

Green Products

Sustainable Products

- We continuously develop new technologies to assist our customers in producing energy-efficient products.

We are committed to the development of new technologies and we continue to introduce high-performance technology platforms to produce more energy-efficient and energy-saving products for the semiconductor communication industry. We develop products based on the evolution of our customers' related products in different communication sectors, such as mobile phones, wireless networks, radars, and satellites. We contribute to global energy conservation and electricity consumption reduction with the continuous support of customers and adoption by consumers.

Process technology	Product applications	Innovation / Breakthrough	Customer success stories
50V 0.25-micron GaN HEMTs for microwave applications	Base stations, defense, point-to-point communications	Optimized module surface coverings and epitaxial structures	Delivering products with superior power and efficiency
28V 120 nm GaN HEMTs for microwave applications	Defense, point-to-point communications	Optimizing component gate-source process and gain performance	Delivering products with superior power and efficiency
Highly durable 7-gen GaAs HBT for mobile communication applications	5G communication, Wi-Fi	Assisting customers with new product validation	Delivering products with superior power and efficiency
LB/MB surface acoustic wave filter process technology	5G communication, Wi-Fi	Research and development of highly uniform and reproducible processes that help customers rapidly transition to mass production	Rolling out products with high efficiency and advanced features
Front Emitting VCSEL technology for 3D sensing	Consumer electronics, smart driving	Helping customers use 3D sensing technology for more devices	Rolling out products with high efficiency and advanced features
25G/50G APD Technology for Data Center Applications	5G communication, data center	Assisting customers in validating detectors with high sensitivity, fast response, and low dark current	Rolling out products with high efficiency and advanced features
Long-wavelength LD and PD for sensing applications	Smart driving, defense	Assisting customers with new SWIR product validation	Rolling out products with high efficiency and advanced features
High-speed InP edge-emitting laser component for telecom fiber transmission applications	Fiber optic communication	Developing high-speed, high-reliability laser light source	Rolling out products with high efficiency and advanced features

• **More Advanced and Efficient Technology Platform**

WIN holds a leading position in the compound semiconductor sector and continues to launch advanced process technologies. We use a diverse range of technology platforms that cover communication product applications in a wide range of frequencies. We also use outstanding process integration to help customers develop communication and consumer electronic products. In response to the global impact of global warming, WIN plays an important role in energy conservation and carbon reduction for the world in various types of high-performance technology platforms. We also improve multi-functional chip integration and increase the chip density to enhance customers' competitive advantages and launch strong and high-performance products.

In terms of consumer electronics, the technology platforms of each generation have improved and the next-generation technologies are becoming more energy-efficient compared to the first generation. 5G communication applications, as it enters higher frequency fields, can transmit a larger amount of data. The efficient evolution of technology platforms is our ongoing goal.

