

Resistors And Resistive Applications

COMPANY INTRODUCTION 



RARA Electronics L.L.C

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- Introduction
- Vision
- Milestones
- Organization
- Sales Amount

2 Technology

- Major products
- Other products
- Road Map
- Certification

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- Customers
- Global Customers
- Overseas Distributors
- Business strategy

01

Company Overview

- Introduction
- Vision
- Milestones
- Organization
- Sales Amount



Introduction

Year of Foundation	1989
President	S. G. Kim
No. of Employee	60
Sales amount	US\$ 10,000,000 (2023)
Location	21691 (100BL-11L) 666-19, Gojan-Dong, Namdong-Gu, Incheon, Korea
Aggregate Capital	US\$8,500,000 (2023)
Capital	US\$ 500,000
Business Field	Industrial Resistors Manufacturer, Exporter, Importer for High Precision & High Reliability Products
Products	Metal Clad Resistors, Current Sensing Resistors, Precision Resistors, Thick Film Heaters, High Voltage Resistors





Mission

By delivering top notch services and solutions, we facilitate joint success for both our customers and team members, fostering a collaborative environment of achievement.

Vision

Our aim is to become the most competitive industrial resistor producer worldwide.

Core Value

- Adherence to strict industry standards.
- Diligence.
- Continuous development
- Kindness and consideration

