

# Semiment Product Selection Guide

A PROFESSIONAL AUTOMOTIVE-GRADE IC SUPPLIER





**A Professional Automotive-grade IC Supplier**

Founded in 2011, Semiment Technology Co., Ltd. is headquartered in Shanghai, with R&D centers, sales centers and automotive-grade testing/packaging factories in Shanghai, Hangzhou, Xi'an, Shenzhen, Jiashan and other places. As one of the earliest integrated circuit (IC) design companies for automotive electronics in China, Semiment is committed to providing customers with complete automotive-grade IC solutions. Its main products include sensor ICs, power management ICs, motor driver ICs, and other ICs, which are widely used in the fields of automotive electronics, consumer electronics, and industrial control, etc.



#### VISION

To be the leading automotive IC supplier in China, acknowledged by OEMs from automotive industry

#### MISSION

Continuously create maximum value for customers through tech, and cost innovations

#### VALUES

Openness, Integrity, Collaboration, Innovation

### STRATEGIC DEVELOPMENT

2011

Formed a team

2014 - 2021

Hall Sensors

2022 - 2023

Hall Sensors Power  
Management ICs  
Motor Driver ICs

2024

Started automotive-grade  
packaging/testing production  
in our own plant

Future

Automotive Electronics  
Systematic Solution

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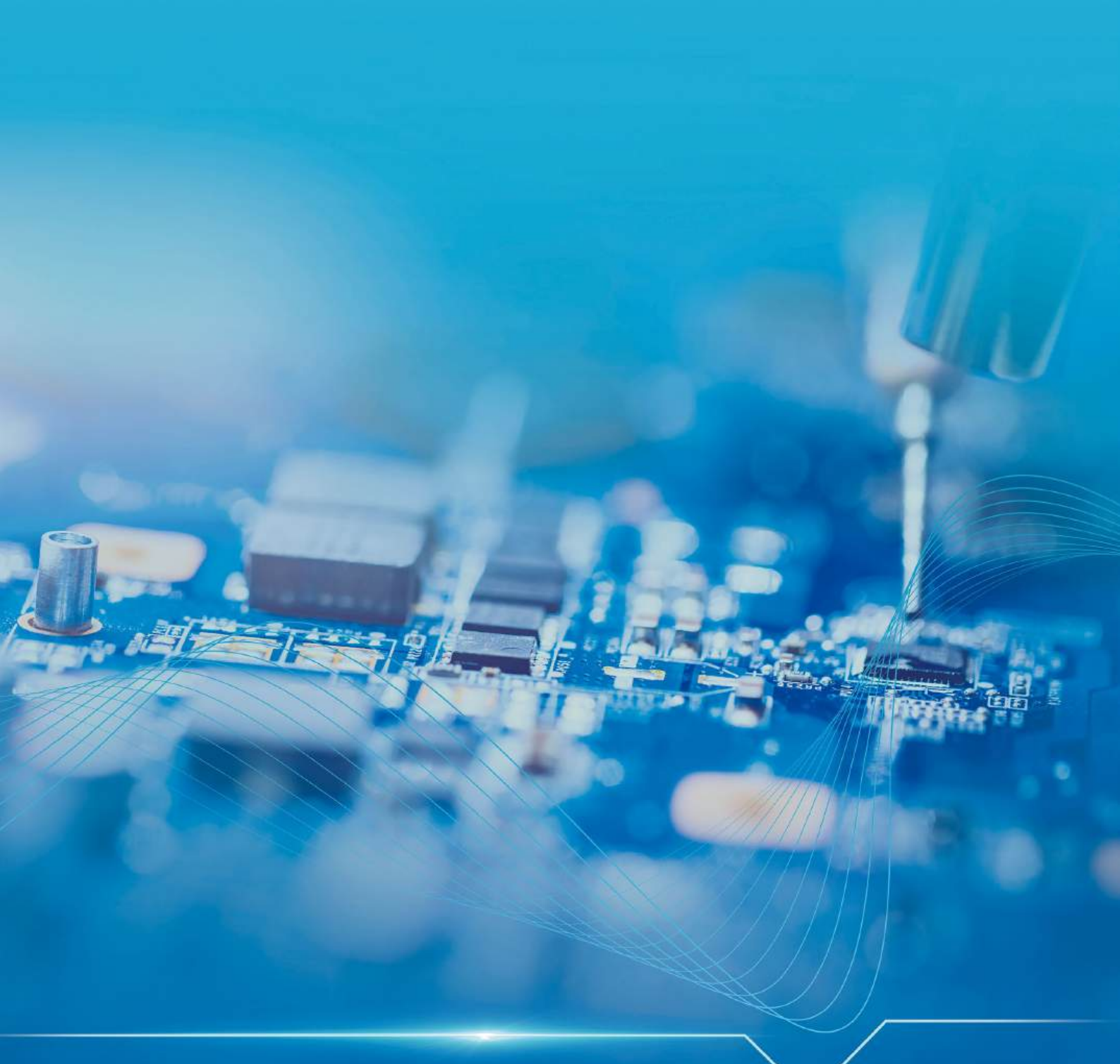
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## SPEED SENSOR ICS

This product series is based on the Hall effect principle, enabling non-contact high-precision speed measurement for rotating components like crankshafts and camshafts. They feature high reliability and anti-interference capabilities, maintaining stable measurement performance in complex environments. Widely used in automotive powertrain systems, motor control, and industrial automation. Leveraging decades of application experience and close collaboration with OEMs/Tier1s, we provide customized solutions, significantly improving system safety and operational reliability.

## 01 Wheel Speed Sensor ICs

Wheel speed sensors provide critical rotational speed information for vehicle braking control systems (ABS and ESP). Semiment's new generation SC968X series supports ASIL-B functional safety level with comprehensively upgraded performance, compatible not only with mainstream vehicle ABS/ESP systems but also applicable in scenarios like rotational speed detection in iTPMS systems.

### Feature

- AEC-Q100
- ISO26262 ASIL B
- Wide Operating Voltage/Temperature Range
- Dynamic Self-Calibration
- Vibration Suppression Algorithm
- Speed, Direction and Alarm Signal Output
- PCB-Less
- Enhanced EMC Performance

P.N.	Output	Interface	Detection	Hysteresis Type	BW(H <sub>z</sub> )	Package	Automotive Grade	Feature
SC9641TS	Current	SQ	Speed	Fixed	1~10k	TS	AEC-Q100	Speed
SC9641TS-PC	Current	SQ	Speed	Fixed	1~10k	TS	AEC-Q100	Speed, Integrated ceramic capacitor
SC9642TS	Current	PWM	Speed+Dir	Fixed	1~5k	TS	AEC-Q100	Speed+Direction
SC9642TS-EC	Current	PWM	Speed+Dir	Fixed	1~5k	TS	AEC-Q100	Speed+Direction, Integrated ceramic capacitor
SC9642T2	Current	PWM	Speed+Dir	Fixed	1~5k	T2	AEC-Q100	Speed+Direction, Integrated silicon capacitor
SC9682TS	Current	SQ	Speed	Fixed+Adaptive	0~12k	TS	AEC-Q100, ASILB	Vibration Suppression
SC9682T2	Current	SQ	Speed	Fixed+Adaptive	0~12k	T2	AEC-Q100, ASILB	Vibration Suppression, Integrated silicon capacitor
SC9683TS	Current	PWM	Speed+Dir	Fixed+Adaptive	0~5k	TS	AEC-Q100, ASILB	Vibration Suppression
SC9683T2	Current	PWM	Speed+Dir	Fixed+Adaptive	0~5k	T2	AEC-Q100, ASILB	Vibration Suppression, Integrated silicon capacitor
SC9684TS	Current	AK	Speed+Dir	Fixed+Adaptive	0~1.8k	TS	AEC-Q100, ASILB	Vibration Suppression
SC9684T2	Current	AK	Speed+Dir	Fixed+Adaptive	0~1.8k	T2	AEC-Q100, ASILB	Vibration Suppression, Integrated silicon capacitor

**Notes:** TS: TS-2 T2: TS-2A

## 02 Camshaft Sensor ICs

The camshaft sensor is a core component of the engine control system, responsible for real-time monitoring of camshaft angle and position signals. Widely applicable for camshaft position monitoring and speed detection in engines. Semiment offers a high-precision automotive-grade camshaft sensor IC portfolio, supporting TPOS + PCB-Less + programmable technology, adaptable to diverse scenarios like engine position monitoring and speed detection.

### Feature

- AEC-Q100
- Wide Operating Voltage/Temperature Range
- High Accuracy & High Sensitivity
- TPOS
- No Need to Rotate Alignment
- Back Magnetic Selection
- PCB-Less

P.N.	Output	TPOS	Programmable	Hysteresis Type	BW(H <sub>z</sub> )	Package	Automotive Grade	Feature
SC9314UA	Voltage	-	-	Fixed	0~20K	UA	AEC-Q100	Self-adjusting
SC9388T3	Voltage	TPOS	MTP	Adaptive	0~8K	T3	AEC-Q100, ASILB	High Accuracy, PCBLess
SC9675IM	Voltage	TPOS	OTP	Adaptive	0~8K	IM	AEC-Q100	Back-Magnetic
SC9675T3	Voltage	TPOS	OTP	Adaptive	0~8K	T3	AEC-Q100	PCBLess

**Notes:** UA: TO-92S T3: TS-3 IM: IM-P

### 03 Crankshaft Sensor ICs

Semiment crankshaft sensor ICs feature fast response, vibration resistance, high precision, and wide compatibility, suitable for crankshaft speed and position detection applications in engines.

#### Feature

- AEC-Q100
- Wide Operating Voltage/Temperature Range
- High Accuracy & High Sensitivity
- Speed and Direction Signal Output
- Excellent Jitter Immunity
- Dynamic Self-Calibration

Ordering Info.	Output	Interface	Hysteresis Type	Detection	BW(H <sub>z</sub> )	Package	Automotive Grade	Feature
SC9621VB-TR-Q	Voltage	SQ	Fixed	Speed	5~20K	VB	AEC-Q100	Reverse protection
SC9669T3-TR-Q	Current	PWM	Adaptive	Speed+Dir	0~12K	T3	AEC-Q100, ASILB	High Accuracy, PCBless

**Notes:** VB: TO-94 T3: TS-3

### 04 Transmission Sensor ICs

SC9685/SC9686 are transmission speed sensor chips certified for ASIL-B functional safety, featuring strong resistance to vibration interference and supporting detection of target gears with different widths. Suitable for speed detection applications in transmission systems.

#### Feature

- AEC-Q100
- ISO26262 ASIL B
- Wide Operating Voltage/Temperature Range
- Dynamic Self-Calibration
- Vibration Suppression Algorithm
- Speed and Direction Signal Output
- PCB-Less
- Enhanced EMC Performance

Ordering Info.	Output	Interface	Detection	Pulse Width(us)	BW(H <sub>z</sub> )	Package	Automotive Grade	Feature
SC9625VB-TR-Q	Voltage	SQ	Speed	-	5~20K	VB	AEC-Q100	Reverse protection
SC9685TS-RP90-TR-Q	Current	PWM	Speed+Dir	45/90	0~12K	TS	AEC-Q100, ASILB	Vibration Suppression, PCBless
SC9685TS-RP180-TR-Q	Current	PWM	Speed+Dir	45/180	0~12K	TS	AEC-Q100, ASILB	Vibration Suppression, PCBless
SC9685TS-RP120-TR-Q	Current	PWM	Speed+Dir	120/60	0~9K	TS	AEC-Q100, ASILB	Vibration Suppression, PCBless
SC9685TS-FP90-TR-Q	Current	PWM	Speed+Dir	90/45	0~12K	TS	AEC-Q100, ASILB	Vibration Suppression, PCBless
SC9685TS-FP180-TR-Q	Current	PWM	Speed+Dir	180/45	0~12K	TS	AEC-Q100, ASILB	Vibration Suppression, PCBless
SC9686T3-FP90-TR-Q	Voltage	PWM	Speed+Dir	90/45	0~12K	T3	AEC-Q100, ASILB	Vibration Suppression, PCBless
SC9686T3-FP180-TR-Q	Voltage	PWM	Speed+Dir	180/45	0~12K	T3	AEC-Q100, ASILB	Vibration Suppression, PCBless

**Notes:** VB: TO-94 TS: TS-2 T3: TS-3

## 05 Geartooth Sensor ICs

Semiment geartooth sensor feature high sensitivity, dual-channel digital quadrature output, and low power consumption. Applied in speed and direction measurement of AC induction motors.

