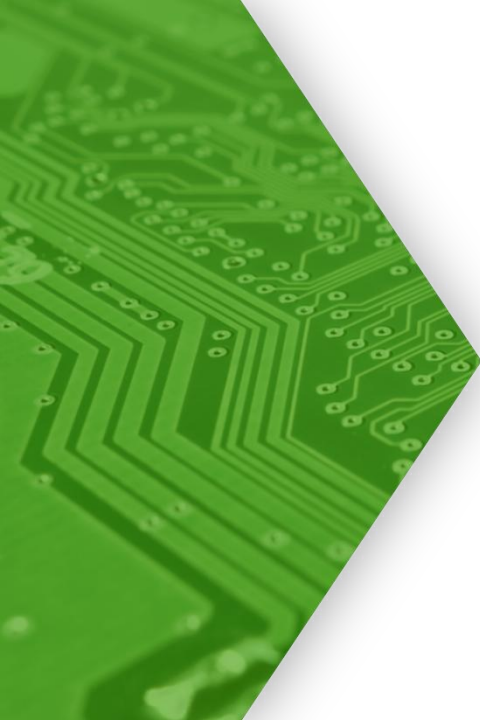




Milliohm Electronic Co., Ltd

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About Milliohm

1/ Company Profile

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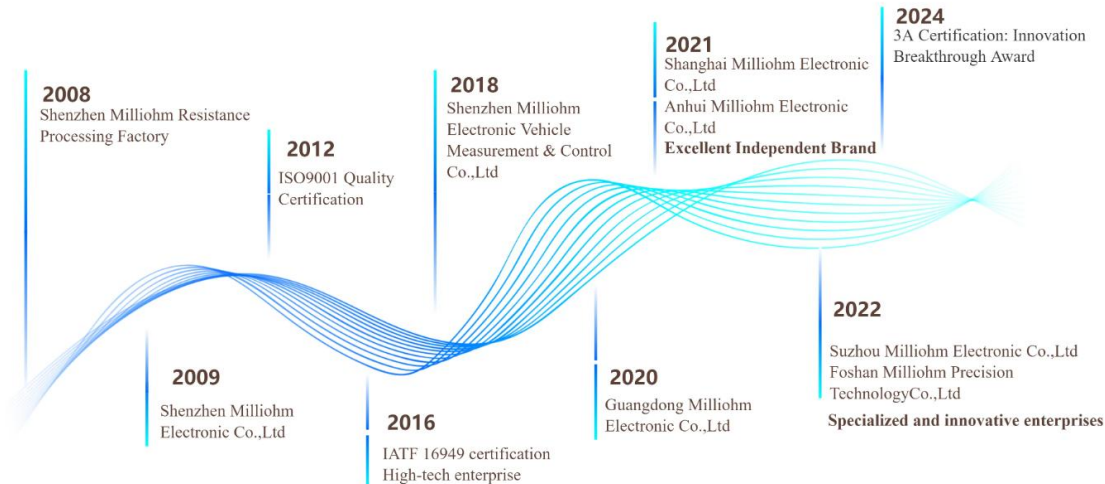
6/ Honors and Qualifications