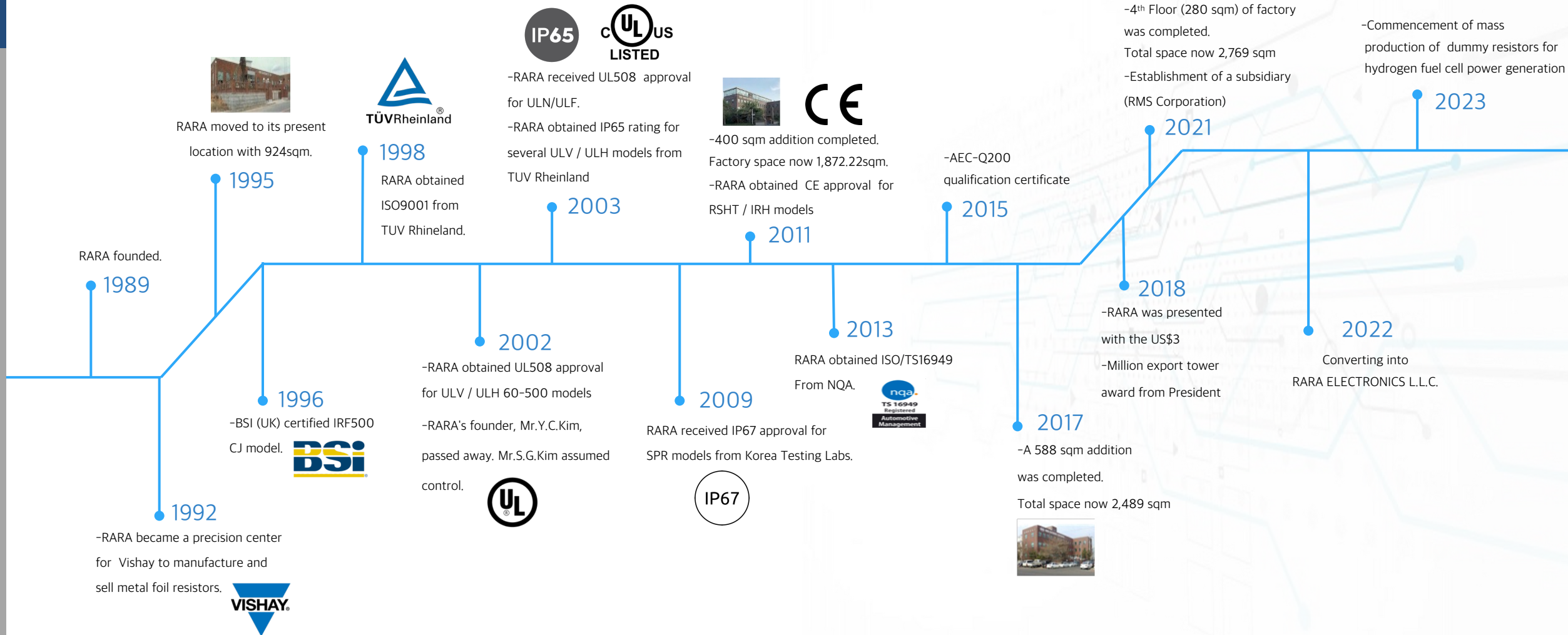


Company Overview

Milestone

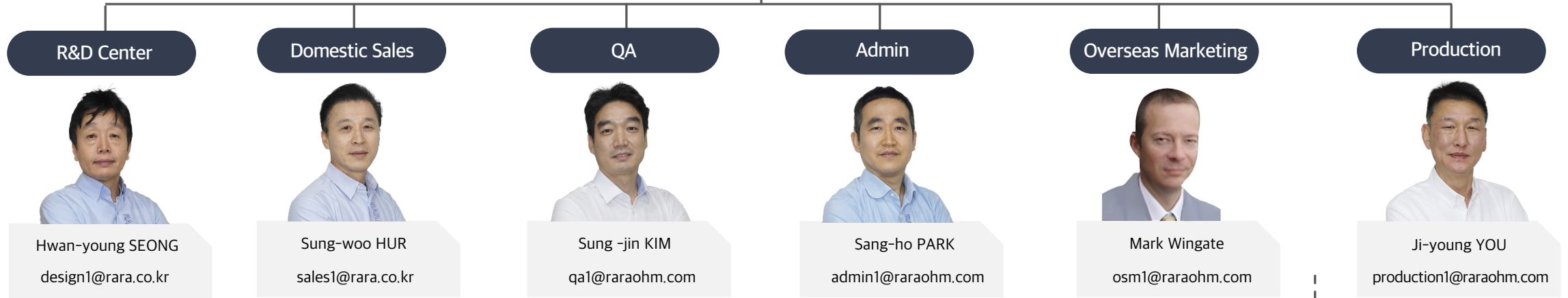
Technology

Network





CEO S.G.KIM
sg@raraohm.com



RMS CEO
Hyerin Kim
hyerin@rmsohm.com



R&D Center



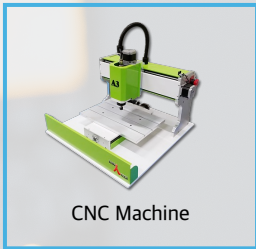
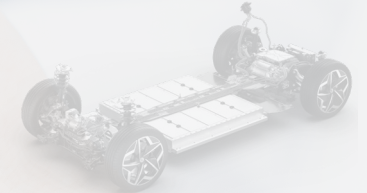
Hwan-young SEONG
 design1@rara.co.kr
 Product development and design OO Electronics,
 Convergence support project
 Carried out multiple government support
 projects and product development
 B.E.: Information and Communication
 Engineering



Tae-Hyun KIM
 design3@rara.co.kr
 Product development and design Participated
 in development project, such as UHPS
 B.E.: Electronic Engineering



Yun-Ho Namgung
 design4@rara.co.kr
 Product development and design Participated in
 development project, such as International
 Standards Certification Support project
 B.E.: Electronic Engineering



CNC Machine



AC, DC Power Supply



ESS DC Power Supply



CCFL DC Power Supply



DC Power Supply



Heating chamber



cooling chamber



Oil bath



Vidio Micro scope



PRESSURE COOKER
(PCT CHAMBER)