### Feature

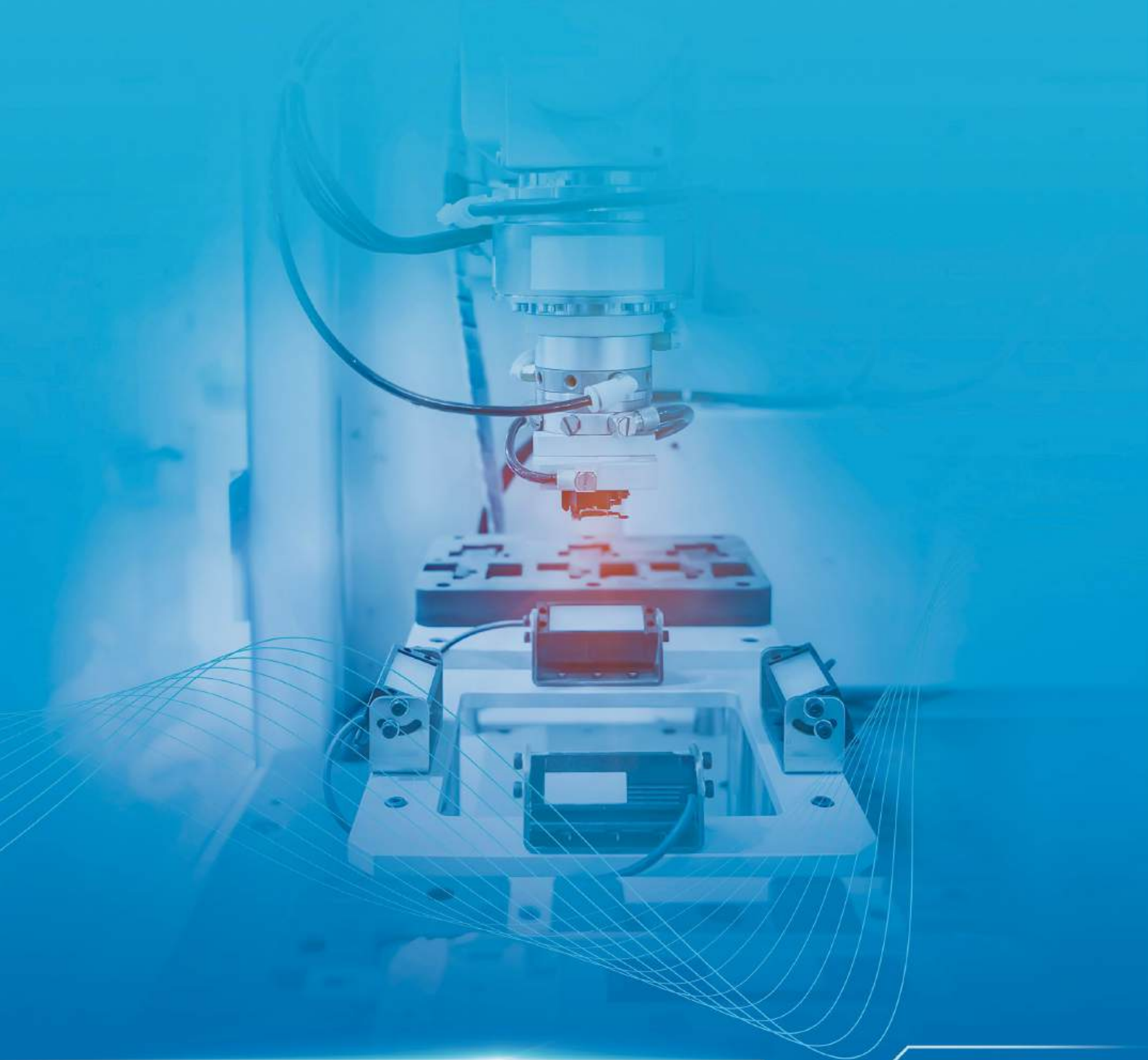
- High Sensitivity & Large Air Gap
- Quadrature Output
- High Duty Ratio & High Phase Accuracy Error
- Low Start-up Voltage
- Reduced Power Consumption

P.N.	Output	Interface	Hall Spacing(mm)	Hysteresis Type	BW(Hz)	Package	Feature
SC9632VB	Voltage	A+B	2.1	Fixed	10~20K	VB	OVP, Reverse protection, High Sensitivity
SC9633VB	Voltage	A+B	1.2	Fixed	10~20K	VB	OVP, Reverse protection, High Sensitivity
SC9634VB	Voltage	A+B	1.8	Fixed	10~20K	VB	OVP, Reverse protection, High Sensitivity
SC9636VB	Voltage	A+B	-	Fixed	0~20K	VB	-

**Notes:** VB: TO-94







## MAGNETIC POSITION SENSOR ICS

Semiment provides Unipolar, Bipolar, Omnipolar, Dual-Channel, and Linear series Magnetic Position Sensor ICs. This series features advantages like high-performance automotive-grade stray field immunity and high-precision position detection. Meanwhile, products focus on different characteristics for different application scenarios: high reliability industrial and automotive fields emphasize linearity and temperature stability; consumer electronics focus on miniaturization and cost-effectiveness.



## 01 Linear Hall

Semiment's new generation products use 3D Linear Hall technology to simultaneously detect X/Y/Z three-axis magnetic field changes, featuring high bandwidth and micro-power consumption. Considering the need to improve space utilization and system integration, they adopt miniaturized and highly integrated package designs. Their application scenarios widely cover industrial robot joint precision control, smart home appliance interfaces (e.g., knobs, buttons), and consumer electronic devices (e.g., game controllers, VR devices).

### Feature

- Diversification of Sensitivity
- Wide Bandwidth Fast Response
- Micropower Mode
- 3D Omnidirectional Induction

P.N.	Voltage(V)	V <sub>Q</sub>	Sensitivity,VDD=5V	BW(Hz)	Temp(°C)	Package	Feature
SC4251	3.0~5.5	50% VDD	2.5mV/Gs 2D	30K	-40~125	D3, DN	Dual channel, Sine-Cosine output
SC4923	2.5~5.5	90% VDD	3.3mV/Gs	1.0M	-40~125	SO, UA	Rail to Rail, Unipolar
SC4823	2.5~5.5	90% VDD	3.3mV/Gs VDD 3.3V	-	-40~105	S6	Sleep & Awake, Unipolar
SC4723	2.5~5.5	85% VDD	4.5mV/Gs	250K	-40~105	SO	Unipolar, Ultra-Low power
SC4702	2.5~5.5	50% VDD	2mV/Gs	250K	-40~105	SO	Bipolar, Ultra-Low power
SC4703	2.5~5.5	50% VDD	3mV/Gs	250K	-40~105	SO	Bipolar, Ultra-Low power
SC4391	3.0~5.5	Adjustable	2.4~8.6mV/Gs	-	-40~85	S6, DN	Digital output, High Speed
SC4104	2.5~5.5	50% VDD	5mV/Gs	100K	-40~105	SO, SE, DN	Bipolar, Sleep mode
SC4103	2.5~5.5	50% VDD	4mV/Gs	100K	-40~105	SO, SE, DN	Bipolar, Sleep mode
SC4102	2.5~5.5	50% VDD	2.5mV/Gs	100K	-40~105	SO, SE, DN	Bipolar, Sleep mode
SC4101	2.5~5.5	50% VDD	1.5mV/Gs	100K	-40~105	SO, SE, DN	Bipolar, Sleep mode
SC4015	2.2~5.5	66% VDD	3.9mV/Gs	-	-40~105	SO	Unipolar, Power on time <1uS
SC4002	3.3~10.5	50% VDD	3.125mV/Gs	-	-40~150	BU, SO, UA	Bipolar
SC4001	4.5~5.5	50% VDD	1.4mV/Gs	-	-40~125	SO, UA	Bipolar
SC4833	2.5~5.5	90% VDD	3.3mV/Gs VDD 3.3V	-	-40~105	S6	Parameter programmable, Awake, Unipolar

**Notes:** SO: SOT23-3L SE: SOT23 S6: SOT23-6L S7: TO92-S7 UA: TO-92S BU: SOT89-3 DN: DFN1616 D3: DFN3\*3

## 02 Dual-Channel Switch Hall

Semiment adopts a dual-channel differential output design with outstanding anti-electromagnetic interference capability, making it very suitable for industrial motor control applications. This design supports zero-speed detection and direction identification, accurately detecting the speed and rotation direction of a magnetic ring; it can output two orthogonal signals or one integrated speed and direction signal.

### Feature

- AEC-Q100
- Wide Operating Temperature Range
- Diversification of Sensitivity
- Wide Operating Voltage Range
- Sequential Control

P.N.	Voltage(V)	B <sub>OP</sub> (mT)	B <sub>RP</sub> (mT)	B <sub>H</sub> (mT)	Temp(°C)	Package	Automotive Grade	Feature
SC2529-AB	3.0~80	2.5	2.5	5.0	-40~150	VB, S6	AEC-Q100, ASILB	Speed+Speed, XY Active, BV>100V
SC2529-AB-CT	3.0~80	2.5	2.5	5.0	-40~150	VB	AEC-Q100, ASILB	Speed+Speed, XY Active, PCBLess
SC2529-SD	3.0~80	2.5	2.5	5.0	-40~150	VB, S6	AEC-Q100, ASILB	Speed+Direction, XY Active, BV>100V
SC2529-SD-CT	3.0~80	2.5	2.5	5.0	-40~150	VB	AEC-Q100, ASILB	Speed+Direction, XY Active, PCBLess
SC2528-AB	3.0~80	2.5	2.5	5.0	-40~150	VB, S6	AEC-Q100, ASILB	Speed+Speed, ZX Active, BV>100V
SC2528-AB-CT	3.0~80	2.5	2.5	5.0	-40~150	VB	AEC-Q100, ASILB	Speed+Speed, ZX Active, PCBLess
SC2528-SD	3.0~80	2.5	2.5	5.0	-40~150	VB, S6	AEC-Q100, ASILB	Speed+Direction, ZX Active, BV>100V
SC2528-SD-CT	3.0~80	2.5	2.5	5.0	-40~150	VB	AEC-Q100, ASILB	Speed+Direction, ZX Active, PCBLess
SC2527-SD	2.8~40	3.0	-3.0	6.0	-40~150	S6	AEC-Q100	Speed+Direction, BV>60V
SC2527-AB	2.8~40	3.0	-3.0	6.0	-40~150	S6	AEC-Q100	Speed+Speed, BV>60V
SC2526-AB	2.8~40	-3.0	3.0	6.0	-40~150	VB	AEC-Q100	Speed+Speed, BV>60V
SC2526-AB-CT	2.8~40	-3.0	3.0	6.0	-40~150	VB	AEC-Q100	Speed+Speed, PCBLess, ESD>15kV
SC2526-SD	2.8~40	-3.0	3.0	6.0	-40~150	VB	AEC-Q100	Speed+Direction, BV>60V
SC2526C-SD	2.8~40	-3.0	3.0	6.0	-40~150	VB	AEC-Q100	Speed+Direction, PCBLess, ESD>15kV
SC2546-AB	2.5~24	2.0	2.0	4.0	-40~150	VB	-	Speed+Speed=1.0mm

Notes: VB:TO-94 S6:SOT23-6L

### 03 Latch Switch Hall

Semiment offers low-power, high-reliability Bipolar Switch Hall with advantages of high voltage surge resistance and strong noise immunity, supporting a wide temperature range from -40°C to 150°C. Suitable for automotive and industrial control scenarios, widely used in motor speed measurement, brushless motor commutation, etc.

