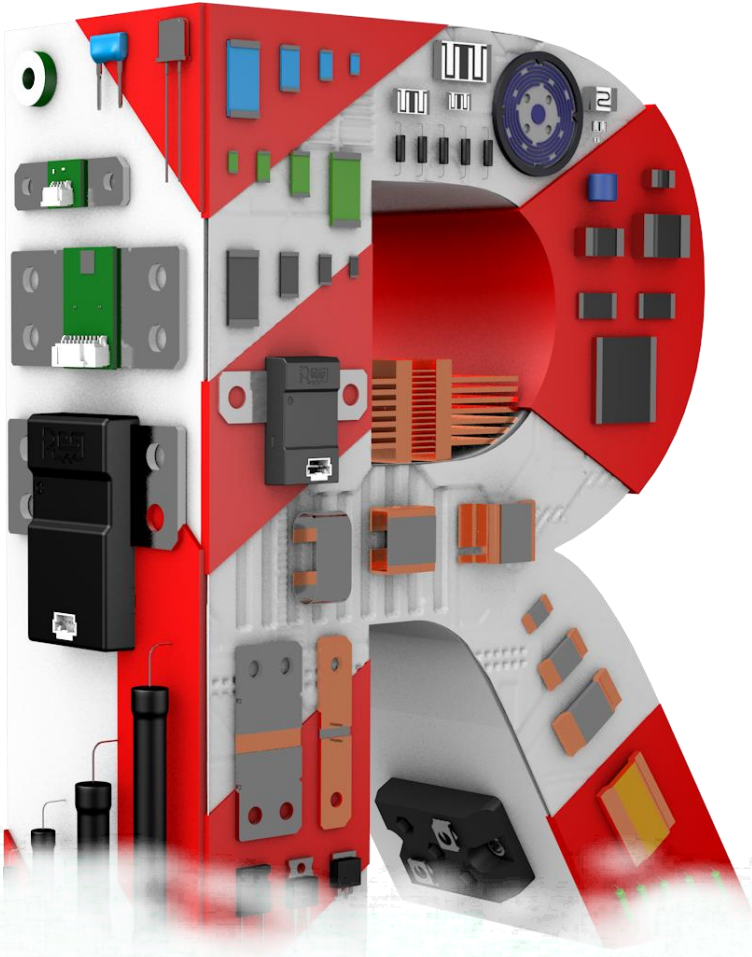




C&B Company Profile

RESI Components

2026

Company Profile

C&B Electronics Group was established in 2006, engaged in R&D and manufacturing of high-end resistors, high precision current sensor, high precision alloy and electron beam welding equipment.

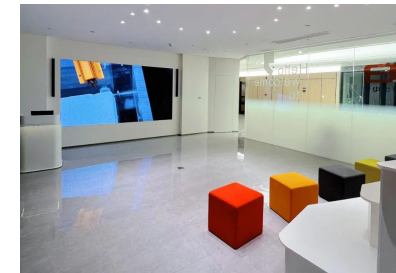
C&B Electronics Group has four business subsidiaries in Mainland China and one business subsidiary in Hong Kong.

C&B Eureka Innovations located in Hong Kong represents **RESI electronic components** brand globally.

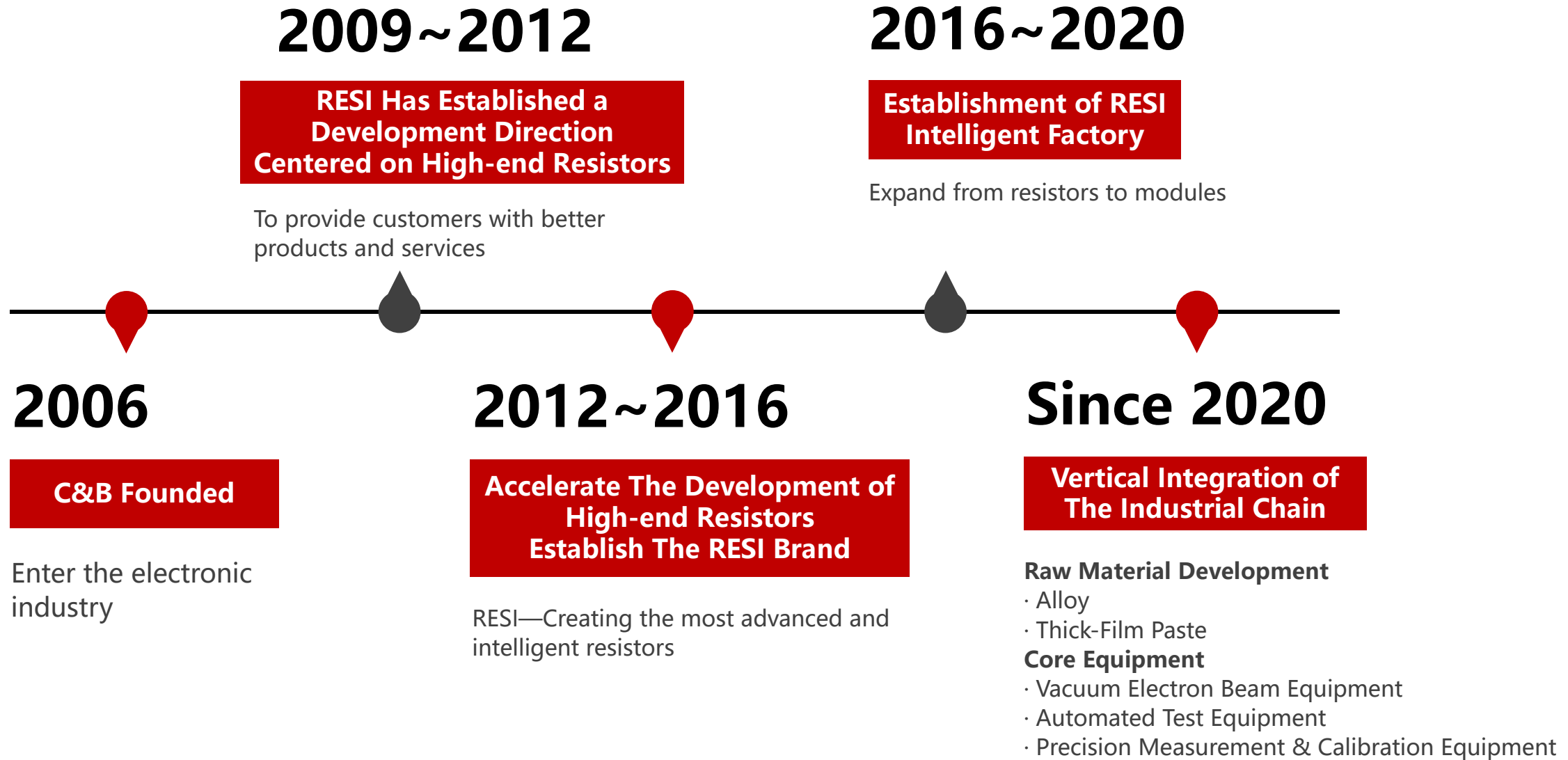
RESI has agile manufacturing expertise in alloy current sensing resistors, shunts, high-voltage resistors, high-energy resistors, high-power resistors, ignition resistors, capacitors and current sensor.

RESI has client-centric excellence with dependable logistics, competitively priced offerings, and delivers exceptional value to its customers with world-class support.

RESI serves a global market, with major industries, including Automotive and Transportation Electronics, Semiconductor, Telecommunications, Robotics, Industrial Automation, Energy Storage and Healthcare.



History



Honor & Certificate



National Level Specialization and
Special New Small Giants



National High-Tech Enterprise



ISO9001



IATF16949



Functional safety
ISO26262 by UL



PPAP
Available



RoHS



Member of Maintenance
Team for IEC 60477



ILAC / CNAS



The Developer & Maintainer of Industry Standards

1990



Materials experts participated in the drafting and
formulation of the JB6454 standard

1992



Participated in the revision and drafting of the GB1234-85
standard, focusing on the verification of key parameters
such as alloy resistance per meter, alloy resistivity, temp.
coefficient of resistance, and high-temp. life time

2008



Participated in the revision of the GB6145 standard

2016



Participated in drafting relevant standards, including the
Verification Regulations for DC Shunt for Charging Piles,
led by the Electric Power Research Institute

2018



Member of IEC60477 Maintenance Group

2020



Fifth Technical Committee of the Technical Committee 165
for Standardization of Resistor and Capacitor Components
for Electronic Devices

2023



Participated in drafting the Verification Regulations for
AC Resistance

Our Quality Policy

Zero Defect Goal

We strive for zero-defect production and delivery, ensuring that every product meets the highest standard.

Everyone involved

We encourage every employee to participate in quality mgmt., contributing collectively to enhancing quality.

Process Control

We ensure that every step of the operation is precise and flawless through stringent process control.

Quality Training

We provide continuous quality training for our employees to enhance their quality awareness and skills.

Our Practical Measures

Quality Mgmt. System

We implement internationally recognized quality management systems, such as IATF 16949 and ISO 9001.

Supplier Mgmt.

We establish strict quality agreements with our suppliers to ensure the quality of raw materials and components.