Hole CT



Pre-Charge and
Dis-Charge Tester



Vacuum Soldering
Equipment

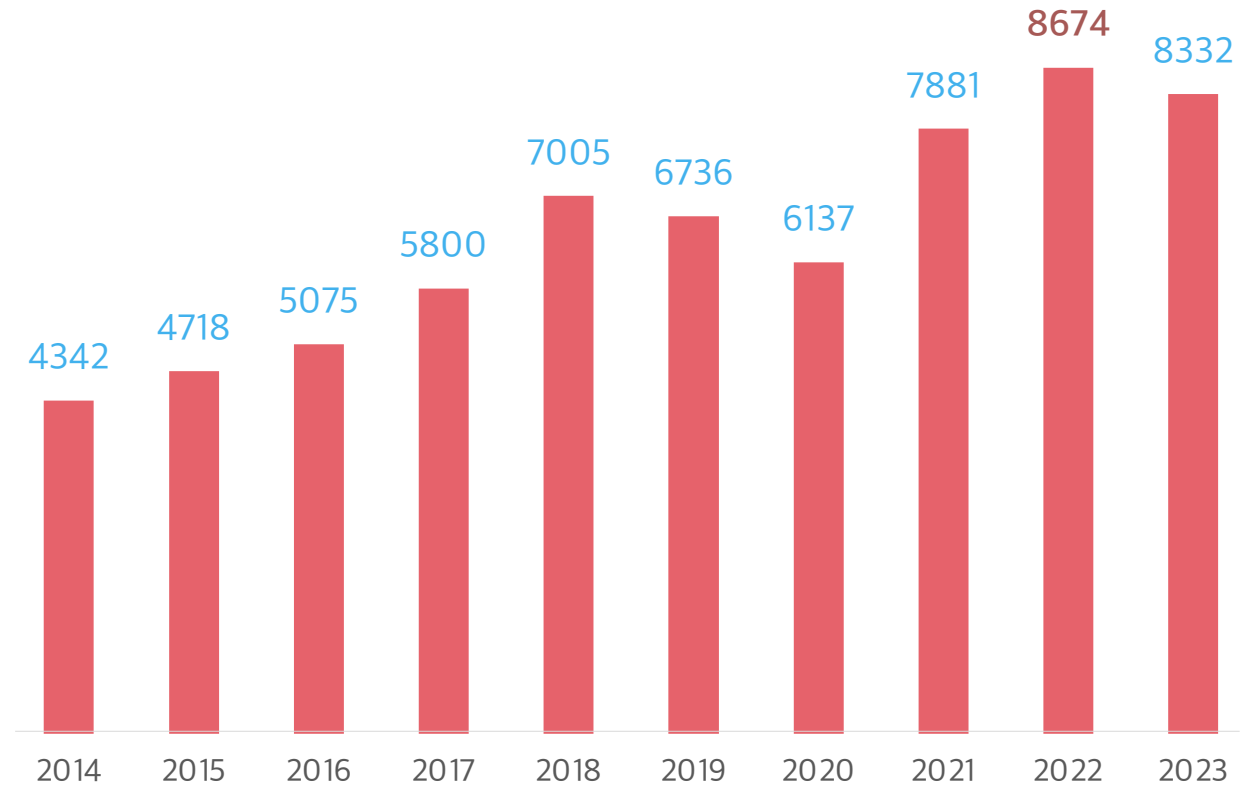


A Thermo Hygrostat



DOMESTIC SALES

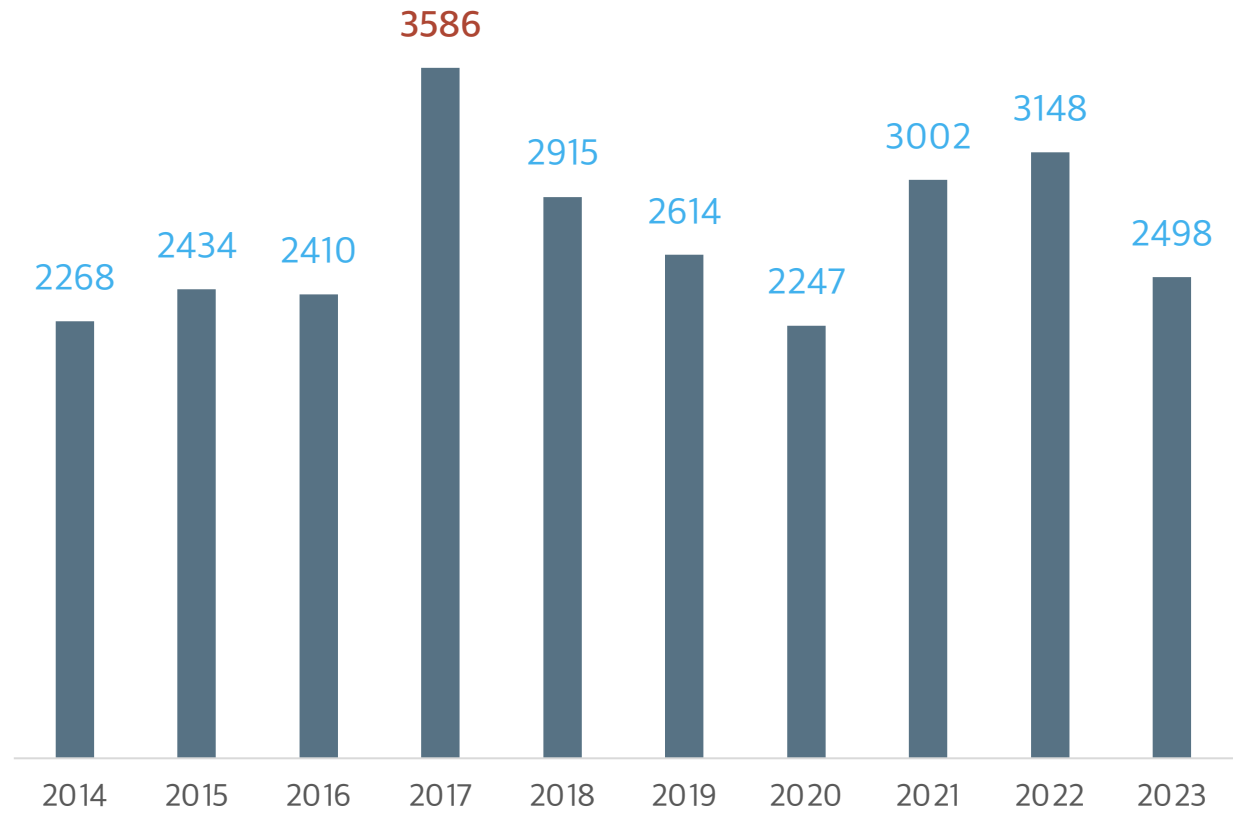
(Unit:1,000,000KRW)





EXPORT SALES

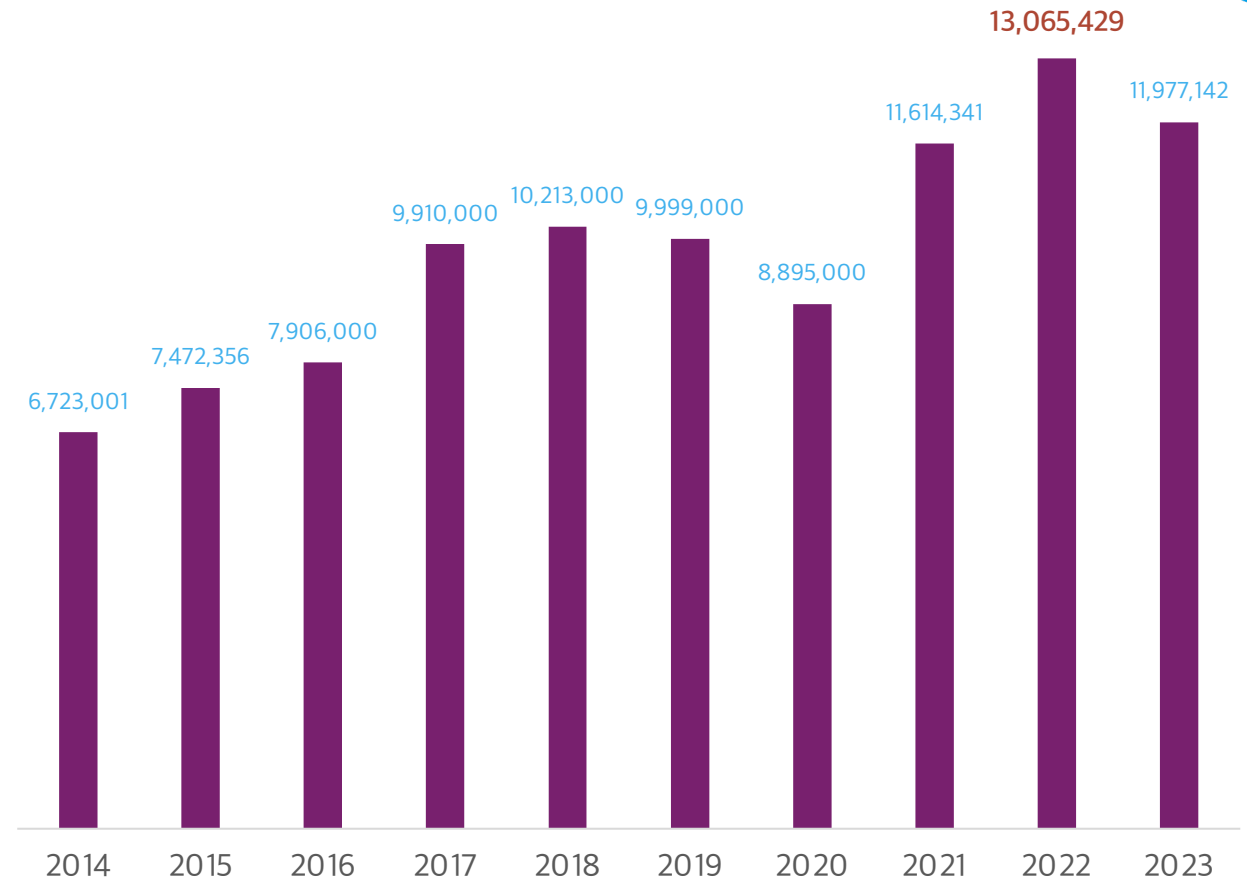
(Unit:\$1,000)