#### Feature

- AEC-Q100
- Wide Operating Temperature Range
- Diversification of Sensitivity
- Wide Operating Voltage Range

P.N.	Voltage(V)	B <sub>OP</sub> (mT)	B <sub>RP</sub> (mT)	B <sub>H</sub> (mT)	Temp(°C)	Package	Automotive Grade	Feature
SC25898	4.0~24	8.0	-8.0	16.0	-40~150	SO, UA	AEC-Q100	2-wire Current output, 4mA/26mA, BV>60V
SC25898-C	4.0~24	-8.0	8.0	16.0	-40~150	UA	AEC-Q100	2-wire Current output, 4mA/26mA, PCBLess
SC25896	4.0~40	-6.0	6.0	12.0	-40~150	UA	-	2-wire Current output, 1.2mA/14mA, BV>60V
SC2929	3.0~120	3.0	-3.0	6.0	-40~150	SO, UA	AEC-Q100, ASILB	Ultra-High voltage, ESD>12kV
SC2919	4.0~120	7.0	-7.0	14.0	-40~150	SO, UA	AEC-Q100	Ultra-High voltage
SC2948	2.8~40	8.0	-8.0	16.0	-40~150	SO, UA	AEC-Q100, ASILB	BV>60V
SC2943	2.8~40	3.0	-3.0	6.0	-40~150	SO, UA	AEC-Q100, ASILB	High sensitivity, BV>60V
SC2498	2.5~40	8.0	-8.0	16.0	-40~150	SO, UA	AEC-Q100	IDD=4.0mA, BV>60V
SC2498-C	2.5~40	-8.0	8.0	16.0	-40~150	UA	AEC-Q100	IDD=4.0mA, PCBLess
SC2498T	2.5~40	3.0	-3.0	6.0	-40~150	SO	AEC-Q100	Planar magnetic sensing, IDD=4.0mA, BV>60V
SC2443	2.5~24	3.0	-3.0	6.0	-40~150	SO, UA	AEC-Q100	Good sensitivity consistency
SC2402	2.5~18	2.0	-2.0	4.0	-40~125	DN, SO, UA	-	Good sensitivity consistency
SC2202	2.5~24	1.5	-1.5	3.0	-40~125	SO, UA	-	Built-In Pull-Up resistor
SC2002	1.8~5.5	2.0	-2.0	4.0	-40~85	S5, SO	-	With enable pin switch to lowpower

Notes: SO:SOT23-6 UA:TO-92S DN:DFN1616 S5:SOT23-5L

## 04 Omnipolar Switch Hall

Semiment employs advanced chopper stabilization technology combined with a wide 2.5V to 24V input voltage range to achieve precise magnetic switch points and long-term stability. Responds synchronously to both North and South poles, simplifying installation by eliminating the need for polarity distinction. Products feature high noise immunity design and wide temperature range adaptability, suitable for complex working conditions like automotive electronics and industrial control.

### Feature

- Wide Operating Temperature Range
- Wide Operating Voltage Range
- Diversification of Sensitivity

P.N.	Voltage(V)	B <sub>OP</sub> (mT)	B <sub>BP</sub> (mT)	B <sub>H</sub> (mT)	Temp(°C)	Package	Automotive Grade	Feature
SC25899-M	3.0~40	PROG	PROG	PROG	-40~150	SO, UA	AEC-Q100, ASILB	2-wire Current Output, BOP/BRP EOL Programmable
SC2459-M	3.0~40	PROG	PROG	PROG	-40~150	SO, UA	AEC-Q100, ASILB	BOP/BRP EOL Programmable
SC2450-L	3.0~40	±2.5	±1.5	±1.0	-40~150	SO, UA	AEC-Q100, ASILB	Low power
SC2450-LI	3.0~40	±2.5	±1.5	±1.0	-40~150	SO, UA	AEC-Q100, ASILB	Low power with inverter output
SC2450-M	3.0~40	±2.5	±1.5	±1.0	-40~150	SO, UA	AEC-Q100, ASILB	High sensitivity, frequency >10kHz
SC2464-3D	3.0~80	±2.5	±1.5	±1.0	-40~150	SO, UA	AEC-Q100, ASILB	XYZ 3D Active, BV>100V
SC2462-3D	3.0~80	±6.0	±5.0	±1.0	-40~150	SO, UA	AEC-Q100, ASILB	XYZ 3D Active, BV>100V
SC2466	2.5~24	±16.5	±13.5	±3.0	-40~150	SO, UA	AEC-Q100	Low sensitivity, Good temperature stabilit
SC2464	2.5~24	±6.0	±5.0	±1.0	-40~150	SO, UA	AEC-Q100	Good temperature stabilit
SC2462	2.5~24	±2.5	±1.5	±1.0	-40~150	SO, UA	AEC-Q100	High sensitivity, Good temperature stabilit
SC2062	1.8~5.5	±1.8	±1.0	±0.8	-40~85	SO, UA	-	Micropower, OD Output
SC2061	1.8~5.5	±1.8	±1.0	±0.8	-40~85	SO, UA	-	Micropower, PP Output

Notes: VB:TO-94 S6:SOT23-6L

## 05 Unipolar Switch Hall

Semiment Unipolar Switch Hall possesses three core advantages: stability, low power consumption, and high reliability. It is specifically optimized for different application scenarios like automotive, portable devices, and industrial, fully meeting customer needs for precise sensing and long-term stable operation.

### Feature

- AEC-Q100
- Wide Operating Temperature Range
- Wide Operating Voltage Range
- Wide Operating Temperature Range
- Wide Operating Voltage Range

P.N.	Voltage(V)	B <sub>OP</sub> (mT)	B <sub>BP</sub> (mT)	B <sub>H</sub> (mT)	Temp(°C)	Package	Automotive Grade	Feature
SC25899	3.0~40	PROG	PROG	PROG	-40~150	SO, UA	AEC-Q100, ASILB	2-wire Current Output, BOP/BRP EOL Programmable
SC25899-C	3.0~40	PROG	PROG	PROG	-40~150	UA	AEC-Q100, ASILB	2-wire current type, PCBless
SC25893	3.0~40	14.0	11.5	2.5	-40~150	SO, UA	AEC-Q100, ASILB	2-wire Current Output
SC25891	3.3~24	9.0	7.5	1.5	-40~150	SO, UA	AEC-Q100, ASILA	2-wire Current Output
SC25891-C	3.3~24	9.0	7.5	1.5	-40~150	UA	AEC-Q100, ASILA	2-wire Current Output, PCBless
SC2459	3.0~40	PROG	PROG	PROG	-40~150	SO, UA	AEC-Q100, ASILB	BOP/BRP EOL Programmable
SC2452	3.0~40	18.0	13.0	5.0	-40~150	SO, UA	AEC-Q100, ASILB	High reliability, Low sensitivity, BV>60V
SC2451	3.0~40	10.0	8.5	1.5	-40~150	SO, UA	AEC-Q100, ASILB	High reliability, High reliability, BV>60V
SC2450	3.0~40	2.5	1.5	1.0	-40~150	SO, UA	AEC-Q100, ASILB	High reliability, High sensitivity, BV>60V
SC2434	2.5~24	7.0	5.5	1.5	-40~150	SO, UA	AEC-Q100	S/N pole optional
SC2432	2.5~24	2.5	2.0	0.5	-40~150	SO, UA	AEC-Q100	Low sensitivity, S/N pole optional
SC2033	1.65~5.5	2.2	1.8	0.4	-40~85	SO	-	Micropower

Notes: SO:SOT23-3L UA:TO-92S



## CURRENT SENSOR ICs

Semiment Current Sensor ICs possess three core characteristics: high integration, high precision, and high reliability. This product portfolio breaks foreign monopolies, leveraging advantages of high precision and wide range, widely serving general fields like automotive electronics, industrial automation, power electronics, and deeply applied in stringent current detection scenarios like new energy (e.g., BMS, motor control) and high-end metering.

## 01 Programmable Linear Hall

Semiment's current sensor chip based on open-loop Hall principle, used with a magnetic core, enables measurement of large currents up to 1500A. This device maintains high precision measurement from -40°C to 150°C, features high bandwidth, and multiple protection functions to effectively prevent system impact from abnormal conditions, supporting repeated EEPROM parameter programming. Designed specifically for scenarios like new energy vehicle inverters, photovoltaic energy storage systems, and battery management systems (BMS), providing stable and reliable current detection solutions.

### Feature

- High accuracy:  $\pm 2\%$  sens error at full temperature
- High bandwidth and fast response: up to 400kHz, 1.2 $\mu$ s
- Low noise
- Withstand voltage up to 24V
- Some products are AEC-Q100 qualified

P.N.	Voltage(V)	V <sub>Q</sub>	BW(H <sub>Z</sub> )	Sensitivity(mV/Gs)	Package	Automotive Grade	Feature
SC4643	4.5~5.5	50%VDD	120K	0.6~14.0	VB	AEC-Q100	Programmable, High-Speed
SC4616	4.5~5.5	2.5	5k	8.0~24.0	BU, UA	-	Cost-Effective
SC4645	4.5~5.5	2.5	240k	1.0~21.0	VB	-	Vref Pin
SC4663	4.5~5.5	50%VDD/2.5/1.65	400K	0.4~4.0	VB	AEC-Q100	OCD
SC4665	3.0~5.5	50%VDD/2.5/1.65	400K	1.0~25.0	VB	-	Vref, OCD

Notes: VB: TO94 BU: SOT89-3 UA: TO-92S

## 02 Coreless Current Sensing

This product series features a wide 3.3/5V supply range and multiple package forms, supports various output modes, covering different peak current detection needs from 10-150A. Its current path uses a low-impedance design as low as 0.27m $\Omega$ , combined with unique packaging technology, meeting the highest working isolation withstand voltage requirements per UL standards. Widely used in scenarios requiring high current detection accuracy and reliability, such as frequency converters, OBC, DCDC, photovoltaic inverters, and MPPT.