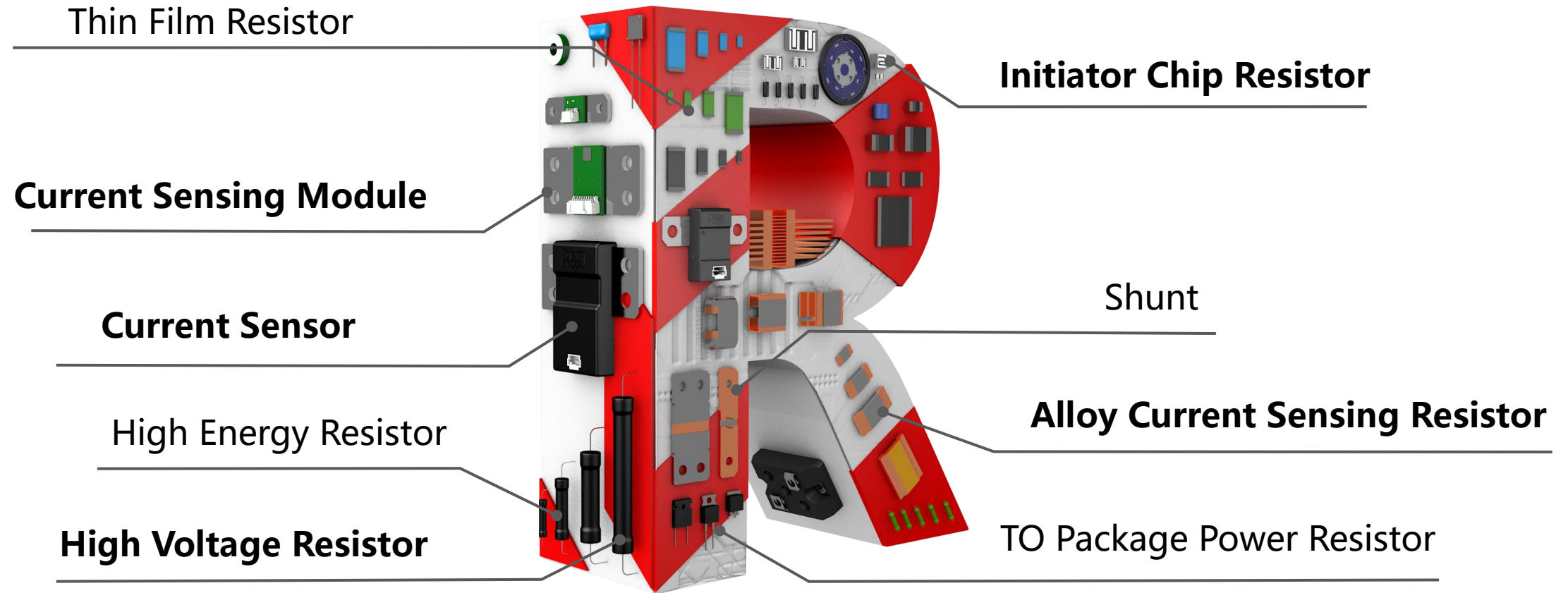
Customer Feedback Policy

We have established an effective customer feedback mechanism that promptly responds to and resolves customer issues.

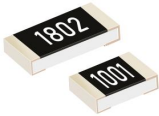
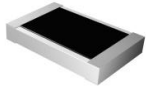
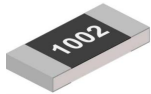
Quality Control System

We use an advanced quality control system to track and analyze product quality data in real time.

High-End Components & Smart Shunt



Thin Film Resistor

Image	Product	Power (70°C)	Size	Working Voltage	Resistance Range	TCR (ppm/°C)	Best Tolerance	Load Life
	PTFR	0.13W-0.25W	0402-1206	75V-200V	10Ω~5.1MΩ	±5~±25	±0.01%	±0.01%
	STFR	0.06W-0.75W	0603-2512	100V-300V	100Ω~200KΩ	±1~±2	±0.01%	±0.02%
	HVTR	0.25W-0.33W	1206-1210	700V-1000V	120KΩ~4.3MΩ	±5~±50	±0.1%	±0.05%
	HTFR	0.06W-0.25W	0402-1206	75V-200V	47Ω~1MΩ	±5~±50	±0.05%	±0.5%
	TFCR	0.063W-0.75W	0402-2512	50V-400V	2.49Ω~1.5MΩ	±10~±50	±0.1%	±0.5%
	NPTR	16W	2512	7V-43V	3.3Ω~120Ω	±25~±50	±1%	±0.5%

Thick Film Technology High Voltage Resistor

High Precision Thick Film Paste Self-Developed by RESI

The HVLR series high voltage resistors utilize high precision thick film technology and electron paste independently developed by RESI. Using high-purity alumina ceramic rods as the substrate, HVLR is done by precision manufacturing process from screen printing and high-temperature sintering to packaging and testing. It maintains the TCR within **$\pm 100\text{ppm}/^\circ\text{C}$** in the range of -25°C to $+125^\circ\text{C}$, with a target tolerance of up to **$\pm 0.1\%$** and a typical voltage coefficient of **$\pm 0.01\text{ppm}/\text{V}$** . The maximum continuous operating voltage can reach up to **48kV**, and the insulation withstand voltage capability can reach **5000VDC**.

Application:

- Healthcare
- Grid- Energy
- Industrial Automation

HVLR/HVHR

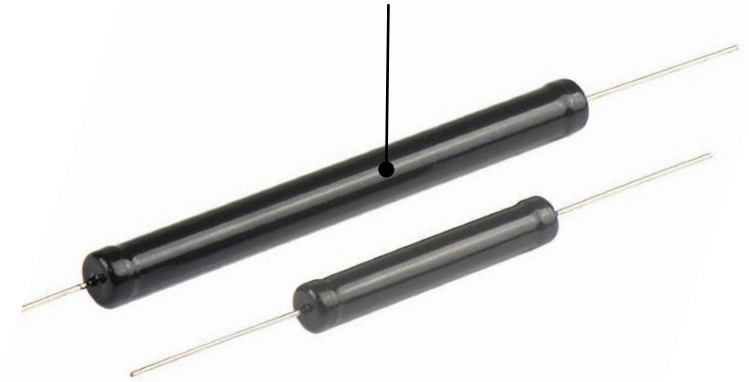
Resistance Range: $10\text{k}\Omega \sim 10\text{G}\Omega$

Tightest Tolerance: $\pm 0.1\%$

Rated Power: 0.7W to 15W

TCR: $\pm 100\text{ppm}/^\circ\text{C}$

Operating Voltage: 2.5kV~48kV



Low TCR

Measured TCR across the entire temperature range within **$\pm 50\text{ppm}/^\circ\text{C}$**

Excellent Moisture Resistance

Typical resistance change rate under high temperature and high humidity conditions is within **$\pm 0.1\%$**

Excellent Anti Pulse Capability

Resistance change rate under short-term overload is within **$\pm 0.05\%$**

Excellent High Voltage Withstand Capability

Typical voltage coefficient achieves **$\pm 0.05\text{ppm}/\text{V}$**

Thick Film Technology TO High Power Resistor

The non-inductive planar power resistor utilizes a through-hole package format with an external molded encapsulation. The heat dissipation flange at the bottom increases the heat dissipation channel for the resistor chip during operation, thus enhancing the product's heat dissipation capability.

Key Features:

- Excellent long-term stability
- Low temperature coefficient
- High power with low thermal resistance
- Low current noise

It is widely used in industries such as Automatic Test Equipment, Uninterruptable Power Supply systems, Automotive, and Industrial Automation.

Excellent Anti-Pulse Performance

Short time
Overload: **±0.01%**
Load Life: **±0.01%**

Excellent Long-Term Stability

High-Temperature
Storage: **±0.05%**

Excellent Moisture Resistance

High-Temperature and
High-Humidity: **±0.1%**
Moisture Resistance:
±0.02%

SOTC0227

Package: SOT-227
Rated Power: 300W
Tightest Tolerance: $\pm 0.5\%$
TCR: $\pm 100\text{ppm}/^\circ\text{C}$
Resistance Range: $0.1\Omega \sim 1\text{M}\Omega$



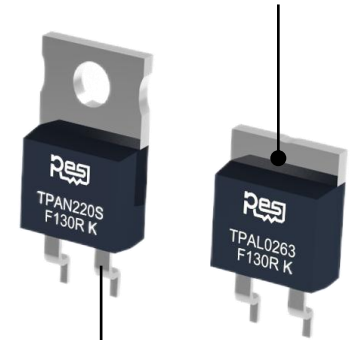
TPAN0220&TPAL0220

Package: TO-220
Rated Power: 35W~50W
Tightest Tolerance: $\pm 0.5\%$
TCR: $\pm 100\text{ppm}/^\circ\text{C}$
Resistance Range: $0.5\Omega \sim 10\text{K}\Omega$



TPAN0263&TPAL0263

Package: TO-220
Rated Power: 35W~50W
Tightest Tolerance: $\pm 0.5\%$
TCR: $\pm 100\text{ppm}/^\circ\text{C}$
Resistance Range: $0.5\Omega \sim 10\text{K}\Omega$



TPAL0247

Package: TO-247
Rated Power: 100W
Tightest Tolerance: $\pm 0.5\%$
TCR: $\pm 100\text{ppm}/^\circ\text{C}$
Resistance Range: $0.1\Omega \sim 10\text{K}\Omega$

TPAN022S&TPAL022S

Package: TO-220
Rated Power: 35W~50W
Tightest Tolerance: $\pm 0.5\%$
TCR: $\pm 100\text{ppm}/^\circ\text{C}$
Resistance Range: $0.5\Omega \sim 10\text{K}\Omega$

Thick Film Technology High Energy Resistor

High Precision Thick Film Paste Self-Developed by RESI

To produce a high-performance anti-pulse resistor, in addition to considering its anti-pulse capability, it is also necessary to balance parameters such as TCR, moisture resistance, long-term stability, and failure mode. High energy wire wound resistors have good anti-pulse ability, but relatively high inductance and poor reliability. Solid ceramic resistors are naturally non-inductive and have strong anti-pulse ability, but have a high TCR, poor long-term stability, and poor moisture resistance.