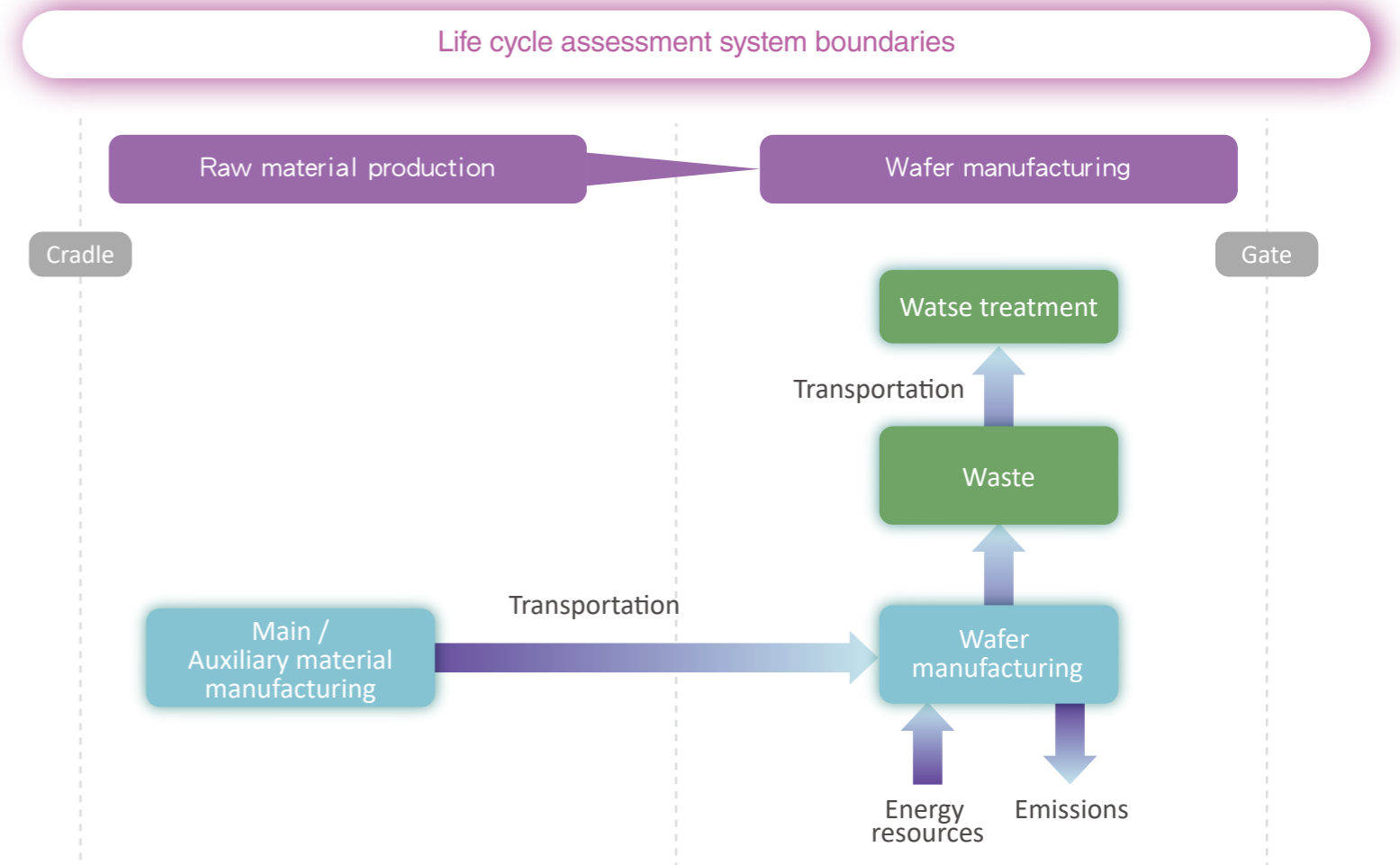
In addition to the aforementioned consumer products, we also have related technology platforms for applications such as radar, low Earth orbit satellites, and point-to-point transmission, which promote and enhance long-distance transmission and communication coverage. As they are updated, their performance has increased and we also enhance the competitive advantages of customers' products.

• **Social Contribution Responsibility**

Smart-phones, public infrastructure, and related communication hardware facilities make life more convenient for the public. They also accelerate the exchange of information and knowledge between people which becomes even more critical during emergencies. WIN helps customers produce new products in all communication sectors which facilitates improvements in communication and benefits future societies. By integrating WIN's multi-functional chips, reducing the critical dimension of technology platforms, and improving process capabilities, we greatly reduce wafer manufacturing quantity and the dimensions of electronic products to protect the Earth's environment to promote energy conservation, carbon reduction, and common prosperity for both customers and WIN.

► **Life Cycle Assessment, Carbon Footprint, Water Footprint**

Energy and environmental issues are taking center stage, with increasing demand for sustainable business practices and environmental impact disclosure. To meet these demands, WIN follows ISO 14040, ISO 14067, and ISO 14046 standards to calculate product carbon footprint and water footprint and to employ life cycle assessment tools to assess at various stages of environmental impacts throughout the entire production process, from raw material production to wafer manufacturing finished (cradle-to-gate). These results are then used to formulate strategies and measures for environmental improvement. WIN plans to obtain third-party certification in the second half of 2023.