### Feature

- High accuracy:  $\pm 2\%$  sens error at full temperature
- High bandwidth and fast response: up to 400kHz, 1.2 $\mu$ s
- Low noise
- The maximum creepage distance is 8.2mm, the maximum isolation withstand voltage of 5000Vrms and the maximum working isolation withstand voltage of 1618Vpk meet the UL

P.N.	Voltage(V)	V <sub>Q</sub>	BW(H <sub>Z</sub> )	Current(A)	Package	Feature
SC4624	4.5~5.5	2.5	120K	20/25/30/50/100	DC	Vref
SC4671	3.0~5.5	50%VDD/2.5/1.65	400K	10~150	DC, SV, SW	OCD, Vref Pin

Notes: DC: SOP8 SV: SOW10 SW: SOW16

## 03 Leakage protection

Targeting the differentiated needs of Type A and AC leakage protection devices, this product series solution integrates a high-precision current detection circuit, accurately identifying complex leakage signals. The system can trigger protective action within 4 microseconds, achieving millisecond-level fast power-off, reducing electric shock and fire risks. Provides reliable personal safety protection for scenarios like industrial equipment, smart appliances, and charging

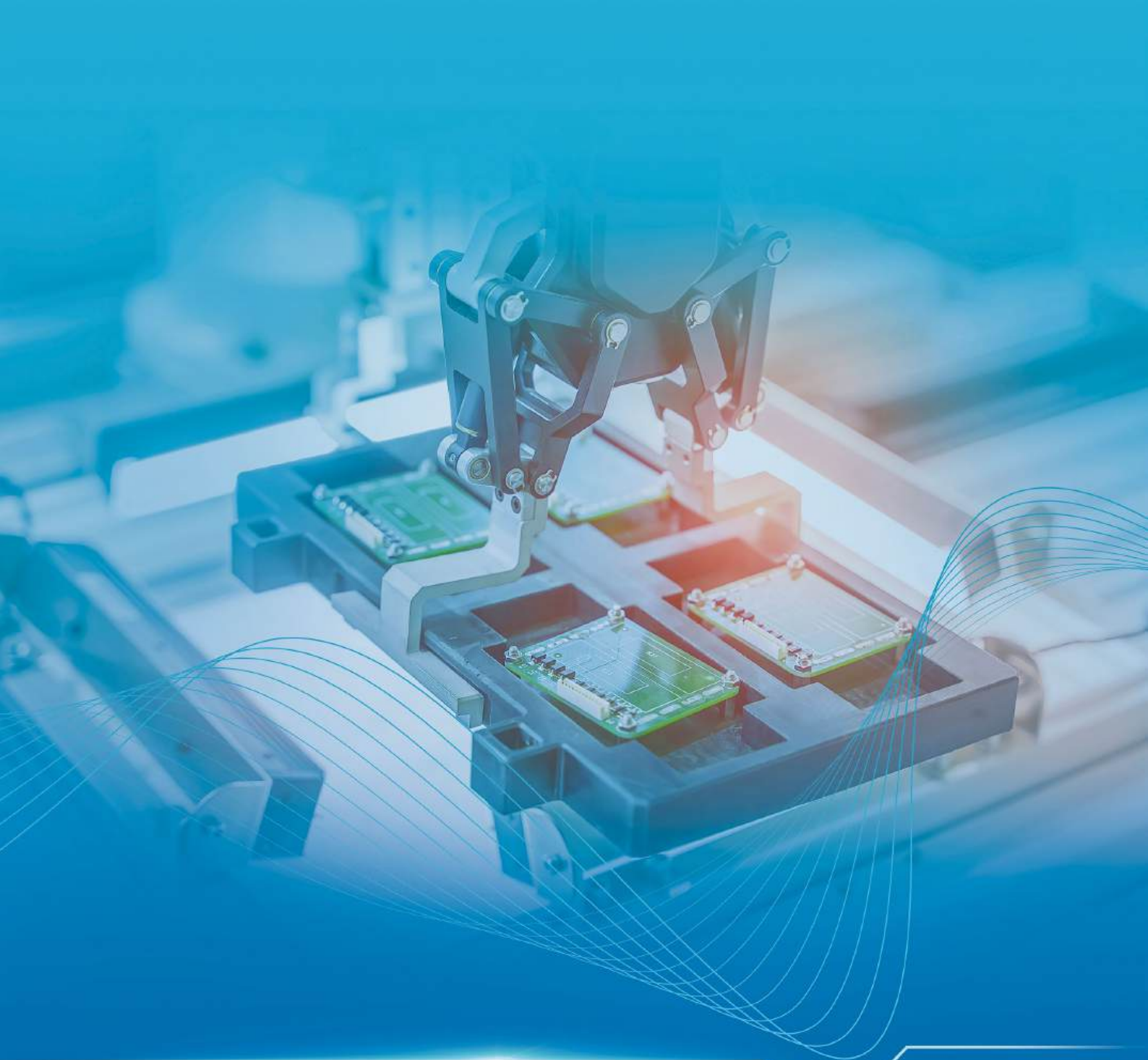
### Feature

- The chip directly uses AC power supply
- The chip directly drives SCR (thyristor), and when there is a leakage signal, the OS outputs a 30ms high-level pulse
- It is suitable for detecting AC type residual current leakage signal
- High precision and good consistency

P.N.	Voltage(V)	Leakage Current(mA)	Ton(mS)	Temp(°C)	Package	Feature
SL002147	4.5~5.5	30	30	-20~85	DC	A&AC, 110V/220V
SL54123	4.5~5.5	30	30	-20~85	DC	AC, 110V/220V

Notes: DC: SOP8





## ANGLE SENSORS ICS

Semiment's launched 360° non-contact angle sensor ICs convert object rotation angles into digital or analog signals in real-time, supporting multiple configurable programmable output interfaces. The products feature high voltage tolerance, comply with AEC-Q100 automotive-grade reliability standards, and are certified for ISO 26262 ASIL-B functional safety. Meet the accuracy requirements of different application scenarios.



## 01 Magnetic Angle Sensor

"Semiment Magnetic Angle Sensor ICs enable precise detection of slow-rotation angles of magnets, supporting factory or customer programmable configuration for output signals like analog, PWM, PSIS, SPI, SENT. This product complies with automotive-grade reliability standards, can adapt to extreme working environments like high temperature, vibration, electromagnetic interference, and is widely used in scenarios like automotive electric power steering, accelerator pedals, transmissions, and industrial hydraulic control valves, robot joints.

### Feature

- AEC-Q100
- High withstand voltage
- Wide operating temperature range
- On-line programming
- Diagnostic protection function
- Multiple output interfaces

P.N.	Voltage (V)	Current (mA)	Magnetic Field Range(mT)	Accuracy	Temp(°C)	Output	Package	Automotive Grade	Feature
SC69431S3	3.3~5.5	8	20-70	1 degree	-40~160	Analog,PWM,SPI,SENT,PSIS	S3	AEC-Q100, ASILB	3D Hall, Programmable
SC69431TG	3.3~5.5	8	20-70	1 degree	-40~160	Analog,PWM,SPI,SENT,PSIS	TG	AEC-Q100, ASILB	3D Hall, Programmable
SC69431DC	3.3~5.5	8	20-70	1 degree	-40~160	Analog,PWM,SPI,SENT,PSIS	DC	AEC-Q100, ASILB	3D Hall, Programmable
SC69411DC	3.3~5.5	8	20-70	1 degree	-40~160	Analog,PWM,SENT	DC	AEC-Q100, ASILB	2D Hall, Programmable
SC69411DA	3.3~5.5	8	20-70	1 degree	-40~160	Analog,PWM,SENT	DA	AEC-Q100, ASILB	2D Hall, Programmable
SC69401DC	3.3~5.5	8	10~120	1 degree	-40~160	Analog,PWM,SPI	DC	AEC-Q100, ASILB	2D Hall, Programmable
SC69401HS	3.3~5.5	8	10~120	1 degree	-40~160	Analog,PWM,SPI	HS	AEC-Q100, ASILB	2D Hall, Programmable
SC4688DC	4.5~5.5	7.5	-100~100	2.0%	-40~150	Analog	DC	AEC-Q100	1D Linear, Programmable
SC4688SA	4.5~5.5	7.5	-100~100	2.0%	-40~150	Analog	SA	AEC-Q100	1D Linear, Programmable
SC4689SA	4.5~5.5	7.5	-100~100	2.0%	-40~150	Analog	SA	AEC-Q100	1D Linear, Programmable
SC4687SA	4.5~12	7.5	-200~200	2.0%	-40~150	Analog,PWM	SA	AEC-Q100	1D Linear, Programmable
SC4687DC	4.5~12	7.5	-200~200	2.0%	-40~150	Analog,PWM	DC	AEC-Q100	1D Linear, Programmable

**Notes:** S3: SIP-3 DC: SOP-8 TG: TSSOP-16 HS: eTSSOP-16 SA: TO-92U DA: Dual-Channel SOP-8

## 02 Inductive Angle Sensors

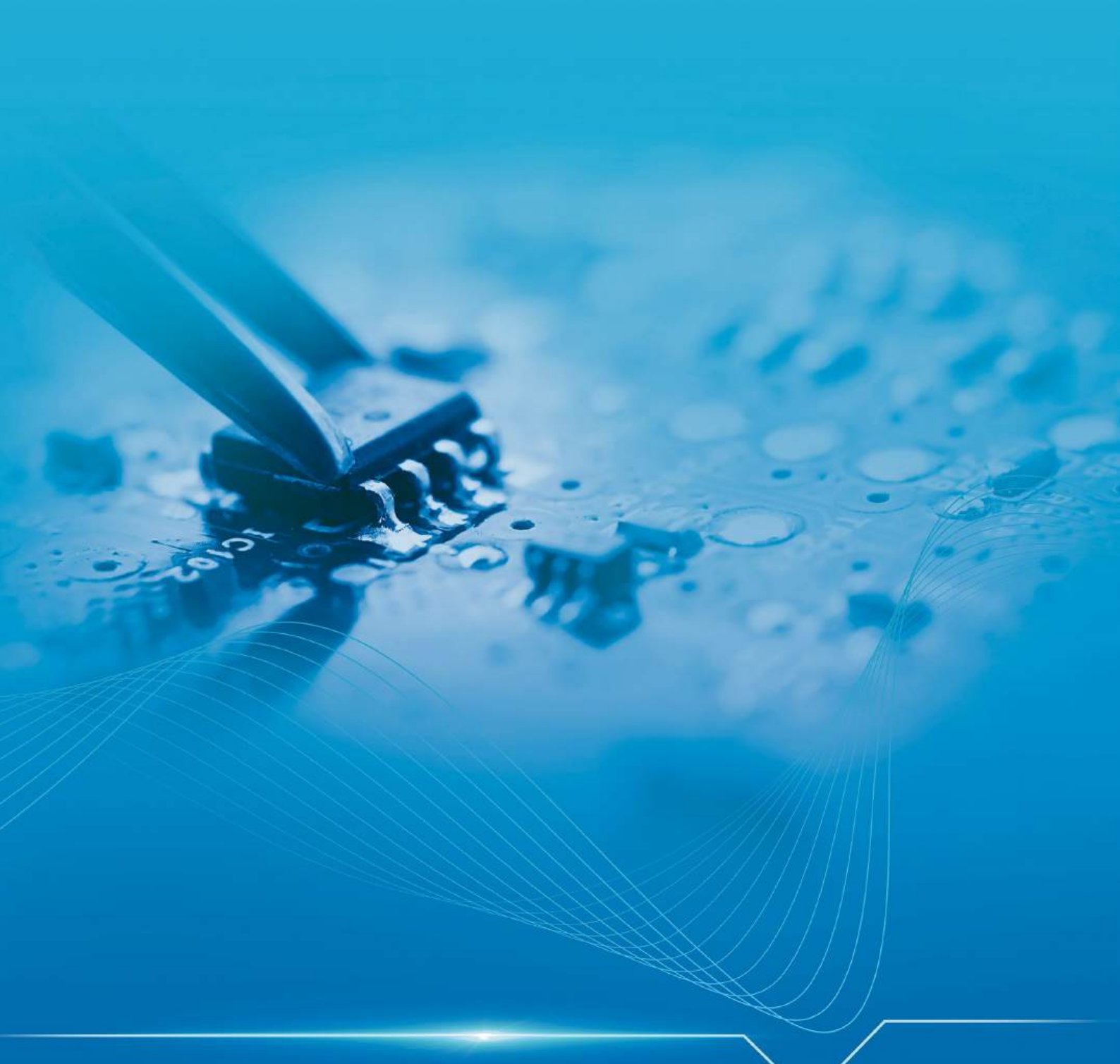
Semiment's new generation Inductive Angle Sensor IC is based on the eddy current effect, achieving high-precision slow position detection. It features online programming, multiple output interface options, vibration resistance, and high stability, focusing on automotive-grade and industrial automation scenarios.