APLR series high-energy anti-pulse resistor utilizes specialized resistive materials independently developed by C&B Electronics, which can withstand single pulse energy of up to 1000J, and overcome the shortcomings of wire wound resistors and solid ceramic resistors.

APLR

Resistance Range: 20Ω~10KΩ

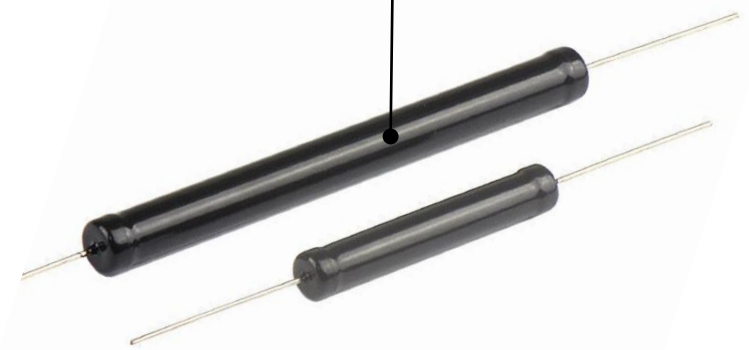
Tightest Tolerance: ±5%

Rated Power: 6W

TCR: ±200ppm/°C

Rated Energy: 1000J

Pulse Voltage: 400V-5000V



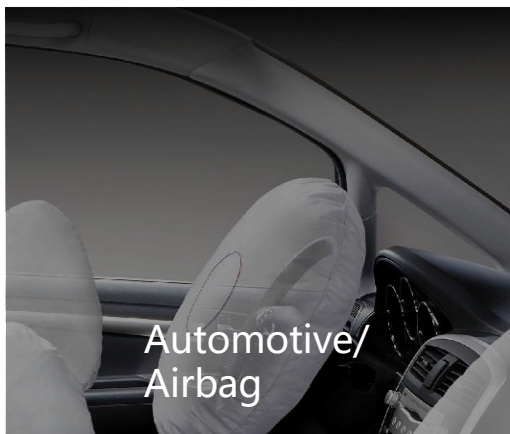
- **Small Size**
- **High Humidity Resistance**
- **High Reliability**
- **Non-inductive**

Initiator Chip Resistor

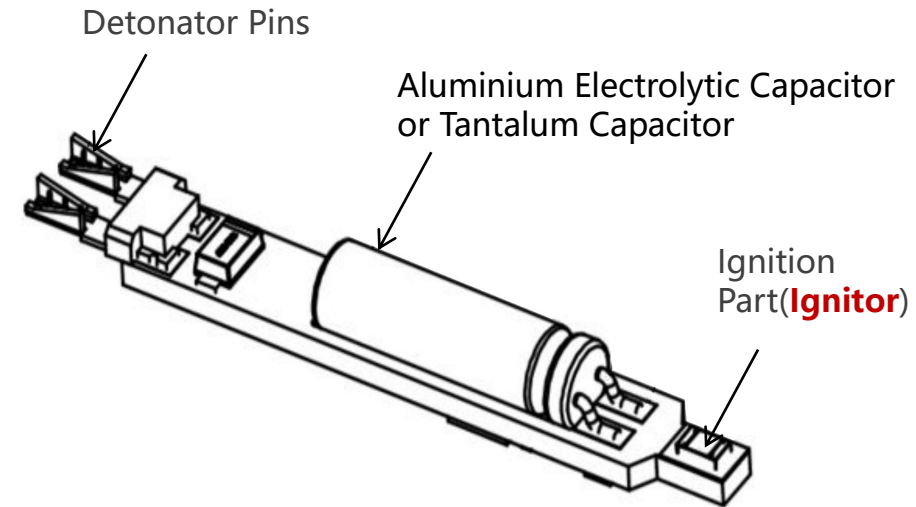
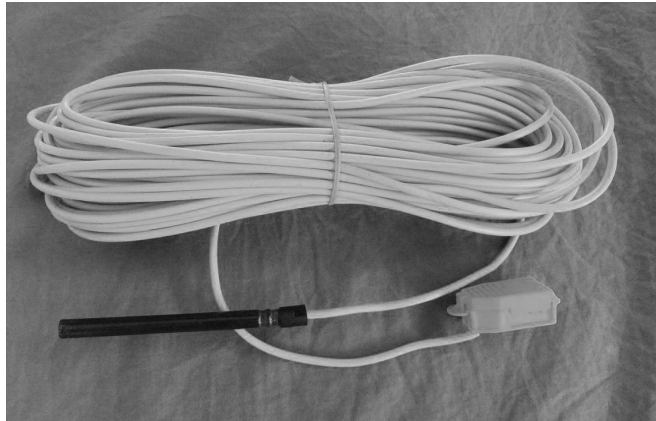
Initiator chip resistor is a special resistor that converts electric energy into thermal energy

In general, the initiator chip resistor receives the energy released by the capacitor and converts it into thermal energy within 1ms and reach temperature of 500-700 °C, reaching the ignition point of the outer initiating explosives. While it is ignited, the energy is gradually transmitted to base charge or equivalent. The biggest difference between initiator chip resistor and common resistor is that the initiator chip resistor has a very high energy conversion speed and can only be used once.

P/N	R	Aluminum Electrolytic Capacitor 100uF			Aluminum Capacitor 44uF(Typical Value)		
		100% Ignition Voltage V_F (V)	Safe Voltage (V)	Ignition Energy (mJ)	100% Ignition Voltage V_F (V)	Safe Voltage (V)	Ignition Energy (mJ)
DHDZ0805L2R00G63C	2Ω	7.9	5.4	3.09	11.6	8.5	2.95
DHDZ0805L4R00G63A	4Ω	11.0	9.5	6.0	14.1	12.1	4.4
DHDZ0805L6R00G63A	6Ω	13.6	12.1	9.2	19.5	16.7	8.34
DHDZ0805L8R00G63B	8Ω	14.3	12.2	10.23	18.8	16.8	7.8



Initiator chip resistor in digital electronic detonators



Alloy current sensing resistor

Trimming Free Technology

The "Trimming Free" technology developed by RESI allows resistor reach to $\pm 0.5\%$ tolerance without trimming. This not only prevents the rated current loss but also avoids the **hotspot** issue, significantly enhancing product reliability. Additionally, improved welding quality significantly reduces **EMF** of resistor, thereby improving its long-term stability.

Alloy Current Sensing Resistor

Size: 1206, 1216, 2512, 3920, 3951, 5930, 2726, 4026, 6398
 Series: SEWF / SEWK / PEWF / PEWK / PEWM / EBWK / EBWM
 Tolerance: $\pm 0.5\%$
 TCR: $\pm 10\text{ppm}/^\circ\text{C} \sim \pm 200\text{ppm}/^\circ\text{C}$
 Resistance Range: $0\text{m}\Omega \sim 5\text{m}\Omega$

