporting of GHG Emissions from Industrial Enterprises and the GB/T 32151 Requirements on Calculation and Reporting of GHG Emissions published by the Standardization Administration of China.

7 In 2022 and 2023, the indirect GHG emissions in Shanghai and Wuxi plants were calculated according to the Guidelines for Accounting and Reporting of Greenhouse Gas Emissions in Shanghai (Trial) (Hu Fa Gai Huan Zi [2012] No. 180) and the Notice on the 2023-2025 Corporate Greenhouse Gas Emission Reporting Management in Power Generation Industry, respectively, among which, Shanghai plant uses a default value of electricity emission factor of $4.2tCO_2/10^4kWh$, and Wuxi plant uses the national average grid emission factor of $0.5703tCO_2/MWh$ when calculating.

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Employment and Labor Practice

Performance Indicators	Unit	2021	2022	2023
Employment				
Total number of full-time employees	Person	6,084	6,760	6,863
Including: Number of male employees	Person	4,426	4,932	5,039
Number of female employees	Person	1,658	1,828	1,824
Number of employees working under a labor contract with the employer	Person	6,084	6,760	6,863
Number of employees working under a labor contract with a labor dispatch company	Person	85	81	53
Part-time employees	Person	0	0	0
Number of employees aged under 30	Person	2,676	2,983	2,894
Number of employees aged between 30 and 50	Person	3,271	3,624	3,811
Number of employees aged above 50	Person	137	153	158
Number of employees from Mainland China	Person	6,075	6,751	6,855
Number of foreign employees	Person	9	9	8
Health and Safety				
Occupational disease incidence	%	0	0	0
Number of work-related fatalities	Person	0	0	0
Percentage of work-related fatalities	%	0	0	0
Lost days due to work injury	Day	367	83	61
Employee Training				
Average training hours completed per employee	Hour	119.9	122.2	133.7
Including: Average training hours completed per non-management employee	Hour	121.5	123.7	135.6
Average training hours completed per management member	Hour	23.5	26.5	31.6
Average training hours completed per female employee	Hour	123.8	124.3	125.1
Average training hours completed per male employee	Hour	118.5	121.4	136.8
Percentage of employees trained	%	100	100	100
Including: The percentage of non-management employees trained	%	100	100	100
Percentage of management members trained	%	100	100	100
Percentage of female employees trained	%	100	100	100
Percentage of male employees trained	%	100	100	100

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Product Responsibility and Customer Service

Performance Indicators	Unit	2021	2022	2023
Product Responsibility and Customer Service				
Product return rate	%	0.05	0.11	0.087
Percentage of products sold subject to recalls for safety and health reasons	%	0	0	0
Customer Service				
Number of complaints received in relation to products and services	Case	0	0	4
Performance for percentage of customer complaints resolved	%	/	/	100%

Supply Chain Management

Performance Indicators	Unit	2021	2022	2023
Total number of suppliers[1]	Supplier	545	551	561
Total number of local suppliers	Supplier	410	413	420
Total number of foreign suppliers	Supplier	136	138	141
Number of suppliers assessed[2]	Supplier	115	112	114
Number of suppliers subject to rectification	Supplier	0	0	0
Percentage of raw and auxiliary material suppliers signing the Environmental Protection Undertaking	%	100	100	100
Percentage of raw materials purchased from local suppliers[3]	%	29	31	32

Notes:

1 The reviewed data for the last three years for the relevant performance indicators for the total number of suppliers is based on the data disclosed in the table of the annual report.

2 The number of suppliers which were assessed by the Company in terms of labor, health and safety, environment, and business ethics.

3 Raw materials purchased include silicon slices, quartz, target materials, gases, chemicals, and other raw materials for production.

Anti-corruption

Performance Indicators	Unit	2021	2022	2023
Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period	Case	0	0	0
Total hours of anti-corruption training received by employees	Hour	/	/	2,542

Community Investment

Performance Indicators	Unit	2021	2022	2023
Number of employees participating in volunteer services	Person	1,324	4,189	1,108
Total hours of volunteer activities	Hour	1,986	6,283	1,364
Community investment	RMB	/	/	50,000

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Economic Performance

Performance Indicators	Unit	2021	2022	2023
Social contribution per share[1]	RMB	3.31	5.46	3.59

Note:

1 Social contribution per share = (net profit of the Company + tax paid to the state during the year + salaries paid to employees + interest on borrowings paid to banks and other creditors + value created for other stakeholders, e.g. donations – other social costs due to environmental pollution)/total number of shares of the Company.

7.2 List of Laws, Regulations and Relevant Policies Observed by the Company

Fields	Names of Laws and Regulations
	Environmental Responsibility
Environmental Protection	Environmental Protection Law of the People's Republic of China, Law of the People's Republic of China on Prevention and Control of Atmospheric Pollution, Urban and Rural Planning Law of the People's Republic of China, Marine Environment Protection Law of the People's Republic of China, Energy Conservation Law of the People's Republic of China, etc.
	Product Responsibility
Product and Service	Accounting Law of the People's Republic of China, Company Law of the People's Republic of China, Constitution of the People's Republic of China, Law of the People's Republic of China on Product Quality, Customs Law of the People's Republic of China, Metrology Law of the People's Republic of China, Foreign Trade Law of the People's Republic of China, Anti-Unfair Competition Law of the People's Republic of China, Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals ("REACH"), Waste Electrical and Electronic Equipment (WEEE), Restriction of Hazardous Substances ("RoHS"), etc.
Information Security and Privacy Protection	Cyber Security Law of the People's Republic of China, Cryptography Law of the People's Republic of China, Regulation on the Administration of Commercial Cipher Codes, Personal Information Protection Law of the People's Republic of China
Intellectual Property Protection	Patent Law of the People's Republic of China, Copyright Law of the People's Republic of China, Trademark Law of the People's Republic of China, etc.
	Responsibility for Employees
Employee Employment	Law of the People's Republic of China on Employment Contracts, Law of the People's Republic of China on Protection of Women's Rights and Interests, Employment Promotion Law of the People's Republic of China, Social Insurance Law of the People's Republic of China, Civil Code of the People's Republic of China, Labor Law of the People's Republic of China, Criminal Law of the People's Republic of China, Measures for the Administration of Health Insurance, Measures for Application for and Payment of Unemployment Insurance Money, etc.
Occupational Health and Safety	Law of the People's Republic of China on Prevention and Control of Occupational Diseases, Production Safety Law of the People's Republic of China, Regulation on Work-Related Injury Insurances, etc.
	Corporate Governance
Corporate Governance	Company Law of the People's Republic of China, Securities Law of the People's Republic of China, etc.

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7.3 Benchmarking Index

The Hong Kong Stock Exchange's Environmental, Social and Governance Reporting Guide (effective from 31 December 2023)

Part B: Mandatory Disclosure Requirements

Mandatory Disclosure Items	Section in the Report
Governance Structure	1. ESG Management System
Reporting Principles	7.5 Reporting Principles
Reporting Boundary	7.4 Preparation of the Report

Part C: "Comply or explain" Provisions

Aspects, General Disclosures and KPIs	Disclosure Section
Subject Area A. Environmental	
Aspect A1. Emissions	
General Disclosure A1	2.5 Emissions and Waste Management
KPI A1.1	7.1 Quantitative Performance
KPI A1.2	2.5 Emissions and Waste Management
	2.3 Climate Change Mitigation and Adaptation
	7.1 Quantitative Performance
KPI A1.3	7.1 Quantitative Performance
KPI A1.4	7.1 Quantitative Performance
KPI A1.5	2.5 Emissions and Waste Management
	1.2 ESG management strategies and targets
KPI A1.6	2.5 Emissions and Waste Management
	1.2 ESG management strategies and targets
Aspect A2. Use of Resources	
General Disclosure A2	2.2 Energy Management
	2.4 Water Resources Management
KPI A2.1	7.1 Quantitative Performance
KPI A2.2	7.1 Quantitative Performance
KPI A2.3	2.2 Energy Management
	1.2 ESG management strategies and targets
KPI A2.4	2.4 Water Resources Management
	1.2 ESG management strategies and targets
KPI A2.5	7.1 Quantitative Performance
Aspect A3. Environment and Natural Resources	
General Disclosure A3	2.2 Energy Management
	2.4 Water Resources Management
KPI A3.1	2.2 Energy Management
	2.4 Water Resources Management
Aspect A4. Coping with Climate Change	
General Disclosure A4	2.3 Climate Change Mitigation and Adaptation
KPI A4.1	2.3 Climate Change Mitigation and Adaptation

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Aspects, General Disclosures and KPIs	Disclosure Section
Subject Area B. Social Employment and Labour Practices	
Aspect B1. Employment	
General Disclosure B1	3.1 Employee Interests and Benefits
KPI B1.1	7.1 Quantitative Performance
KPI B1.2	3.3 Employee Development and Training
Aspect B2. Health and Safety	
General Disclosure B2	3.2 Employee Health and Safety
KPI B2.1	7.1 Quantitative Performance
KPI B2.2	7.1 Quantitative Performance
KPI B2.3	3.2 Employee Health and Safety
Aspect B3. Development and Training	
General Disclosure B3	3.3 Employee Development and Training
KPI B3.1	7.1 Quantitative Performance
KPI B3.2	7.1 Quantitative Performance
Aspect B4. Labor Standards	
General Disclosure B4	3.1 Employee Interests and Benefits
KPI B4.1	3.1 Employee Interests and Benefits
KPI B4.2	3.1 Employee Interests and Benefits
Subject Area B. Social Operating Practices	
Aspect B5. Supply Chain Management	
General Disclosure B5	5.1 Responsible Value Chain
KPI B5.1	7.1 Quantitative Performance
KPI B5.2	5.1 Responsible Value Chain
KPI B5.3	5.1 Responsible Value Chain
KPI B5.4	5.1 Responsible Value Chain
Aspect B6. Product Responsibility	
General Disclosure B6	4.2 Product Quality and Safety 4.3 Customer Relationship Management
KPI B6.1	7.1 Quantitative Performance
KPI B6.2	4.3 Customer Relationship Management 7.1 Quantitative Performance
KPI B6.3	4.3 Customer Relationship Management
KPI B6.4	4.3 Customer Relationship Management
KPI B6.5	4.3 Customer Relationship Management

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Aspects, General Disclosures and KPIs	Disclosure Section
Aspect B7. Anti-corruption	
General Disclosure B7	5.2 Anti-corruption and Bribery
KPI B7.1	7.1 Quantitative Performance
KPI B7.2	5.2 Anti-corruption and Bribery
KPI B7.3	5.2 Anti-corruption and Bribery
Aspect B8. Community Investment	
General Disclosure B8	6.2 Voluntary Service and Public Charity
KPI B8.1	6.2 Voluntary Service and Public Charity
KPI B8.2	7.1 Quantitative Performance

Rules Governing the Listing of Stocks on the STAR Market of Shanghai Stock Exchange (revised in August 2023)

Disclosure requirement		Report Section
4.4.1	General	1 ESG Management System
4.4.2	Environmental protection responsibilities	2 Environmental Responsibilities
4.4.2(1)	Complying with environmental laws, regulations and industry standards	2.1 Environmental Management System
4.4.2(2)	Formulating and implementing its environmental plan	2.1 Environmental Management System
4.4.2(3)	Efficiently use natural resources such as energy, water and raw materials	2.4 Resource Management
4.4.2(4)	Dispose of pollutants in accordance with law	2.5 Emissions and Waste Management
4.4.2(5)	Building and operating effective pollution control facilities	2.1 Environmental Management System 2.5 Emissions and Waste Management
4.4.2(6)	Fully paying environmental taxes	2.1 Environmental Management System
4.4.2(7)	Ensuring the environmental security of the supply chain	5.1 Responsible Value Chain
4.4.2(8)	Other due environmental responsibilities	2.1 Environmental Management System
4.4.3	Production and product safety responsibilities	4 Products and Services
4.4.3(1)	Complying with product safety laws and regulations and industry standards	4.2 Product Quality and Safety
4.4.3(2)	Establishing a safe and reliable production environment and process	4.2 Product Quality and Safety
4.4.3(3)	Establishing product quality and safety protection mechanism and product safety emergency plan	4.2 Product Quality and Safety
4.4.3(4)	Other due production and product safety responsibilities	4.1 Product R&D and Innovation 4.2 Product Quality and Safety 4.3 Customer Relationship Management
4.4.4	Protection of the rights and interests of employees	3 Employee-Related Responsibilities
4.4.4(1)	Establishing management system on employee employment and dismissal, salary and benefits, social insurance, working hours and punishment on violations	3.1 Rights and Benefits of Employees
4.4.4(2)	Creating a working environment and supporting safety measures to prevent occupational hazards	3.2 Employee Health and Safety
4.4.4(3)	Carrying out necessary expertise and vocational skills training on employee	3.3 Employee Development and Training
4.4.4(4)	Other due responsibilities to protect the rights and interests of employees	3.1 Rights and Benefits of Employees
4.4.5	Scientific ethics	4.1 Product R&D and Innovation

2023 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

Guidelines for the Application of Self-regulatory Rules for Companies Listed on the STAR Market of the Shanghai Stock Exchange No.2 –Voluntary Disclosure of Information (2022 Revision)

	Terms and Disclosure	Report Section
(VI)-1	Basic Information on Research and Development	4.1 Product R&D and Innovation, 6.1Industry Development
(VI)-2	Research and Development Feasibility	2.6 Green Products, 4.1 Product R&D and Innovation
(VI)-3	Necessary Risk Warning	5.3 Risk Management
(VI)-4	Impact of Research and Development on the Company	2.6 Green Products, 4.1 Product R&D and Innovation
(XIV)-1	Environmental Responsibility	2.1 Environmental Management System, 2.2 Energy Management, 2.3 Climate Change Mitigation and Adaptation, 2.4 Resource Management, 2.5 Emissions and Waste Management
(XIV)-2	Employee Protection and Development	3.1 Employee Interests and Benefits, 3.2 Employee Health and Safety, 3.3 Employee Development and Training
(XIV)-3	Product Safety, Compliance, Public Welfare Activities	4.1 Product Quality and Safety, 5.4 Compliance in Business Operation, 5.5 Corporate Governance, 6.2 Voluntary Service and Public Charity
(XIV)-4	Corporate Governance and investor protection	5.5 Corporate Governance

7.4 Preparation of the Report

This report represents the 8th Environmental, Social and Governance Report of Hua Hong Semiconductor Limited, which disclose the Company's principles, management approaches, initiatives, and achievements regarding ESG issues in its business operations to investors and other stakeholders.

Scope of the Report

The report covers Hua Hong Semiconductor Limited ("Hua Hong Semiconductor" and the "Company") and its subsidiaries, and unless otherwise specified, is consistent with the scope of the annual consolidated financial statements of Hua Hong Semiconductor (stock code: 01347.HK/688347.SH) for the same period.

Reporting Period

The reporting period is from 1 January 2023 to 31 December 2023. Unless otherwise stated, the data presented in this report are data for that period.

2023 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

Basis for preparation
This Report is prepared in accordance with Appendix C2 "Environmental, Social and Governance Reporting Guide" (effective from 31 December 2023) of the Listing Rules published by the Hong Kong Stock Exchange with reference to the Rules Governing the Listing of Stocks on the STAR Market of Shanghai Stock Exchange (revised in August 2023) and the "Guidelines for the Application of Self-regulatory Rules for Companies Listed on the STAR Market of the Shanghai Stock Exchange No.2 –Voluntary Disclosure of Information (2022 Revision)".

Data Declaration
The data and cases presented in the report are based on the official records of the Company's actual operations.

All financial data in the report are denominated in RMB. In case of any discrepancies between the financial data in this report and the Company's annual financial report, the latter shall prevail.

Access to the Report
This report is released in electronic form on such platforms as the e Company's official website (https://www.huahonggrace.com).

Contact Us
For any inquiries on the Report, please contact us through the following methods:

Address: 288 Halei Road, Zhangjiang Hi-Tech Park, Shanghai, PRC
Email: IR@hhgrace.com

7.5 Reporting Principles

- Materiality
  The Company identifies the substantive issues in relation to business operation concerned by investors and other stakeholders as the focus of this Report. The reporting on substantive issues in this Report also focuses on the industry characteristics and regional characteristics involved in the Company's operation. The details of analysis process and results of material issues are set out in the section headed "ESG Management System" of this Report. In the meantime, this Report highlights the ESG matters that may have significant influence on investors and other stakeholders.

- Accuracy
  Best efforts have been made to ensure the accuracy of the information contained in the report. Among them, data caliber, calculation basis, and assumptions have been explained in the calculation of quantitative information, to ensure that the calculation error range will not cause misleading of information users. For quantitative information and notes, please refer to the relevant sections in the report.

  The Board guarantees that there are no misrepresentations or misleading statements contained in or material omissions from the report.

2023 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

- Balance
  The Report reflects the objective facts and discloses both positive and negative information related to the Company impartially. The Company has searched the objects within the scope of this Report through Shanghai Qingyue Credit Database (data.epmap.org), and did not find any negative events that should be disclosed but not disclosed during the Reporting Period.

- Clarity
  This report is published in simplified Chinese. This report contains tables and model diagrams as an aid to understanding the textual content of this report. To facilitate quicker access to information for stakeholders, this report provides a table of contents and benchmarking index tables for ESG standards.

- Quantitative and consistency
  This Report discloses key quantitative performance indicators and historical data as much as possible. The statistical and disclosure methods of the same indicator in this Report are consistent in different reporting periods; Any change, where possible, in the statistical and disclosure methods shall be fully explained in the notes to the Report, so that the stakeholders can conduct meaningful analysis and evaluate the development trend of the Company's ESG performance level. For details, see the section headed "Quantitative Performance" of the Report.

- Integrity
  The scope of disclosures in this report is consistent with the scope of the Company's consolidated financial statements.

- Timeliness
  This is an annual report covering the period from 1 January 2023 to 31 December 2023. The Company strives to publish the report as soon as possible after the end of the reporting year to provide timely information for stakeholders' decision-making.