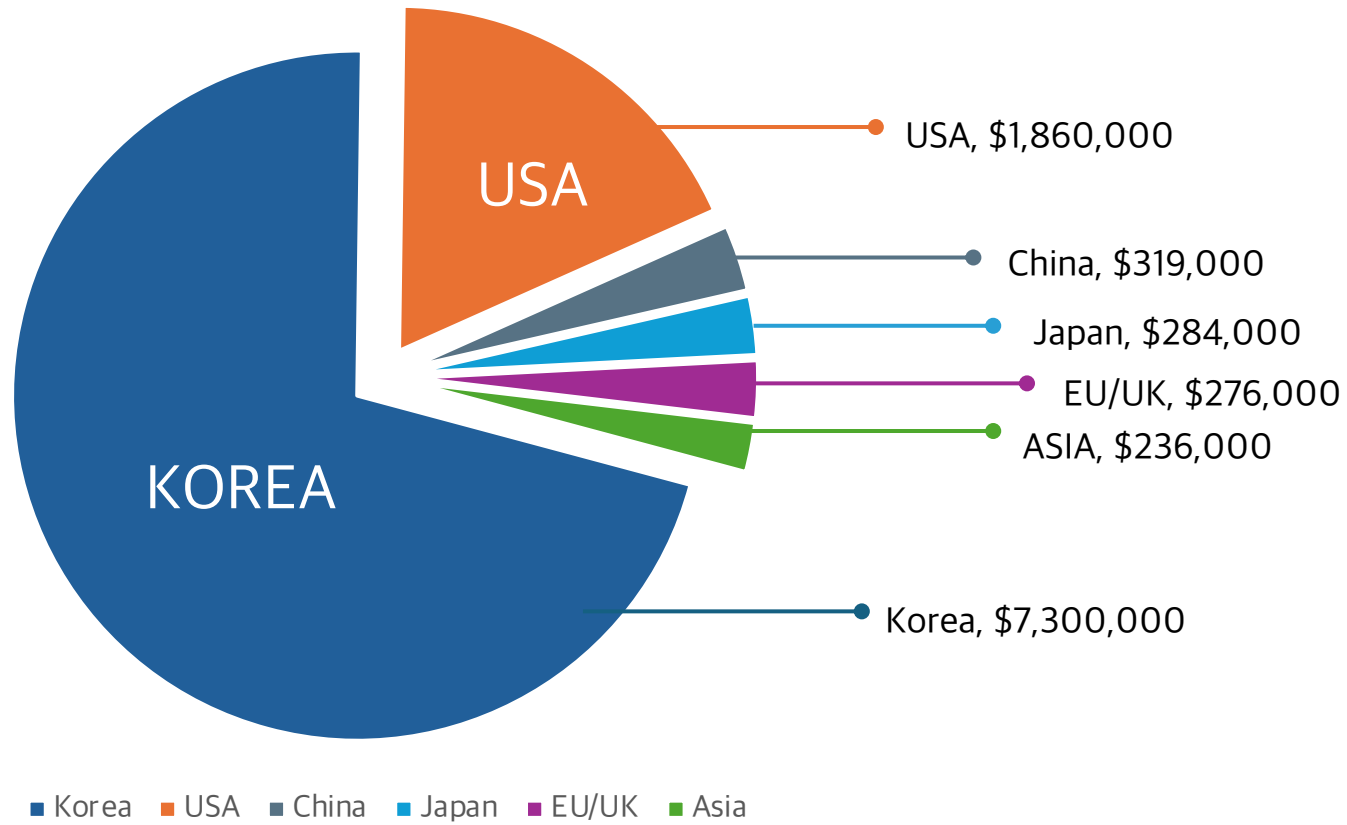
TOTAL SALES

(Unit:1,000KRW)