Molded Alloy Current Sensing Resistor

Size: 2512, 3637

Series: PCSR

Tolerance: $\pm 0.1\%$

TCR: $\pm 10\text{ppm}/^\circ\text{C} \pm 15\text{ppm}/^\circ\text{C}$

Resistance Range: $2\text{m}\Omega \sim 200\text{m}\Omega$

Shunt

Size: 6918, 8518, 8436, 8536

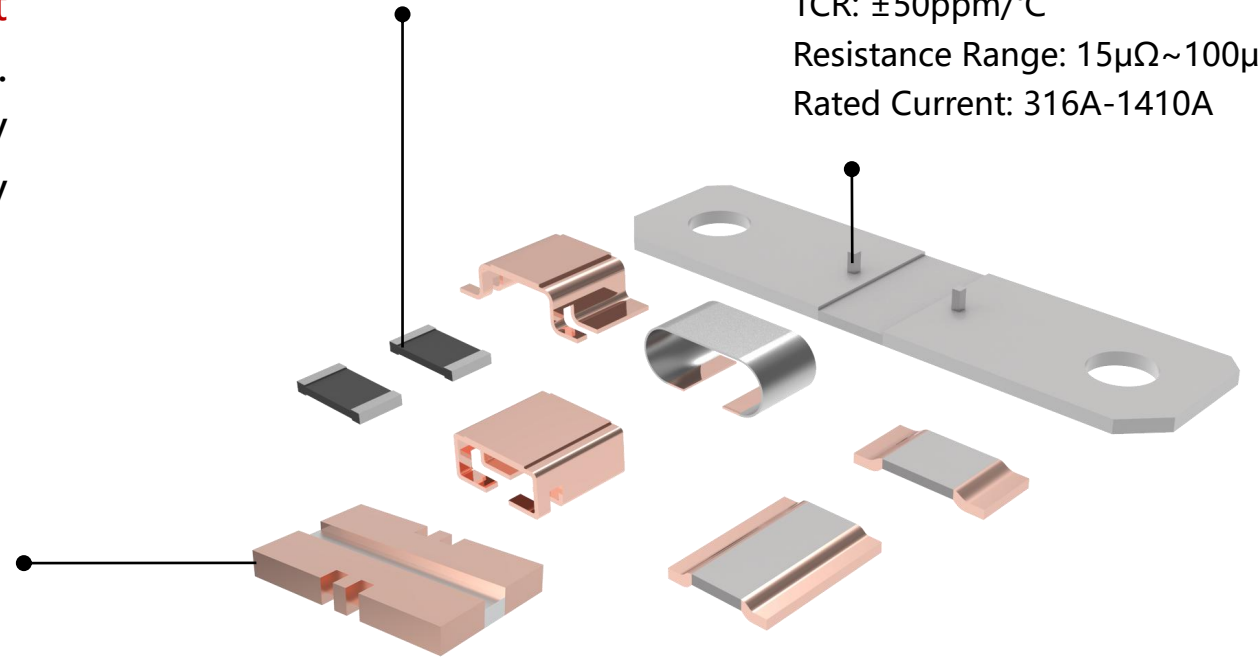
Series: ARCS/PRCS

Tolerance: $\pm 0.5\%$

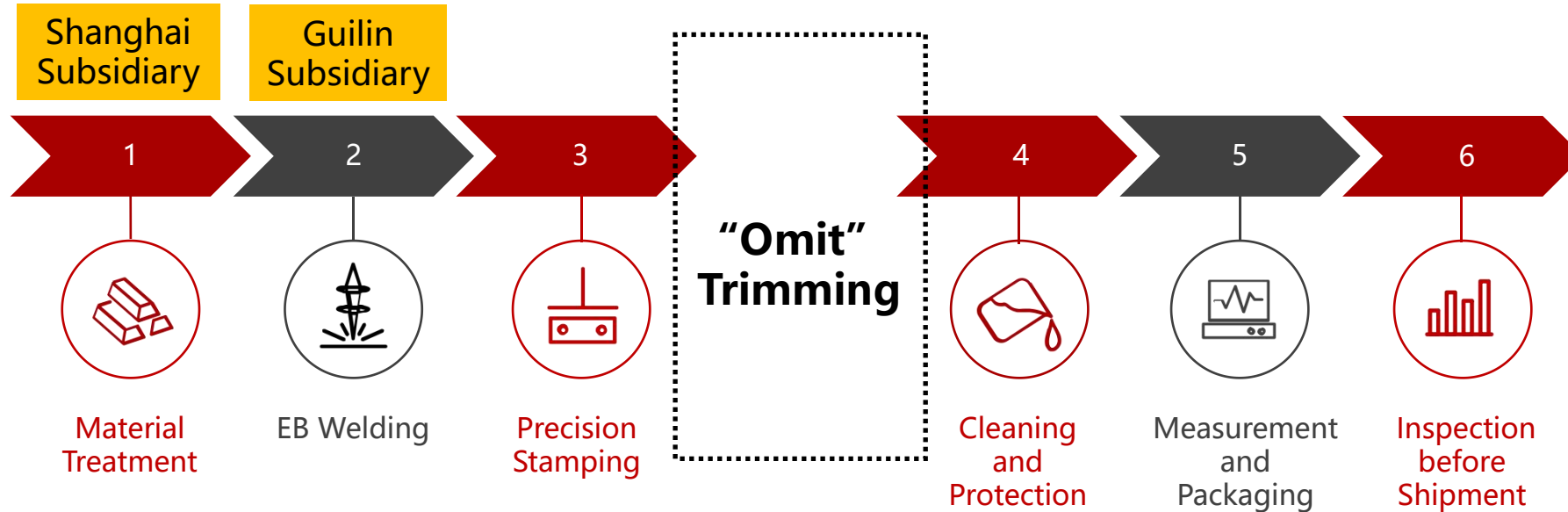
TCR: $\pm 50\text{ppm}/^\circ\text{C}$

Resistance Range: $15\mu\Omega \sim 100\mu\Omega$

Rated Current: 316A-1410A



Developer of Trimming Free Technology



Technical Advantage

- ✓ Improved Power Rating
- ✓ High Consistency across Lots
- ✓ Avoid Hotspot Effect

Manufacturing Advantage

- ✓ Skip Trimming
- ✓ Increase Production Capacity

For Customer

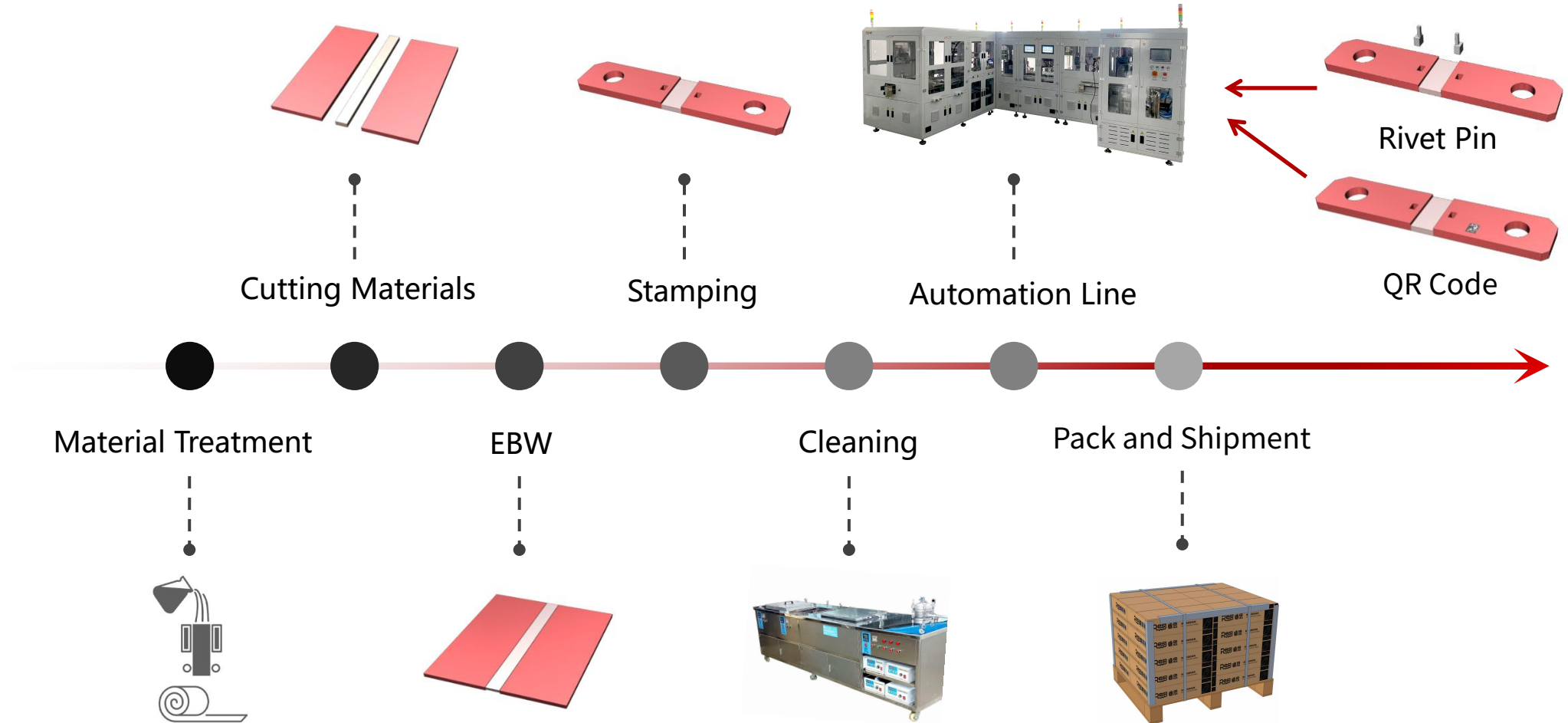
- ✓ Cost-effective
- ✓ Shortened Lead Time

- RESI **trimming-free** technology based on
 - Precision alloy treatment
 - Dedicated EB welding process
 - Precision machining technology

- Low resistance value, low TCR, low thermal EMF, excellent stability.
- Compliant with RoHS certification, AEC-Q200 certification.