- Verifiability
  The cases and data in this report are derived from the original records or financial reports of the actual operations of the Company. The Company adopts the HiESG Performance Management System to manage quantitative ESG performance over the years. The source of the disclosed data and the calculation process are traceable and can be used to support the inspection by external assurance works.

2023年度環境、社會及管治報告

董事會管理聲明

公司秉承「知難而進、奮發圖強」的企業精神，弘揚「家國情懷、一諾千金、敬業奉獻、使命必達」的華虹520精神，以「開放、創新、合作」為理念，以「勇敢、堅持、團結」為動力，強化企業經營發展、推動產能規模擴充，創新體系完善，提升工藝能力，實現了經營平穩、協調、可持續發展。

公司堅信環境、社會及管治(ESG)管理是企業可持續高質量發展的基礎。制定水資源管理、能源使用管理、溫室氣體排放管理、廢棄物排放管理、可持續供應鏈管理的2030年ESG管理目標。在ESG議題的識別、評估及管理方面，公司結合自身發展戰略及外部政策趨勢，2023年新增「公司治理」「環境管理」「知識產權保護」三項議題，並將「反腐敗」議題升級為「商業道德議題」，將「排放物管理」議題升級為「排放物與廢棄物管理」議題，以更好地回應利益相關方的關注重點，確保公司ESG管理策略及管理措施的有效性。2023年，公司通過全球性企業社會責任(CSR)評估機構EcoVadis的社會責任審核認證，涵蓋勞工、環境管理、商業道德和可持續採購等內容，並榮獲銅牌勛章。

本報告中有關ESG議題上的管理與實踐進展，均經本公司2024年3月28日召開的董事會會議審議通過。

2023年度環境、社會及管治報告

1 ESG管理體系

1.1 ESG管理架構

公司秉承「持續創新，為全球客戶製造「芯」夢想」的願景，成立了自上而下的環境、社會及管治(ESG)管理架構，並持續完善ESG管理體系，創新驅動發展，培養創新人才，努力降低運營對環境產生的影響，並推進供應鏈多元化，促進企業商業價值和社會價值的共同創造。

董事會是公司ESG管理的最高決策／管理機構，承擔以下職責：

a) 指導公司ESG管理方針及策略的制定，確保其與時並進、切合所需，並符合適用的法律及監管要求；

b) 指導公司重要ESG議題的識別和重要性程度判定；

c) 監督公司ESG目標的制定和實施，包括：制定公司ESG管理績效目標；監督目標實現的進度，並就實現目標所需採取的行動提供建議；

d) 審閱並批准公司年度的《環境、社會及管治報告》及其他ESG相關披露信息。

經營管理層根據制定的ESG目標，負責監督總體落實情況，ESG工作小組協助開展及落實ESG管理工作，並定期向董事會報告ESG關鍵績效指標的進度，推進公司ESG管理目標的實現。

ESG管理架構

2023年度環境、社會及管治報告

1.2 ESG管理策略與目標

公司把ESG管理融入產品、業務運營及企業發展中，形成了「員工責任」「產業責任」「民生責任」「投資人責任」四大維度的ESG管理策略。

ESG管理策略

2023年度環境、社會及管治報告

公司根據業務發展情況、自身運營過程中的ESG表現，制定了用水效益、能源使用效益、減少溫室氣體排放、減少廢棄物、衝突礦產盡職調查的ESG管理目標，董事會每年審視公司上一年度ESG績效及ESG管理目標達成情況，並在ESG報告中披露進展，從而推動ESG管理目標的實現。

ESG管理目標及2023年度進展

層面	目標	2023年度進展
水資源管理	2030年單位產品用水量(立方米／8英寸晶圓)較2015年減少**12%**	2023年單位產品用水量為**2.83**立方米／8英寸晶圓，較2015年減少**11%**
能源使用管理	2030年單位產品綜合能源消耗量(兆瓦時／8英寸晶圓)較2015年減少**7%**	2023年單位產品綜合能源消耗量為**0.30**兆瓦時／8英寸晶圓，較2015年減少**21%**
溫室氣體排放管理	2030年單位產品溫室氣體排放量(噸二氧化碳當量／8英寸晶圓)較2015年減少**12%**	2023年單位產品溫室氣體排放量為**0.14**噸二氧化碳當量／8英寸晶圓，較2022年基本持平
廢棄物排放管理	秉承精益生產管理理念，採取減量化措施，不斷減少單位產品有害廢棄物產生量、單位產品無害廢物產生量	• 秉承精益生產管理理念，不斷減少有害廢棄物的產生 • 2023年單位產品無害廢棄物產生量為**2.36**千克／8英寸晶圓，與2022年持平
廢水排放管理	100%合規排放	• 2023年廢水排放100%合規
廢氣排放管理	100%合規排放	• 2023年廢氣排放100%合規
可持續供應鏈管理	開展供應商衝突礦產盡職調查率達100%，且合規礦產使用率達100%	• 對「衝突礦產」供應商進行盡職調查，覆蓋率達**100%**，並完成最新版衝突礦產和擴展礦物調查報告 • 調查發現，供應商全部使用合規原物料，合規礦產使用率達**100%**

2023年度環境、社會及管治報告

2023年所獲社會認可

序號	榮譽
	全球
1	EcoVadis銅牌勛章
	全國
2	2022年度智能製造優秀場景
3	2023年全國工人先鋒號
4	第十五屆中國半導體創新產品和技術
	上海市
5	上海市科學技術獎一等獎
6	上海市重點用水企業水效領跑者
7	2022上海市企業社會責任報告十佳企業
8	上海市100家智能工廠
9	2023上海高新技術企業創新百強榜
10	上海市優秀發明金獎
11	上海市廠務公開民主管理先進單位
12	上海市巾幗文明崗
13	上海市工人先鋒號
14	上海市模範職工小家
15	上海市工業水重複利用優秀案例二等獎
	江蘇省
16	無錫市幸福企業建設示範單位
17	無錫市模範職工之家

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1.3 利益相關方參與

根據公司自身業務和運營特點，對標國內外行業的經驗和實踐，華虹半導體將主要利益相關方確定為股東及高級管理層、客戶、員工、政府及監管機構、合作夥伴、社區及公眾，並通過網站、媒體、會議、報告、活動等渠道和方式積極與之溝通。

利益相關方溝通及關注議題

關鍵利益相關方	相關方說明	關注的議題	溝通與回應
股東及高級管理層	對公司進行股權、債權投資的國內外投資人及公司高級管理層員工	• 合規運營 • 公司治理 • 風險管理 • 商業道德 • 客戶關係管理 • 水資源管理 • 產品質量與安全 • 研發創新	• 定期開展法律法規盤查、基於盤查結果修訂管理制度，確保運營合規性 • 刊發財務報告、業績報告、通過上證e互動、郵件、路演與投資者交流 • 健全風險管理體系 • 完善反腐敗管理機制 • 開展客戶滿意度調查 • 通過WRI水資源工具查詢用水風險等級、制定完善的水資源管理體系 • 實施產品質量與安全管理措施 • 舉辦技術研討會、行業交流會

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關鍵利益相關方	相關方說明	關注的議題	溝通與回應
客戶	集成器件製造商及無廠半導體公司	• 數據安全與隱私保護 • 產品質量與安全 • 客戶關係管理 • 研發創新	• 制定信息安全與隱私保護制度 • 實施產品質量與安全管理措施 • 開展客戶調研 • 舉辦技術研討會、行業交流會
員工	公司員工，以及常年服務於公司業務的人員	• 員工權益及福利 • 員工健康與安全 • 員工發展與培訓	• 制定員工手冊 • 建立人才發展與學習共享平台 • 開展安全生產培訓及組織體檢 • 豐富員工培訓體系
政府及監管機構	製造業、税務、環保、安全等部門、地方政府、證監會等政府或監管機構	• 合規經營 • 綠色產品 • 排放物與廢棄物管理 • 能源管理 • 氣候變化減緩與適應	• 健全內控合規體系 • 綠色生產 • 研發更低碳更節能的產品 • 通過循環利用等方式，妥善管理排放物與廢棄物 • 配合機構考察 • 開展節能減碳工作

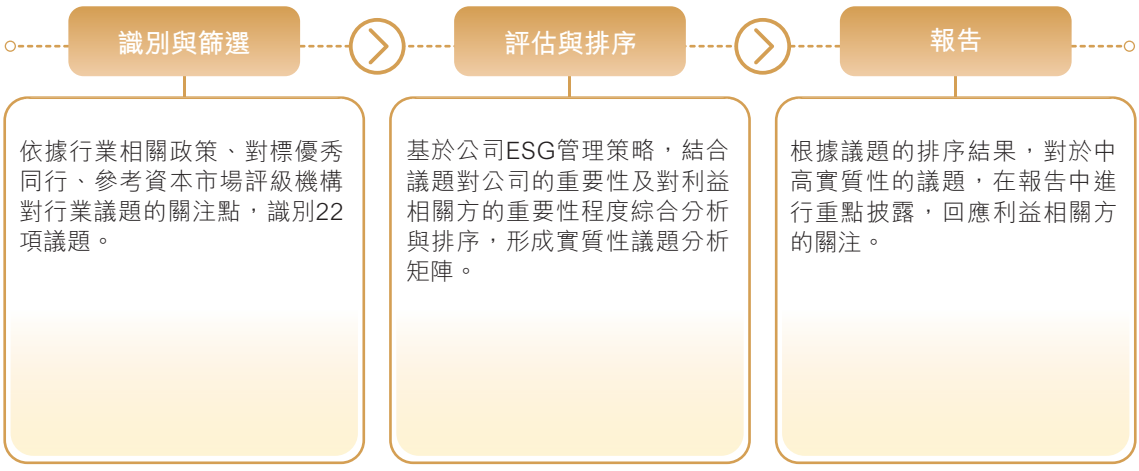
2023年度環境、社會及管治報告

關鍵利益相關方	相關方說明	關注的議題	溝通與回應
合作夥伴	供應商、研究院校、行業協會等	• 行業發展 • 產品質量與安全 • 研發創新 • 可持續供應鏈管理	• 積極參與行業交流 • 優化產品質量管理 • 加大研發投入 • 推崇責任採購
社區及公眾	運營所在地社區、社會公眾、媒體等	• 社區與公益	• 開展社區活動、志願者活動、公益活動、社會事業支持項目等

1.4 實質性議題識別與分析

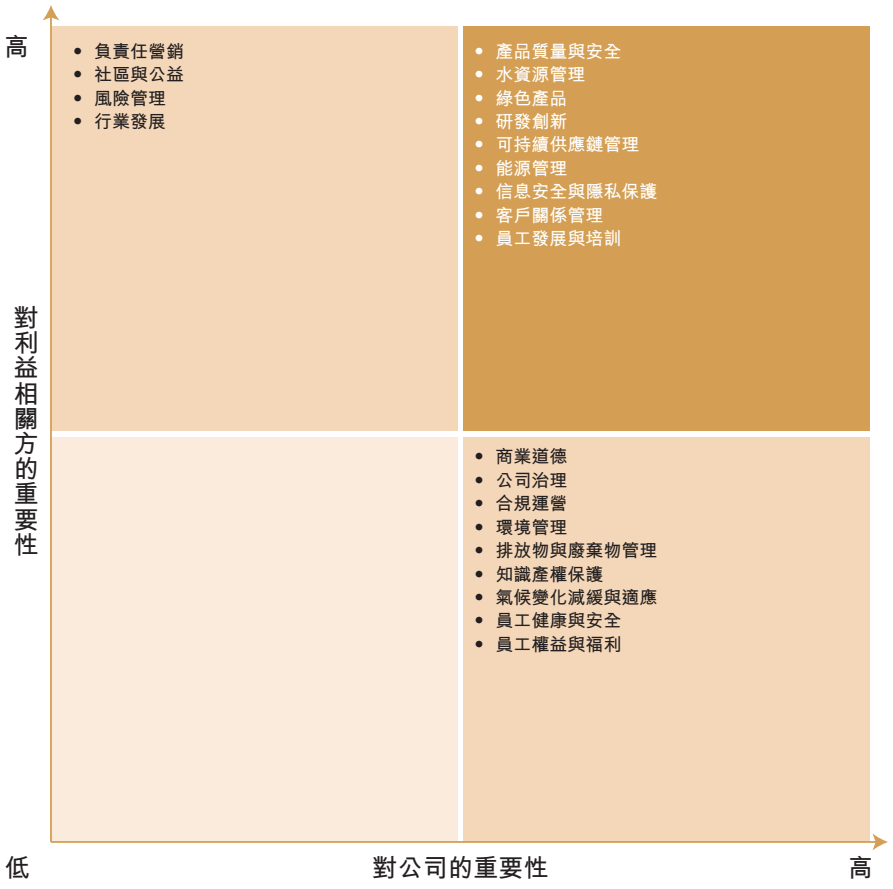
ESG實質性議題的識別與分析是ESG管理的重要環節之一。公司制定完善的實質性議題識別與分析流程，定期開展實質性議題識別與篩選工作。公司結合自身ESG管理戰略、業務發展，並由公司董事會、ESG工作小組聯合外部專家從對公司重要性以及利益相關方重要性兩個維度，對識別實質性議題進行評估與排序。2023年，公司識別出22項實質性議題，其中9項為對公司及利益相關方的高實質性重要議題。

實質性議題分析過程



2023年度環境、社會及管治報告

實質性議題矩陣圖



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2023年議題調整説明

2022年議題	2023年議題	釋義	調整説明
——	環境管理	公司根據法律法規及自身經營特質，形成系統性的管理制度，採取科學的管理方法，減少因企業活動可能造成的環境影響，以達到環境保護的目的。	新增議題，更好回應利益相關方的關注及更符合公司實情。
——	知識產權保護	公司在自身知識產權保護與不侵犯他人知識產權方面的管理制度、管理措施及管理成果等。	新增議題，更好回應利益相關方的關注及更符合公司實情。
反腐敗	商業道德	公司的商業道德管理體系，包括反貪污及反賄賂相關的制度建設、培訓，以及規範不正當競爭行為、反托拉斯或反壟斷的實踐等。	調整表述，擴大議題管理範圍，包括商業道德和反不正當競爭管理，更好回應利益相關方的關注及更符合公司實情。
——	公司治理	公司搭建有效的治理架構，推動董事會多元化與獨立性，確保公司規範運作以及公司治理的科學、規範與透明。	新增議題，更好回應利益相關方的關注。
排放物管理	排放物與廢棄物管理	公司廢水、廢氣、有害及無害廢棄物的分類與處理，減少廢水、廢氣、有害及無害廢棄物排放的管理制度及措施，包括管理方法及排放數據。	調整表述，擴大議題管理範圍，包括排放物和廢棄物管理，更好回應利益相關方的關注及更符合公司實情。

2023年度環境、社會及管治報告

2 環境責任

2023年主要進展

具體舉措	取得成效
安環技術改造	安全與環保技術專項改造項目累計46項 安全環保和技改投入達11,196萬元
節能項目開展	完成能源審計報告和清潔生產審計報告編製 開展21項節能項目

2.1 環境管理體系

環境管理

公司堅持環境友好與可持續發展理念，嚴格遵守《中華人民共和國環境保護法》等法律法規，制定《資源、能源管理程序》《用水，電，蒸汽，燃氣計量管理制度》《廢氣排放管理制度》《廢棄物管理程序》等管理制度，積極開展多項環境管理措施，持續優化涵蓋全生命周期的環境管理流程，不斷完善公司環境管理體系。

華虹半導體涉及生產製造的晶圓廠包括上海生產基地[1]及無錫生產基地[2]。

華虹半導體環境管理體系

管理架構	• 經營管理層負責環境工作的監督和管理 • EHS部門負責執行環境管理項目，定期向經管層匯報項目進展情況
管理範圍	• 能源管理、資源管理、排放物與廢棄物管理等環境管理相關方面
管理制度	• 《資源、能源管理程序》《用水，電，蒸汽，燃氣計量管理制度》《工業廢棄物管理作業規範》和《工業用水供水系統標準作業程序》等
管理措施	• 依據法律法規修訂環境管理相關制度，規範環境管理程序 • 定期識別、評估生產基地的環境風險點，開展環保技改項目，減少運營生產環節對環境的影響 • 開展環境管理體系認證，積極提高環境管理能力

1 上海生產基地涵蓋華虹一廠、華虹二廠、華虹三廠。
2 無錫生產基地涵蓋華虹七廠、華虹九廠（建設中）。

2023年度環境、社會及管治報告

公司EHS部門負責統籌公司環境管理體系事宜，涵蓋對能源與資源使用、排放物管理等方面的管理制度制定、績效分析及評估，協助外部機構對公司的環境管理體系開展的審核及檢測工作。此外，公司運用安全管理審核追蹤系統，對在日常管理中發現的不符合環保規定的事項進行分析整理、列出清單，並通過系統定時提醒的方式，進行後續整改並跟蹤記錄。

2023年，公司投入11,196萬元，開展46項安全環保與技改項目，持續完善環境管理設施。公司旗下所有工廠均通過ISO 14001體系認證。報告期內，公司未發生違反環境保護相關法律法規的事件。報告期內，公司足額繳納環境保護相關稅費。同時，公司未發生違反環境保護法相關法律法規的事件。

華虹半導體環境管理相關認證

認證主體	認證名稱	認證有效期
華虹上海生產基地	ISO 14001：2015環境管理體系	2024年4月18日
華虹無錫生產基地	ISO 14001：2015環境管理體系	2024年4月18日