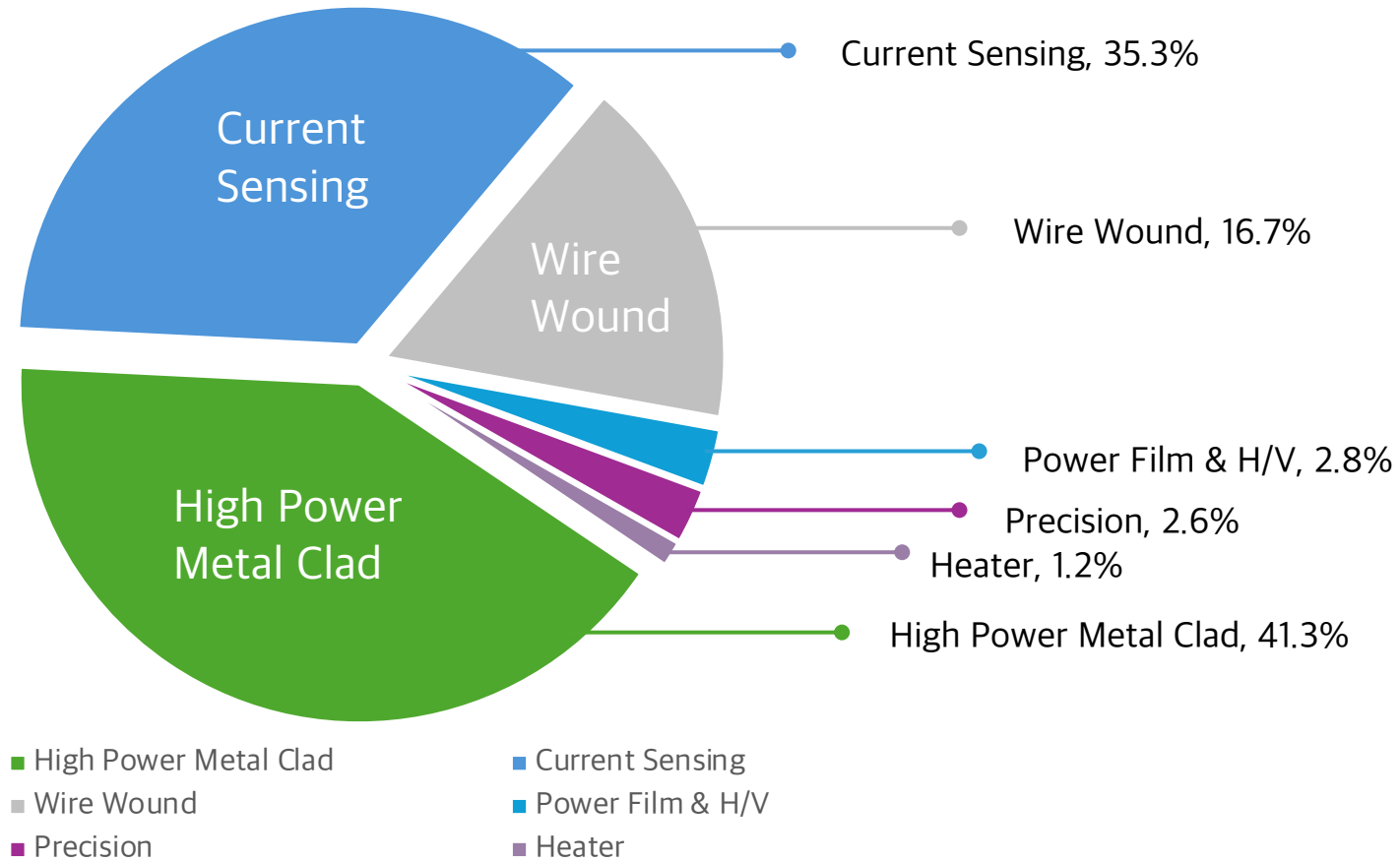


SALES BY REGION



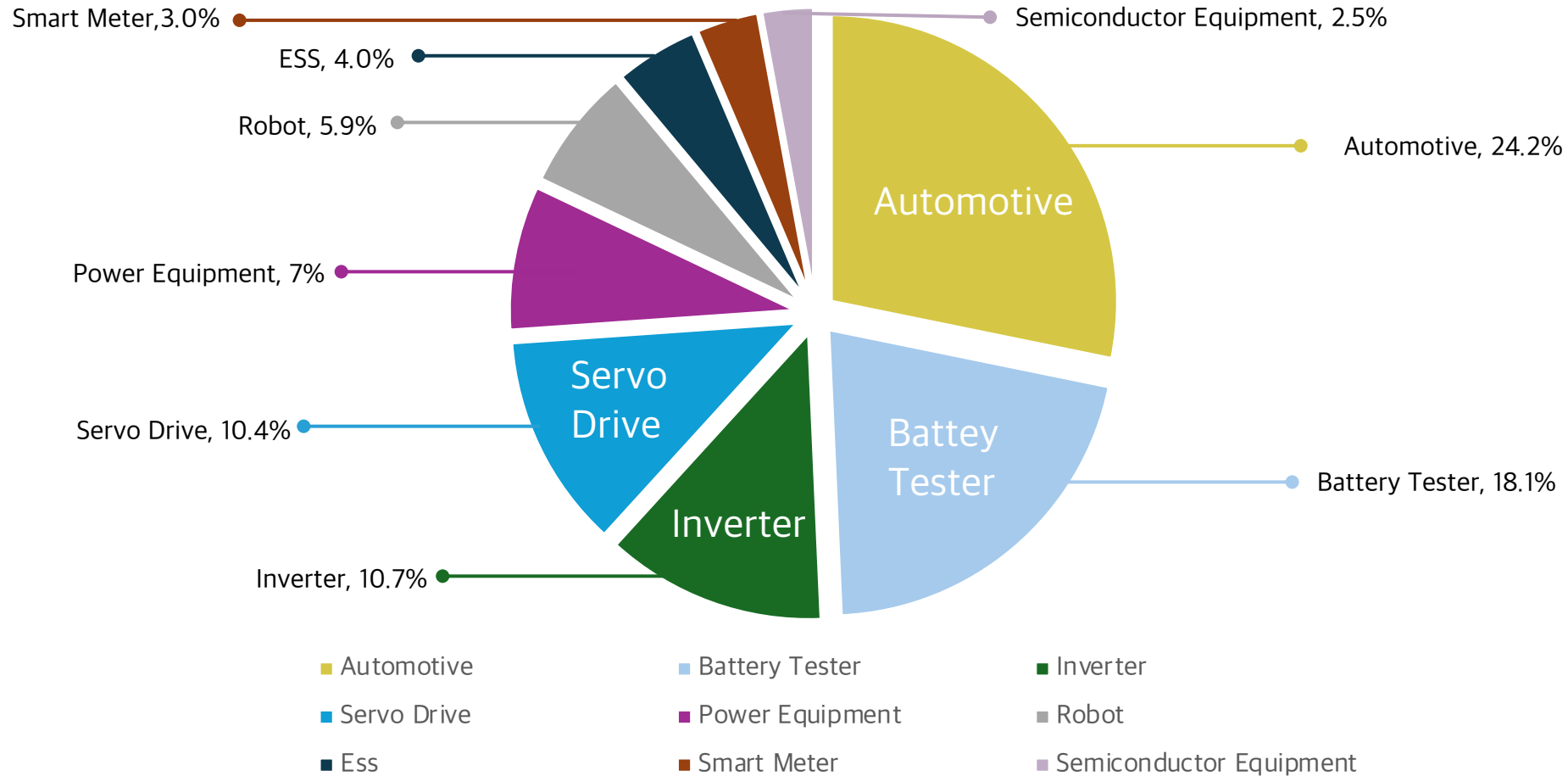


SALES BY PRODUCT





SALES BY MARKET



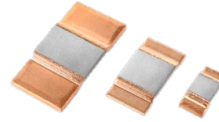
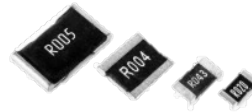
02