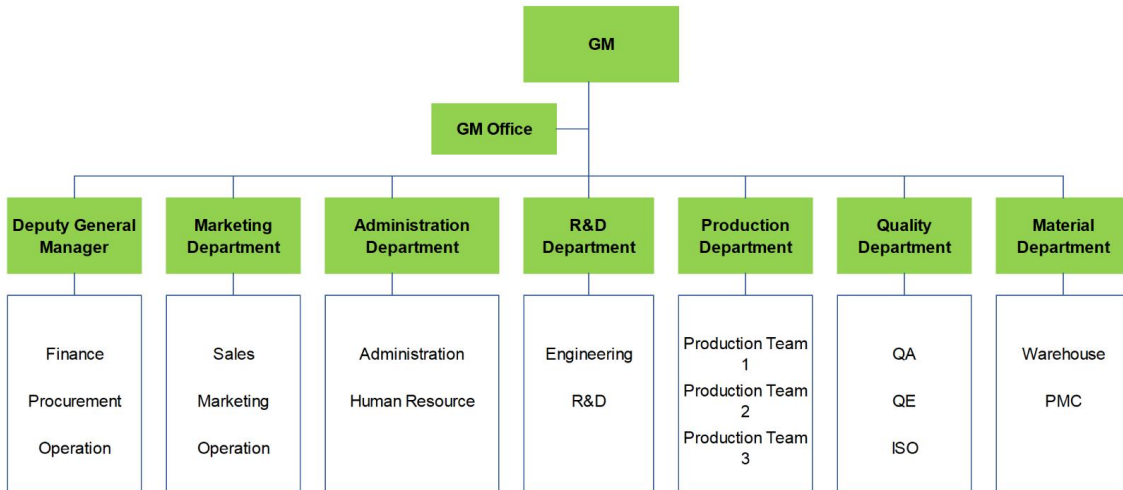
Milliohm Electronics was founded in 2008 and registered in 2009 as Shenzhen Milliohm Electronics Co., Ltd. It is a national high-tech enterprise. It passed the ISO9001 quality management system certification in 2009, the IATF16949 quality system certification in 2016, and obtained the certification of specialized and new enterprises in 2022. It has three major production bases for SMD, plug-in, and shunt, with a total area of 20,000 m². There are more than 230 excellent employees who stick to their posts to produce high-end milliohm resistors.

The company mainly produces automotive-grade shunts, industrial shunts, alloy resistors/automotive-grade alloy resistors, constantan wire manganese copper wire resistors, ceramic resistors, jumper resistors, bus bars and other high-end and high-quality series of alloy resistors.

History of Milliohm Electronic



Milliohm Organization





Production Capacity

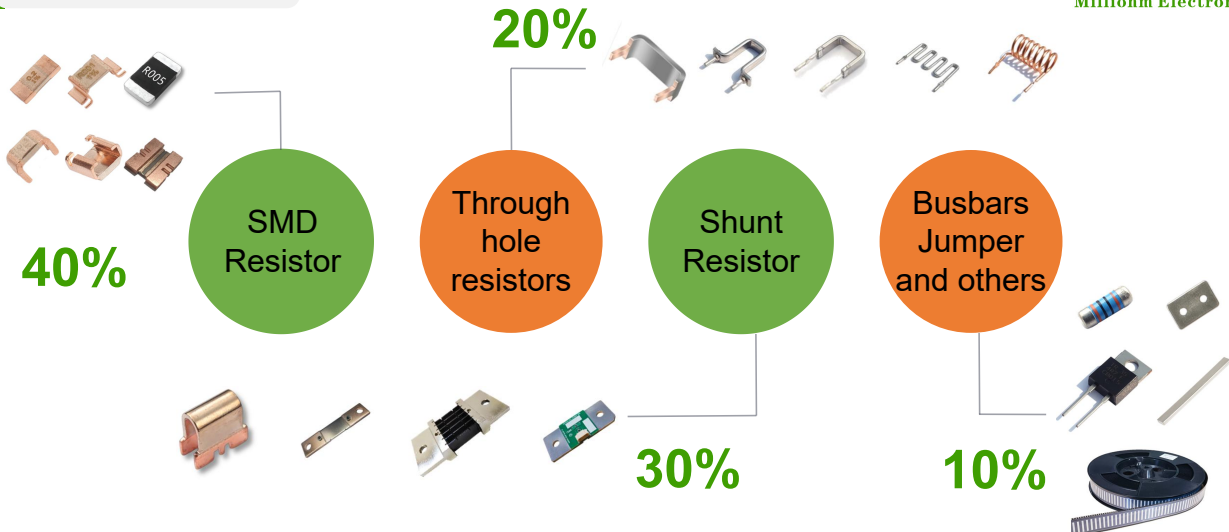
SMD Resistor $\geq 250\text{-}300\text{kk/M}$

Through Hole Resistors $\geq 15\text{-}18\text{kk/M}$

Shunts $\geq 5\text{kk-}10\text{M}$

Bus bar & jumpers $\geq 100\text{kk/M}$







As a high-tech enterprise, our company has passed the EU environmental protection requirements ROHS, SVHC, California 65, TSCA, CE certification, and the company has passed ISO9001, IATF16949, specialized and new enterprises, 3A, State Grid testing standards, etc. Quality is our eternal pursuit!