綠色文化

公司持續推廣環保理念，定期召開環境管理分享會，組織各生產工廠在分享會上分享優秀環境管理案例及措施，提高員工環境保護、節約使用辦公資源和能源的意識。

綠色文化實踐

節約辦公用紙	• 推行信息化辦公，減少紙張使用。 • 大力提倡使用再生紙張，包括打印員工名片等，以支持循環再造。
節約用電	• 下班或長時間離開時關閉電源。 • 合理設置空調溫度，夏季不低於26℃，冬季不高於20℃。
節約用水	• 培養員工的節約意識，張貼節約用水貼士。
廢棄物處置	• 對各廠區的生活垃圾進行干、濕、可回收、有害垃圾4類分類，並張貼垃圾分類海報，提高員工的意識。
員工出行	• 鼓勵員工使用公共交通上下班。 • 公司班車使用新能源汽車。

2.2 能源管理

公司能源消耗種類主要是電力、熱力、天然氣及汽油、柴油。公司的生產運營對環境及天然能源並無重大影響。公司嚴格遵守《中華人民共和國節約能源法》等法律法規及相關規定，設定節能管理目標，制定能源管理制度，不斷優化完善能源管理體系，通過開展各類節能技改及使用節能設備，持續提升能源使用效率。

能源管理體系

管理理念	• 在滿足和提高生產率的同時進行源頭控制、持續改善，在降低生產成本的同時減少對環境的影響。
管理目標	• 到2030年，公司單位產品綜合能源消耗較2015年減少7%。
管理制度	• 《資源、能源管理程序》 • 《用水，電，蒸汽，燃氣計量管理制度》
管理措施	• 開展節能技術改造。 • 委託有資質的第三方機構開展能源審計工作。 • 組織節能宣貫活動、張貼節能標識。

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為確保電力穩定供應，確保生產順利進行，公司制定了《用電安全管理規定》《外網供電異常應急處置預案》《供電停止情況時動力部現場處置方案》《供電回路開關跳閘應急預案》等管理制度，並在各廠區定期開展能源應急預案培訓及應急演練，通過日常檢查、專項系統排查，配合應急演練，保障電力供應無虞。

2023年，上海基地所有工廠持續響應《上海市工業和通信業節能降碳「百一」行動》，開展15項節能項目，完成能源審計報告和清潔生產審計報告編製，強化制定的「3,000噸標煤的節能項目規劃」成果。

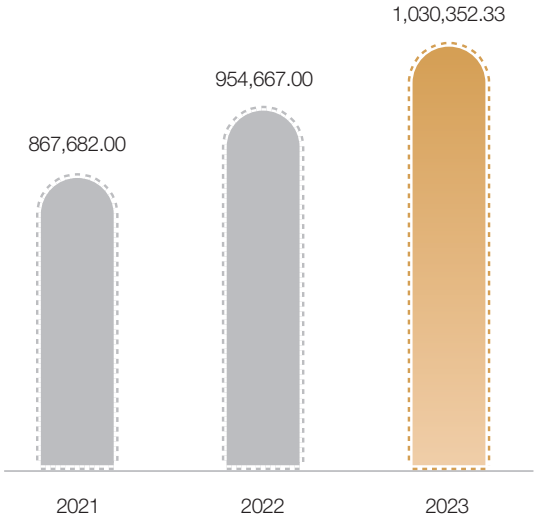
2023年能源節約舉措及成果

工廠	具體措施	全年節約能源
華虹一廠	• 開展高能效冷凍機改造項目，更換老舊冷凍機組，提升能源使用效率	• 2023年，累計節約80萬度電
	• 使用節能LED	• 2023年，累計節約3萬度電
	• 改造純水系統的高壓泵	• 2023年，累計節約10萬度電
華虹二廠	• 更換冷水系統冷凍機，提升能源使用效率	• 2023年，累計節約314.4萬度電
	• 完成冷凍機冷卻水熱能回收改造	• 2023年，累計節約18.8萬立方米天然氣
華虹三廠	• 開展高效冷凍機組節能改造	• 2023年，累計節約200萬度電
華虹七廠	• 有機廢氣運行處理設施數量優化	• 2023年，累計節電17.52萬度、節約天然氣47.45萬立方米
	• 增設一套RO濃水回收設備	• 2023年，累計節水26,000噸
	• MAU夏季模式通過調節MAU的RO補水旁通減少補水用量	• 2023年，累計節水32,898噸

報告期內，公司主要能源消耗情況如下：

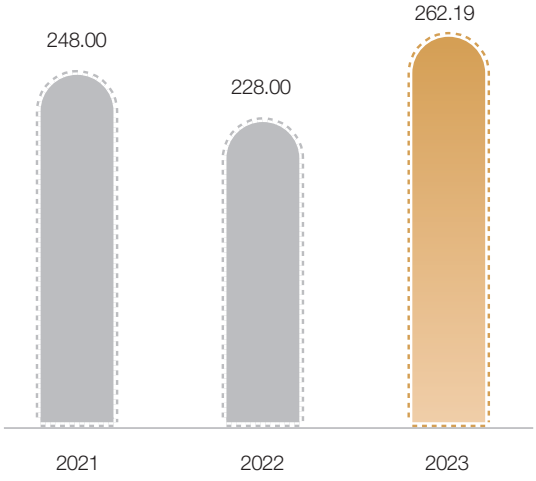
電力消耗總量

單位：兆瓦時



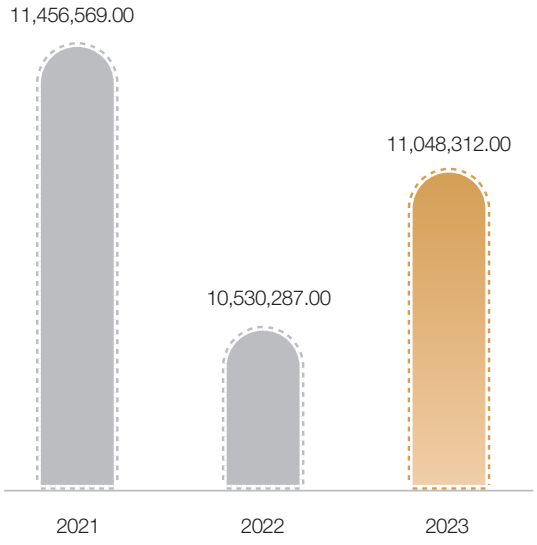
電力消耗強度

單位：千瓦時／8英寸晶圓



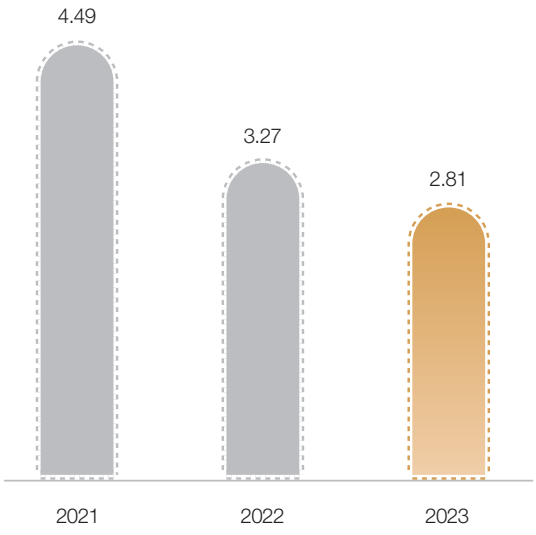
天然氣消耗總量

單位：立方米



天然氣消耗強度

單位：立方米／8英寸晶圓



2.3 氣候變化減緩與適應

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華虹半導體認識到減緩氣候變化對於企業自身和全球都具有重要意義。2023年，公司參考國際可持續準則理事會(ISSB)《國際財務報告可持續披露準則第2號 – 氣候相關披露》(ISSB氣候準則)，完善應對氣候變化的管理體系，定期開展氣候風險及機遇識別、試點開展碳排放核查，在生產、經營過程中不斷提高能源使用效率，並在ESG報告中公開披露能源使用、碳排放信息。同時，公司積極開發低能耗產品，助力國家「30 · 60」雙碳目標的實現。

華虹半導體氣候變化管理體系

管治	• 搭建由上至下的管治架構，董事會負責制定、統籌氣候變化應對策略，定期審閱氣候變化管理事宜工作進度，確保策略及管理措施的有效性，以及檢視目標進度。 • ESG工作小組負責執行氣候變化策略，評估、管理及監察氣候變化管理工作，定期向董事會匯報工作進展及相關績效。 • 各業務部門積極參與氣候變化管理工作，通過實踐助力公司減少碳排放。
策略	
風險管理	• 基於氣候風險與機遇識別結果，制定相應管理措施，提升自身應對氣候變化能力，捕捉綠色產品機遇。
指標和目標	• 制定科學合理的氣候變化管理目標，並在年度ESG報告披露相關績效及目標進度，具體可查閱「ESG管理策略與目標」章節。

公司定期開展氣候變化風險識別，不斷完善氣候變化應對機制，積極應對氣候變化帶來的風險與機遇。

氣候變化風險與機遇識別及應對

2023年度環境、社會及管治報告

氣候變化主要風險與機遇識別結果			潛在財務影響	應對措施
風險	**轉型風險**	**聲譽風險** 隨着低碳經濟轉型，中國政府以及各利益相關方期望企業在應對氣候行動方面採取積極的管理行動並提升信息披露透明性。如果公司無法很好地回應這些利益相關方的訴求，會對自身的聲譽產生負面影響。	營業收入減少	– 將氣候變化減緩與適應作為各業務部門的工作重點之一。 – 積極參與到上海市發改委碳排放交易相關工作中，定期開展碳核算工作。 – 參考ISSB氣候準則制定應對氣候變化管理體系。 – 將氣候變化作為重點議題通過ESG報告等渠道與利益相關方溝通。 – 開發低功耗產品，並積極與客戶和消費者就產品的綠色屬性進行溝通。
		政策法律風險 中國已制定碳中和目標，未來對企業碳排放的監管力度也將不斷提升。如果公司在環境管理方面無法滿足監管的要求，將面臨訴訟與罰金等風險，可能導致違約等現象發生。	營運成本增加	
		市場風險 近年來客戶以及消費者愈加關注產品的可持續性屬性，這在不斷改變企業運營的外部市場環境。如果公司提供的產品與服務無法有效、及時的去面對這些市場環境的變化，將會對其運營產生影響。	營業收入減少	
	實體風險	**急性實體風險** 氣候變化導致的颱風、洪水等自然災害增加可能會影響公司晶圓廠運營活動，造成經濟損失。	營運成本增加； 固定資產價值降低	– 制定極端天氣應對應急預案。 – 定期開展自然災害事故應急演練以及培訓。
		慢性實體風險 氣候變化導致的持續性高溫天氣、海平面上升等可能會導致公司業務運營中斷，造成財務損失。	營運成本增加； 固定資產價值降低	

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氣候變化主要風險與機遇識別結果		潛在財務影響	應對措施
機遇	**資源使用效率** 提高資源使用效率，包括能源、水資源等的使用效率，能夠幫助公司降低運營過程中的成本。	營運成本降低	– 積極採用綠色辦公與綠色運營措施。 – 新建廠房在設計階段融入生態環保理念，降低建造與運營環節中的各類資源使用量。 – 不斷提高綠色研發創新投入。
	能源來源 在運營活動中提高對低排放能源／清潔能源的使用，有利於降低未來能源價格上漲風險。	營運成本降低	
	產品與服務 低碳經濟轉型背景下，客戶以及消費者在綠色、低功耗產品等方面的需求也在不斷增加，這對於公司來說也是新的市場機遇。	營業收入增加	– 不斷提升產品的環境友好與綠色屬性。 – 使用綠色技術及綠色原材料，減少有害物質生成，降低對環境的影響。 – 開發更低功耗與更高效能的產品，助力下游產業能效提升，減少碳排放。 – 提供產品設計、研發及生產一體化服務。

公司溫室氣體排放主要來源於天然氣、少量汽油及柴油使用產生的直接溫室氣體排放，以及外購電力、熱力等產生的間接溫室氣體排放。公司從管理層面和技術層面開展溫室氣體減排工作，減少公司運營活動產生的碳排放，進而減少對於氣候變化的影響。

上海基地工廠屬於上海市政府「碳排放配額管理單位」，積極響應政府政策，定期開展碳排查。報告期內，公司對上海生產基地的華虹一廠、華虹二廠及華虹三廠進行了2022年度碳排放數據的第三方核查，提升碳排放數據管理能力。

2.4 資源管理

水資源管理

公司嚴格遵守《中華人民共和國水法》《上海市節約用水管理辦法》《江蘇省節約用水條例》等法律法規及相關規定，設定水資源管理目標，制定水資源管理的策略，引進更高效的設備與工藝，持續優化水資源管理措施，提高用水效率。

水資源管理體系

管理目標

- 到2030年，公司單位產品用水量較2015年減少12%。

管理制度

- 《用水管理制度》
- 《工業用水供水系統標準作業程序》
- 《自來水異常處置流程》

管理措施

- 檢測運營區域水資源供給及質量現狀。
- 建立健全的台賬管理，定期對使用情況進行統計、分析和改善。
- 開展節水技改與廢水回用等工作。
- 組織節水宣貫活動、張貼節水標識。

半導體生產對水質要求持有一定標準，且耗水量較大，對天然水資源的需求有一定影響。因此公司持續對工廠運營區域水資源現狀開展監測，通過使用外部工具—世界資源研究所(World Resources Institute，簡稱「WRI」)「輸水道水源風險地圖」(Aqueduct Water Risk Atlas)，對工廠生產運營的用水合理性及取水可能造成的影響進行分析，並制定有效措施，降低風險以確保水資源能支持公司長期發展。

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公司WRI風險監測結果及應對措施

水風險檢測指標	• 物理風險數量：用水風險、乾旱、地下水位下降等。 • 物理風險質量：海岸侵蝕、未處理水。 • 法律法規及聲譽風險：飲用水質量、衛生條件等。
檢測結果	• 高風險區域：無錫晶圓廠、上海晶圓廠。
應對措施	• 建立了用水監測點，定期開展水平衡測試，計算廠內制程用水、回收水、廢水、生活用水。 • 掌握用水流向、流量與回收再利用情形，分析是否存在用水異常，並預估各用水單位之間的水量合理調配。 • 打造綠色建築，升級或替換耗水較多的設備，提高用水效率。 • 拓展水資源來源，回收利用空調冷凝水、有機廢水等，並將回收水再精煉處理為工業用水。 • 開展節水意識宣貫活動，張貼節水標識。

公司的用水主要來源是市政供水，少部分來源於純水製造過程中的回收用水和空調冷凝水。

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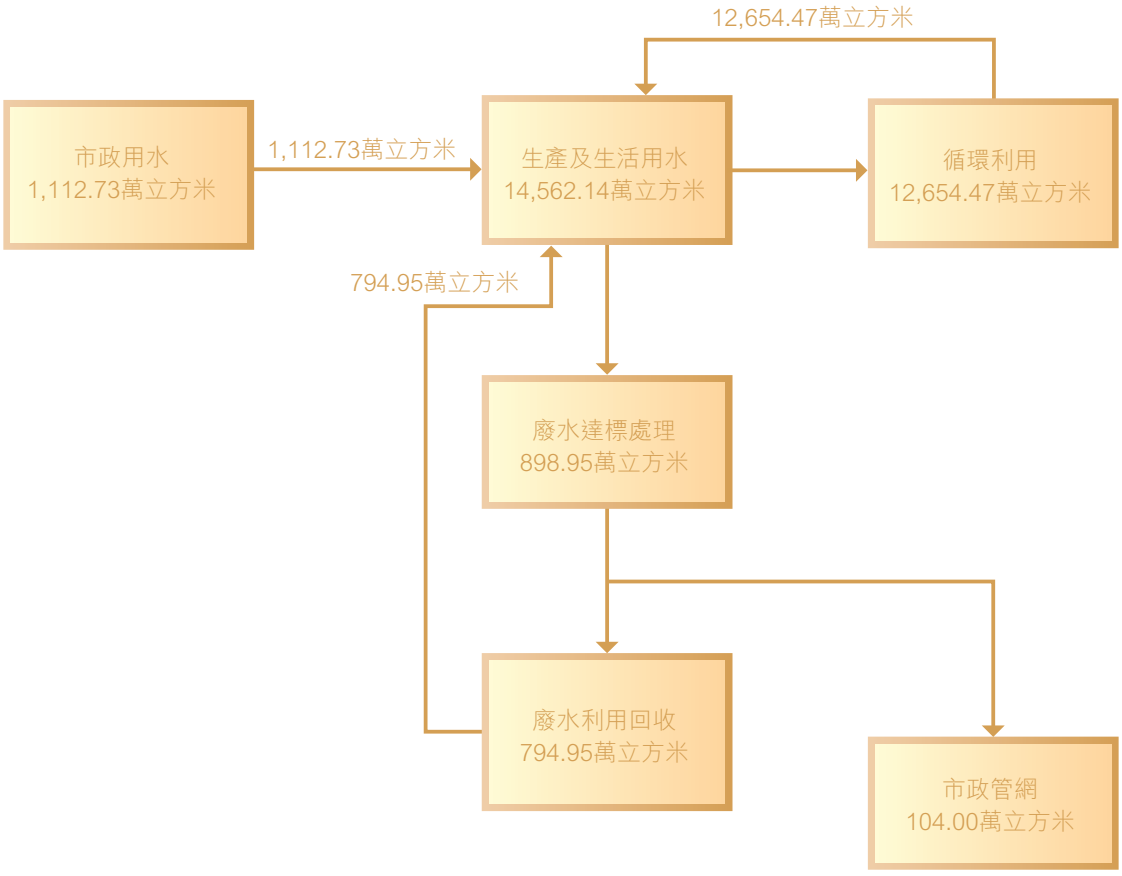
2023年公司生產運營用水概覽



報告期內，公司開展多項節水及廢水回用工作。2023年，榮獲上海市經濟和信息化委員會與上海市水務局共同頒發的「上海市重點用水企業水效領跑者」的獎牌與榮譽證書；榮獲上海市水務局工會、上海市節約用水辦公室、上海市供水管理事務中心聯合頒發的「上海市工業水重複利用優秀案例」二等獎。