Technology

- Major Products
- Other Products
- Road Map
- Certification

RARA Resistor Lines : **Current Sensing Resistor**

Current Sensing Resistor



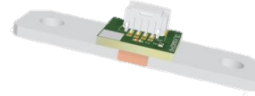

- *Rated Current: 1A~270A
- *TCR down to $\pm 25 \sim \pm 200 \text{PPM}/^\circ\text{C}$
- *Tolerance: $\pm 0.5\% \sim \pm 5\%$

Mold assembly



- *Rated Current: 10A~1,400A
- *TCR down to $\pm 3 \text{PPM}/^\circ\text{C}$
- *Tight tolerance down to $\pm 0.05\%$
- *Life stability: $\pm 0.1\%$

Bus bar assembly




- *Rated Current: 15A~1,000A
- *TCR down to $\pm 50, \pm 100 \text{PPM}/^\circ\text{C}$
- *Tolerance: $\pm 0.5\% \sim \pm 5\%$

Bolt mounted assembly



- *Rated Current: 10A~12,000A
- *T.C.R.: $\pm 40 \sim 100 \text{PPM}/^\circ\text{C}$
- *Accuracy: $\pm 0.1\% \sim \pm 5\%$



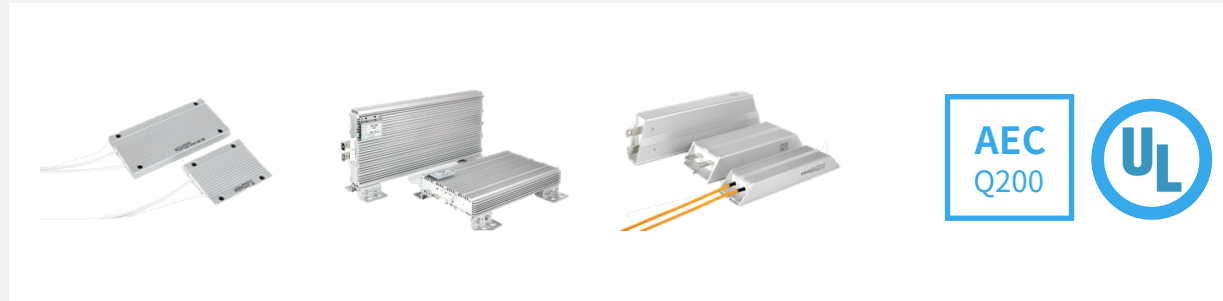
RARA Resistor Lines : **Metal clad Resistor**

Power type



- *Resistance range: 0.1ohm~50kohm
- *Ratad Power 5W ~ 200W
- *TCR: $\pm 40 \sim \pm 260$ PPM/ $^{\circ}$ C.

High Power type



- *Resistance range: 0.1ohm~9kohm
- *Ratad Power 30W ~ 4kW
- *TCR: $\pm 100, \pm 260$ PPM/ $^{\circ}$ C.

Assembly type



- *Resistance range: 0.1ohm~15kohm
- *Ratad. Power 80W ~ 8.5KW
- *TCR: $\pm 100, \pm 260$ PPM/ $^{\circ}$ C



High power metal clad resistors



RH



IRF/IRN



IRH/IRV



IRM



MBH/MBV



LCA



Applications



NC tooling machines



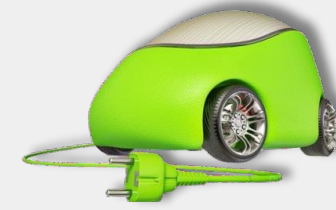
Chip mouter



Robot



Inverter&Servo drive



Electric Vehicles



Solar Power System



Wind Turbine System



ESS



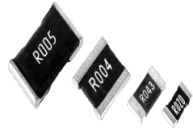
Crane



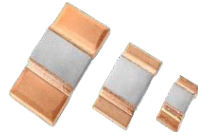
High speed train



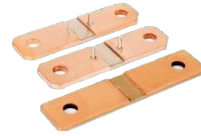
Shunt Resistors



LR



ECS



TCS(60A-350A)



HPCR-4T(65A)



HPS(250W)



IRH200F



Applications



Panel meters



Smart Concent



HEV, EV



BLDC Motor Drivers



E-Bike



Smart metering



Power tools



E-Scooter



Battery Tester



Precision



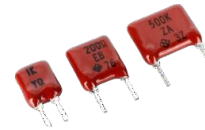
ARO210~AR2512



MFR1/8W~3W



MFD1/4W~1/2W



TP1/4W



TNP5W~10W



Applications



Load cell



Indicator



Electronic Scale



Measurement Equipment



Battery Tester



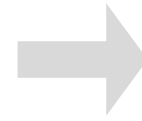
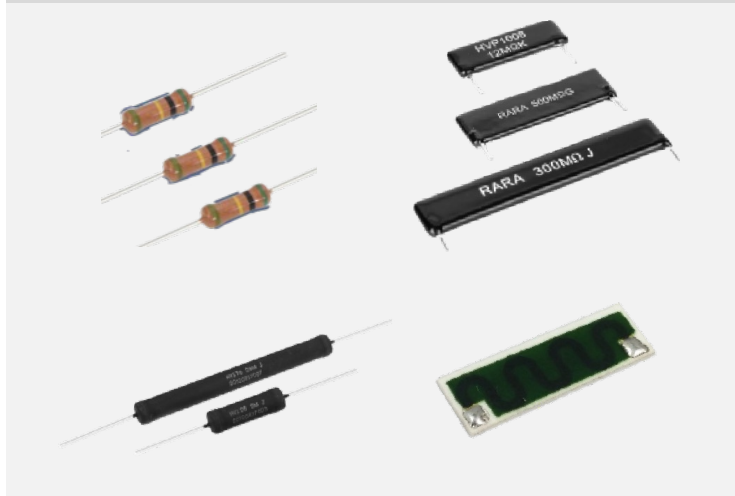
LED Tester