Milliohm Electronics is committed to the research and development and design of milliohm-level electronic sampling resistors, and has successively obtained 41 patents including invention patents, utility model patents, and appearance patents. Products include shunts, chip resistors, plug-in resistors, etc.

2

Milliohm Products

1/ Raw Materials

2/ Finished Product



Chen Yu
R&D Director

Bachelor of Applied Chemistry
16 years of experience in the field of splitters
and material innovation
Takes on the calibration and design tasks of
multiphase splitters, breaking the technical
barriers of some foreign countries to domestic
ones and calibrating the industry standards of
manganese-copper splitters in multiple fields.



Dr. Song
R&D

Doctor of Materials Physics and Chemistry
With 11 years of experience in materials
research, he has presided over and led a
number of key natural science research
projects and published a number of
academic achievements and journal
articles.

Dr. Zhong
Laborator



Doctor of Materials Processing Engineering
He has been engaged in the research of
materials processing for more than 6 years
and has published many papers and patents.

David
Partner



Ph.D. in Physics, Responsible for the
structural design, application testing of
resistors
and the software development of
related detection systems.

Smelting and Production

Jointly initiated and formulated with Xiamen Torch

New industry standards for alloy resistance materials

School-enterprise Cooperation

Since its establishment, the company has established cooperative relations with Hefei University of Technology, Bengbu College, etc.

Experts and professors in related fields have participated in the research and development of manganese-copper alloy series and nickel (Ni)-chromium (Cr) alloy materials.

Key laboratory assistance

In order to rationally utilize R&D resources and improve R&D efficiency, we have carried out cooperation with Dongguan Songshan Lake Laboratory and Hefei University of Technology Copper Alloy R&D Center.

**Milliohm electronic alloy material
research and development**

Raw materials - production

25 Mn Manganese 54.938	26 Fe Iron 55.845	27 Co Cobalt 58.933	28 Ni Nickel 58.693	29 Cu Copper 63.546
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Independently Developed Alloy Formula

The research on alloy raw material ratio is mature.

Together with Xiamen Torch, we jointly initiated the formulation of a new industry standard for alloy resistor materials and carried out mass production.



First-class Electron Beam Welding Production Line

Master the domestic high-end core technology, and independently controlled the electron beam welding process.

Continuous welding thickness reaches 0.1-5 mm, width 200mm.



Exclusive post- processing technology

The alloy post-processing technology originally developed by the R&D team can effectively control the stability and temperature coefficient of the product.

Strong Equipments & Test Capabilities

Annealing furnace



The post-treatment annealing process of the alloy is studied to make the temperature performance of the alloy more stable and control the temperature coefficient and resistance, etc.

Metal smelting furnace



It can melt metal blocks and cast metal ingots, achieving multiple uses in one furnace.
The furnace is equipped with a visual vacuum pressure gauge, which can directly observe the vacuum degree in the chamber.
The alloy ingot can be turned over for multiple melting without destroying the gas protective atmosphere.

Metallographic microscope



Microstructure analysis, defect detection and heat treatment effect evaluation of alloys.

XRD diffractometer



Analyze the composition, crystal structure, grain size, and stress of alloy materials.



SEM, TEM Electron Microscope

SEM is used to test the morphology of alloy surface and cross section.
TEM is used to test the microstructure of the alloy.

Surface mount resistor



Through hole mount resistor



Industrial/Automotive Shunts



High precision resistor
High power resistor
Busbar and others



Standard resistor



16 Years professional resistor
research and development

Ultra-Low inductance

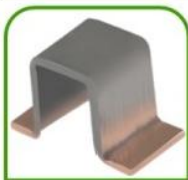
Ultra-High precision

Ultra-Low temperature drift

Excellent Consistency

Flexibly Customizable

SMD Alloy Resistance/Automotive grade Alloy Resistance



1.SIZE: LRS3920、LRS5930、LRS2512、LRS1206、HOVB4026、HORS3824、HORS3821、HOBH

2.POWER: 1~20W

3.PRECISION: 0.1%~0.5%~1%

4.RESISTANCE: 0.1mΩ~20mΩ

5.TEMPERATURE DRIFT: 10PPM~50PPM

6.TEMPERATURE: -55~170℃

7.Independent design, production of special resistance values, customizable

8. Product Applications: Sampling resistor, current sensing resistor

9. Application Sectors:

Industrial equipment, automation, new energy (photovoltaic, energy storage, inverter) robots, BMS, industrial power supply, etc.