► Product Accountability

To meet international green procurement trends and customer demand, WIN fulfills product responsibilities, establishes comprehensive management systems, and discloses information on the official website for reference by customers. We provide customers and consumers with products that conform to international green environmental protection regulations.

• Product Safety and Hazardous Substance Management

To comply with the expectations of customers and stakeholders, WIN has established hazardous substance-free management procedures, actively checked the ingredients of raw materials, and required all raw materials have to meet EU implemented the Restriction of Hazardous Substances Directive (RoHS) and the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH). WIN also require our products to meet the EU's regulations and other related hazardous substance-free regulations.

• Product Hazardous Substance Management

(I) Checklist of Hazardous Substances

To protect the environment and people's safety and health, WIN prohibits or restricts the purpose of use and quantity of hazardous substances in its products and raw materials, based on international directives and customer requirements. Additionally, it has formulated a hazardous substance checklist for compliance by its suppliers and employees. WIN's checklist is composed of two major categories:

- List of Substances Prohibited or Restricted in Products
- List of substances in a product for which customers have been informed

(II) New Material/New Supplier Verification

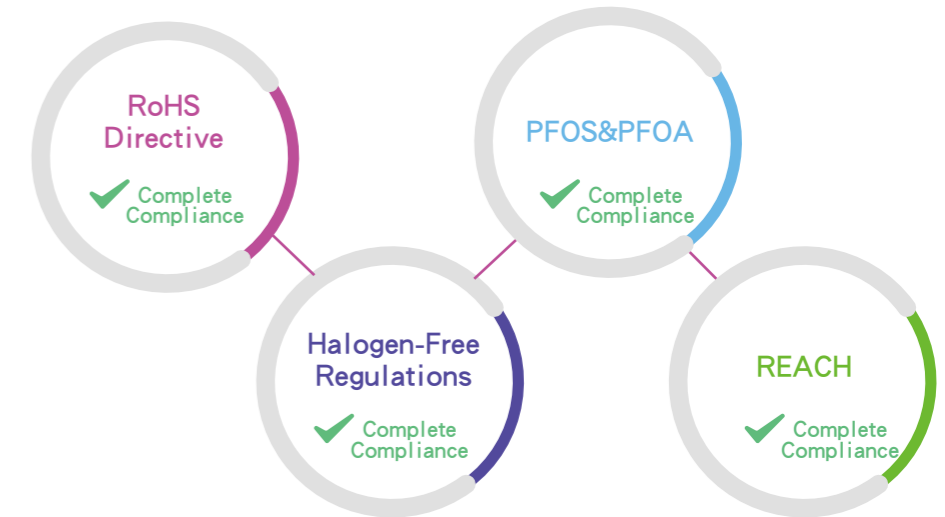
WIN specifies in purchase contracts and order forms that new material suppliers must comply with WIN's supplier management procedures, and that the provided materials may not contain hazardous substances as defined by WIN. Furthermore, suppliers must regularly provide product testing reports and undertake annual supplier assessments as requested by WIN. Regarding new materials, the Technology R&D Department must abide by WIN's hazardous substance-free management procedures when determining product specifications and selecting materials to ensure that new materials are hazardous substance-free.

(III) Supplier Evaluation

WIN requests all of its suppliers to provide a declaration of not using hazardous substances or third-party testing reports as part of the basis of evaluations which helps to ensure that the raw materials which WIN uses are free of hazardous substances.

(IV) Third-party Testing of Hazardous Substances in Products

To satisfy customers and other stakeholders' demands for HSF products, WIN products are subject to third-party testing at least once every year to ensure that all of its products are in line with international green environmental standards. Inspection items include product HSF inspections based on REACH, RoHS, PFOS & PFOA, and halogen-free regulations to ensure that all product meet international green environmental protection regulations. In 2022, all WIN products have been verified as 100% conforming to related HSF regulations, and have not caused any harm to people's physical health or environmental contamination as well.