Semiconductor Tester



High Voltage Resistors



Applications



Medical equipment



Electric Potential Therapy Equipment

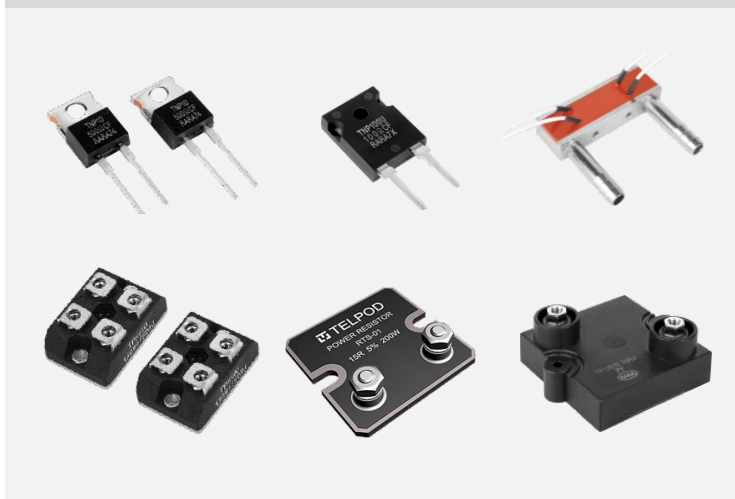


Gas Insulated Switch gear



High Voltage Power

Power Film Resistors



Applications



Converter of Train



Induction Furnace



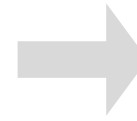
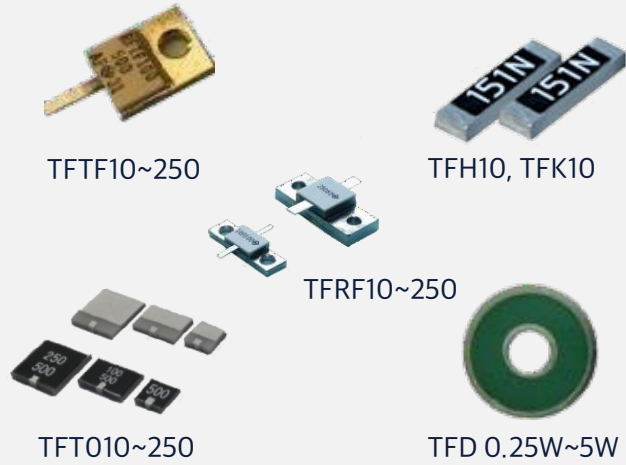
Power Supply



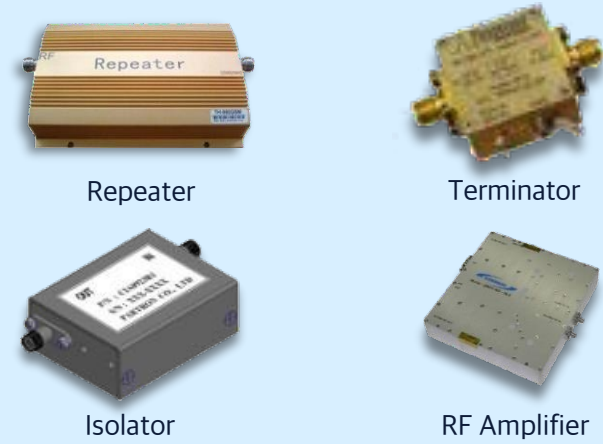
RF Generator



RF Resistors



Applications



Custom Designed Resistors



Applications





High power Resistors



NGR



RLB



Applications



Power Supply



Transformer

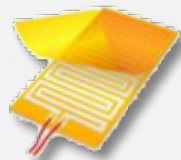


Crane Inverter



Generator

Heaters



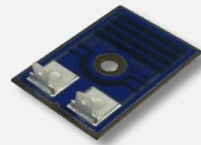
Laminated Kapton Heaters



PTC Heaters



Mica Heaters



Thick film heaters



Applications



CCTV



Thermal Massager



Switchboard



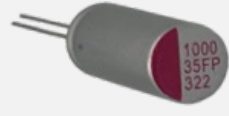
Heating & Keeping Warm



ECAP



Snap-in



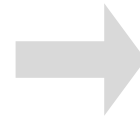
Polymer_Hybrid



SMD



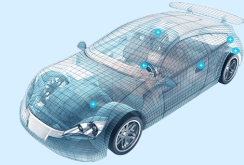
Radial



Applications



Photovoltaic inverter



automotive electronic system



LTE Module



Audio System

FAN



DC AXIAL FANS



AC Fans



Accessories



DC Blowers



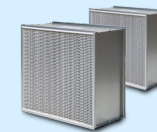
Applications



Wind power generator inverter



power supply unit



Filter



HVAC



YEAR	2022	2023 ~ 2024	2025	2026
General	LPS Series Expansion of Production-Feasible Resistance Range	HPS Expansion of Production-Feasible Resistance Range	High precision & high power Resist Product Design and Development	Ultra precision Product Design and Development
Hydrogen Fuel cell	Project open	Prototype Sample Manufacturing Reliability Testing	Begin Mass Production	
Certification	Expansion of UL Certification	Expansion of CE Certification		