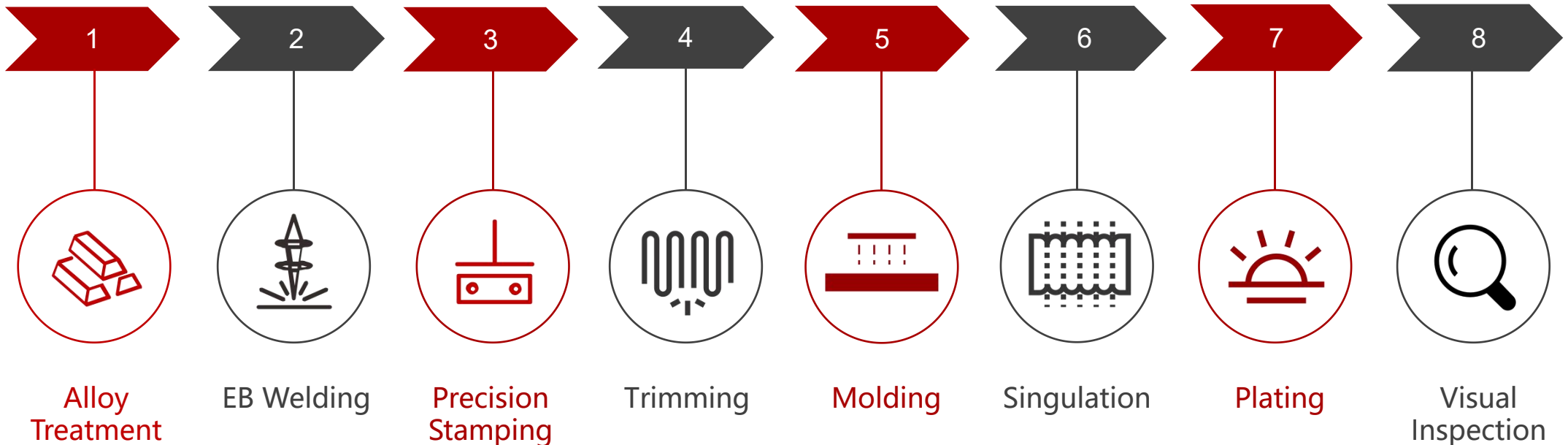
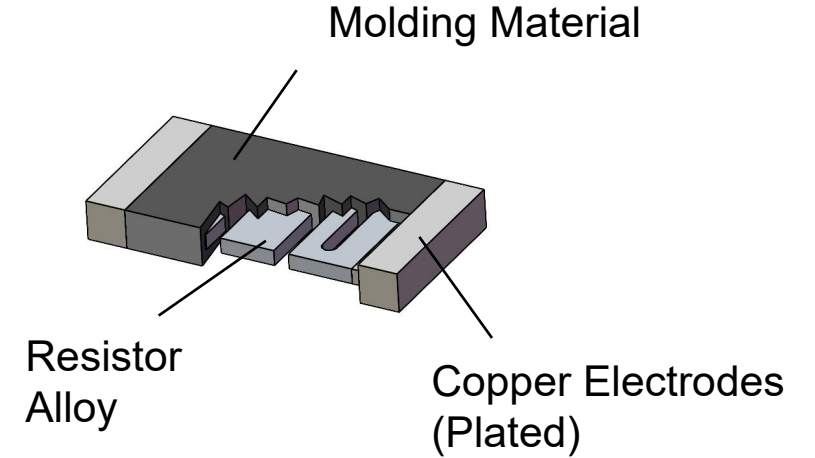
Shunt Resistor Fully Automated Processing Technology

Fully automated production line / Production data / Real-time monitoring / Product QR code identification(Enables precise traceability)



Molded Precision Low TCR Current Sensing Resistor

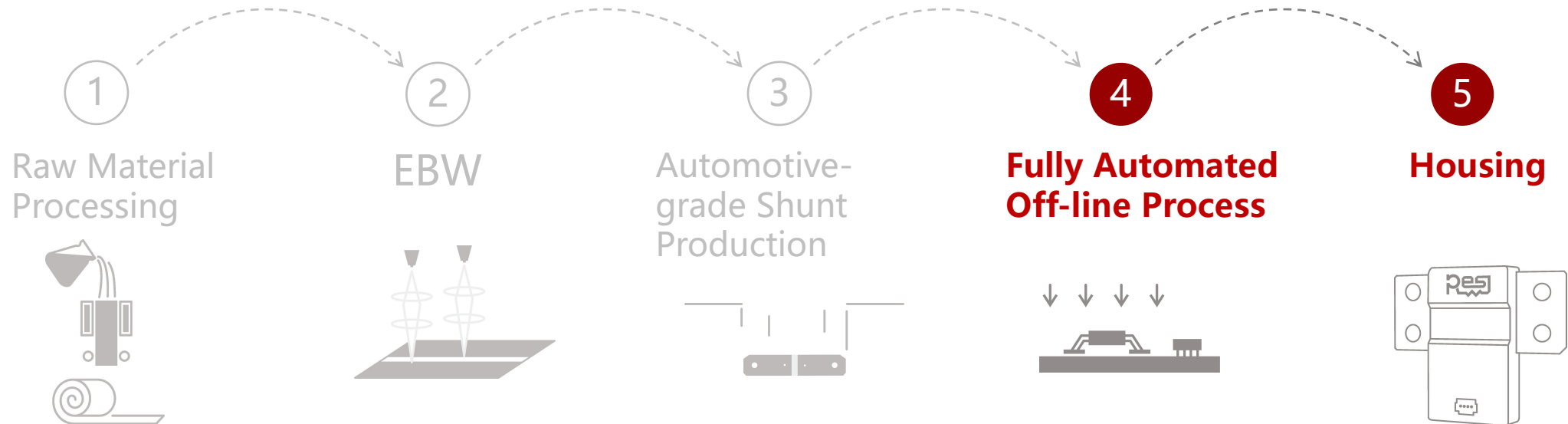
The molded precision current sensing resistor is based on electron beam welding technology as well. It features high depth-to-width ratio of weld seam, small heat-affected zone, and high mechanical strength. Through precise control of raw material treatment, welding, stamping and molding process, the product can achieve tolerance up to $\pm 0.1\%$. The resistance range covers $2\text{m}\Omega$ - $200\text{m}\Omega$, and the TCR can be as low as $\pm 10\text{ppm}/^\circ\text{C}$. The product with **2512** and **3637** size has reached mass production. This type of product has excellent long-term stability, low TCR, low inductance, and low thermal EMF.



Current Sensor

Current Sensing Solutions in BMS

In a BMS system, it is necessary to measure the total current of the battery. This is usually achieved using Hall sensors or a shunt-based solution. The shunt solution is a contact-based measurement method, and since it is typically custom-designed, it requires significant effort regarding installation, safety insulation and so on. However, the shunt solution has cost advantages, which is why many customers adopt it. RESI CB series smart shunt is an automotive-grade current sensing module that can measure bidirectional DC current. It offers high accuracy, low power consumption, a wide operating temperature range, excellent response speed, high temperature stability, and interference resistance.

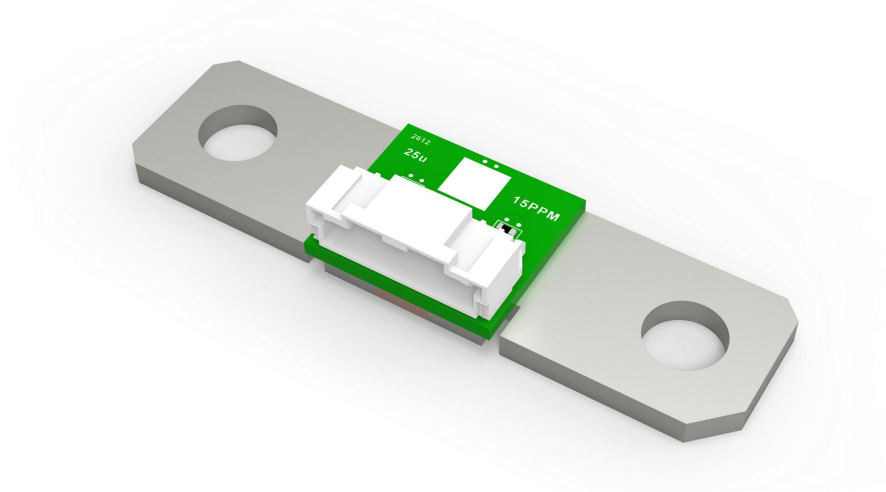


Shunt based current sensing module

HRES / SRES series

Introducing the New Standard in High-Current Measurement:

- Simple
- Affordable
- Unmatched Precision



No external temperature compensation required
 $\pm 0.3\%$ system accuracy (-40°C to $+125^{\circ}\text{C}$)

Shunt based current sensing module

RESI P/N	Rated current	TCR (+20°C-+125°C, 20°C Ref)	EMF	Value range	Tolerance of module	Measurement Accuracy	Dimension of shunt(mm)
SRES6918BL100VST0	400A	±5ppm/°C	≤0.6μV/°C	100μΩ ±5%	±0.1%	±0.3%	69×18×3
HRES6918BL050MST0	500A	±15ppm/°C		50μΩ ±5%			
HRES6918BL025MST0	600A	±15ppm/°C		25μΩ ±5%			
SRES8436BL050VST0	800A	±5ppm/°C		50μΩ ±5%			84×36×4
HRES8436BL025MST0	1000A	±15ppm/°C		25μΩ ±5%			
HRES8436BL015MST0	1200A	±15ppm/°C		15μΩ ±5%			



Current Sensor



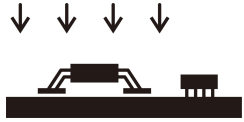
CB350/CB600 Series

- Accuracy: $\pm 0.1\% \sim \pm 0.5\%$
- Continuous Operating Current: $\pm 350\text{A} \sim \pm 600\text{A}$
- Overrange Measurement Range: $\pm 8000\text{A} \sim \pm 20000\text{A}$
- Zero drift: 50mA-100mA