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2023年水資源管理工作及成果

行動	措施	取得成效
• 中水回用項目	• 增設中水回收裝置，同時採用除濁膜及特殊RO膜，提高系統出水質量，確保符合純水系統使用要求	2023年，累計節水275,940噸
• 節約RO補水	• 在不影響潔淨室內AMC的情況下，通過調節MAU的RO補水旁通減少補水用量	2023年，累計節水32,898噸
• RO濃水回收	• 增設RO濃水回收設備，提升回水處理量	2023年，累計節水26,000噸
• 在線儀表取樣水回收	• 集中回收中繼水箱在線水質檢測儀表的取樣水，重新供噴淋水系統使用	2023年，累計節水9,125噸
• OAC機組補水流量調整	• 加裝隔膜閥和流量計，根據實際需求調整補水量節約用水	2023年，累計節約55,845噸
• RCM產水再利用項目	• 增設有機回收水管路，使用回收水代替自來水用作沖洗用水	2023年，累計節約14,600噸

原材料管理

公司主要使用原材料涵蓋硅片、石英、靶材、化學品。公司推行精益管理，制定《原物料有效期管控方針》《關鍵物料的風險識別及應對措施》《關鍵物料風險分析表》《物料管理科儲存化學品及氣體作業管理規範》等管理制度，規範原材料管理程序。公司鼓勵員工通過技術創新、持續改進、提出改善建議，減少廢品率，從而提高原材料使用效率。

2.5 排放物與廢棄物管理

公司嚴格遵守《中華人民共和國大氣污染防治法》《中華人民共和國固體廢物污染環境防治法》《中華人民共和國土壤污染防治法》《中華人民共和國水污染防治法》等法律法規及相關規定，規範管理廢氣、廢水及廢棄物排放，確保達到排放標準，減少對環境的影響。報告期內，公司未發生污染物超標或違規排放的事件，也未有上述事項引起的訴訟案件發生。

廢氣排放管理

公司嚴格遵守《半導體行業污染物排放標準》(DB31/374-2006)以及《江蘇省半導體行業排放標準》(DB32/3247-2020)等國家及地方排放要求，並設定100%合規排放的管理目標。針對生產過程中包括硫酸霧(H_2SO_4)、氯化氫(HCl)、氮氧化物(NOx)、氨(NH_3)、揮發性有機物(VOCs)等廢氣排放，制定了完善的檢測方案及管理措施。另外，公司根據生產情況對主要廢氣制定了檢測方案，定期進行檢測和評估，確保廢氣排放的合規性。

廢氣排放管理

類型		處理方式
廢氣	酸性廢氣	通過預處理和洗滌塔集中處理，去除絕大部分成分後達標排放。
	鹼性廢氣(主要為氨氣)	通過洗滌塔進行淨化。
	有機廢氣	通過活性炭吸附或濃縮後燃燒處理進行淨化。
	粉塵廢氣(主要為二氧化硅的細小顆粒物)	通過除塵裝置去除。

公司對有機廢氣在線監測管理方面做了規範化要求，提升了生產工廠的現場監管能力；公司的廢氣處理設施通過年度檢修等工作，保持處理效率維持在較高水平。此外，公司優化改進有機廢氣處理系統的處理工藝，不斷提升其處理效率，有效減少有機廢氣的排放。

廢棄物管理

公司秉承「源頭減量」及「循環經濟」的理念，對產生的廢棄物進行規範識別及嚴格歸類，並採取妥當的管理方式處理廢棄物，盡可能提升廢棄物的循環利用率。

公司在廢棄物管理制度執行方面保持一貫的高標準嚴要求，制定了《廢棄物管理程序》《工業廢棄物管理作業規範》等管理制度，建立完善廢棄物處理管理程序，規範管理廢棄物管理操作流程，並通過政府統一的環保管理系統對廢棄物處理進行登記和管理，確保每一筆運輸記錄都可追溯、受控。公司自2017年開始，每年開展針對各類危險廢棄物的削減排放工作，不斷減少危險廢棄物排放對環境的影響。

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廢棄物分類及處理方式

類型		處理方式
無害廢棄物	生活垃圾、廚餘垃圾	交由營運所在地環衛部門定期進行統一清運
	生產原料、辦公類用品	廠內循環利用
	污泥等	填埋、制磚
有害廢棄物	廢酸液、異丙醇、廢磷酸、有機廢液等	交由適用企業，其他行業再利用，提高再利用率
	廢玻璃瓶、200L化學桶、實驗室廢液等	物理化學處理
	抹布、塑料瓶、廢活性炭、廢樹脂、含砷廢物等	焚燒

廢水排放管理

公司嚴格遵守所有工廠運營地的廢水排放相關法律法規，上海基地遵守《電子工業水污染物排放標準》(GB39731-2020)《污水綜合排放標準》(DB31/199-2018)《污水排入城鎮下水道水質標準》(GBT 31962-2015)—B級標準。無錫基地遵守《江蘇省半導體行業排放標準》DB32/3247-2020《污水綜合排放標準》(GB8978-1996)《污水排入城鎮下水道水質標準》(GB/T31962-2015)制定造排水廢棄物管理制度，設定廢水100%合規排放的管理目標，並通過不斷優化工藝製造及廢水回收等措施，減少廢水生成。

在排污監控和信息公示方面，公司執行廢水在線監控管理，上海及無錫生產基地的相關數據在環境信息公開平台上公示，增加公司環境信息的透明性。

廢水排放管理

	檢測指標	處理方式
廢水	pH，COD，氨氮，氟離子等	經處理達標後通過管道排入指定城市污水管網

2.6 綠色產品

綠色產品指在產品設計、製造、使用、報廢、再使用的閉環過程中，將綠色理念貫穿其中，持續打造兼顧資源能源消耗少、污染物排放低、低毒少害、易回收處理和再利用、安全環保和質量品質高等特徵的產品。公司通過特色技術、綠色生產、使用清潔能源等打造綠色「芯」產品，不斷提升產品能效，同時降低生產過程中的能源消耗和廢棄物產生，以減少對環境的影響。

綠色產品打造路徑

特色技術

在技術研發階段融入「綠色」概念，持續研發低功耗、高性能、高可靠、高集成技術平台。

綠色生產

使用綠色產品、開展節能技改降低產品生產環節的能源消耗、廢棄物產生，提升產品的綠色屬性。

清潔能源

通過技術創新提高產品在終端使用的能效，開發低能耗產品。

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產品生產綠色化

公司基於產品全生命周期的環境足跡，識別原材料採購、產品生產、產品運輸過程提升潛在環節綠色屬性。公司通過精益生產管理，實施綠色採購、改進工藝技術等措施，不斷降低產品生產對環境的影響，持續提高產品的綠色屬性。

產品全生命周期環境管理

原材料入庫	產品生產	產品運輸	終端產品使用	產品廢棄
• 對原材料進行有害物質審查與系統管控 • 對供應商開展資質、環境合規情況的審查，並要求供應商簽署《環保承諾書》	• 選擇低能耗高效能的生產設備 • 實施水資源回收項目，提升水的整體回用率 • 秉承精益生產管理理念，盡可能減少廢棄物產生	• 對產品包裝材料進行回收與重複利用，減少包裝材料用量及廢棄物產生量	• 通過幫助客戶生產低能耗產品，減少終端電子產品使用對環境的影響	• 公司生產的晶圓均通過有害物質監測，意味着使用晶圓製造的終端電子產品在廢棄後能減少對環境的影響 • 生產環節中可回收的廢棄物交由有資質的第三方回收處理

把握清潔能源機遇

隨着全球能源結構調整加速推進，促進清潔能源使用成為越來越多企業發展關注的重點。華虹半導體積極把握清潔能源機遇，將主要工藝平台運用在不同應用領域，賦能下游價值鏈綠色產品發展。

公司在新型能源應用領域上游零部件的製造工藝方面積累了大量的技術與經驗，如新能源發電等，有效支持能源轉型發展。目前國際先進的新能源用半導體零部件進一步深化8寸工藝平台技術及可靠性，同時逐漸向12英寸工藝平台轉移。華虹半導體堅持「8英寸+12英寸」雙平台並舉，大力推進先進「特色IC+Power Discrete」產品布局為核心發展戰略，全力支持新能源基礎設施與應用領域零部件高質量供應能力。華虹半導體功率器件、非易失性存儲器、模擬及電源管理工藝在支持新能源運用領域產品發展上起着重要作用，如新能源汽車、光伏儲能、節能家電等。

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支持清潔能源發展產品

功率器件（Power Discrete）

功率器件是新能源發電與新型能源應用領域的重要設備零部件。如光伏及風能發電設備、電動汽車、電動兩輪車，需要大量使用絕緣柵雙極型晶體管（IGBT）、金屬-氧化物半導體場效應晶體管（MOSFET）等器件。

公司在該領域積累了大量客戶，並長期保持領域內頭部企業的良好合作關係，與深度的共同開發合作。至今，功率器件營收規模已經成為公司佔比最大的部分。

非易失性存儲器工藝

非易失性存儲器工藝被大量使用在如微處理器（MCU）、專用集成電路（ASIC）等芯片應用中，同時這些芯片種類被大量應用於新能源發電設備中。

根據IC Insights統計，全球MCU消耗市場中，車用市場佔比超過30%。華虹所有制造工廠均通過IATF 16949汽車行業質量體系認證，為支持本土製造車用半導體作出重要貢獻。

參與開發的新能源零部件及應用領域

產品	應用領域	營收佔比
功率器件	光伏及風能發電設備、電動汽車、電動兩輪車等	39.4%
非易失性存儲器工藝	新能源發電設備、電動汽車等	35.9%

2023年，公司舉辦「芯聯通、車聯通、鏈聯通」車規芯片生態合作大會，聯合集成電路領域，汽車領域整車、零部件等近百家企業，以「聚技術創新之力，謀產業發展之機」共同推進車規芯片生態合作，促進產業協同聯動發展。公司依託「8英寸+12英寸」和先進「特色IC+Power Discrete」戰略，汽車電子業務不斷擴大，產品在新能源領域的不斷拓展使用，助力低碳綠色發展。

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2023年助力新能源轉型技術開發進展

汽車電子	工業新能源	高端消費電子
• 通過供應鏈協同，助力客戶產品加速進入相關模塊廠與整機企業。 • 與國內主流車企建立直接關係，從成熟芯片替代到重點難點項目合力攻關，共建可持續發展生態體系等多維度合作。推薦成熟芯片種類涉及汽車的動力系統、車身控制、座艙、底盤和安全、遠程控制及通信、ADAS、充電樁等各個領域，實現批量供貨。 • 建立了公司級汽車電子數據庫並不斷完善。	• 功率器件重點產品均實現了批量供貨，並顯著提升市場份額，未來隨着國家對雙碳經濟的布局和大力扶持，新能源市場的未來增長可期。	• 與國內知名家電品牌公司合作，提升國產替代率，持續推動高端消費電子業務拓展。 • 國內知名家電品牌公司採用公司工藝平台生產的IGBT、顯示觸摸控制芯片、指紋鎖芯片、電機控制等產品，已逐步切入空調、冰箱等大家電市場。

未來，公司將進一步推動能夠實現更高能效的硅基功率器件的開發，並啟動具備高功率密度、低能耗等特性的化合物半導體功率器件的開發工作，為變頻家電、新能源汽車等清潔能源運用領域產品提供不斷優化的解決方案，進一步提升能源使用效率。

3 員工責任

2023年主要進展

具體舉措	取得成效
安全生產	實現員工《安全責任書》、承包商《安全環保承諾書》100%簽訂。
員工培訓	員工培訓覆蓋率100%。 人均培訓小時數135.6小時。

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3.1 員工權益與福利

員工僱用與基本權益

華虹半導體嚴格遵守《中華人民共和國勞動法》《中華人民共和國勞動合同法》等法律法規，堅持公平用工，貫徹同工同酬的原則，確保員工不因其年齡、性別、籍貫、宗教信仰、婚姻狀況或殘疾等非工作因素受到歧視或差別待遇，並嚴禁僱用童工或強制勞工。

公司制定《僱用規程》《實習生管理規程》相關管理制度，嚴格核查員工身份信息，不招聘未滿16周歲的員工，如若核查發現有此類情況，將即刻停用並調查整改，針對疏漏環節完善招聘審查流程。截至報告期末，公司擁有正式員工6,863人，未發生與員工招聘與解僱、工時與假期、晉升與平等機會、反歧視及多元化、僱用童工及強制勞工相關的違法違規事件，也未有上述事項引起的訴訟案件發生。

員工權益概覽

招聘與離職	薪酬	工時與休假制度	民主參與
• 招聘：堅持公平、公正、公開的原則； • 離職：公司與員工依照相關法律法規及《離職管理規程》辦理離職手續。	• 為員工提供有競爭力的薪酬，高於運營地最低工資標準。	• 標準工時制度，部分崗位經政府勞動人事部門批准，實行綜合工時制或不定時工時制； • 在國家規定節假日的基礎上，為員工提供補充年假。	• 設立工會、召開職工代表大會等保障員工民主參與公司決策。

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員工多元化

公司重視員工的多樣性，相信人才多元化能為團隊帶來新朝氣，並持續提高研發生產效率，助力公司實現業務增長。公司通過多元化的人才招聘渠道，為來自不同文化背景、學歷背景、技術專業的人才提供就業機會。

員工多元化實踐

性別多元化

- 在招聘、僱用、晉升環節，秉承「性別平等」理念，將員工能力及績效表現等作為僱用、晉升標準。

年齡多元化

- 秉承「年齡平等」理念，為不同年齡層的員工提供工作、晉升機會。

職能多元化

- 為員工提供管理、技術和職能支持等多個崗位序列，員工可基於自身發展規劃選擇。

公司制定相關規定與流程，持續營造一個開放、包容、尊重、多元的用工環境。公司尊重各類員工的生活方式，盡量為員工提供滿足其生活習慣的便利條件，為員工創造更好的辦公與生活服務設施，提高員工的幸福感。

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員工關愛

公司心系員工，將員工關愛融入日常實踐中。公司為員工提供辦公、飲食、住宿、出行等方面的福利及關愛舉措，傾力為其打造溫暖、有愛、活力的工作環境。

員工關愛舉措

辦公	• 所有辦公場所均配置新風系統，同時還增加空氣淨化裝置，改善辦公室空氣質量。 • 在辦公室區域增加綠化。
飲食	• 各廠區設有員工餐廳、咖啡廳。 • 成立食品安全監督小組，建立食材集中採購及合格供應鏈管理模式，邀請員工、部門代表等進行監督。 • 推出食堂菜餚製作指導書，對員工食堂飲食進行營養均衡搭配和控油控鹽管理。
住宿	• 建立員工宿舍，內含獨立衛生間、24小時熱水和WIFI網絡等。 • 住宿區內設有圖書室、電腦室、桌球室、洗衣房、電視房、豐巢快遞櫃等設施。
出行	• 為全體員工發放交通補貼。 • 在園區、地鐵站、員工宿舍區之間提供免費班車服務。 • 對交通不便區域的員工開行通勤班線、以及對有周末需求的部門安排加班車。
慰問	• 節日慰問，開展節假日慶祝活動。
健康	• 為全體員工提供一年一次的健康體檢，包含多發性癌症項目篩查等項目。

此外，公司建立了員工幫扶機制，除了日常傷病慰問外，在特殊節日如春節、五一、中秋等，為困難職工提供慰問扶持；對遭遇重大變故的同事，第一時間送去關心和支持，通過愛心捐款、愛心幫困、愛心關懷、愛心護理多種形式幫助員工盡早走出困境。

在女性員工關懷方面，每年組織女員工專項體檢，並持續健全哺乳期員工的人性化管理並提供相關服務設施，保證懷孕和哺乳期間的女性員工享受到工作中的便利。

員工溝通

通暢的溝通渠道有利於打造和諧的勞動關係。公司致力於建設和完善員工溝通與反饋機制，制定了《員工溝通規程》，鼓勵公司與員工之間、主管與下屬之間、員工相互之間的多向溝通。

公司通過滿意度調查、青年員工座談會、OA線上平台、部門內部一對一溝通等多樣溝通渠道，了解員工心聲與需求。同時，公司設立工會，定期召開職工代表大會等，積極與員工溝通。

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3.2 員工健康與安全

華虹半導體重視員工的職業健康與安全，嚴格遵守《中華人民共和國職業病防治法》《中華人民共和國安全生產法》《工傷保險條例》等法律法規及有關規定，建立完善的職業健康安全管理體系，明確職業健康安全方針，為員工提供良好的工作環境和職業健康保障。報告期內，公司工傷死亡事故數、職業病發生次數、火災事故數皆為0。

職業健康與安全管理體系

職業健康與安全管理方針			
嚴格遵循安全健康環保法律法規，致力於清潔生產，持續改善，為員工營造出安全健康舒適的工作環境，不懈追求「零災害」和永續經營的最高目標，成為模範全球企業公民。			
制度構建	• 公司貫徹執行安全生產委員會安全生產責任制實施辦法，成立安全生產委員會，並落實安全例會制度。 • 逐級覆蓋全員人人簽署《安全責任書》，落實全員安全生產責任制。	**管理要素**	• 危險源/環境因素緊急響應。 • 特種設備與特殊崗位。 • 化學品管理。 • 職業健康監控與防護。
內審、檢查及隱患排查	• 安全技術改造。 • 建立安全風險分級管控與隱患排查治理雙重預防工作機制。	**安全文化建設**	• 安全意識與安全培訓。 • 應急演練。

安全生產

公司重視生產過程中員工安全保障，嚴格遵守《中華人民共和國安全生產法》，制定《安全生產委員會安全生產責任制實施辦法》，建立安全生產委員會與安全生產周例會制度，持續優化安全生產各項管理程序，加強企業安全文化建設，確保公司安全生產體系穩固運行。目前，上海基地和無錫基地工廠均已通過了國際職業健康安全管理體系ISO 45001認證。