Steps in Customer-Special Product Process

Requirement Gathering => Planning and Design ↔ Customer approval



Prototype Development => Reliability Testing => Production review => completed



Design Patent Registration

- No.105617, No.105617-1
- No.114769, No.114769-1
- No.105610, No.114770-1
- No.184569, No.184570-1

Utility Model Patent Registration










- No.108999, No.109000
- No.0146991, No.0146992
- No.0208046, No.0221713

Invention Patent

- No. 0208046
- No.10-0925518
- No.10-1480930



List of Accreditations

(1998)		ISO9001(NQA)
(2002)		UL(E227820)
	  	IP67, IP54, IP65
(2005)		R&D Center (KOITA)
(2011)		CE(KSQ-CE110815)
(2013)		IATF16949(NQA)
(2015)		AEC-Q200 (ECS,TCS,AQL,ARH)



Management System Certification

IATF16949

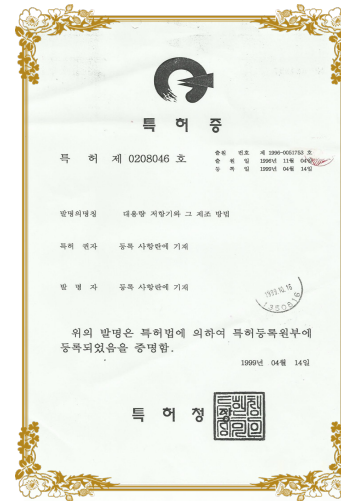


ISO 9001

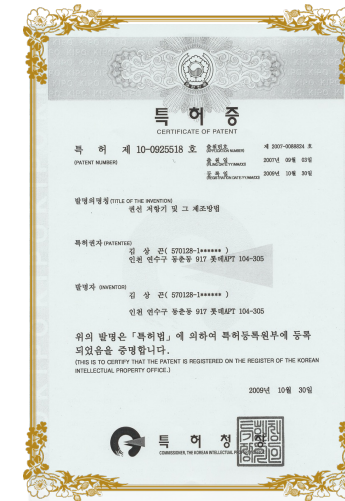


Invention Patent

No. 0208046



No.10-0925518



No.10-1480930



03

Network

- Customers
- Global Customers
- Overseas Distributors
- Business strategy



Companies working with RARA Electronics

Automation



Overseas



上汽集团
SAIC MOTOR

Tester



Automotive





Global Customers working with RARA Electronics

Rockwell Automation

ROCKWELL AUTOMATION
USA
SPR820, SPR821, SPR883,
SPR884 Variable frequency
drives



WONIK PNE
KOREA
IRH800, IRH800F,
LPS60F, LPS70F
Battery charger & discharger



GM KOREA
KOREA
SPR351
Motor RPM Controller
(LPG Cars)



SCHNEIDER ELECTRIC
INDONESIA, CHINA, FRANCE
SPR980-1,2, SPR963B,
SPR963C Drive system braking



TESLA
USA
SPRI013-4,5
Battery precharge



PROTERRA
USA
ULN100C
Electric Bus



FUJITEC
KOREA
ULH400
Elevators



LG ELECTRONICS
KOREA
SPR457A(IRV100)
Precharge resistor



WEG
BRASIL
IRH200N, IRV200, ULH150,
ULV200, ULV200N, ULV300
Precharge resistor, Invertor



YASKAWA
USA
SPR809, SPR888, SPR889,
SPR891Various



A123 SYSTEMS
USA
SPRI001
Various



Doosan Fuel Cell
KOREA
BRVA138kW, TPU800
Hydrogen fuel cell

TOSHIBA

TOSHIBA
USA
IRH100
Variable Frequency Drives



LS MACAPION
KOREA
SPR309, SPR311-1, 327-1, 327-3
Servo motor drives



CONTROL TECHNIQUERS
UK
SPR939
Servo motor drives



HYUNDAI ROBOTICS
KOREA
MBV, IRV1200, IRH500
Automobile, Welding
Robot



SK materials
KOREA
600A Shunt
Rectifier



LG CHEMICAL
KOREA
TCS5216, RH50C
BMS, ESS



YOKOGAWA
KOREA
SPR302, SPR303
Servo motor drives



KUKA
CHINA
ULH60N
Conveyor



Hanwha Precision
Machinery
KOREA
IRN150S
Chip Mounter



SIEMENS AG
DENMARK

HYOSUNG

HYOSUNG
KOREA
IRH200F, IRH300
ESS



HD HYUNDAI INFRACORE
KOREA
SPR273
Machine tools



KITO
JAPAN
SPR533, 534, 535, 536
Electric Chain Hoist



OCI Power
KOREA
ULH400, IRH
Solar energy system



SEPRO
FRANCE
IRF100C, IRF300C,
IRF500C, ULF300C,
ULF500C
Servo motor drives



Overseas distributors working with RARA Electronics



Isabelle Heusler GmbH & Co. KG



Rhpoint Instruments



Swissdis AG



Mitsuden



ADL components



Active Components



Burisch



Ohmite



Sansonic



PCN



Nikkohm



RC



Business Strategy





Strategic Goals

2025

Expansion and Certification

- Expand production range for LPS and HPS series
- Extend CE and UL certifications
- Enhance customer-specific product development process

2026

Innovation and Development

- Design and develop high precision and high power resistor products
- Initiate ultra-precision product design
- Begin hydrogen fuel cell project with prototype manufacturing and reliability testing

2027

Market Dominance: Commercialization and Scale

- Start production of high precision and high power resistors
- Commence mass production of hydrogen fuel cell-related products
- Prepare for mass production of ultra-precision products



Resistors And Resistive Applications

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