10.Benchmark Brands: VISHAY,ISABELLA,ROHM,TT

SMD Alloy Resistance/Automotive grade Alloy Resistance



1.SIZE: 1206、2512、2728、4527、2817、3637

2.POWER: 1~7W

3.PRECISION: 0.1%~0.5%~1%

4.RESISTANCE: 0.5mΩ~500mΩ

5.TEMPERATURE DRIFT: 20PPM~50PPM

6.TEMPERATURE: -55~170°C

7.Independent design, production of special resistance values, customizable

8. Product Applications: Sampling resistor, current sensing resistor

9. Application Sectors:

Automotive electronics, power supply, digital, new energy, robotics, servo, home appliance control, BMS, lithium battery protection board, etc.

10.Benchmark Brands:

BOURNS,ROHM,RALEC,VIKING,TA-I

AUTOMOTIVE ELECTRONICS APPLICATIONS

1.Power (power supply)

- On-board charger
- DC Converter
- Transmission control unit
- Oil Pump
- Ignition settings

2.Chassis Control

- Electronic power steering
- Braking system
- Electro-hydraulic brake system
- Brake-by-wire system
- Anti-lock emergency brake

3.Thermal Management System

- Water pump WP
- PTC heater/PTC
- Air conditioning system/AC
- Blower

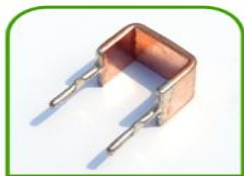
4.Body Electronics

- Seat adjustment
- Window lift
- Tailgate control
- Sunroof control
- Lighting system
- Airbag



Size: HoCG1206、HoCG2512、HoJLRC1206、HoJLRC2512、HoVB4026、HoBB3038、HoBH3820

PLUG IN RESISTANCE



1.SIZE: HOK/HOM/HOTN

2.POWER: 1~10W

3.PRECISION: 0.1%~0.5%~1%

4.RESISTANCE: 0.2mΩ~1Ω

5.TEMPERATURE DRIFT: 5PPM~50PPM

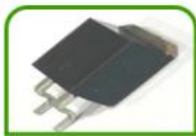
6. Independent design, special resistance value, shape, pitch size can be customized

7.Product Applications: Sampling resistor, Current sensing resistor

8.Application Sectors:

Electronic circuits, communication systems, instruments and meters, automotive electronics, home appliances, switching power supplies, frequency conversion, etc.

HIGH POWER RESISTANCE



1. POWER: 20W~140W

2. PRECISION: 0.05%~0.1%~1%

3. RESISTANCE: 0.01Ω~10KΩ

4. TEMPERATURE DRIFT: 50PPM~200PPM

5. Special resistance values can be customized

6. Product Applications: Sampling resistor, current sensing resistor, current shunt, current limiting

7. Application Sectors: Inverter, charging pile, industrial power supply, lithium battery, communication equipment, etc.

8. BENCHMARKING: BOURNS, VIKING



1. POWER: 5W~500W

2. PRECISION: 1%~5%

3. RESISTANCE: 0.01Ω~82KΩ

4. TEMPERATURE DRIFT: 20PPM~50PPM~100PPM~250PPM

5. Special resistance values can be customized

6. Product Applications: Sampling resistor, current sensing resistor, current shunt, current limiting

7. Application Sectors: Inverter, charging pile, industrial power supply, lithium battery, communication equipment, etc.

HIGH PRECISION RESISTANCE



- 1.POWER: 1W~3W
- 2.PRECISION: 0.1%~1%
- 3.RESISTANCE: 0.01 Ω ~10K Ω
- 4.TEMPERATURE DRIFT: 5PPM~50PPM
- 5.Special resistance values can be customized
- 6.Application Sectors: Instruments and medical devices



- 1.POWER: 0.5W~1W
- 2.PRECISION: 0.01%~0.1%~1%
- 3.RESISTANCE: 0.01 Ω ~1m Ω
- 4.TEMPERATURE DRIFT: 5PPM~50PPM
- 5.Special resistance values can be customized
- 6.Application Sectors: Instruments, medical equipment, power supplies, power equipment, electronic digital products, etc.