生產基地名稱	通過ISO 45001認證的情況	認證有效期
上海基地、無錫基地	已通過	2024年4月18日

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公司積極踐行安全工作標準化、系統化、智能化建設，健全全員安全生產責任體系。公司按照「一崗一責」和「誰主管誰負責，誰使用誰負責」的原則，結合崗位職能，編製覆蓋全員的《安全責任書》。同時，公司要求承包商簽訂《安全環保承諾書》，做到層層負責、人人有責、各負其責，深化了全員安全生產責任制。2023年，公司實現員工《安全責任書》、承包商《安全環保承諾書》100%簽訂。

此外，公司結合運行經驗完善系統化程序管理，建立健全安全事故／事件／隱患排查跟蹤系統、特種設備登記系統、設備端紅外檢測記錄系統等安全管理系統，用數據記錄保障整改措施的落實，讓流程得以規範化執行，提高公司的安全管理效率及安全運營水平。

員工安全風險防範設施和措施

消防設施：
建立完備的自動消防滅火系統、自動火災報警系統、防排煙系統、消防應急廣播系統、疏散指示和應急照明系統。

報警監控系統：
潔淨廠房內設有有毒、有害、易燃氣體報警系統、液體洩漏檢測系統以及極早期煙霧報警系統。

應急措施：
成立應急搶險隊(ERT)並開展專業技能訓練、制定針對不同災害的應急處置預案；定期組織專項處置演練，對發現的問題及時整改。

2023年，華虹半導體推進《安全生產專項整治三年行動(2023-2025)》項目，涵蓋危險化學品、建築施工、消防、燃氣、電力以及特種設備等，累計完成整改397項安全隱患。

化學品安全管理
針對化學品安全保障，公司建立多項化學品管理制度，如《化學品管理程序》《化學物質審查規程》《化學品洩漏專項應急預案》《化學品出入庫核查登記制度》《危險化學品安全管理規定》《危害性化學品turn on管理辦法》等管理制度和作業規程，規範化學品管理程序，提升化學品使用合規性。

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華虹半導體芯片製造過程中使用的危險化學品

類型	名稱
易燃液體	異丙醇、光刻膠、柴油
氧化劑和有機過氧化物	過氧化氫
有毒品	磷化氫、氟
腐蝕品	硫酸、鹽酸、氫氟酸、磷酸、混酸、氨水、氫氧化鈉
壓縮氣體和液化氣體	氫氣、甲烷、硅烷、氮氣、氧氣、氬氣、氦氣、氨、氯

公司設立了工廠化學品審查委員會，事前綜合評估化學品供應商環保安全資質與風險防控能力，運用化學物質管理系統實施化學品使用、保管、廢棄的管理，管控化學品最大保管量，對使用消耗情況進行動態監控。此外，公司通過優先採用新技術，無毒化學品替代有毒易燃危險化學品等措施，消除現場危險源，源頭降低安全風險。

危險化學品管理流程

員工職業病危害因素防護

公司嚴格遵守《中華人民共和國職業病防治法》等法律法規，開展員工職業病危害因素識別並制定相應防護措施，為員工提供職業健康保障。公司涉及職業病危害因素的崗位主要包括離子注入、擴散、刻蝕、化學機械研磨、動力氣化等設備作業崗位。

員工職業病危害因素識別及防護

職業病危害崗位	職業病危害因素	防護措施	職業健康監護
離子注入、擴散、刻蝕、化學機械研磨、動力氣化等設備作業崗位。	氟及其無機化合物、氫氟酸、鹽酸、硝酸、硫酸、磷酸、氨水、過氧化氫、砷及其化合物、磷及其化合物、異丙醇等。	• 潔淨室機台設備為自動化密閉運行，並設有密閉式工藝設備排氣系統。 • 為員工配備個人防護用品和應急防護用品，定期檢查器材確保防護用品的有效性。	• 實施年度職業健康監測以及職業危害現狀評價。 • 接觸職業病危害崗位員工嚴格實施崗前、崗中、離崗體檢。

此外，公司每年委託外部機構對生產環境進行職業病危害因素檢測，確保生產環境符合有害因素職業接觸限值標準，並將檢測結果通報給全體員工。公司在研發及生產過程中，堅持綠色化學理念，不斷降低員工職業危害接觸風險。

公司為全體員工提供一年一次的健康體檢，包含多發性癌症項目篩查等項目，並建立員工健康檔案用於系統性追蹤員工健康狀況的變化。2023年，公司通過建立「健康守護專欄」，同時開展各項活動向員工普及健康生活方式，例如開展主題健康講座「如何遠離『三高』風險」「新冠病毒感染者居家指引」「季節交替防面癱」等，倡導員工以健康方式的生活和工作。

塑造安全生產文化

為深入開展安全生產文化建設，加強全員安全文化意識，公司組織開展「安全生產月」「安康杯」「消防月」等活動系列活動，開展加強宣傳教育培訓、安全知識技能競賽活動。通過各種安全宣傳和展示主題活動，有效提升員工安全意識、安全知識儲備，促進全員履行安全承諾與安全責任。

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2023年安全生產文化創建行動

行動名稱	行動內容及成效
深化安全培訓	• 組織開展安全生產主體責任專題等安全教育培訓131場，參與人次逾28,000，安全教育培訓參訓率達100%、人員持證上崗率達100%。
強化應急能力	• 各生產基地組織實施開展385場綜合與專項應急預案演練，參與人次逾29,770。 • 完成生產安全應急預案的專家評審及備案，建立完善生產基地異常快速應急處置流程等規範性文件，並做到了周周訓練、季季拉練、年年比賽。 • 舉辦ERT個人技能競技大賽及ERT消防技能比賽，以活動的形式搭建應急管理體系交流平台。 • 組織開展「消防月」消防知識展板宣傳，全員消防技能訓練和疏散逃生演習，提升全員安全意識和應急響應能力。
安全技改評比	• 進行年度優秀安全技改評比，並組織學習交流。 • 隱患排查典型案例評選活動。

3.3 員工發展與培訓

員工培訓

公司建立了完善的員工教育培訓體系，制定了《內部培訓體系審核操作規程》、《教育培訓規程》和部門級培訓規程，根據戰略發展和員工需求不斷進行調整，滿足不同崗位員工全方位、多層次的培訓需求。

公司擁有完善的培訓設施，各廠區均設有專用的培訓教室與設備，以及學習分享平台，包括在線培訓報名管理、培訓教材與崗位題庫，多媒體學習課件等，必要時利用外部的資源，為員工的學習與發展提供了基本保障。

2023年，公司持續深入開展「新進大學生特訓營」培養項目，除專業理論與實踐訓練等內容提煉濃縮形成「芯時代」「芯揭秘」「芯達人」三大系列課程，進一步開設企業文化、政治素養課程，參觀紅色基地，幫助企業新人迅速融入團隊，並以飽滿的熱情迎接未來工作的挑戰。

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員工體系

培訓對象	培訓內容	2023年績效
基層管理者	角色認知、自我管理、管理他人、工作管理	• 員工培訓覆蓋率100% • 人均培訓小時數135.6小時
一線主管	一線班組長管理技能，培養高素質、高業務能力的一線管理隊伍，夯實公司管理基礎	
新進大學生	職業素養、企業文化、專業入門等課程	
一線員工	半導體製造工藝模塊的理論與實訓課程	

職業發展

公司為員工提供明確、透明的晉升通道，定期評估員工績效並為員工提供個人工作表現反饋，為員工的發展提供個人職業發展規劃。公司根據行業特點，建立了管理、技術、職能支持三個職稱系列和相應的崗位培訓。員工可以按照自己的特長、潛能和意願，可以在單一的職稱系列中不斷成長，也支持員工從技術走向管理。

為持續推進公司高質量發展，提供高質量人才儲備，通過專場培訓、技術交流會、專題講座等形式着力淬煉綜合能力，不斷完善人才培養機制。

此外，公司制定了《學歷教育補貼實施辦法》，鼓勵員工提高專業技術知識水平，2023年為18名員工提供在職學歷教育補貼，以促進工作績效和效率提升，持續培養符合公司現有及未來對高素質人才的需求，從而進一步提高公司綜合競爭力。

截至報告期末，公司員工整體流失率[3]約為10.0%，其中，按員工性別、年齡及地區的流失率如下。

華虹半導體2023年員工流失率

員工類型	流失率(%)
男性員工	11.3%
女性員工	7.1%
小於30歲員工	14.0%
30-50歲員工	7.5%
大於50歲員工	1.9%
大陸員工	10.0%
海外員工	9.7%

3 員工流失率=該類員工流失人數／該類員工總人數*100%

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4 產品與服務

2023年主要進展

具體舉措	取得成效
研發創新	• 完成專利申請672件 • 評審通過論文12篇
產品質量	• 入選第五屆中國質量獎提名獎候選名單 • 榮獲2022年上海市質量攻關(二等獎)
客戶服務	• 客戶調查問卷滿意度均分為8.97(滿分10分)

4.1 產品研發與創新

創新技術研發體系建設

持續的創新研發是企業取得長足發展的重要保障，是推動高質量發展的戰略支撐。公司遵守《中華人民共和國科學技術進步法》《中華人民共和國專利法》等法律法規的要求，秉承「持續創新，為全球客戶製造'芯'夢想」的願景，持續對標國際主流，推動工藝、器件、設計和產品聯動創新，打造業界領先的特色工藝技術。

2023年，公司開展「車規級存儲器」專利布局，持續推動工藝、器件、設計和產品的聯動創新，集中力量攻堅重點研發項目，加快研發差異化先進技術，持續推進新型功率器件開發，以專利為壁壘，主動布局業界領先的研究領域。

華虹半導體2023年研發體系

研發戰略	研發成果
• 「8英寸+12英寸」和先進「特色IC+Power Discrete」戰略。	• 完成一批先進特色IC和高端功率器件技術開發，實現新產品量產投入超過20萬片。
• 深化嵌入式／獨立式非易失性存儲器、功率器件、模擬與電源管理、邏輯與射頻等多元化特色工藝平台的高質量發展。	• 圖像傳感器、嵌入式閃存等平台關鍵器件指標和產品性能實現重大突破，陸續打入汽車電子供應鏈。

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2023年華虹半導體研發創新榮譽

√ 成功上榜工業和信息化部、國家發展改革委、財政部、市場監管總局四部委聯合公布的「**2022年度智能製造優秀場景」名單**。

√ 「一種新型鏡像浮柵閃存存儲單元及應用」榮獲上海市人民政府頒發的**上海市科學技術獎一等獎**。

√ 「12英寸IGBT成套製造工藝開發與產業化」項目榮獲中國半導體行業協會「**第十五屆中國半導體創新產品和技術」獎**。

√ 成功入選上海市經濟和信息化委員會「**上海市100家智能工廠」名單**。

知識產權保護

公司遵守《中華人民共和國專利法》《中華人民共和國著作權法》《中華人民共和國商標法》，堅持量質並舉推進知識產權工作，制定《知識產權管理制度》，規範自身知識產權管理措施。

公司每年制定專利申報目標，積極維護自身知識產權。同時，公司也承諾不侵犯任何單位或個人的知識產權，對上下游合作夥伴的產品技術信息進行嚴格保密。為避免涉及侵犯他人知識產權，公司在接受產品訂單前對客戶進行聲譽及潛在風險的相關審核，並與主要技術公司訂立多項技術授權協議。

截至2023年末，公司累計申請國內外專利8,969件，獲得國內外授權專利4,427件。

2023年華虹半導體知識產權成果及榮譽

√ 完成專利申請672件

√ 已獲批專利數270件

√ 華虹無錫登榜2023年「無錫高新區知識產權榜單」

√ 華虹無錫獲「2022年新增發明專利前20強」的第2名

√ 華虹無錫獲「2022年累計發明專利前30強」的第6名

2023年度環境、社會及管治報告

4.2 產品質量與安全

質量管理體系

公司深化健全質量管理體系，在市場波動的嚴峻形勢下，提高「研發 – 量產 – 質控」過程的管理效率，通過《質量手冊》《質量管理流程》《質量目標管理實施規程》、《供應商管理規程》等制度開展質量管理工作。2023年公司開展「特色工藝零缺陷、華虹發展高質量」主題活動，評審結項2,578個。在效率提升、供應鏈安全、節能減排、人才培養、安全生產等方面碩果累累。

認證主體	認證的情況	認證有效期
華虹上海生產基地	ISO 9001質量管理體系	2024.05.21
	IECQ QC 080000有害物質過程管理體系	2026.12.11
	IATF 16949汽車行業質量管理體系	2024.05.21
華虹無錫生產基地	ISO 9001質量管理體系	2025.11.11
	IECQ QC 080000有害物質過程管理體系	2026.12.11
	IATF 16949汽車行業質量管理體系	2026.05.07

公司嚴格秉承零缺陷理念，由品保部負責產品質量與安全管理的統籌規劃及執行落地，向管理層及董事會匯報相關工作，並通過定期組織質量管理評審會、推進落實產品質量監測、加強客戶溝通等措施，旨在保障產品質量符合預期，向市場提供優質產品。

2023年，品保部攜手研發、生產、安環、市場等部門對產品的「研發 – 生產 – 售後」全生命周期進行監控測試，對可能出現的異常情況進行預測、分析，及時糾正，預防產品質量風險。

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2023年在質量管理方面取得的成果

質量管理方面	成果
客戶認證	√ 通過14家汽車客戶和25家重要客戶審核，完成全球領先的汽車電子廠商客戶預審。 √ 在金融IC卡安全體系建設上取得突破，通過金融卡客戶EMVCO認證審核，質量體系獲得客戶的認可。
可靠性管理	√ 建立40nm及以下先進工藝節點完整的工藝考核方案，為後續工藝驗證奠定理論基礎。
良率管理	√ 全年解決各平台工藝基線系統性問題15項，各主要量產平台良率均穩定在97%以上。
新產品質量管理	√ 全年實現超過500顆新產品導入，車規產品導入超過30顆。 √ 全年完成8項產品和平台從技術研發向工廠量產轉移。

2023年，公司將「特色工藝零缺陷，華虹發展高質量」主題活動與質量月活動相結合，以「築質量之基，行卓越之路」為目標，在滬錫兩地各部門、所有員工的通力合作下，開展了高管講堂、質量知識培訓、知識競賽、質量主題徵文和質量主題辯論賽等一系列活動，一起推進公司高質量發展，追求卓越品質。

為進一步提升公司的質量管理水平，激發員工學習積極性，公司面向全員開展了線上「零缺陷質量意識培訓」、「質量知識競賽」等系列活動，將「高質量與零缺陷」理念傳遞給每一位員工心中，進一步固化員工質量意識。

華虹半導體2023年質量管理獎項及榮譽

√ 2022年上海市質量攻關二等獎

√ 華虹一廠製造部獲得上海市現場管理創新活動：優秀級

√ 華虹二廠入選第五屆中國質量獎提名獎候選名單

√ 華虹三廠獲授牌上海市智能工廠，國家級示範場景

產品安全保障

在產品安全保障方面，公司建立有害物質管理體系，定期進行有害物質風險評估和法律法規合規性評價，制定《有害物質管理規程》及三級管理制度對產品有害物質進行有效管控。

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產品有害物質管控體系

流程	舉措內容
產品研發	將產品有害物質的管理納入產品研發過程，在源頭降低有害物質使用風險。
原料檢測	要求供應商提供產品有害物質檢測報告並簽署《產品環保承諾書》，並對部分原料進行抽樣檢測，確保原料安全性。
產品有害物質管控認證	委託第三方機構開展《關於限制在電子電器設備中使用某些有害成分的指令》(RoHS)、《關於化學品註冊、評估、許可和限制規定》(REACH)檢測，確保產品符合相關認證標準要求。

不合格品管理

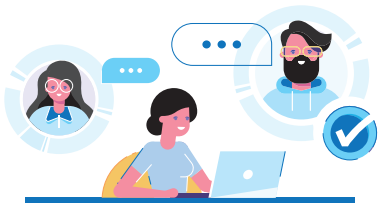
針對不合格品，公司制定《不合格品控制規程》管理制度進行管理，同時建立健全產品召回制度，對於符合質保條件的產品，客戶可於質保期內退換不合格產品。報告期內，公司產品在終端客戶端的失效率低於十億分之一。

4.3 客戶關係管理

客戶服務體系

公司秉承「為客戶提供更加便捷安全的服務」理念，始終遵循《中華人民共和國消費者權益保護法》，建立《客戶投訴處理規程》，傾聽客戶反饋，包括主動交流、設立投訴渠道、滿意度調查等主要方式，不斷提升客戶服務效能。

客戶服務體系



客戶交流

- 客戶調研、定期季度／年度業務回顧、技術研討會、培訓等多種與客戶交流的方式。

客戶投訴

- 設立客戶投訴渠道並制定《客戶投訴處理規程》，及時處理並反饋客戶投訴。

客戶滿意度調查

- 每年抽樣實施滿意度調查，根據調查結果制訂改善計劃。

公司暢通客戶投訴渠道，制定《客戶投訴處理規程》，對客戶投訴的處理流程、應對方案等進行規範。客戶可通過電子郵件、熱線、信函等渠道向公司進行投訴與反饋。報告期內，公司共計收到4起來自客戶的投訴，相關投訴均得到了妥善的處置並獲得客戶認可。