New Generation AMC0500/AMC1000 Series

Parameter	AMC0500	AMC1000
Rated Current	$\pm 500\text{ A}$	$\pm 1000\text{ A}$
Accuracy	$\pm 0.1\%$	
Zero Drift	30 mA	
Overload Current	$\pm 8000\text{ A @ } 50\text{ ms}$	$\pm 20000\text{ A @ } 50\text{ ms}$
Operating Temperature	$-40 \sim +105\text{ }^{\circ}\text{C}$	
Communication Protocol	CAN 2.0A/B	
Supply Voltage	6 ~ 18 VDC	
Isolation Voltage	3000 VAC	5000 VAC

Fully Automated Off-line Process



Mass production
capability

200 pcs/h



Modular design of
production line



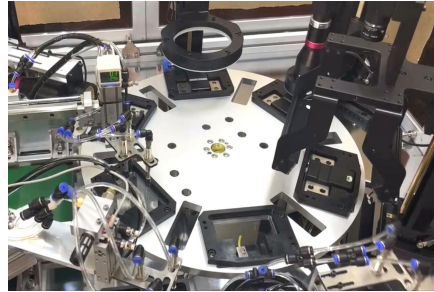
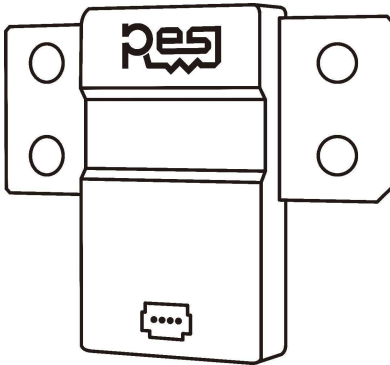
Fully automated
assembly line



Fully automated
calibration



Laser marking
Unique and traceability ID



FCT Process

To verify and confirm the function and accuracy of the offline products meet the product design requirements.



CCD Process

After all production processes are completed, a VI system performs 100% automated inspection of the product's appearance and connector port terminals to ensure that the product's appearance meets design requirements.

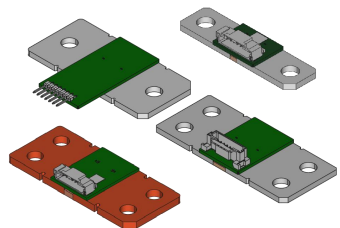
Comparison of Shunt-Based Current Sensing Solutions



Shunt

Advantages

1. Simple process
2. Low cost
3. Rugged structure
4. Easy to customize



Shunt based current sensing module

Advantages

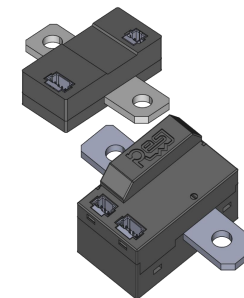
1. Balanced cost-performance ratio
2. Wide temperature range measurement capability
3. Automotive R&D and production system



Shunt based current sensor

Advantages

1. Standard digital interface outputs (CAN/RS-232, etc.)
2. Calibration-free operation, pre-integrated with systems, reduces the overall system development cycle



Shunt based ? sensor

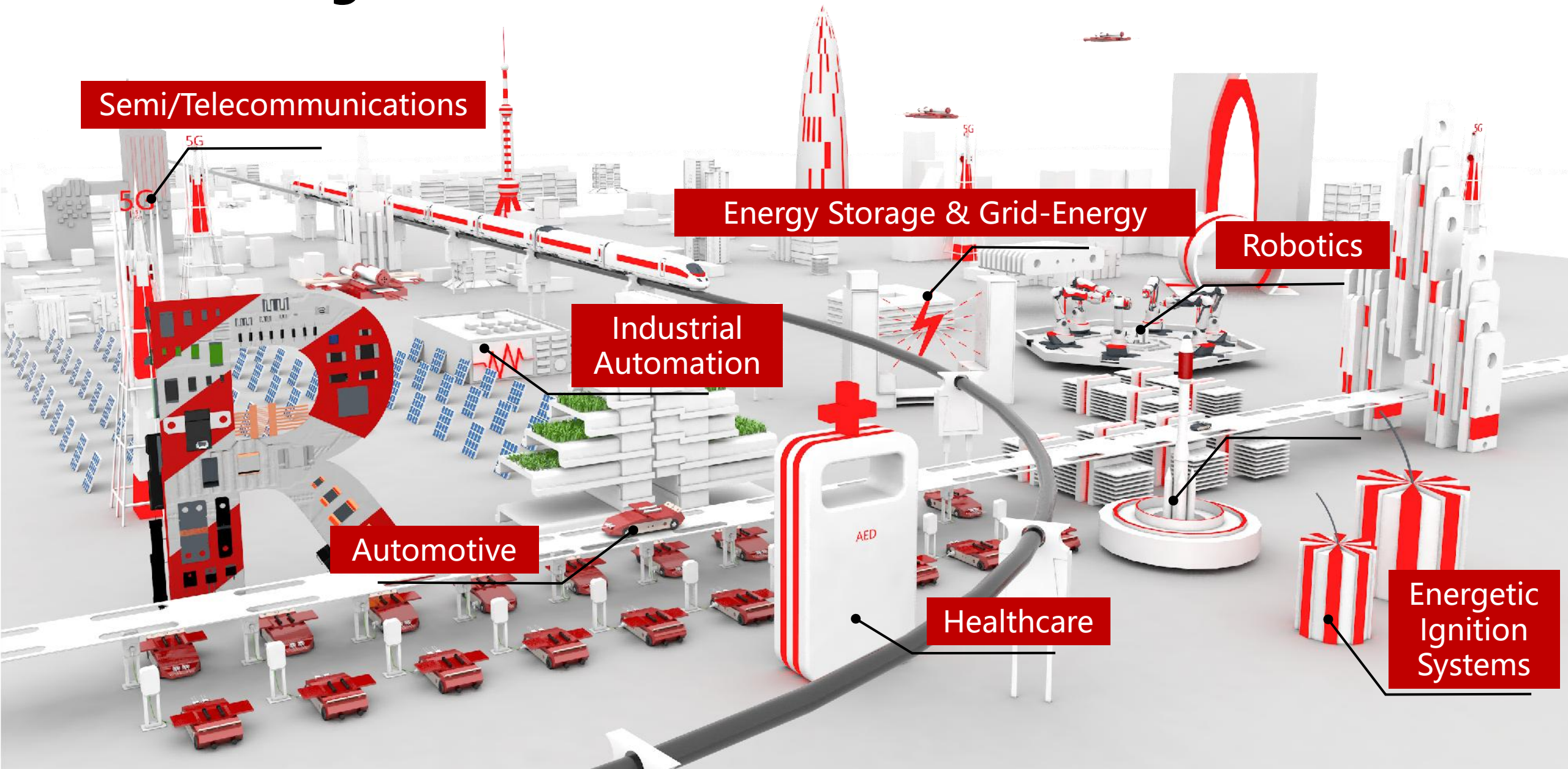
(Current+Voltage+Pressure)

Advantages

1. Function expansion to voltage and pressure monitoring, higher integration level, combined current measurement enhances system reliability

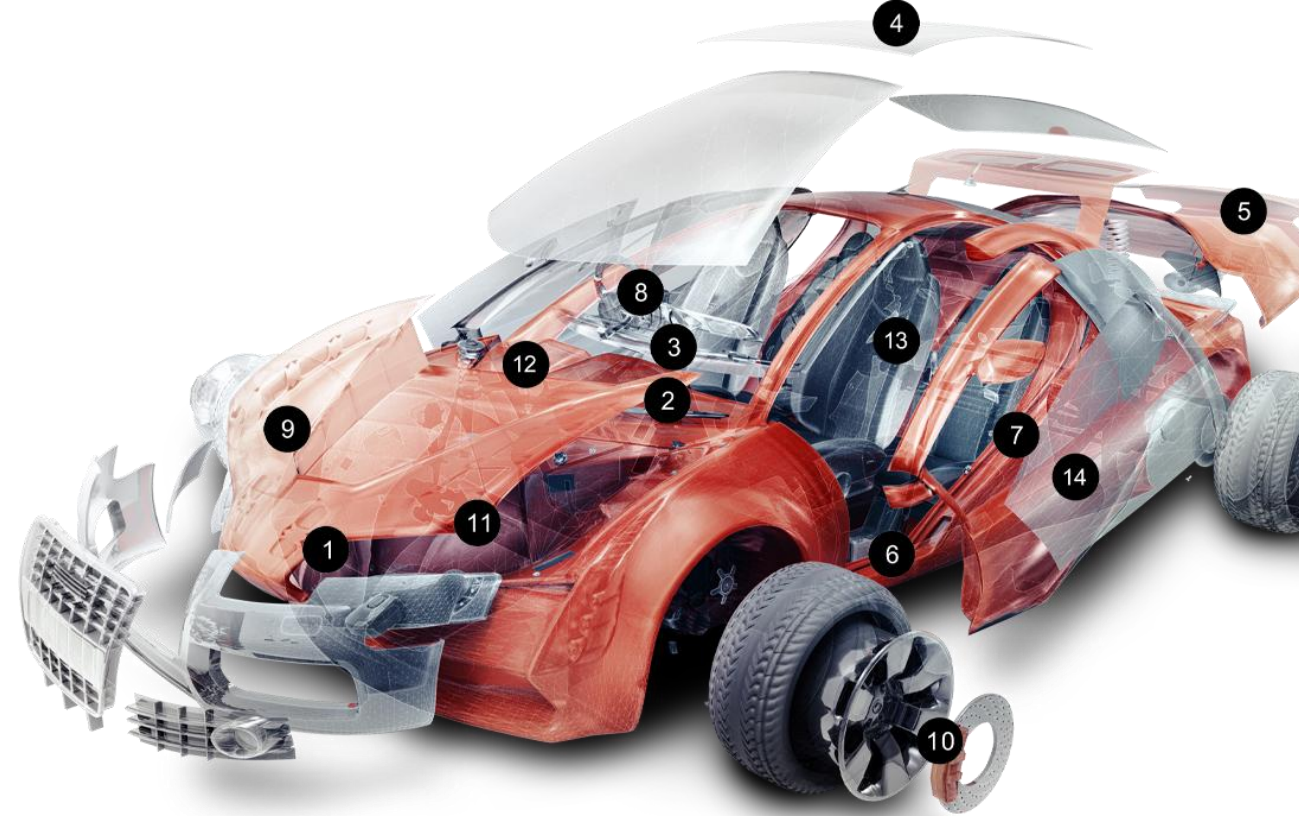
Feature	Shunt	Shunt based current sensing module	Shunt based current sensor
Output Signal	Analog signal (actually a high-precision resistor)	Analog signal(with initial resistance provided)	Digital signal (Multiple protocols, speeds, and data formats optional)
Design Requirements	• Hardware: fully user-designed • Software: required • Shunt soldering: difficult • Offline calibration: requires calibration equipment, process is complex	• Hardware: partially user-designed • Software: required • Shunt soldering: not required • Offline calibration: requires calibration equipment, simple process	• Hardware: not required • Software: not required • Shunt soldering: not required • Offline calibration: not required
Accuracy	Fully depends on user design	±0.3% ~ ±0.5%, partially depends on user design	±0.1%, guaranteed by product
Reliability	Guaranteed by user design	Guaranteed by user design	High, guaranteed by product, tested in multiple conditions