### Feature

- AEC-Q100
- High withstand voltage
- High precision
- Wide operating temperature range
- Online programming
- Integrated sine-cosine signal self-calibration function
- Diagnostic protection function
- Multiple output interfaces

P.N.	Voltage(V)	Current(mA)	Accuracy	Temp(°C)	Output	Package	Automotive Grade	Feature
SC69510TG	4.5~5.5	7	0.5%	-40~160	Analog,PWM,SENT,PSIS	TG	AEC-Q100, ASILB	Inductive Encoder, Programmable

**Notes:** TG: TSSOP-16



## HIGH SPEED ENCODER ICS

Semiment offers multiple high-performance high speed encoder ICs, supporting multi-protocol digital/analog output interfaces, compatible with diverse control system platforms. These products feature high reliability and high precision, enabling real-time speed and position measurement, widely used in scenarios like servo motors, industrial robots, and automation equipment.

## 01 Magnetic Motor Encoder

This series of magnetic motor encoder ICs is based on the Hall effect principle, achieving high-precision real-time detection of motor rotor position by analyzing the angle changes of the rotating magnetic field. Its high anti-interference design can adapt to complex working environments and supports configurable digital output interfaces and high-speed response. Widely applicable for brushless motor commutation control, automotive electronic sensing systems, and high-precision position feedback for industrial robot joints.

### Feature

- Hall effect non-contact sensing technology enables high-precision rotor position decoding
- Dynamic angle compensation algorithm enhances repeatability consistency
- Low-latency signal processing architecture supports real-time feedback for high-speed rotation
- Configurable digital output interfaces compatible with diverse control systems
- High-voltage-tolerant power supply and interface protection ensure reliability in harsh electromagnetic environments

P.N.	Voltage Rating(V)	KRPM	Resolution	Output				Digital Interface	Package
				Analog	ABZ-Line	UVW	PWM (Hz)		
SC60210	-18~24	200	14bit	±SIN&COS	-	-	-	-	DC
SC60214	-18~24	200	14bit	-	24/50/256/1024	-	244/1000	-	DC
SC60218	-18~24	200	14bit	-	-	-	-	SPI	DC
SC60220	-0.3~6	20	12bit	±SIN&COS	-	-	-	-	SS
SC60224	-0.3~6	20	12bit	-	1~1024	1~16	224/976	SPI	SS
SC60228	-0.3~6	20	12bit	-	-	-	224/976	SPI	DC

Notes: DC: SOP8 SS: SSOP16

## 02 Inductive Motor Encoder

This series of inductive encoder ICs is based on the eddy current principle, achieving non-contact precise detection of motor rotor position through high-frequency magnetic field coupling effects. It possesses industrial-grade high-speed response capability and precision measurement performance, and supports multi-protocol digital output. It also adopts a high anti-interference design, adaptable to harsh environments like oil, dust, and electromagnetic

### Feature

- Eddy Current Non-Contact Detection Technology: No Need for Magnets or Shielding Structures, Resistant to Stray Magnetic Field Interference
- Dynamic Noise Suppression and Error Compensation for Enhanced Repeatability Precision
- High-Speed Signal Chain Architecture Design: Enabling Low-Latency Real-Time Control
- Multi-Protocol Digital/Analog Output Interfaces: Compatible with Diverse
- High Voltage-Tolerant Power Supply and Interface Protection Ensuring Reliability in Complex Electromagnetic Environments
- Suitable for Compact Through-Shaft Mounting Structures: Optimizing System Space Layout

P.N.	Voltage Rating(V)	KRPM*	Resolution/CH	Output Signal				Digital Interface	Package
				Analog	ABZ-Line	UVW	PWM (Hz)		
SC60410	-12~24	600	-	±SIN&COS	-	-	-	-	TG
SC60414	-12~24	600	16bit	-	256/1024	-	244/1000	SPI	TG
SC60418	-12~24	600	14bit	-	-	-	250~2000	SPI	TG
SC60340	-15~15	200	12bit	-	Any Lines	1~32	244	SPI	ST
SC60370	-15~15	200	12bit	±SIN&COS	-	1~32	224/1000	SPI	QS

Notes: TG: TSSOP16 ST: SSOP28 QS: QFN6X6



## MOTOR DRIVER ICs

Semiment provides multiple motor driver IC solutions suitable for various types of motor drive control systems, such as DC motors, stepper motors, and brushless DC (BLDC) motors. Our motor driver products offer stable and reliable drive circuits and rich diagnostic functions for different application scenarios, while supporting intelligent drive algorithms, providing optimal solutions for your drive needs.

## 01 Brush DC Motor Driver

Driver IC for DC Brushed Motors. Features wide operating voltage range, integrated extensive protection functions with fault alarm, and built-in current feedback capability inside.

### Feature

- Wide Voltage & High Current
- Complete Protection Functions
- Ultra-low Sleep Current
- Stall Protection Alarm & Open-circuit Protection Alarm
- Parameter Configuration And Failure Diagnosis Via UART Communication

P.N.	Notes	Operating Voltage(V)	Peak Current (A)	Package	Feature
ZH6200	H Bridge Driver Integrated Power Stage	2.4~6.4	2.5	SOP8	Cost-Effective
ZH6232	H Bridge Driver Integrated Power Stage	6.0~30	3.0	ESOP8	Cost-Effective
ZH6242	H Bridge Driver Integrated Power Stage	6.0~40	3.0	ESOP8	High Performance
ZH6252	H Bridge Driver Integrated Power Stage	2.8~40	5.5	SOP8	Cost-Effective

## 02 Brushless DC Motor Driver

A mixed-signal Circuit specifically designed for brushless motor control, integrating digital algorithms and driver circuits to achieve BLDCmotor control. The highly integrated design eliminates external components (power supplies, op-amps, MCUs, etc.).

### Feature

- Wide Voltage & High Current
- Complete Alarm Protection Functions
- Supports Square Or Sinusoidal Wave Control
- Configurable Parameters
- High Operational Efficiency
- Excellent Start-up Performance

P.N.	Notes	Operating Voltage(V)	Peak Current (A)	Package	Feature
ZH6332	Three-Phase Trapezoidal Sensored, with Power Stage	6.0~40	3.0	TSSOP2, QFN20	Hall Commutation
ZH6338	Three-Phase Sinusoidal Sensorless, with Power Stage	6.0~40	1.75	ETSSOP16	Field-Oriented Control
ZH6358	Three-Phase Sinusoidal Sensorless, without Power Stage	7.0~32	External MOSFETs	ETSSOP24	Field-Oriented Control
ZH6521	Single-Phase Sinusoidal, with Power Stage	3.2~28	0.8	SOT23-6	Hall Commutation (Integrated)
ZH6551	Single-Phase Sinusoidal, without Power Stage	3.2~28	External MOSFETs	TSSOP16	Hall Commutation



## 03 Stepper Motor Driver

The ZH6429 is a control-and-driver integrated IC specifically designed for small stepper motors. It incorporates a pulse counter, stepper motor path/speed planning algorithms, sine-cosine wave generator, SPWM generator, as well as short-circuit and over-temperature protection functions.

### Feature

- Sine Wave Output (256 Subdivision)
- Low Current Sleep Mode
- Lost Step Alarm And Protection
- Configurable Soft Start And Soft Stop
- Automatic Path Planning
- Supports Burst Mode & Simplifies Host Design

P.N.	Notes	Voltage(V)	Peak Current (A)	Package	Feature
ZH6429	Intelligent Stepper Motor Driver	4.5~30	1.0	ESSOP10	Sinusoidal Phase Current, Lock Detection

## 04 Gate Driver

The smart gate driver is designed to drive various types of MOSFETs, featuring excellent driving characteristics with outstanding performance in switching frequency and reliability.

### Feature

- Integrated Bootstrap Diode
- Integrated DCDC Circuits
- Maximum Operating Frequency: 500kHz
- Automatic Deadband Function
- Miller Clamp Function
- Automatic Dead Zone Function

P.N.	Notes	Voltage(V)	Peak Current (A)	Package	Feature
ZH619A0	High Voltage Half-Bridge Driver	600	0.3	SOP8	NN Gate Driver
ZH6350(B)	Three-Phase Gate Driver	40	0.1	QFN16, SOP16	PN Gate Driver, with DC/DC BUCK (B Version)
ZH639D0	Three-Phase Gate Driver	100	2.5	TSSOP20, QFN24	NN Gate Driver



## 05 MCU

The ZH521X series motor-control dedicated MCUs (Cortex-M0 core) comprise three variants: ZH5210, ZH5212 (with integrated PN driver), and ZH5213 (with integrated NN driver). These devices feature not only extensive communication interfaces but also essential motor control peripherals including EPMW, ADC, and OPA modules.

### Feature

- Maximum MCU Operating Frequency: 96Mhz
- 32K FLASH Memory
- 4K RAM Memory
- Integrated CORDIC Co-processor and Divider Inside
- 3-channel OPA, High Speed ADC Module And Multiple

P.N.	Notes	Voltage(V)	Package	Feature
ZH5210	96Mhz M0 ARM Cortex MCU, Include ADC/OPA/EPWM	2.8~5.5	QFN40, QFN24, SSOP24	Motor Driver Algorithm Provided
ZH5212(B)	Housed ZH5210 and a 3 Phase PN Gate Driver	5.0~40	QFN40, QSOP24, ETSSOP28, QFN32	Motor Driver Algorithm Provided
ZH5213	Housed ZH5210 and a 3 Phase NN Gate Driver	5.0~100	QFN48, QFN40	Motor Driver Algorithm Provided

## 06 Others

Meets the needs of some specialized motor drive requirements.

### Feature

- Small package volume
- High Efficiency
- Reduced Power Consumption
- Wide Voltage Range

P.N.	Notes	Voltage(V)	Load	Package	Feature
ZH6219	Claw-Pole Synchronous Motor Driver	6.0~28	0.5	SOT23-5, SOP8	Extreme Simple in Control and Peripherals
ZH7805	COT Architecture DC/DC BUCK	7.0~32	0.2	SOT23-6	Cost-Effective



## POWER MANAGEMENT ICs

This series covers multiple categories of Power Management ICs including Linear Regulators (LDO), Switching Regulators (DC-DC), Buck-Boost Controllers, etc., integrating multiple functions such as overvoltage protection, overcurrent protection, temperature monitoring, and fault diagnosis. Some products are AEC-Q100 automotive-grade certified, featuring core advantages like high efficiency and miniaturized integration. Widely used in automotive electronics, industrial control, and other scenarios.

## 01 LDO

VE1430Q is a high-performance linear regulator (LDO) specifically designed for automotive electronics, compliant with AEC-Q100 automotive certification, featuring core characteristics like high input voltage tolerance, ultra-low quiescent current 300mA, integrated safety protection, etc. Widely suitable for ADAS systems, body control modules, automotive sensors, etc.