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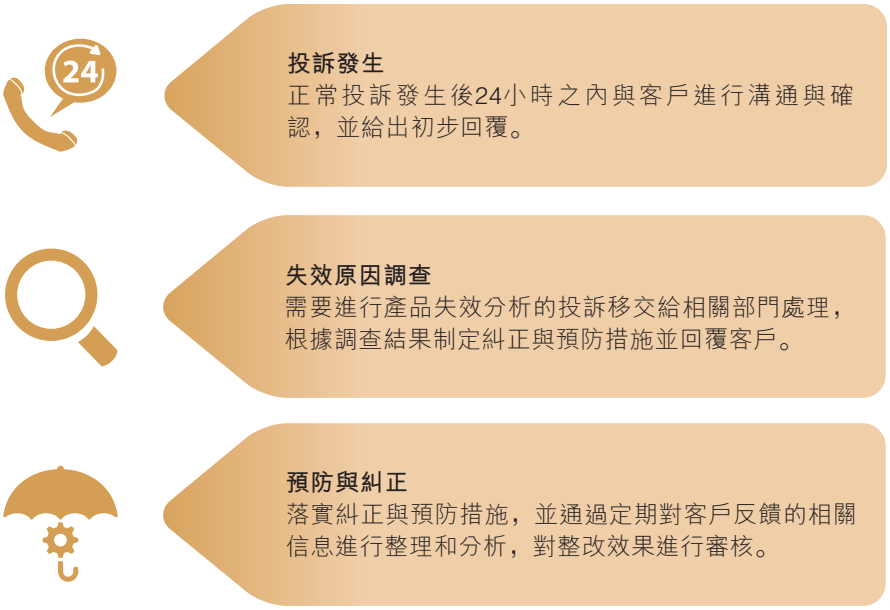
客戶投訴處理流程



公司定期開展客戶滿意度調查。2023年度，公司採用調查問卷方式開展客戶滿意度調查，收集客戶意見，客戶調查問卷滿意度均分為8.97(滿分10分)，較2022年度上升了0.11分，客戶滿意度基本保持穩定。公司管理層評審年度滿意度調查結果，組織開展差異分析並實施改善措施，將相應改進舉措及結果答覆給客戶。

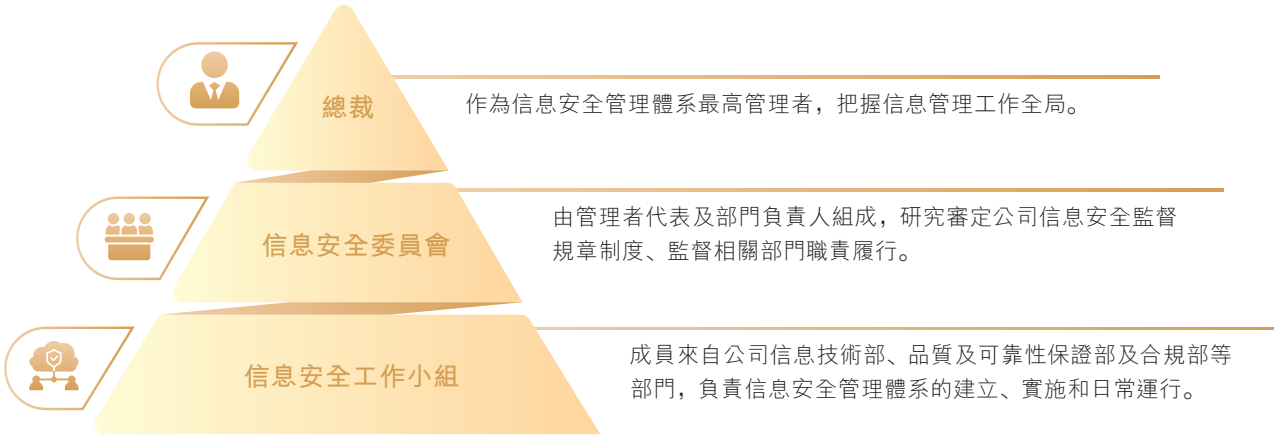
數據安全與隱私保護

公司遵守《中華人民共和國網絡安全法》《中華人民共和國密碼法》《商用密碼管理條例》等法律法規，制定《信息安全體系手冊》《信息安全適用性聲明(SOA)》等信息安全管理制度。同時，不斷優化組織架構和管理流程，組織員工集中學習、開展宣傳和警示教育、落實相關措施等，不斷提高思想意識，進一步加強數據信息的保護和管控，堅決杜絕洩密事件的發生。

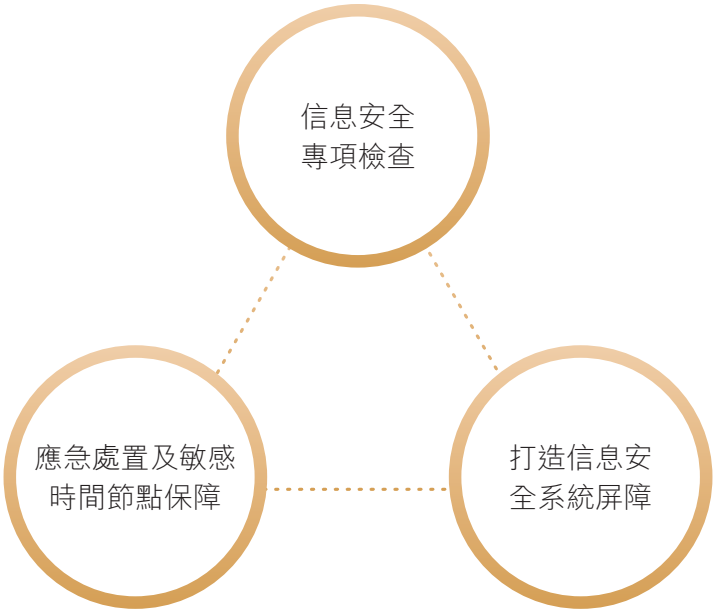
公司成立信息安全委員會，全面負責公司的信息安全保護工作，建立信息安全管理體系(ISMS)，從信息資產管理、人員安全、物理管控、邏輯管控等方面層層把控信息安全風險，保障信息安全，並通過了ISO 27001認證(有效期至2025年2月)。2023年，公司未發生侵犯客戶隱私及遺失客戶資料的投訴事件。

2023年度環境、社會及管治報告

信息安全管理體系架構



2023年華虹半導體在信息安全方面開展的重點工作



2023年，公司在各生產運營基地開展了系列信息安全保護相關培訓，加強員工預防信息洩露的知識儲備和應對能力，築牢信息安全保障的中堅力量。

2023年信息安全保護培訓

培訓主題	覆蓋範圍	參與人數
信息安全管理體系培訓2023Q1	上海基地和無錫基地	8,233
信息安全管理體系培訓2023Q2		6,554
信息安全管理體系培訓2023Q3		6,476
信息安全管理體系培訓2023Q4		6,919
保密、信息安全合規性培訓		6,802
企業信息安全及商業秘密保護培訓		1,044

負責任營銷

誠信、準確、基於事實的溝通和宣傳，是公司對客戶應盡的責任。公司嚴格遵守《中華人民共和國商標法》《中華人民共和國廣告法》等法律法規，在產品標籤管理方面均按照合規流程執行，並與客戶達成的統一的規範產品標識，將合規意識貫穿在合同制定、業務拓展等內外部營銷過程中，杜絕因主觀因素造成不當營銷的可能性。

報告期內，公司在標籤使用及宣傳信息方面未發生任何違法違規的事件。

5 負責任運營

2023年主要進展

具體舉措	取得成效
負責任供應鏈	通過多維度評定風險，多渠道展開調研，科學規劃，分類施策，全力推進供應鏈管理工作。例如，對69家原材料／設備／零部件供應商進行審核。
衝突礦產	供應商盡職調查共涉及11家次，覆蓋100%「衝突礦產」的供應商，調查未發現涉及「衝突礦產」的供應商，經第三方驗證，不使用衝突礦產的供應商比例為100%。
經濟績效	2023年每股社會貢獻值3.59元。

5.1 責任價值鏈

可持續供應鏈管理

公司主要的供應商類型為硅片、化學品、氣體供應商。公司致力於降低供應鏈風險，遵從責任商業聯盟(RBA)等行業行為標準規範，制定《供應商風險識別策劃控制管理程序》《供貨商社會責任要求》等供應鏈管理制度，發揮集團一體化優勢，多維度評定供應商風險，多渠道開展調研，科學規劃，分類施策。

華虹半導體主要供應商

供應商類型	數量（家）
硅片	16
化學品	54
氣體	33

2023年度環境、社會及管治報告

與社會責任表現良好的供應商合作，是公司實現生產運營穩定運行的前提。公司建立了適用於所有供應商的管理體系，涵蓋供應商選擇與准入、供應商審核與評估、支持供應商成長以及供應商淘汰等環節。

供應鏈管理體系

供應鏈管理環節	管理行動
供應商選擇與准入	• 遵從責任商業聯盟行為準則(RBA)制定《供貨商社會責任要求》，對供貨商提出在勞工、健康與安全、環境保護、商業道德以及管理體系五大方面的要求； • 對於在環境、勞工、道德方面表現突出的供應商，在供貨和採購方面會優先採用； • 除了要求所有合作的供貨商遵守《供貨商社會責任要求》以外，公司也要求其上游的供貨商認同並依照《供貨商社會責任要求》進行管理。
供應商審核與評估	• 制定《供應商風險識別策劃控制管理程序》，每年對供貨商的環境、社會風險進行全面的評估與管控，識別供應商環境及社會風險，並制定相應對策； • 對於有重大違規記錄的供應商，要求其開展第三方社會責任風險稽核，並提供稽核通過的證明，或者取消其供應商資格； • 公司反腐敗政策覆蓋所有供應商，要求供應商符合反腐敗要求，並在年度評價時，對供應商合規情況進行確認。
支持供應商成長	• 每年對供應商定期開展「企業社會責任」RBA行為準則」等的主題宣導培訓，內容包含環境、勞工、道德等方面； • 2023年開展的供應商培訓宣導覆蓋了硅片、化學品、氣體、靶材等類別的供應商。通過實地審核評估、聯合相關部門對供應商開展宣講工作，同步產品質量要求及標準，為供應商提升產品質量提供技術支持。
供應商淘汰	• 對在環境、勞工、道德方面表現不佳的供應商，公司督促其整改，並確認整改達到要求。對於不能滿足整改要求的供應商，將取消其供應商資格。

此外，半導體硅片製造過程需要大量的水資源，同時半導體製造也是高污染環節，如果不能在生產環節中解決好污染排放、廢水處理等問題，將進一步威脅到水資源再生。因此，公司對硅片供應商開展水資源管理相關行動與績效調查，降低其生產運營對水源的影響。2023年，公司對硅片供應商開展水資源調查覆蓋率達100%。

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《華虹半導體供應商社會責任要求》概覽

勞工	• 自由選擇職業 • 青年員工 • 工作時間	• 工資與福利 • 人道的待遇 • 非歧視	• 自由結社
職業與健康	• 職業安全 • 應急準備 • 職業傷害與疾病	• 衛生管理 • 體力需求高的工作 • 機器防護	• 公共衛生，餐廳和宿舍 • 健康與安全溝通
環境保護	• 環境許可和報告 • 預防污染和節約資源 • 有害物質	• 固體廢棄物 • 空氣排放 • 材料限制	• 水資源管理 • 能源消耗和溫室氣體排放
商業道德	• 廉潔經營 • 無不正當利益 • 信息披露	• 知識產權 • 公平交易，廣告和競爭 • 身份保密	• 在採購礦物時秉承負責任的態度 • 隱私
管理體系	• 管理職責與責任 • 法律和客戶要求 • 風險評估和風險管理	• 附有實施計劃和措施的績效指標 • 培訓 • 溝通	• 員工反饋、參與和投訴 • 審核與評估 • 矯正措施

2023年，公司進一步完善汽車電子供應鏈管理體系，團結生態鏈內上下游企業協同合作，建立可靠高效的汽車電子芯片供應鏈。

2023年度環境、社會及管治報告

2023年華虹半導體開展的供應鏈管理工作

供應商准入	供應商評估	供應商多元化
• 新引入國產供應商28家，提高與優秀國產供應商的合作廣度和深度。	• 調研相關企業500多次，其中實地考察100多次，與近20家國內重要供應商建立聯繫。 • 向硅片供應商開展水資源管理評估，覆蓋率達100%。	• 全力推進供應鏈多元化工作，「8英寸+12英寸」原材料供應商多元化率較2022年提高20.2%，達到65.4%。 • 8寸原材料供應商多元化率提高20.1%，達到72%，其中靶材和硅片的多元化率超過90%。 • 12寸原材料供應商多元化率提高20.4%，達到55%。

外部環境影響原材料供應穩定性，公司為應對供應鏈風險，通過實地調研、加大尋源力度等方式提高本土供應商採購比例。此外，公司建立有效的緊急狀態應對體系，提高設備自主維修能力，開源節流，降本增效，密切關注市場需求，不斷優化產品組合，進一步提升優勢工藝平台的生產柔性，為持續、安全、穩定的運營保駕護航。

負責任礦產管理

「衝突礦產」是通過當地武裝民兵長期以暴力脅迫勞工童工、破壞環境生態的方式取得，也是資助非法武裝組織的主要資金來源。根據《多德 – 弗蘭克華爾街金融改革與消費者保護法》和部分國際非政府組織的研究報告，此類礦產很可能被信息、通信和技術(ICT)產業應用於手機，計算機等電子電氣產品中。

公司在生產運營過程中會涉及到金(Au)、鉭(Ta)、鎢(W)、錫(Sn)、鈷(Co)等金屬礦產資源的使用。公司依據《多德 – 弗蘭克華爾街金融改革與消費者保護法》，制定《衝突礦產管理政策》，避免採購及資助對社會、環境造成重大負面影響的礦產來源。

除開展自身管理外，公司按照負責任礦產倡議(RMI)、經濟合作與發展組織(OECD)《受衝突影響和高風險地區礦產供應鏈盡職調查指南》等國際公認的調查框架，對供應商進行溯源和盡職調查，要求所有供貨商承諾不採購受衝突影響和高風險區域的「衝突礦產」，確保供應鏈礦產安全。

2023年度環境、社會及管治報告

華虹半導體衝突礦產管理政策

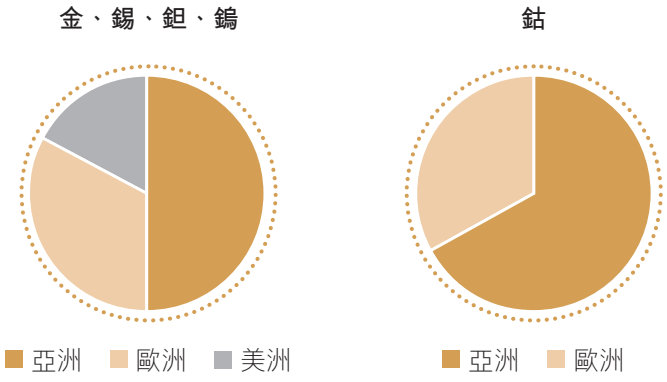
將全球社會環境責任作為公司的目標， 踐行綠色採購原則， 承諾在金屬供應鏈中承擔社會及環境責任：

1、承諾要求原物料中含有金(Au)、 鉭(Ta)、 鎢(W)、 錫(Sn)的供應商遵循負責任礦物政策採購， 要求原物料含鈷（Co）的供應商披露鈷的來源冶煉廠。

2、承諾要求供貨商提供金(Au)、 鉭(Ta)、 鎢(W)、 錫(Sn)、 鈷(Co)金屬不使用「衝突礦產」的聲明， 向供應商發出衝突礦產調查問卷(CMRT)和擴展礦物報告（EMRT）。

公司生產過程中使用的金，錫，鉭和鎢超過50%來自亞洲，超過33%來自歐洲，其餘來自美洲。使用的鈷三分之二來自亞洲，三分之一來自歐洲。報告期內，公司所使用的金(Au)、鉭(Ta)、鎢(W)、錫(Sn)均不來自武裝衝突地區。

礦產使用類型及來源



2023年，公司對11家涉及礦產的供應商開展衝突礦產問卷調查，回收率及覆蓋率為100%。公司要求供貨商追溯礦產來源以及冶煉廠信息，如經查所使用的衝突礦產是來源於受衝突影響和高風險地區的非法礦產，則該供應商的違規物料須停止採購，並要求供應商限期整改，確保供貨商及其上游原材料符合公司的衝突礦產管理要求。

2023年，公司在供應鏈盡責調查過程中，未發現涉及僱用童工、侵犯人權、強迫勞動、生態破壞等重大問題。經第三方驗證，公司不使用衝突礦產的供應商比例為100%。

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5.2 反貪污與賄賂

公司致力於打造清正廉潔、誠信公平的企業文化，嚴格遵守《中華人民共和國反不正當競爭法》《關於禁止商業賄賂行為的暫行規定》等法律法規及相關規定，制定了《反腐倡廉廉潔從業承諾制度》《反貪污與反賄賂政策》等內部管理制度，要求與全體合作夥伴及供應商簽署《反商業賄賂承諾書》，全體員工簽署《廉潔從業承諾書》。

公司要求所有員工(包括兼職員工)、高級管理人員、董事成員均需遵守法律法規，廉潔奉公，勤勉自律，禁止任何形式的貪污與賄賂行為，包括：

華虹半導體反貪污與反賄賂政策

- 制止商業賄賂行為，維護公平競爭秩序；
- 絕不利用職務和工作上的影響力謀取不正當利益；
- 絕不違反財務管理和使用規定，不假公濟私、不化公為私；不弄虛作假，不損害公司合法權益和良好商譽；
- 不接受可能影響工作的禮品、禮金、有價證券和財物等。

公司致力營造廉潔的商業道德從業環境，建立內部專欄定期推送警示文章和案例，開展反腐敗與商業道德相關培訓活動，做好廉潔文化陣地建設，用廉潔文化滋養身心。2023年5月，滬錫兩地分別召開2023年廉潔從業責任書簽訂儀式，簽訂對象為公司部門負責人及以上人員，進一步加強廉潔從業的責任落實，營造公司風清氣正的良好環境。