• Information Disclosure Regarding Hazardous Substance Free by WIN

A Hazardous Substance Free (HSF) section was set up in the E-Service section on WIN's official website, providing the following information pertaining to hazardous substance free and conflicting minerals for customer access:

- Declaration for Hazardous Substance Free
- Declaration of Metal Conflict-Free
- Conflict Minerals Reporting Template
- Third-Party Product Testing Report for the Year

Customer Service

WIN's Services

Design Support Services

WIN is committed to shorten the turnaround time for our customers by developing accurate device models and variety of PDK's in cooperation with EDA vendors to provide complete design service, enhanced user-friendly design platform, and accurate circuit simulation. In addition, WIN streamlines the process flow for more efficient layout sign-off and mask tape-out service.

Foundry Services

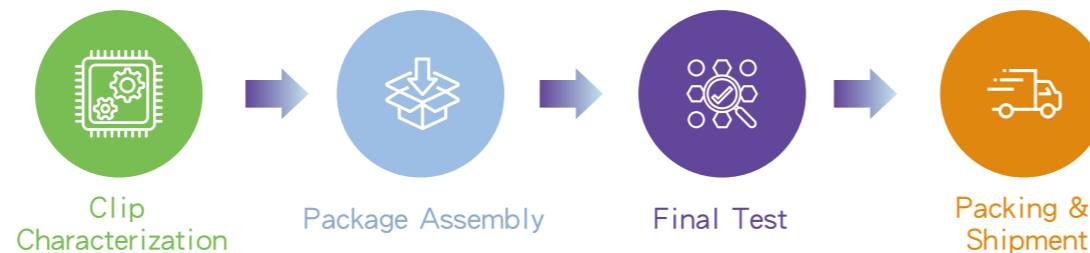
Since 2007, WIN Semiconductors Corp. is the largest 6-inch (150 mm) GaAs pure play foundry in the world. WIN has three advanced fabs with a broad range of technology providing the best quality of HBT, pHEMT, BiHEMT, GaN foundry services for MMIC application. Since 2006, WIN has operated a 4 shift 24/7 non-stop foundry service. In addition to advanced semiconductor fabrication technology, WIN also provides layout support and automated DC/RF on-wafer testing. WIN is committed to fast turnaround time, cost-effective turn-key solutions and total quality control for our valuable customers.

Testing Services

In-house wafer testing service is available from WIN for both HBT and HEMT products. The service provides standard WAT database for all customers, and offers PCM database for SPC analysis in parallel. The real time yield report generated by CIM system automatically judges if processed wafer has met shipping criteria. WIN also provides probe card making service and offers on-wafer DC/RF screening depending on specific request. The proprietary design of our probe card offers the best quality to meet customers' requirements.

High Frequency Packaging and Final Test

From foundry to assembly and final test to shorten product manufactured cycle time & supply chain management.



► Protect Customer Privacy

Customer satisfaction is one of WIN's core values. As a foundry service provider, WIN remains committed to protecting customer privacy and confidential information.

OEM service providers must qualify through rigorous and laborious customer verification procedures to obtain purchase orders from customers. As technology advances, companies' important confidential information may be stolen by malicious individuals, and leaks of confidential information may cause the loss of purchase orders and business reputation, and affect the Company's operations and development. WIN has always placed great emphasis on protecting customer privacy and we have therefore won the continuous trust of customers and provide services to more customers.

We pay close attention to customer demands for information security and restrict access to customer data and files through permissions. We have passed all information security audits implemented by customers each year. We have maintained relationships of trust with customers but we seek to do more. We shall continue to strengthen information security and exceed customer expectations. We continue to monitor our use of customer personal data and throughout year 2022, we did not use collected personal data for any secondary purposes other than the specific purposes for which the personal data was first collected. Please see the chapter about Information Security Management for information security management measures.