- 1.POWER: 10W~500W
- 2.PRECISION: 5%~1%~0.05%
- 3.RESISTANCE: 0.5m Ω ~20
- 4.TEMPERATURE DRIFT: 10PPM~30PPM
- 5.Pecial resistance values can be customized
- 6.Application Sectors: Communications, medical equipment, automation control, etc.



- 1.POWER: 0.5W~10W
- 2.PRECISION: 1%~0.1%~0.05%
- 3.RESISTANCE: 0.5m Ω ~39K Ω
- 4.TEMPERATURE DRIFT: 5PPM~50PPM
- 5.Pecial resistance values can be customized
- 6.Application Sectors: Communications, medical equipment, automation control, etc.

BATTERY MANAGEMENT SYSTEM/BMS APPLICATIONS (VEHICLE SPLITTER)

1.SIZE: 6918、8518、8420、9420、8536、8436、6032

2.PRECISION: 0.1%~1%

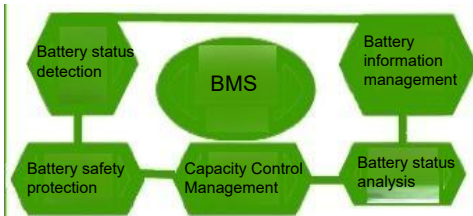
3.RESISTANCE: 50~250 μ Q

4.Application Sectors: Power battery BMS, storage battery BMS, PDU

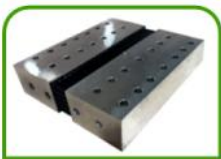
5.Benchmark Brands: **VISHAY, ISABELLA**

Car Shunt, higher product performance

Can completely replace foreign materials

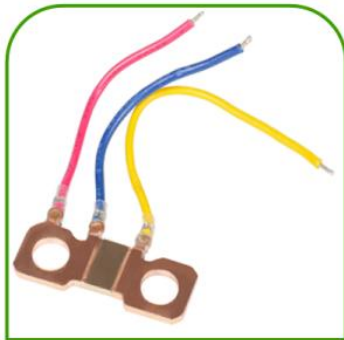


INVERTER/INDUSTRIAL SHUNTS



- 1.ELECTRICITY: 5A~60000A
- 2.PRECISION: 0.05%~0.5%~0.2%~0.1%~1%
- 3.TEMPERATURE DRIFT: 10PPM~100PPM
- 4.Pecial resistance values can be customized
- 5.Product Applications: Current diversion and current detection
- 6.Application Sectors:
Control cabinet, power management system, Internet of Things, frequency conversion, power system, testing equipment, charging pile, etc.

INVERTER/INDUSTRIAL SHUNTS



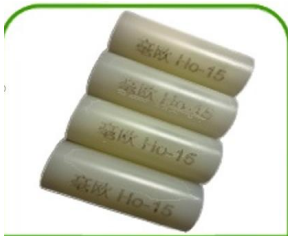
1.HIGH POWER

2.PRECISION: 0.1%~0.2%~0.5%~1%~5%

3.Customization is acceptable

4.Application Sectors: Meters

CELL SAMPLING RESISTANCE



1.PRECISION: 5%~1%~0.5%

2. TEMPERATURE DRIFT: 50PPM~10PPM

3.Customization is acceptable

4.Application Sector:

Portable electronic devices, solar energy and energy storage systems, industrial automation and control systems, industrial automation, etc

Busbars and Zero Ohm Resistor



1.ELECTRICITY: 5A-600A

2.MATERIAL WIDTH: 0.1mm

3. Material thickness can be customized

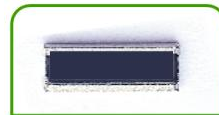
4. Material length can be customized

5.Product Applications: Heat dissipation, conductivity, overcurrent

6.Application Sectors: Industrial control industries



ZERO Ω RESISTOR



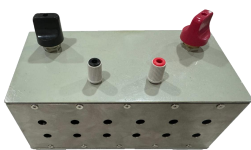
1.SIZE: 0805、1206、2512

1.5*3.2、1.5*5.2、1.5*8.2、1.5*10.2、1.5*13.2

2.POWER: 0.5W~7W

3.PRECISION: 0.5%~0.2%~5%

4.RESISTANCE: 0 Ω



Metrology Grade:
Standard Resistor

(Ultra high precision)