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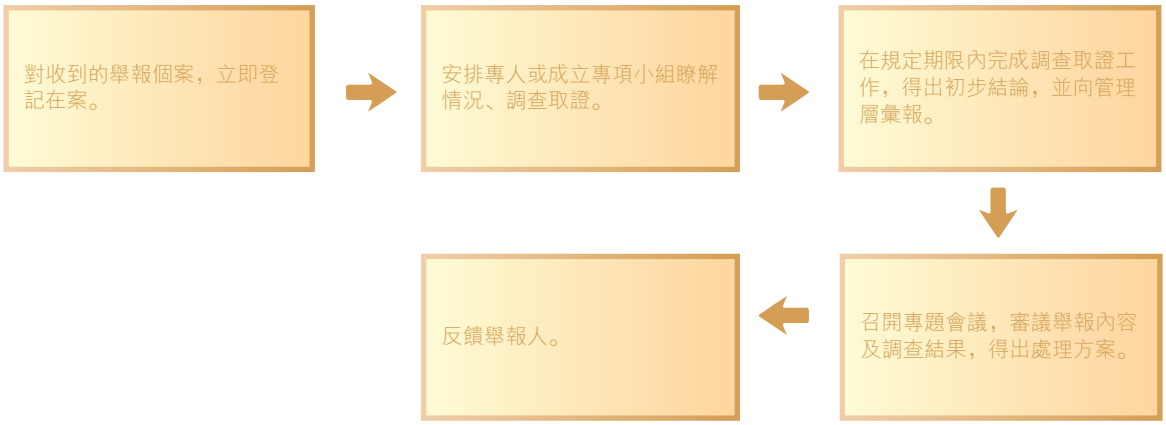
公司支持員工自主監督和舉報，維護清正的工作環境，提供郵件、電話、信箱等清晰的舉報渠道，員工可以採用實名或匿名的方式進行投訴和舉報，公司隨時接受來電、來信舉報，做到早發現、早解決、早控制，妥善處理。

公司已建立完善的商業道德監督及舉報處理程序，對舉報案件進行調查舉證，經審議後反饋給舉報人處理方案。在舉報人保護層面，舉報人的信息將被嚴格保密，確保員工或外部人員不會因經合法途徑進行舉報而受到解僱、降級、停職、恐嚇、騷擾等不公平待遇或任何其他形式的報復行為。

商業道德監督及舉報處理程序



報告期內，公司未發生貪污、賄賂、勒索、欺詐及洗黑錢的事件，也未有上述事項引起的訴訟案件發生。

5.3 風險管理

公司建立覆蓋各業務流程的《全面風險管理制度》，定期識別、梳理、研判風險清單，形成長效機制，分層級、分條線防範公司各大風險領域，有針對性地落實重大風險管控。

組織架構層面，在審核委員會及管理層授權下，公司依據國際內審協會(IIA)最新的風險管理「三線模型」，形成了具有公司特色的風險管理組織架構，明確了重大風險應對的分管領導、牽頭部門以及職責分工。內審部每年向審核委員會報告內部控制及風險管理重點、風險評估及應對控制措施，確保相關重大風險的應對形成閉環。

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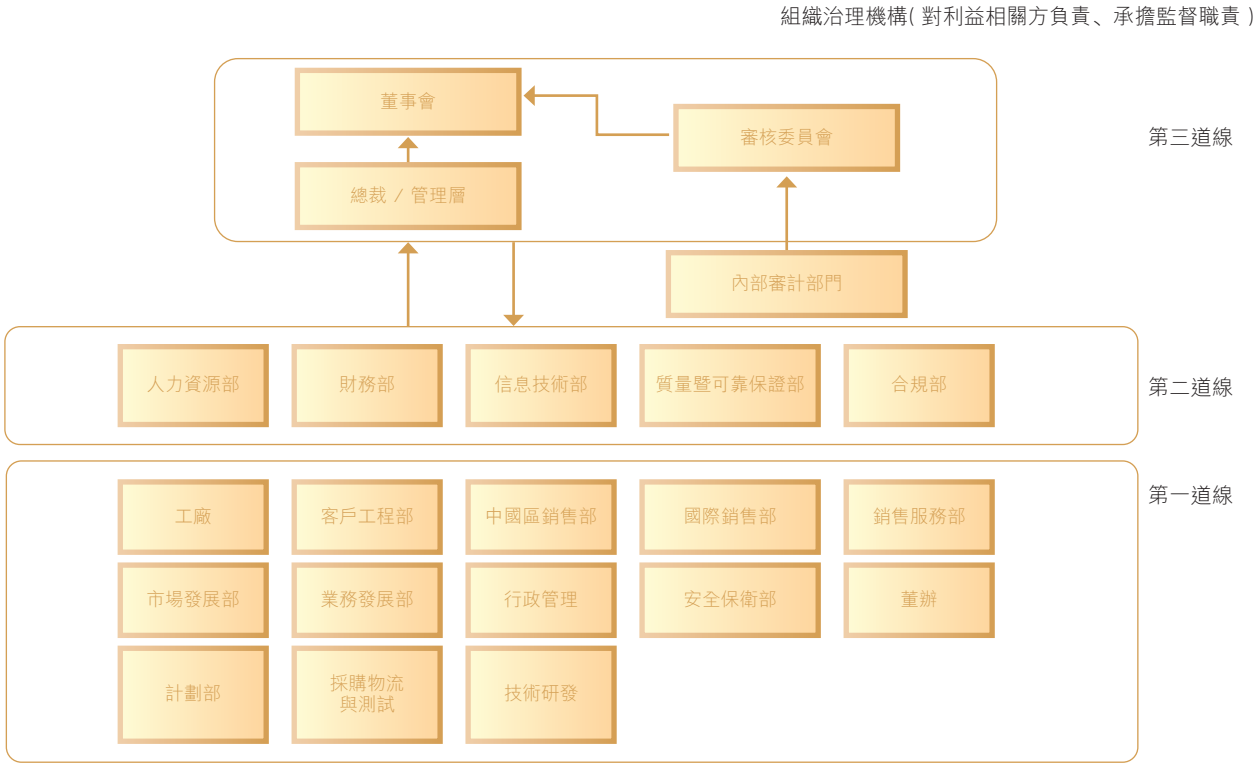
華虹半導體經濟領域風險管理三道防線



第一道線職能：為客戶提供產品 / 服務，管理風險；
第二道線職能：為風險相關的事務提供專業知識、支持、監督並提出合理質疑；
第三道線職能：對所有與實現目標相關的事務提供獨立和客觀的確認程建議。

在風險管理「三線模型」的基礎上，公司兼顧全面性和重要性的原則，持續優化公司風險地圖，合併部分同類風險因素，共辨析出公司59個主要風險因素，全面防範並監督公司內外風險。2023年，公司在上海、無錫基地開展年度風險評估，通過發放問卷、訪談、座談會、現場查看、數據分析等方式識別和梳理風險領域，對研發、產品質量、供應鏈管理、人才儲備及發展等重點風險領域的進行梳理，形成年度風險管理報告。

華虹半導體風險管理體系

風險評估	風險上報	溝通與培訓
通過發放問卷、訪談、座談會等方式識別和梳理風險領域，對風險領域進行打分，形成年度風險管理報告。	實行季度風險溝通上報機制，各業務條線每季度或不定期搜集並上報條線內風險事件。	不定期召開風險條線管理會議，開展風險培訓，溝通各業務條線及公司層面風險問題。

2023年度環境、社會及管治報告

華虹半導體風險應對機制

風險類別	風險內容	策略
戰略	戰略規劃	公司自上而下擬定戰略目標，並進行適當的分解，落實到企業經營的具體業務模塊中，確保戰略目標的達成。
運營	研究與開發	持續完善研發項目管理體系，對研發的立項、執行、後評估全方位監控，不斷提升項目經理能力，及時開發有商業價值的新技術、新產品。
	產品質量	以生產質量體系為依託，全面推行卓越績效管理，嚴格秉承零缺陷理念，按時交付綠色優質的產品，確保所有產品尤其是車規級產品的質量穩定性，不斷提升客戶滿意度。
	人才儲備及發展	建立人才簡歷數據庫、開展人才庫存、不斷探索招聘渠道、優化薪酬結構、完善配套福利政策，全面提升企業的吸引力和員工滿意度。
	供應鏈	通過自身技術優勢提升產業鏈內話語權，與供貨商簽訂中長期戰略協議；針對各生產物料設置安全庫存值，定期審閱安全庫存值的合理性，及時隨市場變化進行調整；持續評估供應商供貨能力及產品質量，開發多元化供應渠道，確保供應鏈的穩定。
	信息安全	建立信息安全框架和管理方針，每年度執行信息安全風險評估程序，同時通過DLP數據保護系統對各項關鍵信息進行持續監控，確保公司、股東、客戶、供貨商及公司員工的最佳利益得以保障。
	環境	公司根據環境因素識別、評價和控制策劃管理程序，列出重大環境因素清單。
環境及安全	安全檢查	持續並定期開展以隱患排查和設備故障診斷為主的安全檢查。
	職業健康	公司根據安全健康環境管理體系目標指標及方案管理程序，制定環境職業健康安全目標、指標及方案管理表。

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5.4 合規運營

公司尊重並遵守適用的當地法律法規，具體法律法規及相關政策詳見附錄中「公司遵守的法律法規及相關政策」列表。公司密切地監控法律法規頒布、修訂情況，識別與公司運營生產有關的條例，及時完善內部政策和管理制度，以確保運營符合法律法規。公司設立內審部，定期對供應鏈採購、商業道德及反腐敗等方面開展審計，以確保業務行為的合規性。

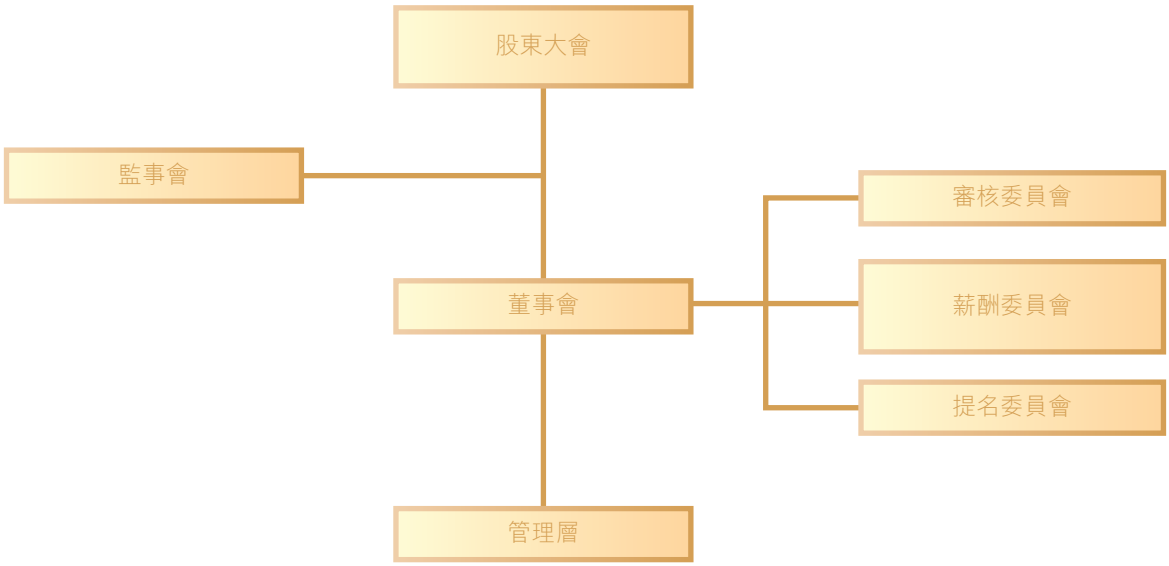
5.5 公司治理

公司治理

公司按照《中華人民共和國公司法》《中華人民共和國證券法》等法律法規，制定《公司章程》《股東大會議事規則》《董事會議事規則》等各項規章制度。2023年，公司在上海交易所科創板上市，按照《上市公司治理準則》《上市公司信息披露管理辦法》等法律法規，更新《公司章程》等公司治理規則，保持公司規範運作。

公司建立由股東大會、董事會及其下屬各專責委員會（包括審核委員會、薪酬委員會、提名委員會）及管理層人員組成的規範有序的治理結構，形成了權力機構、決策機構和執行機構之間權責分明、相互協調和制衡的治理機制。

公司治理架構



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董事會監事會成員構成及相關會議開展情況

董事會監事會組成	三會召開情況
董事會董事7名	股東大會5次 共審議議案18項
其中，獨立董事3名	董事會會議10次 共審議議案31項

在規範信息披露方面，公司制定《信息披露管理制度》等管理文件，真實、準確、及時、公平、完整地披露有關信息，確保公司利益相關方獲得所需信息。報告期內，公司及時報告公司有關事項，按照信息披露的規範要求，保證信息披露的質量。

投資者權益保障

公司作為香港聯合交易所主板和上海證券交易所科創板上市公司，嚴格遵守香港的《公司條例》、香港聯合交易所《主板上市規則》、中國證券監督管理委員會《上市公司信息披露管理辦法》以及上海證券交易所《上海證券交易所科創板股票上市規則》等法律法規及相關政策要求，設立投資者關係管理小組，與各利益相關方保持溝通和互動，保障投資者合理訴求得到解決。

公司以「平等對待所有投資者」為原則，以「合規信息披露」為要求，以「誠實守信、互動溝通」為準繩，多渠道與資本市場溝通公司經營管理狀況、財務狀況、產品技術、重大事項等信息，並且主動披露投資者關心的與公司相關信息，充分保護投資者合法權益。

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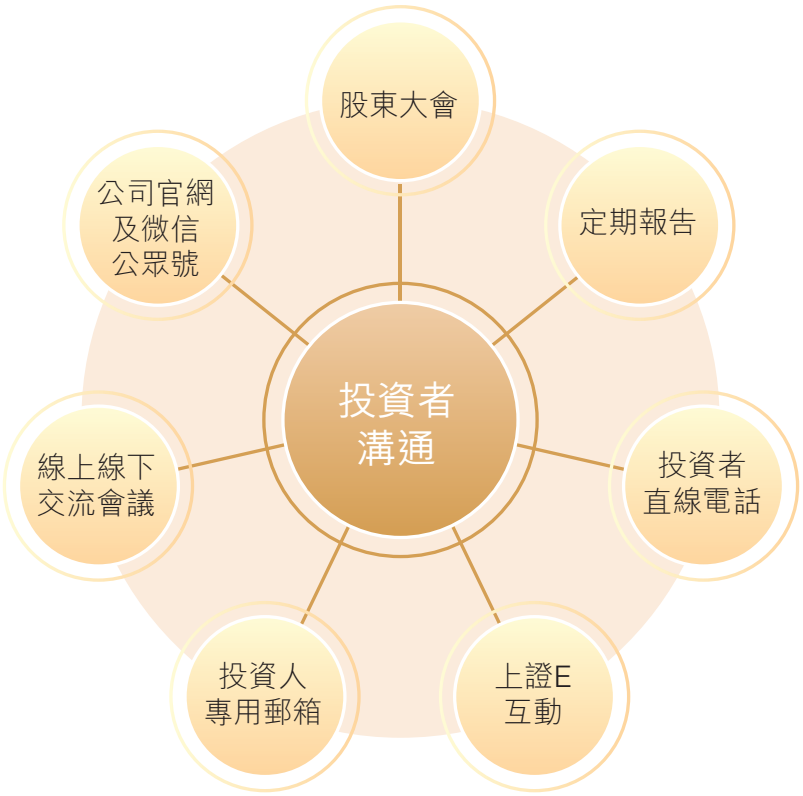
投資者溝通渠道



為落實股東權益保障，公司制定合理的利潤分配政策及分紅方案，積極回報股東為投資者持續帶來穩健回報。

2023年度，公司共召開1次股東大會以及4次股東特別大會，會議以投票表決的形式通過18項決議案。會議均邀請公司所有股東參與，包括所有中小投資者，保障中小投資者參與權。此外，報告期內公司開展了4次業績交流會議。

6 行業與社區

2023年主要進展

具體舉措	取得成效
行業發展	• 舉辦「芯聯通、車聯通、鏈聯通」車規芯片生態合作大會，推進車規芯片生態合作及高質量發展
志願服務與公益慈善	• 連續18年開展養老院慰問活動 • 開展4場集成電路專場青少年科普活動

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6.1 行業發展

公司積極參與行業共建活動，助力集成電路產業高質量發展，積極參加行業峰會，攜手推動行業的高質量發展。

2023年，公司舉辦「芯聯通、車聯通、鏈聯通」車規芯片生態合作大會，聯合集成電路領域，汽車領域整車、零部件等近百家企業，以「聚技術創新之力，謀產業發展之機」共同推進車規芯片生態合作，促進產業協同聯動發展。

6.2 志願服務與公益慈善

為了增加社區居民安全意識，公司連續六年在總部運營所在地社區開展《意外急救課程》，包括急救常識及心肺復甦術應用等。

公司熱心公益事業，定期組織員工志願者們到社區養老院慰問老年人，與他們話家常、包餛飩、搞活動，給老人們送去歡樂和關心。公司連續18年慰問美馨養老院，開展志願服務。此外，利用早間時間公司員工利用早間時間到社區幼兒園擔任志願者，以實際行動踐行「華虹520精神」。

公司心系青少年教育，在「以光育光，探索'童'行」的張江科學會堂科普季活動中開展4場集成電路專場科普活動，通過科普課程的講授，向逾130名孩子科普芯片製造的過程以及芯片在日常生活中的日常應用。同時，公司向四川省涼山彝族自治州布拖縣特木里鎮拉達小學及學生們捐贈了書包和體育用品。2023年，公司開展結對幫扶工作，向上海市崇明區油橋村捐贈人民幣 5 萬元。