There has been no case of leaks of customer privacy in WIN. The Company shall continue to strengthen information protection software and hardware facilities, protect customer privacy, and ensure zero leakage of customer information.

► Customer Satisfaction

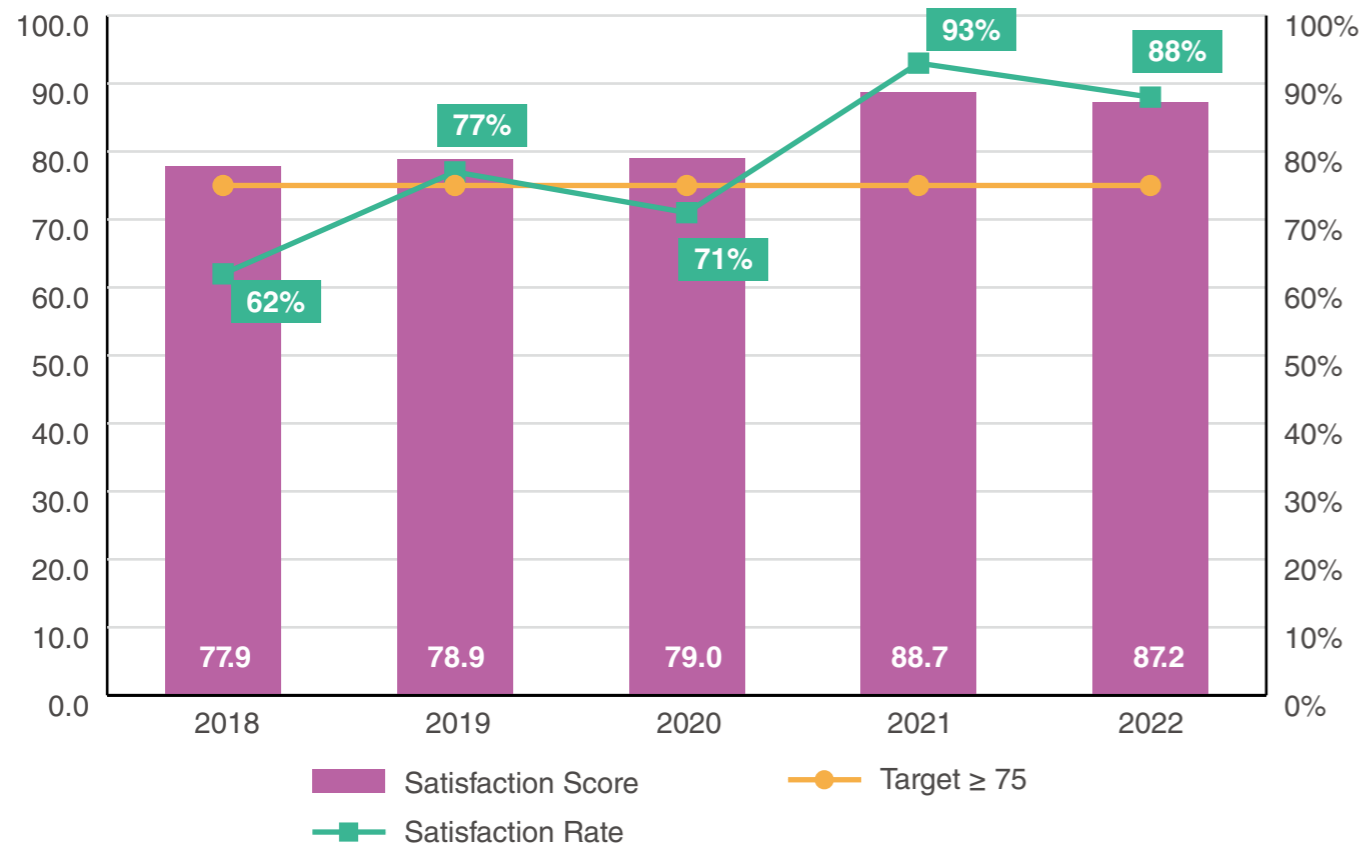
WIN is committed to the development and innovation of manufacturing technology. We pursue quality with a spirit of excellence and provide customers with high-quality products to satisfy our customers. There were no product recalls due to harm to human health and safety in 2022.