### Feature

- Wide input voltage range
- Low quiescent current
- independent enablement
- PG delay can be programmed

P.N.	Input Voltage(V)	Output Voltage(V)	Load(A)	Package	Automotive Grade	Feature
VE1430Q	3.0~40	3.3/5/1.25~24	0.3	SF/MC/DC	AEC-Q100	Enable, PG and PG Delay Option

**Notes:** SF: SOT223 MC: MSOP8 DC: SOIC-8

## 02 DC/DC Converter

Semiment develops high-efficiency, miniaturized, low-noise switching converters with multiple protections to enhance product safety. Meanwhile, high-frequency switching DC-DC converters improve transient response speed. Products cover consumer electronics, industrial control, and automotive electronics

### Feature

- Switch frequency adjustable
- Tune frequency function optional
- Soft start is programmable
- Comprehensive protection features

P.N.	Input Voltage(V)	Load(A)	Frequency(Hz)	Package	Automotive Grade	Feature
VE2220	3.3~20	20	400K~3M	BG	-	20V/20A Multi-phase Buck Regulator
VE2226	3.3~20	6/6	500K~4M	QG	-	20V/Dual Channel 6A Buck Regulator( IC Parallel)
VE2266	3.3~20	6/6	500K~4M	QG	-	20V/Dual Channel 6A Buck Regulator(Channel parallel)
VE2430Q	3.3~40	3.5	350K~2.5M	QG	AEC-Q100	40V/3.5A Buck Converter

**Notes:** BG: BGA5X4-42L QG: QFN5X4-34L

### 03 Buck/Boost Controller

Semiment's high voltage tolerant 60V power ICs support a wide 4-60V input voltage range, integrate overvoltage, overcurrent, and short-circuit protection functions, suitable for diverse power application scenarios like car chargers and multi-port chargers.

#### Feature

- 60V high withstand voltage
- Support TSSOP-level QFN package
- Frequency jitter function is optional
- Overcurrent protection can be set flexibly

P.N.	Input Voltage(V)	Output Voltage(V)	Frequency(Hz)	Package	Automotive Grade	Feature
VE8600Q	4.0~60	0.8~60	100K~1M	EC/QE	AEC-Q100	Buck, SS, PG, Dither
VE8602Q	4.0~60	4~60	100K~1M	EC/QE	AEC-Q100	Boost, Quasi-Bypass, SS, PG, Dither

**Notes:**EC: eTSSOP-20L QE: QFN3X4-20L

### 04 Buck-Boost Controller

Semiment launches a 60V high-efficiency full-bridge buck-boost controller, supporting a 4-switch structure, suitable for high-reliability scenarios like industrial power supplies and server power supplies.

#### Feature

- 4-tube single-inductor architecture
- High efficiency
- Adjustable switching frequency
- bi-directional mode
- CC/CV dual-loop control

P.N.	Input Voltage(V)	Voltage Accuracy	Frequency(Hz)	Bidirectional Mode	Package	Feature
VE8620	4.5~60	1.50%	100K~700K	No	EF	60V Full Function Buck-boost Controller(CC/CV)
VE8622	4.5~60	1.50%	100K~700K	Yes	EF	60V Bidirectional Buck-boost Controller(CC/CV)
VE8624	4.5~60	1.50%	100K~700K	No	EE	60V Simple Unidirectional Buck-boost Controller(CC/CV)

**Notes:**EE: eTSSOP28 EF: eTSSOP38

### 05 PMIC

Semiment launches an automotive-grade PMIC for CIS power supply, providing independent voltage regulation for different circuit modules, meeting the power supply requirements of low-power digital circuits. This chip features miniaturization, suitable for space-constrained compact device applications in automotive systems.

#### Feature

- 2.1Mhz switching frequency
- LDO has excellent performance
- The output voltage timing is flexibly adjustable
- Small package

P.N.	Input Voltage(V)	Frequency(Hz)	Voltage Accuracy	Package	Automotive Grade	Feature
VE6200Q	4.0~18.5	2.1M	1.00%	QC	AEC-Q100	1HV Buck +2LV Buck +1High PSRR LDO

**Notes:**QC: QFN-16(3\*3)



## ASIC

Moreover, we provide a variety of suitable products for clean energy, thermal management systems and other ICs.

## 01 Operational Amplifier

OP is an analog circuit block that takes a differential voltage input and produces a single-ended voltage output.

### Feature

- High PSRR
- Good Temperature Stability
- Low Bias Voltage & Bias Current
- AEC-Q100

P.N.	Voltage(V)	GBW(Hz)	VOS(mV)	SR(V/μS)	Package
SYLMV321	2.5~5.5	1M	±1	0.7	SOT23-5
SYLMV324	2.5~5.5	1M	±1	0.7	SOP14, TSSOP14
SYLMV358	3.0~36	1M	±0.35	1	SOP8, TSSOP8, MSOP8
SYLMV2904	3.0~36	1M	±0.35	1	SOP8, TSSOP8, MSOP8

## 02 Interface

Enable a system to read out info from the input signal, providing a suitable output signal for a host system to display or process.

### Feature

- Bus ESD Protection Enhancement— HBM 15KV
- Highest Data Rate—10Mbps
- Power Supply—3.3V & 5V
- Over-temperature & Over-current Protection & Fail-safe Function

P.N.	Voltage(V)	Transmit Rate(Mbps)	ESD HBM(KV)	Temp(°C)	Mountable Nodes	Communication Mode	Package
SI485E	3.0~5.5	15	15	-40~85	256	Half Duplex	SOIC8



# APPLICATIONS



# Vehicle Electronics

## Door System

- Door Step
- Car Glass Lifter
- Manual Door Handle Switch Detection
- Automatic Hidden Door Handle Travel Detection
- Sliding Door Motor

## Charging Port

- Charging Port Cover Position Detection
- Charging Port Actuator

## Start-Stop System

- Start-Stop System

## Wiper Assembly

- Intelligent Wiper Controller



## Electric Trunk Door

- Trunk Strut Motor

## Rearview Mirror

- Electric Folding Rearview Mirror

## Controller

- Gear Shifter / TPMS Receiver / BCM/Door and Window Controller / Vehicle Lights

## Tail Wing

- Electric Wing

## Window Assembly

- Sunroof Motor Controller
- Window Anti-Pinch Motor

Vehicle Electronics	Door System	Door Step	SC244X SC2943
		Automotive Glass Lifter	SC244X SC294X SC2527S6-SD SC2527S6-AB VE1430Q
		Manual Door Handle Switch Detection	SC25891 SC243X
		Automatic Hidden Handle Travel Detection	SC244X SC2498 SC2943
		Sliding Door Motor	SC2943 SC2948 SC244X
	Charging Port	Charging Port Cover Position Detection	SC2462 SC2450-L
		Charging Port Actuator	SC2242 SC2943 SC244X
	Electric Tailgate	Tailgate Struts Motor	SC244X SC2493 VE1430Q
	Rearview Mirror	Electric Folding Rearview Mirror	SC2943
	Controller	Shift Lever / TPMS Receiver / BCM / Door and Window Controller / Vehicle Lights	VE1430Q
	Start-Stop System	Start-Stop System	VE8602Q
	Tail	Electric Tail	SC2527S6-SD SC2527S6-AB SC2943
	Wiper Assembly	Intelligent Wiper Controller	SC69431
	Window Assembly	Sunroof Motor Controller	SC244X SC294X SC2527S6-SD SC2527S6-AB VE1430Q
		Window Anti-Pinch Motor	SC2527 SC244X SC294X

## Chassis Electronics

### ABS System

- ABS Wheel Speed Sensor

### Air Suspension System

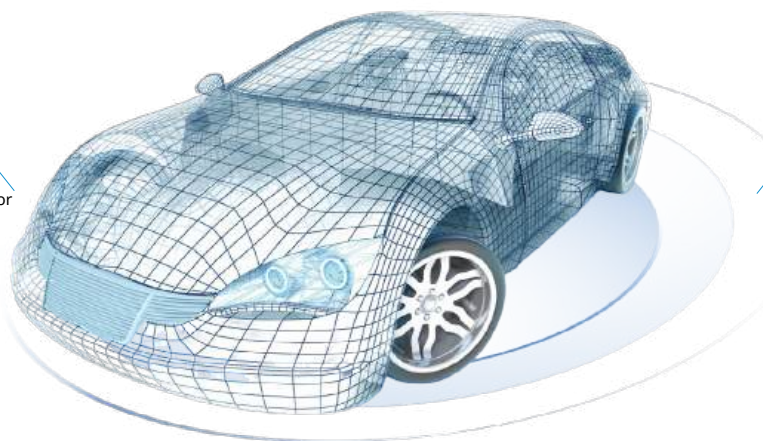
- Vehicle Height Sensor
- Air Suspension Compressor Controller

### Throttle Pedal

- Electronic Throttle Pedal

### Braking System

- TAS/TOS
- Absolute Angle Position Sensor
- Steering Brake Pedal
- Brake Light Sensor



### Steering System

- Steering Angle Sensor
- Angle Position Detection
- Power Steering EPS

Chassis Electronics	ABS System	ABS Wheel Speed Sensor	SC9641TS SC9642TS SC9683TS/T2 SC9684TS/T2 SC9682TS
	Air Suspension System	Vehicle Height Sensor	SC69401 SC69431 SC4688
		Air Suspension Compressor Controller	SC244X SC294X
	Throttle Pedal	Electronic Throttle Pedal	SC4688 SC4689 SC69401 SC69431 SC69510
	Braking System	TAS/TOS	SC69431 SC69510
		Absolute Angle Position Sensor	SC60210 SC60218 SC6041X
		Linear Brake Pedal	SC69431 SC69510
		Brake Light Sensor	SC243X SC2459
	Steering System	Steering Wheel Angle Sensor	SC69431
		Vehicle Application Angle Position Detection	SC60210 SC6041X
		Power Steering EPS	SC60210 SC6041X

## Powertrain

### Transmission

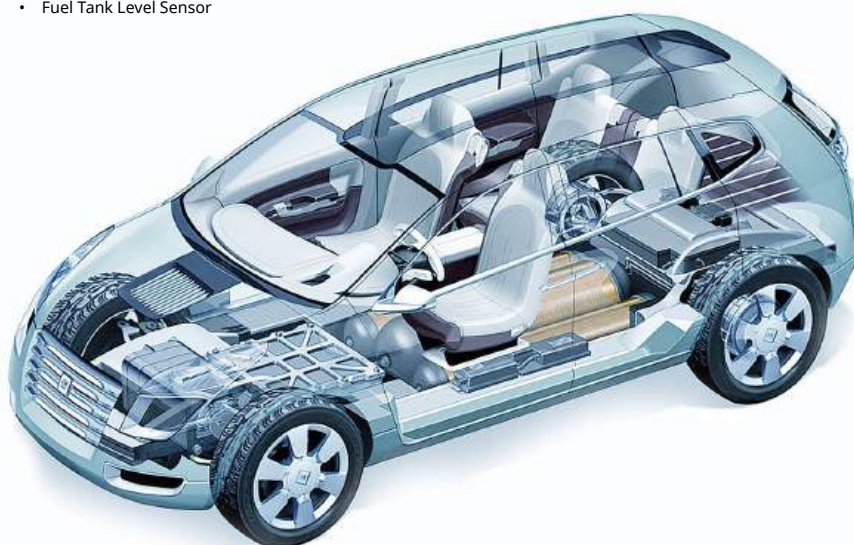
- Electronic Shift Lever
- Output Shaft Sensor
- RPM Meter
- RPM Sensor