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7 附錄

7.1 量化績效

環境

績效指標	單位	2021年	2022年	2023年
排放物				
廢氣排放總量	萬立方米	2,319,307	2,391,024	2,747,929
氮氧化物(NOx)排放量	千克	36,857	32,650	33,719
二氧化硫(SO_2)排放量	千克	2,239	3,546.12	5,251.56
廢水排放總量	萬立方米	704	832	898
有害廢棄物總量[1]	噸	17,363	20,385	20,797
單位產量有害廢棄物產生量	千克／8英寸晶圓	4.96	4.88	5.29
無害廢棄物總量[2]	噸	8,981	9,864	9,269
單位產量無害廢棄物產生量	千克／8英寸晶圓	2.57	2.36	2.36
能源及資源使用				
用電總量[1]	兆瓦時	867,682	954,667	1,030,352
天然氣用量[1]	立方米	11,456,569	10,530,287	11,048,312
汽油用量[1]	升	／	／	43,949
柴油用量[1]	升	／	／	15,911
外購熱力[1]	吉焦	／	／	134,940
氫氣[1]	立方米	／	／	1,149,860
綜合能源[3]	兆瓦時	991,663	1,065,002	1,168,170
單位產量綜合能源消耗量	兆瓦時／8英寸晶圓	0.28	0.25	0.30
用水總量[4]	立方米	15,707,212	18,010,226	19,076,734
其中，來源於市政供水的水量	立方米	8,928,040	10,284,063	11,127,266
廢水回用	立方米	6,788,287	7,726,163	7,949,468
單位產品用水量[5]	立方米／8英寸晶圓	2.55	2.46	2.83
循環／再利用水量	立方米	86,119,337	107,163,560	126,544,660
成品出貨所用包裝材料的總量	噸	253.5	313.32	336.92
單位成品出貨所用包裝材料	千克／8英寸晶圓	0.07	0.07	0.09
成品出貨所用包裝材料的回收量	噸	48.5	54.9	66.33
溫室氣體排放				
溫室氣體排放量[6]	噸CO_2當量	713,649	497,938	537,070
其中，直接溫室氣體排放量	噸CO_2當量	24,803	24,877	22,881
間接溫室氣體排放量[7]	噸CO_2當量	697,899	473,060	514,189
單位產量溫室氣體排放量	噸CO_2當量／8英寸晶圓	0.21	0.12	0.14

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註：

1 2023年無錫生產基地擴產項目投產，能源消耗、廢氣、廢水、有害及無害廢棄物產生量有所增加。

2 無害廢棄物包括廢水處理產生的污泥量和一般廢棄物。

3 綜合能耗涵蓋外購電力、天然氣、汽油、柴油、外購熱力及氫氣。

4 用水總量=市政供水的用水量+廢水回用的用水量。

5 單位產品用水量的統計口徑僅包含市政供水。

6 溫室氣體排放所採取的統計口徑及核算依據遵循國家標準委《GB/T 32150工業企業溫室氣體排放核算和報告通則》及《GB/T 32151溫室氣體排放核算與報告要求》。

7 2022及2023年，間接溫室氣體排放量上海、無錫廠區分別依據《上海市溫室氣體排放核算與報告指南（試行）》滬發改環資[2012]180號）》及《關於做好2023 – 2025年發電行業企業溫室氣體排放報告管理有關工作的通知》計算。其中，上海廠區採用電力排放因子缺省值4.2tCO_2/10^4kWh，無錫廠區採用全國平均電網排放因子0.5703tCO_2/MWh進行計算。

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僱傭與勞務實踐

績效指標	單位	2021年	2022年	2023年
員工僱傭				
全職員工總數	人	6,084	6,760	6,863
其中，男性員工數	人	4,426	4,932	5,039
女性員工數	人	1,658	1,828	1,824
勞動合同制員工數	人	6,084	6,760	6,863
勞務派遣制員工數	人	85	81	53
兼職員工	人	0	0	0
小於30歲員工數	人	2,676	2,983	2,894
30-50歲員工數	人	3,271	3,624	3,811
大於50歲員工數	人	137	153	158
大陸員工數	人	6,075	6,751	6,855
海外員工數	人	9	9	8
健康與安全				
員工職業病發病率	%	0	0	0
因公亡故的人數	人	0	0	0
因公亡故的比例	%	0	0	0
因工傷損失工作天數	天	367	83	61
員工培訓				
全職員工人均接受培訓時長	小時	119.9	122.2	133.7
其中：普通員工人均培訓時長	小時	121.5	123.7	135.6
管理層員工人均培訓時長	小時	23.5	26.5	31.6
女性員工人均培訓時長	小時	123.8	124.3	125.1
男性員工人均培訓時長	小時	118.5	121.4	136.8
全職員工受訓覆蓋率	%	100	100	100
其中：普通員工受訓覆蓋率	%	100	100	100
管理層員工受訓覆蓋率	%	100	100	100
女性員工受訓覆蓋率	%	100	100	100
男性員工受訓覆蓋率	%	100	100	100

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產品責任與客戶服務

績效指標	單位	2021年	2022年	2023年
產品責任與客戶服務				
產品退貨率	%	0.05	0.11	0.087
已售產品因安全與健康問題回收的比例	%	0	0	0
客戶服務				
接獲關於產品及服務的投訴數目	件	0	0	4
客戶投訴辦結率	%	／	／	100%

供應鏈管理

績效指標	單位	2021年	2022年	2023年
供應商總數[1]	家	545	551	561
本土供應商總數	家	410	413	420
海外供應商總數	家	136	138	141
接受評估的供應商數目[2]	家	115	112	114
要求整改的供應商數目	家	0	0	0
原輔料供應商簽訂《環保承諾書》的百分比	%	100	100	100
原材料採購本土化比例[3]	%	29	31	32

註：

1 經覆核，供應商總數相關績效指標的近三年數據，以本年度報告表格中披露數據為準。

2 指公司對其實施了勞工、健康安全、環境、道德方面的評估的供貨商數目。

3 原材料採購包括：硅片、石英、靶材、氣體、化學品等生產原材料。

反貪污

績效指標	單位	2021年	2022年	2023年
於匯報期內對發行人或其僱員提出並已審結的貪污訴訟案件的數目	件	0	0	0
員工接受反貪污培訓的累計時長	小時	／	／	2,542

社區投資

績效指標	單位	2021年	2022年	2023年
員工參與志願服務的人數	人	1,324	4,189	1,108
志願者活動累計時長	小時	1,986	6,283	1,364
社區投入	元	／	／	50,000

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經濟績效

績效指標	單位	2021年	2022年	2023年
每股社會貢獻值[1]	元	3.31	5.46	3.59

註:

1 每股社會貢獻值=(公司淨利潤+年內為國家創造的稅收+向員工支付的工資+向銀行等債權人給付的借款利息+對外捐贈額等為其他利益相關者創造的價值額 – 因環境污染等造成的其他社會成本)／公司股份總數。

7.2 公司遵守的法律法規及相關政策列表

領域	法律法規名稱
	環境責任
環境保護	《中華人民共和國環境保護法》《中華人民共和國大氣污染防治法》《中華人民共和國城鄉規劃法》《中華人民共和國海洋環境保護法》《中華人民共和國節約能源法》等
	產品責任
產品與服務	《中華人民共和國會計法》《中華人民共和國公司法》《中華人民共和國憲法》《中華人民共和國產品質量法》《中華人民共和國海關法》《中華人民共和國計量法》《中華人民共和國對外貿易法》《中華人民共和國反不正當競爭法》關於化學品註冊、評估、許可和限制(簡稱「REACH」)系列法規、Waste Electrical and Electronic Equipment (WEEE)、關於限制在電子電器設備中使用某些有害成分的指令(簡稱「RoHS」)等
信息安全與隱私保護	《中華人民共和國網絡安全法》《中華人民共和國密碼法》《商用密碼管理條例》《中華人民共和國個人信息保護法》
知識產權保護	《中華人民共和國專利法》《中華人民共和國著作權法》《中華人民共和國商標法》等
	員工責任
員工僱傭	《中華人民共和國勞動合同法》《中華人民共和國婦女權益保障法》《中華人民共和國就業促進法》《中華人民共和國社會保險法》《中華人民共和國民法典》《中華人民共和國勞動法》《中華人民共和國刑法》《健康保險管理辦法》《失業保險金申領發放辦法》等
職業健康與安全	《中華人民共和國職業病防治法》《中華人民共和國安全生產法》《工傷保險條例》等
	公司治理
公司治理	《中華人民共和國公司法》《中華人民共和國證券法》等

7.3 對標索引

香港聯合交易所《環境、社會及管治報告指引》(2023年12月31日起生效版)

B部分：強制披露規定

強制披露項	報告章節
管治架構	1.ESG管理體系
匯報原則	7.5報告編製原則
匯報範圍	7.4報告編製說明

C部分：「不遵守就解釋」條文

層面、一般披露及關鍵績效指標	披露章節
主要範疇A.環境	
層面A1.排放物	
一般披露A1	2.5排放物與廢棄物管理
KPI A1.1	7.1量化績效
KPI A1.2	2.5排放物與廢棄物管理 2.3氣候變化減緩與適應 7.1量化績效
KPI A1.3	7.1量化績效
KPI A1.4	7.1量化績效
KPI A1.5	2.5排放物與廢棄物管理 1.2ESG管理策略與目標
KPI A1.6	2.5排放物與廢棄物管理 1.2ESG管理策略與目標
層面A2.資源使用	
一般披露A2	2.2能源管理 2.4水資源管理
KPI A2.1	7.1量化績效
KPI A2.2	7.1量化績效
KPI A2.3	2.2能源管理 1.2ESG管理策略與目標
KPI A2.4	2.4水資源管理 1.2ESG管理策略與目標
KPI A2.5	7.1量化績效
層面A3.環境及天然資源	
一般披露A3	2.2能源管理 2.4水資源管理
KPI A3.1	2.2能源管理 2.4水資源管理
層面A4.應對氣候變化	
一般披露A4	2.3氣候變化減緩與適應
KPI A4.1	2.3氣候變化減緩與適應

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層面、一般披露及關鍵績效指標	披露章節
主要範疇B.社會僱佣及勞工常規	
層面B1.僱佣	
一般披露B1	3.1員工權益及福利
KPI B1.1	7.1量化績效
KPI B1.2	3.3員工發展與培訓
層面B2.健康與安全	
一般披露B2	3.2員工健康與安全
KPI B2.1	7.1量化績效
KPI B2.2	7.1量化績效
KPI B2.3	3.2員工健康與安全
層面B3.發展及培訓	
一般披露B3	3.3員工發展與培訓
KPI B3.1	7.1量化績效
KPI B3.2	7.1量化績效
層面B4.勞工準則	
一般披露B4	3.1員工權益與福利
KPI B4.1	3.1員工權益與福利
KPI B4.2	3.1員工權益與福利
主要範疇B.社會營運慣例	
層面B5.供應鏈管理	
一般披露B5	5.1責任價值鏈
KPI B5.1	7.1量化績效
KPI B5.2	5.1責任價值鏈
KPI B5.3	5.1責任價值鏈
KPI B5.4	5.1責任價值鏈
層面B6.產品責任	
一般披露B6	4.2產品質量與安全 4.3客戶關係管理
KPI B6.1	7.1量化績效
KPI B6.2	4.3客戶關係管理 7.1量化績效
KPI B6.3	4.3客戶關係管理
KPI B6.4	4.3客戶關係管理
KPI B6.5	4.3客戶關係管理

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層面、一般披露及關鍵績效指標	披露章節
層面B7.反貪污	
一般披露B7	5.2反貪污與賄賂
KPI B7.1	7.1量化績效
KPI B7.2	5.2反貪污與賄賂
KPI B7.3	5.2反貪污與賄賂
層面B8.社區投資	
一般披露B8	6.2志願服務與公益慈善
KPI B8.1	6.2志願服務與公益慈善
KPI B8.2	7.1量化績效

《上海證券交易所科創板股票上市規則》(2023年8月修訂)

披露要求		報告章節
4.4.1	綜述	1 ESG管理體系
4.4.2	環境保護責任	2環境責任
4.4.2(一)	遵守環境保護法律法規與行業標準	2.1環境管理體系
4.4.2(二)	制訂執行公司環境保護計劃	2.1環境管理體系
4.4.2(三)	高效使用能源、水資源、原材料等自然資源	2.4資源管理
4.4.2(四)	合規處置污染物	2.5排放物與廢棄物管理
4.4.2(五)	建設運行有效的污染防治設施;	2.1環境管理體系 2.5排放物與廢棄物管理
4.4.2(六)	足額繳納環境保護相關稅費	2.1環境管理體系
4.4.2(七)	保障供應鏈環境安全	5.1責任價值鏈
4.4.2(八)	其他應當履行的環境保護責任事項	2.1環境管理體系
4.4.3	生產及產品安全保障責任	4產品與服務
4.4.3(一)	遵守產品安全法律法規與行業標準	4.2產品質量與安全
4.4.3(二)	建立安全可靠的生產環境和生產流程	4.2產品質量與安全
4.4.3(三)	建立產品質量安全保障機制與產品安全事故應急方案	4.2產品質量與安全
4.4.3(四)	其他應當履行的生產與產品安全責任	4.1產品研發與創新 4.2產品質量與安全 4.3客戶關係管理
4.4.4	員工權益保障責任	3員工責任
4.4.4(一)	建立員工聘用解僱、薪酬福利、社會保險、工作時間等管理制度及違規處理措施	3.1員工權益與福利
4.4.4(二)	建立防範職業性危害的工作環境與配套安全措施	3.2員工健康與安全
4.4.4(三)	開展必要的員工知識和職業技能培訓	3.3員工發展與培訓
4.4.4(四)	其他應當履行的員工權益保護責任	3.1員工權益與福利
4.4.5	科學倫理	4.1產品研發與創新

2023年度環境、社會及管治報告

《上海市證券交易所科創板上市公司自律監管指引第2號 – 自願信息披露》(2022年修訂)

	條款及披露內容	報告章節
(六) – 1	研發基本情況	4.1產品研發與創新、6.1行業發展
(六) – 2	研發可行性	2.6綠色產品、4.1產品研發與創新
(六) – 3	必要的風險提示	5.3風險管理
(六) – 4	研發對公司的影響	2.6綠色產品、4.1產品研發與創新
(十四) – 1	環境責任	2.1環境管理體系、2.2能源管理、2.3氣候變化減緩與適應、2.4資源管理、2.5排放物與廢棄物管理
(十四) – 2	員工保護與發展	3.1員工權益與福利、3.2員工健康與安全、3.3員工發展與培訓
(十四) – 3	產品安全、合規經營、公益活動	4.1產品質量與安全、5.4合規運營、5.5公司治理、6.2志願服務與公益慈善
(十四) – 4	公司治理和投資者保護	5.5公司治理

7.4 報告編製說明

本報告是華虹半導體有限公司第8份《環境、社會及管治報告》，向投資者等利益相關方披露了公司在經營中對於ESG議題所秉持的理念、建立的管理方法、推行的工作與達到的成效。

報告範圍

本報告範圍涵蓋華虹半導體有限公司及其子公司(簡稱「華虹半導體」或「公司」)。除非特別說明，與華虹半導體(股票代碼：01347.HK/688347.SH)同期合併財務報表範圍一致。

報告期間

本報告期間為2023年1月1日至2023年12月31日。本報告中的數據如無特別說明，均為此期間內數據。

2023年度環境、社會及管治報告

編製依據
本報告依據香港證券交易所刊發的《上市規則》附錄C2《環境、社會及管治報告指引》(2023年12月31日起生效版)，並參考《上海市證券交易所科創板股票上市規則》(2023年8月修訂)以及《上海市證券交易所科創板上市公司自律監管指引第2號 — 自願信息披露》(2022年修訂)編製。

數據說明
報告中數據和案例來自公司實際運行的正式記錄。

報告中的財務數據均以人民幣為單位。財務數據與公司年度財務報告不符的，以年度財務報告為準。

報告獲取方式
本報告通過電子版形式發布，發布平台包括公司官方網站(公司官網：https://www.huahonggrace.com)

聯繫我們
如對報告有建議，可通過以下方式與我們聯繫：

聯繫地址：中國上海市張江高科技園區哈雷路288號
聯繫郵箱：IR@hhgrace.com

7.5 報告編製原則

- 重要性
  公司識別出投資者等利益相關方關注的與經營相關的實質性議題，作為本報告匯報重點。本報告中對實質性議題的匯報同時關注公司運營涉及的行業特徵以及所在地區特徵。實質性議題的分析過程及結果詳見本報告「ESG管理體系」章節。同時，本報告對環境、社會及管治方面可能對投資人及其他相關方產生重要影響的事項進行重點匯報。

- 準確性
  本報告盡可能確保信息準確。其中，定量信息的測算已說明數據口徑、計算依據與假定條件，以保證計算誤差範圍不會對信息使用者造成誤導性影響。定量信息及附註信息詳見本報告章節。

  董事會對報告的內容進行保證，不存在虛假記載、誤導性陳述或重大遺漏。

2023年度環境、社會及管治報告

- 平衡性
  本報告內容反映客觀事實，對涉及公司正面、負面的信息均予以不偏不倚地披露。公司對本報告範圍內的對象，通過上海青悅信用數據庫開展檢索，在報告期間內未發現應當披露而未披露的負面事件。

- 清晰性
  本報告以簡體中文發布。本報告中包含表格、模型圖等信息，作為本報告中文字內容的輔助，便於利益相關方更好地理解報告中文字內容。為便於利益相關方更快獲取信息，本報告提供目錄及ESG標準的對標索引表。

- 量化及一致性
  本報告披露關鍵定量績效指標，並盡可能披露歷史數據。本報告對同一指標在不同報告期內的統計及披露方式保持一致；若統計及披露方式有更改，在報告附註中予以充分說明，以便利益相關方進行有意義的分析，評估公司ESG績效水平發展趨勢。具體請見本報告「量化績效」章節。

- 完整性
  本報告披露對象範圍涵蓋與公司合併財務報表範圍保持一致。

- 時效性
  本報告為年度報告，覆蓋時間範圍為2023年1月1日至2023年12月31日公司盡力在報告年度結束後盡快發布報告，為利益相關方決策提供及時的信息參考。

- 可驗證性
  本報告中案例和數據來自公司實際運行的原始記錄或財務報告。公司採用HiESG績效管理系統管理歷年ESG量化績效，所披露數據來源及計算過程均可追溯，可用於支持外部鑑證工作檢查。