Tolerance: 0.01-0.02-0.05%

Ultra high precision

Metrology use
Customizable

Application

Measurement and calibration equipment laboratory
Scientific research
Quality control and inspection



High-Precision
Constant Current
Source Device

2D Measuring
Instrument



RoHS Teste Device

Thermal Shock
Test Chamber



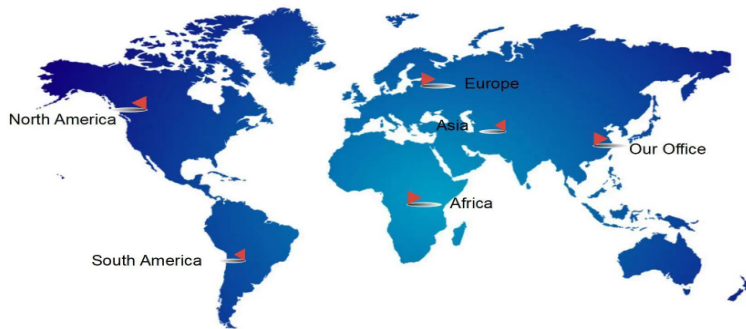
Temperature Drift Test
Machine

Item	Content
Feature	1.High power 1-60000A 2.Low resistance 10μQ 3.High precision 0.01% 4.Low temperature drift 5PPM
Advantages	Purely domestically produced (independent and controllable): from materials to products, everything comes from within the country
	Enterprise category: An enterprise integrating independent R&D, production and sales, with automation equipment productivity reaching over 90%
	Brand awareness: 17 years of R&D, production and sales experience in the field of alloy resistors
	Product recognition: Highly recognized in customer applications
	Product service: can replace international brands, high cost performance, good delivery time and good service
	Product quality: high precision, low resistance, low temperature drift, good stability, strong reliability
	Product maturity: 1. It can replace many international and domestic brands and deepen customer cooperation 2. Customers no longer have to choose from multiple brand suppliers 3. From raw material development, material welding, electron beam welding, self-developed equipment, and self-developed test systems, it is in a leading position in the industry, with a maximum accuracy of one millionth, and cooperates with the Institute of Metrology; 4. Pure alloy resistor series, self-customization and diversification, can be customized according to customer needs, shunts are horizontal, vertical, and various installation methods, with ultra-large current 40000A and 60000A shunts; busbars are customized according to different sizes in various industries

3

With Milliohm

Our Customers



宋杨 (Sunny Song)
销售经理 (Sales Manager)

13266538616



Tel : 0755-81488408

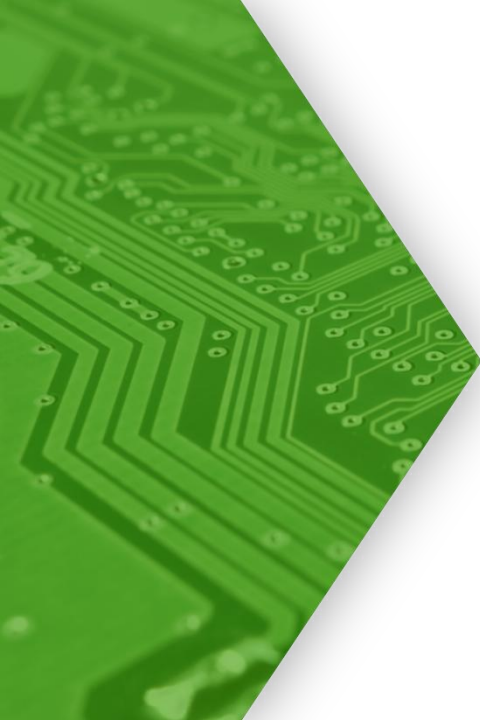
WhatsApp : 00852-52692206

E-mail : ho08@moolee.com.cn

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Guanhu Street, Longhua District, Shenzhen City, Guangdong Province, China

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Milliohm Electronic Co., Ltd