### Fuel Tank

- Urea Pump
- Fuel Tank Level Sensor

### Engine

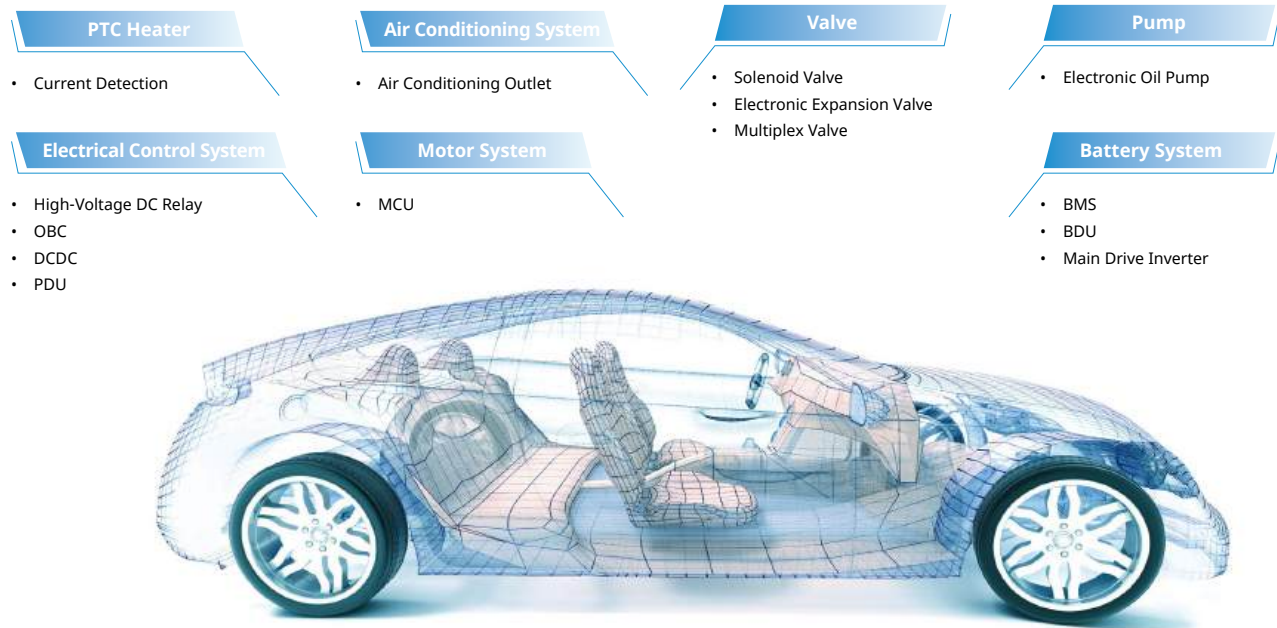
- EGR Valve
- Electronic Throttle Body
- Electronic Oil Pump
- Crankshaft Position Sensor
- Camshaft Position Sensor
- Turbocharger Actuator



Powertrain	Transmission	Electronic Shift Lever	SC113X SC2451 SC2452 SC2455 SC4688 SC69401 SC69431
		Output Shaft Sensor	SC69431
		Tachometer	SC244X SC2498
		Rotational Speed Sensor	SC9685TS SC9686TS
	Engine	EGR Valve	SC69401 SC69431 SC69510 SC4688
		Electronic Throttle	SC69401 SC69431 SC69510 SC4688
		Electronic Fuel Pump	SC244X SC294X SC60210
		Crankshaft Position Sensor	SC9621VB SC9625VB SC9669T3
		Camshaft Position Sensor	SC9314UA SC9675T3 SC9675IM SC9388T3
		Turbocharger Actuator	SC69401 SC69431 SC69510
	Fuel Tank	Urea Pump	SC2242 SC2943 SC2948
		Fuel Tank Level Sensor	SC4688 SC69401 SC69431 SC2498



# Thermal Management, Three-Electric System



<b>Thermal Management</b>	PTC Heater	Current Detection	SC4671
	Air Conditioning System	Air Conditioning Outlet	SC69401 SC69431
	Valve	Solenoid Valve	SC294X
		Electronic Expansion Valve	SC294X SC244X
		Multi-way Valve	SC69401 SC69431
<b>Three-Electric System</b>	Pump	Electronic Fuel Pump	SC294X SC244X
	Electrical Control System	High-Voltage DC Relay	SC4665
		OBC	SC4671
		DCDC	SC4671
		PDU	SC4643
	Motor System	MCU	SC4643 SC4663
	Battery System	BMS	SC4643 SC4663
		BDU	SC4643
		Main Drive Inverter	SC4643 SC4663

## Intelligent Cockpit

### Handrail Storage Compartment

- Storage Compartment Open/Close
- Storage Compartment Move

### Entertainment Display System

- Foldable Screen
- Cabin Domain Controller

### Sun Visor

- Sun Visor Mirror

### HUD

- HUD Motor

### Audio System

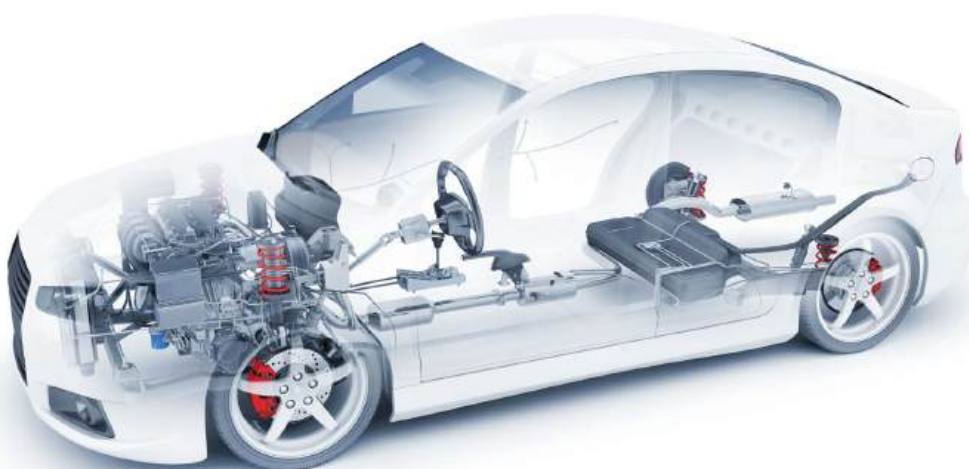
- Audio Amplifier Power Supply

### Central Control System

- Electronic Power Steering Lock
- Combination Switch

### Seat Assembly

- Seat Motor
- Seat Controller
- Seat Position / Armrest Position
- Brushless Seat Motor



Intelligent Cockpit	HUD	HUD Motor	SC243X SC2459
	Handrail Storage Compartment	Handrail Storage Compartment Opening and Closing	SC2462 SC2432 SC2450 SC2450-L
		Handrail Storage Compartment Movement	SC246X SC243X SC2450 SC2450-L
	Audio System	Audio Power Amplifier Power Supply	VE8602 VE8602Q
	Entertainment Display System	Foldable Screen	SC69401 SC69431
		Cabin Domain Controller	VE2430Q VE8600Q
	Sunshade	Sunshade Vanity Mirror	SC246X SC2450-L SC2450-LI
	Central Control System	Electronic Power Steering Lock	SC244X SC2498 SC2432
		Combination Switch	SC69401 SC69431 SC243X
	Seat Assembly	Seat Motor	SC244X SC249X SC294X SC2929 SC252X SC2498T SC25898
		Seat Controller	VE8600Q VE2430Q VE1430Q
		Seat Position / Armrest Position	SC243X SC2450 SC2450-L
		Brushless Motor for Chair	SC244X SC249X SC294X SC2929 SC2498T SC25898 SC400X SC4251 SC25898



# Intelligent Driving, Passive Safety

## Lidar

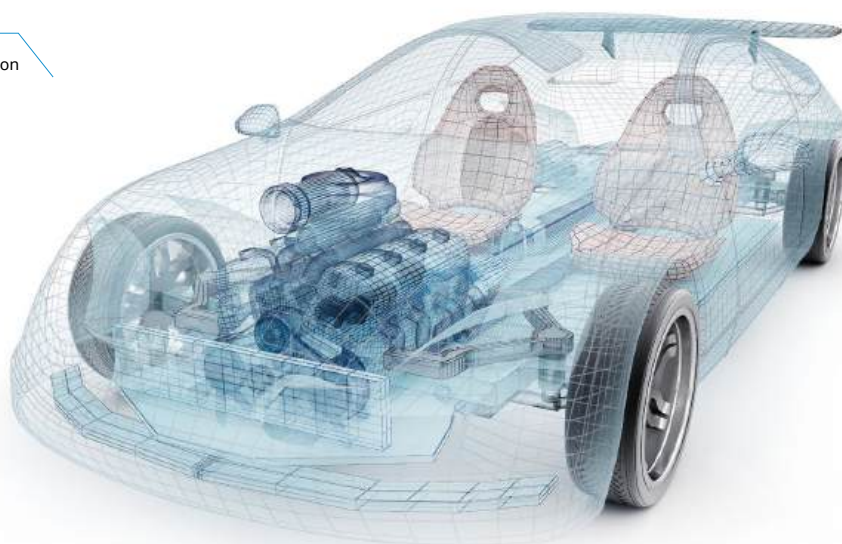
- Sensor

## Camera

- Sensor

## Seatbelt

- Seatbelt Buckle Position Detection
- Seatbelt Retractor
- Seatbelt Bracket



Intelligent Driving	Lidar	Sensor	SC2442 SC2438 SC2943
	Camera	Sensor	VE6200Q
Passive Safety	Seatbelt	Seatbelt Latch Position Detection	SC25891
		Seatbelt Retractor	SC244X SC294X
		Seatbelt Bracket	SC468X SC25891

**Electric Assist Vehicle**

- Central Motor
- Assist Bike Handlebar
- Assist Bike Motor

**Motorcycle**

- ABS System
- Powertrain
- Three-Electric System

**Others**

- Shared Bike Lock
- Marine Power Module

Electric Assist Vehicle	Central Motor	Central Motor Speed Measurement	SC963X	SC9641TS	SC2943
	Assistive Vehicle Handlebar	Assistive Vehicle Handlebar	SC4019		
	Assistive Vehicle Motor	Motor Angle Detection	SC2402		
Motorcycle	ABS System	ABS Wheel Speed Sensor	SC9641TS		
	Powertrain	Electronic Throttle	SC69431		
	Three-Electric System	Current Detection	SC4643	SC4645	
		Fan Control	SC1245		
Others	Shared Bike Lock	Location Detection	SC206X	SC203X	
	Boat Power Supply Module	Power Supply Module	VE86XX		

# Industrial & Robotics

## Infrastructure and Energy Systems

- Energy Storage
- Power Grid
- Industrial Power Module
- Inverter
- Industrial Three-Phase Meters
- Server Cooling

## Robotics and Intelligent Control

- Servo Systems
- Industrial Frequency Converter
- Robot Joint
- Mechanical Arm
- Building Automation
- Autonomous Guided Vehicle