Market Segments



Automotive

1. Electric Power Steering (EPS)
2. PTC Heater
3. Motors & Blowers
4. Automotive A/C Compressor
5. Electric Water Pump / Oil Pump
6. BMS



Current Sensing Resistor

Motor Current Sensing Resistor



- Simple&Reliable
- High Precision
- Low Cost
- Safer

Motor

Shunt



- Accurate Measurement
- 50ppm 0.5%
- Cost Effective

Current Sensor

Precision Current Sensing for BMS

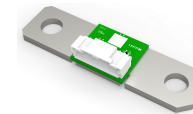


- High Accuracy
- Overrange Measurement
- 0.1% Current Measurement Accuracy

Battery Management System

Current Sensing Module

Precision Current Sensing for BMS



- Low EMF
- 5ppm 0.1%
- 0.3% Current Measurement Accuracy

Semiconductor Manufacturing Equipment

Vacuum & Fluid Control Systems	• Filter • Vacuum Gauge • Flow Meter • Capacitance Manometer • Pulse Power Supply
Plasma & High-Voltage Power Systems	• High-Voltage Voltage Divider Board • Power Supply Discharge • High-Voltage Voltage Division • Atomic Force Measurement
Ultra-Precision Analog Signal Chain	• Wafer Tester • Spectrum Analyzer • Transimpedance Amplification • nA-Level Leakage Current
Wafer Handling & Motion Control Platform	• Precision Voltage Divider Board • Precision Current Source • Ultra-Precision Analog Board



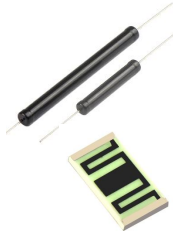
High Power & High Voltage Resistor

To package high power



- High power
- Low thermal resistance
- Short lead time

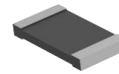
High voltage SMD&Leaded



- Voltage up to 48KV
- High resistance
- Low VCR

Current Sensor

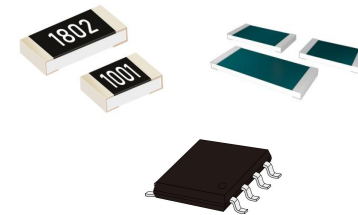
High precision low TCR



- Up to 0.1% accuracy
- Excellent TCR as 15ppm

High Precision Resistor

Thin film/Foil technology



- Up to 0.01% accuracy
- Excellent TCR as 2ppm
- Great long term stability and reliability

Healthcare

- Vital Signs Monitoring
- In Vitro Diagnostics (IVD)
- Biochemical Analysis
- Medical Imaging
- Emergency Medical Equipment
- In Vivo Implants

1. AED
2. Vital Signs Monitoring
3. Infusion Systems
4. Immunoassay
5. Blood Analysis
6. X-Ray Machine
7. Bed Control
8. Ultrasound
9. CT
10. MRI
11. Anesthesia Nebulization
12. Ventilator
13. Endoscopy
14. Medical UPS



High Energy Resistor

Power Thick Film Resistor



- Simple & Reliable
- Tight Tolerance
- Low Cost
- Safer

High Energy Applications



- Precise Measurement
- On-Demand Measurement
- Low Power Consumption

External Defibrillation,
Monitoring

High Voltage Resistor

High Voltage Measurement

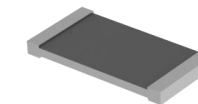


- Tight Tolerance
- Low VCR
- High Withstand Voltage

Defibrillation,
X-ray

Precision Resistor

ADC Operational Amplifier



- Low Noise
- Low Parasitic Parameters
- Low TCR
- Moisture Resistance
- Long-Term Stability

Immunoassay, Blood Analysis,
Cell Analysis

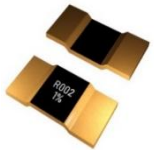
Industrial Automation & Robotics

1. Power Supplies
2. Servo Motors
3. High-Voltage Frequency Converter
4. Pumps and Valves
5. Robotic Arms
6. Motor Drives
7. Elevators
8. Welding Machines
9. Power Tools



Current Sensing Resistor

Motor Current Sensing Resistor



- Simple&Reliable
- Tight Tolerance
- Low Cost
- Safer

4-Terminal Kelvin Resistor



- Accurate Measurement
- 1206, 1216, 2726
- Compact Size
- Low Power Consumption

Shunt

BMS Precision Current Sensing



- High Accuracy
- Customization Service
- Cost Effective

High Power Resistor

Wire-wound, Aluminum Housing, Heatsink-Mount Resistor



- Motor Deceleration
- Soft Start
- Heating Applications
- Surge Absorption

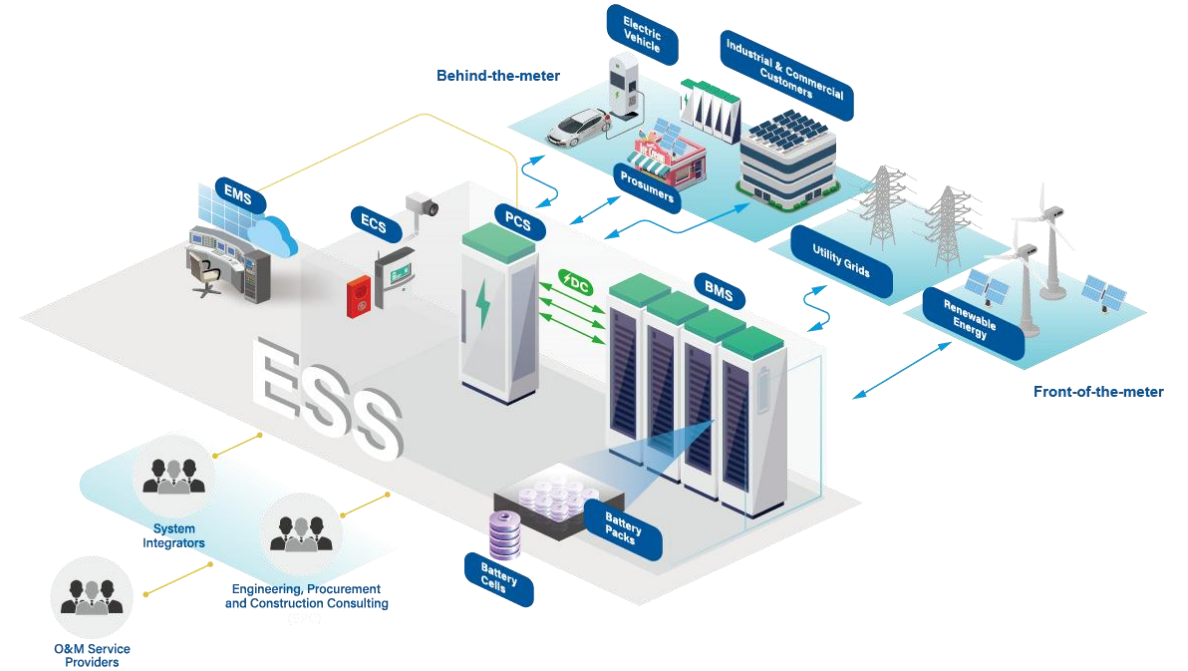
Power Supply

BMS

Motor Control

Energy Storage

1. Battery Management System (BMS)
2. Battery Formation and Grading Equipment
3. Power Conversion System (PCS)
4. Battery Distribution Unit (BDU) & DC Combiner Cabinet
5. Residential and Commercial Energy Storage System
6. Containerized & Large-Scale Grid Energy Storage Power Station
7. Energy Storage Test and Aging Equipment