WIN has always focused on the importance of customer satisfaction. Customer feedback is the driving force for our efforts toward continuous improvements. We also adopt directions and measures derived from customer satisfaction surveys into standard operating procedures (customer satisfaction survey management procedures). We continuously research and develop our own technologies according to customer and market demands. Monthly or quarterly interviews with customers either in person or through video conferencing are conducted to adjust our internal practices, in order to improve work processes and enhance yield rates. In addition, customer satisfaction questionnaires are distributed at the beginning of every year for a comprehensive inspection of improvement goals to ensure that our performance is in line with customer needs.

A satisfaction survey was conducted in 2022, targeting the top 20 major clients of the previous year. The Sales Department distributed questionnaires, which were then collected and analyzed by the Quality Assurance Department.

WIN was evaluated by clients in five major areas: Services, Technology, Quality, Delivery, and Design Service. The evaluation utilized a 1–5-point scale, with 1 being unacceptable and 5 being highly satisfactory. For items with a score of “2” or “1,” the Quality Assurance Department will take responsibility to confirm cases of customer dissatisfaction and their causes so that improvement or proper measures can be taken to rectify any problems going forward. In 2022, WIN saw marginal decreases in ratings across five key dimensions. Notably in Services & Delivery, a variance between actual orders and sales forecasts necessitated the allocation of production capacity to optimize customer order fulfillment, leading to customer dissatisfaction with delivery times. Moving forward, WIN will request accurate sales forecasts from clients to mitigate any impact on their satisfaction. To boost ratings in Technology, Quality, and Design Service, WIN will continue to introduce newly developed technologies to clients, affording ample opportunity for WIN's quality to shine through, and strive to heighten client contentment with ongoing process improvement initiatives.

Customer satisfaction survey statistics



Note: Satisfaction Rate=Number of satisfied customers/ Total number of customers responding to the survey.

Customer satisfaction questionnaire survey items

Survey Items		Analytical Year				
		2018	2019	2020	2021	2022
Service (7%)	Sales Support	4.2	4.4	4.5	4.7	4.6
	Technical Support	4.3	4.3	4.5	4.6	4.4
	Logistics Support	4.3	4.4	4.4	4.7	4.6
	Price	2.5	3.2	3.4	3.3	3.2
Technology (6%)	Performance/Competitiveness	4.5	4.4	4.1	4.8	4.5
	Roadmap	4.2	4.3	3.9	4.6	4.4
Quality (45%)	Yield	3.6	3.6	3.8	4.1	4.1
	Reliability	4.1	3.7	4.1	4.4	4.1
	Quality System	3.8	4.0	3.5	4.2	4.1
	Customer Complaint	N	3.8	4.2	4.6	4.2
	HSF system	4.5	4.1	4.2	4.5	4.6
Delivery (35%)	Acknowledged PO Time	N	4.1	4.2	4.6	4.7
	Update Delivery Ahead of Time	N	4.0	4.0	4.6	4.4
	On Time Delivery	3.8	4.0	3.9	4.5	4.8
	Lead Time	3.2	3.6	3.3	4.2	4.2
Design Service (7%)	Layout Sign-off Service	4.2	4.4	4.4	4.7	4.6
	Device Model	3.8	3.7	4.0	4.5	4.4
	PDK(ADS/MWO/Cadence)	4.2	3.5	4.0	4.3	4.4
	Measurement Support	4.3	3.9	3.9	4.5	4.5
	Design Kit Content & Completeness	4.0	3.9	4.1	4.5	4.5
Average		3.9	3.9	3.9	4.4	4.4
Score		77.9	78.9	79.0	88.7	87.2