Current Sensing Resistor

Current Sensing Resistor



- 6398 compact size
- Up to 200A
- Resistance down to 0.1mohm

**Formation&Grading
of Battery**

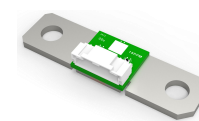
Shunt



- High Accuracy
- 50ppm 0.5%
- Customized Service
- Cost Effective

**Battery Charging
& Discharging**

Current Sensing Module

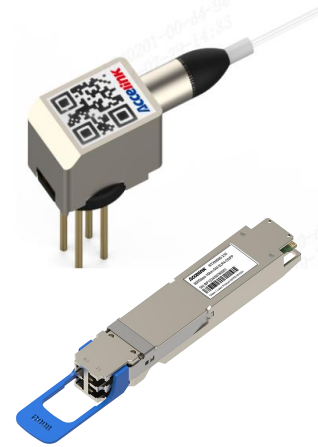


- Low EMF
- 5ppm 0.1%
- 15uohm to 100uohm
- 0.3% Current Measurement Accuracy, no TCR compensation required

BMS

Telecommunications

1. Optical Communication Module
2. Passive Optical Components
3. Relay Equipment
4. Optical Fiber Amplifier
5. Communication Power Supply
6. Uninterruptible Power Supply (UPS)
7. Switching and Routing



Thin Film Resistor

Thin Film Chip Resistor



- Simple&Reliable
- Tight Tolerance
- Low Cost

Thin Film Resistor Network



- Precise Measurement
- High Level of Integration
- Good matching

Shunt Resistors

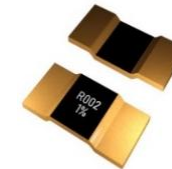
Operational Amplifiers and Signal Processing



- $TCR < 1\text{ppm}$
- Tolerance $< 0.01\%$
- Any Value
- Low Noise
- Long-Term Stability

Metal Alloy Resistor

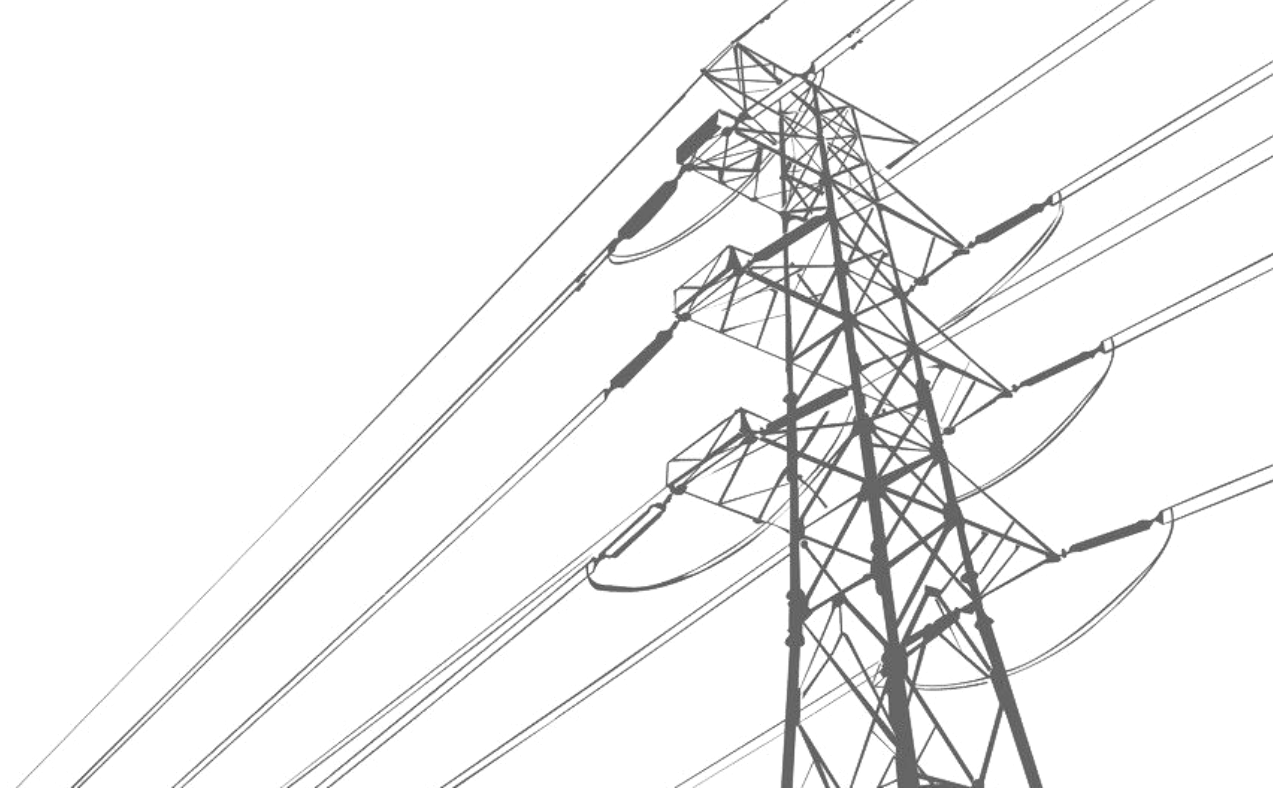
UPS Power Supply BMS



- Simple & Reliable
- Tight Tolerance
- Low Cost
- Safer

Grid-Energy

1. Power Transmission and Transformation
2. Reactive Power Compensation
3. High Voltage Circuit Breaker
4. Relay Protection
5. Smart Meter
6. Switchgear
7. Data Collector



High Energy Resistor

Power Thick Film Resistor



- Simple&Reliable
- Tight Tolerance
- Low Cost
- Safer

High Energy Applications



- Precise Measurement
- On-Demand Measurement
- Low Power Consumption

Arc Suppression and Surge Absorption

High Voltage Resistor

High Voltage Applications

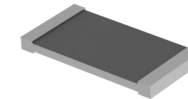


- Tight Tolerance
- Good Insulation
- Low VCR

Circuit Breaker & Relay Protection

Precision Resistor

Thin Film Resistor



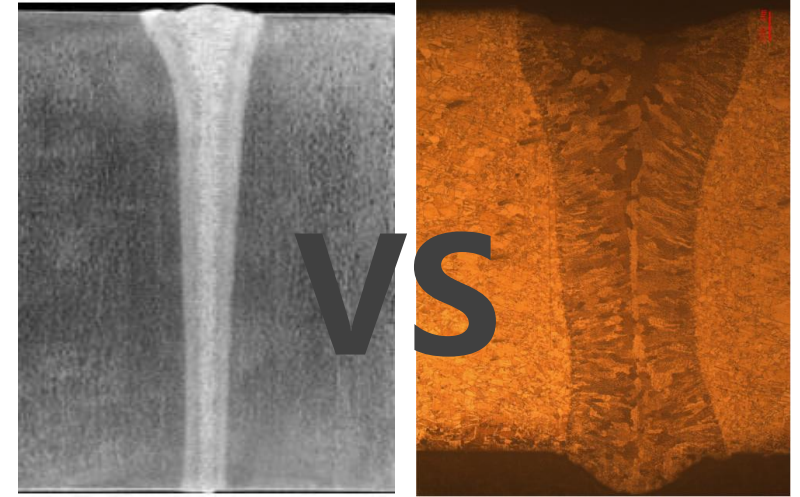
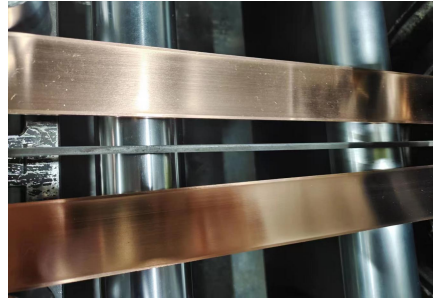
- Low Noise
- Low Parasitic Parameters
- Low TCR
- Excellent Moisture Resistance
- Long-Term Stability

Signal Processing, Electric Power Metering

In House EBW Technology

For the resistor based on EB-Welding technology, it ask for ultra-high vacuum level of welding chamber, the electron gun must deliver stable output power, and the motion mechanisms must operate consistently.

As shown in the figure below, the alloy and copper electrode will be welded together by high power electron beam.



The left(good) and right(bad) images are micrographs of welding seams at different welding levels.

Continuous EBW production line

- High depth-to-width ratio, maximum ratio up to 20:1
- The welding process is highly automated, and the welding speed can reach up to 20m/min.
- Excellent welding quality, narrow heat-affected zone.
- The welding technology is globally leading, with excellent repeatability and stability of welding parameters.



NPI Roadmap



Product R&D Path

- Trimming free Molded Alloy Resistor
- New High Energy Resistor
- Precision Resistor Based on Semiconductor Technology

New Process

- Super Low TCR Alloy Resistor
- Low TCR Ceramic Resistor
- New Power Resistor

New Resistor

New Materials

- Low TCR Resistor Alloy Material
- Low Leakage Current Insulation Paste
- Low TCR And High Voltage Resistor Paste

New Equipment

- Continuous EB Welding Machine
- Industrial Heating Equipment
- Automatic Coating Equipment

New Module

- Automotive Current Sensor
- Automotive High-Pressure Liquid Flow Heater



THANK YOU