## Dedicated Equipment

- Stage Lighting and Illumination

## Electric Tools

- Electric Shears
- Drill, Trigger



Infrastructure & Energy Systems	Energy Storage	Current Detection	SC4671 SC4624 SC4645 SC4665
	Power Grid	Circuit Breaker	SL54123A SL2147
	Industrial Power Module	AC-DC Power Supply	SC4624 SC4671
		DC-DC Power Supply	SC4624 SC4671 VE8600 VE8620 VE2220 VE2266 VE8602 VE8622
	Inverter	Charging Gun Module	SC4624 SC4671
	Industrial Three-Phase Meters	Energy Storage Inverter, Micro Inverter, Centralized Inverter, String Inverter	SC4645 SC4671 SC4624 SC4665
		Electric Meter Anti-Theft	SC2063
Dedicated Equipment	Server Cooling	Water Meter Water Flow Sensor	SC2402 SC244X SC2242 SC2493
	Stage Lighting	Fan Motor	SC2442
Robotics & Intelligent Control	Servo Systems	Angle Detection	SC60221 SC1134 SC60214 SC60218
		Motor Encoders	SC60214
	Industrial Frequency Converter	Current Detection	SC4624 SC4671
		Current Detection	SC4624 SC4671 SC4643 SC4665 SC4645
	Robot Joints	Encoder Module	SC60370 SC60210 SC6041X
	Mechanical Arm	Current Detection	SC4624 SC4671
	Building Automation	Circuit Breaker Plug	SL54123A
Electric Tools	AGV	Magnetic Navigation	SC4002 SC4005
		Blade Position Detection	SC2642 SC2466 SC2464 SC2434 SC206X
		Motor Drive	ZH639D0 ZH639G0 ZH639G1
		Switch Button Detection	SC2466 SC2462 SC2434 SC2432 SC206X
	Electric Shears	Brushless Motor Phase Switching, Motor Position Detection	SC2202 SC2402 SC2442
		Motor Drive	ZH639D0 ZH639G0 ZH639G1
	Drill, Trigger	Switch Button Detection	SC4125 SC4823

# Industrial & Robotics

## Industrial Automation

- Encoder Module
- Elevator Door Operator
- Industrial Frequency Converter
- Industrial Sewing Machine
- Machine Tools Textile Machinery
- Outer Rotor Motor
- Brushless Motor



## Production Machinery Equipment

- Forklift
- Crane
- Lawn Mower
- Industrial Fan
- Industrial Sewing Machine
- Harvester
- Excavator

Industrial Automation	Encoder Module	Angle Encoder	SC6022X SC6021X						
		Universal Encoder	SC6022X SC6021X						
	Elevator Door Crane	Current Detection	SC4624 SC4671						
	Industrial Frequency Converter	Current Detection	SC4624 SC4671						
	Industrial Sewing Machine	Brushless Motor Phase Switching	SC2402						
	Machine Tools Textile Machinery	Proximity Switch	SC244X	SC2498	SC2434	SC2438	SC206X	SC246X	SC2450
	Outer Rotor Motor	Encoder Module	SC60340 SC6041X						
	Brushless Motor	Brushless Motor Sensor	SC6022X						
Production Machinery Equipment	Forklift	2D Handle	SC69401 SC69431						
		3D Joystick	SC4688 SC69431						
		Electronic Throttle Pedal	SC4688	SC69401	SC69431	SC69510			
		Rear-Wheel Steering	SC69401 SC69431						
		Wheel Speed	SC9642TS						
		Steering Wheel	SC4688	SC69401	SC69431				
	Crane	Industrial Joystick	SC1245	SC4688	SC69401	SC69431			
	Lawn Mower	Lawn Mower Collision Position Detection	SC4011						
	Industrial Fan	Fan Control	SC1245						
	Industrial Sewing Machine	Current Detection	SC4624	SC4671					
	Harvester	Roller Position Sensor	SC2464						
	Excavator	GNSS Module	VE2430Q						
		Industrial Joystick	SC4624	SC4688	SC69401				
Hydraulic Cylinder Stroke Position		SC4616							

# Smart home

## Kitchen Appliances

- Refrigerator
- Soy Milk Machine
- Water Purifier
- Coffee Machine
- Food Processor
- Commercial Induction Cooktop
- Dishwasher
- Fume Hoods
- Juicer

## Environmental Adjustment

- Wall-Mounted Boiler
- Humidifier
- Air Conditioning
- Air Conditioning Indoor / Outdoor Unit



## Home Control

- Electric Curtains
- Non-Contact Knobs, Potentiometers

## Cleaning Appliances

- Vacuum Cleaners
- Vacuum Cleaner
- Floor Washing Machine

## Bathroom Appliances

- Hair Dryer
- Circuit Breaker Plug
- Toilet
- Washing Machine

Kitchen Appliances	Refrigerator	Refrigerator Motor Fan	SC2402
		Refrigerator Door Position Detection	SC243X SC2465
	Soy Milk Machine	Brushless Motor Phase Switching	SC2402
	Water Purifier	Water Flow Meter	SC224X
	Coffee Machine	Current Detection	SC4624 SC4671
	Food Processor	Brushless Motor Phase Switching	SC2402
	Commercial Induction Cooktop	Induction Cooktop Switch	SC206X
	Dishwasher	Water Pump	SC2402
	Range Hood	Current Detection	SC4624 SC4671
Environmental Adjustment	Juicer	Brushless Motor Phase Switching	SC2402
	Wall-Mounted Boiler	Water Pressure Sensor	SC4688
	Humidifier	Water Tank / Position Detection	SC206X
	Air Conditioning	Air Conditioning Compressor Motor	SC2442
	Air Conditioning Indoor / Outdoor Unit	Current Detection	SC4624 SC4671
Home Control	Motorized Curtains	Motor Position Detection	SC2402 SC244X
	Non-Contact Knob, Potentiometer	Angle Encoder	SC60218 SC6022X
Cleaning Appliances	Vacuum Cleaners	Level Detection	SC206X
		Brushless Motor Positioning	SC4251
	Vacuum Cleaner	Brushless Motor Positioning	SC4251
	Floor Cleaner	Location Detection	SC206X
Bathroom Appliances	Hair Dryer	Hair Dryer	SC2402
	Circuit Breaker Plug	Circuit Breaker Plug	SL54123A
	Toilet	Toilet Seat Open/Close Detection	SC113X SC2063
	Washing Machine	Washing Machine Drain Pump	SC40XX

# Consumer Electronics

## Office Electronic Equipment

- Conference Systems
- Lift Table

## Mobile & Wearable Devices

- TWS
- Self-Balancing Scooter
- Cleaning Tools
- Cooling Fan
- Handheld Gimbal
- Drone Gimbal



## Game & Leisure Equipment

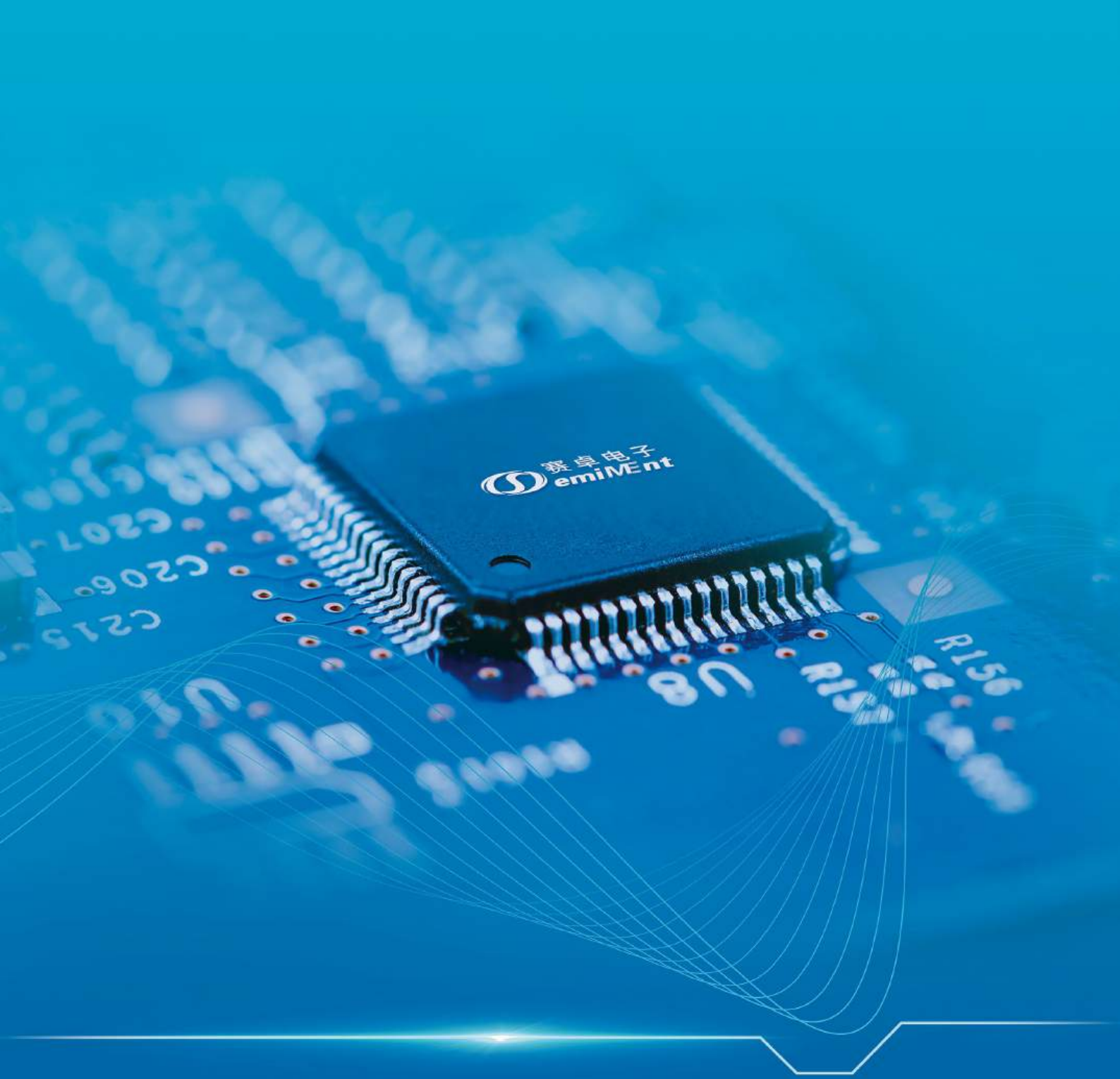
- Electric Toys
- Pole Speaker Amplifier Board
- Mouse Scroll Wheel
- Gaming Keyboard
- Game Emulator
- Game Controller

## Healthcare Equipment

- Massage Chair
- Electric Wheelchair
- Electric Toothbrush

Office Electronic Equipment	Meeting System	Game Controller	SC4251
	Lifting Table	Lifting Table Motor	SC1245 SC2202 SC2402
Healthcare Equipment	Massage Chair	Motor Speed Measurement	SC2402 SC244X
		Current Detection	SC4624 SC4671
	Electric Wheelchair	Wheel Joystick	SC4688
		Walking Motor	SC4251
	Electric Toothbrush	Motor Positioning	SC410X SC4251
Mobile & wearable devices	TWS	Opening and Closing Detection	SC206X
	Self-Balancing Scooter	Motor Positioning	SC4011 SC4019 SC410X SC4251(2D)
	Cleaning Tools	Three-Phase Motor Phase Change	SC244X SC2402
	Cooling Fan	Single-Phase Motor Phase Change	SC244X SC2402
	Handheld Gimbal	Motor Positioning	SC4251 SC410X SC411X
	Drone Gimbal	Motor Positioning	SC4251 SC410X SC411X
Game & Leisure Equipment	Electric Toys	Location Detection	SC206X SC410X
	Rackmount Audio Power Amplifier Board	Boost Circuit	VE8602
	Mouse Scroll Wheel	Rotation Detection	SC60214 SC60218
	Gaming Keyboard	Linear Keyboard	SC4011 SC4015 SC49XX SC48XX SC4391 SC4390 SC4392 SC4291 SC4191
	Game Emulator	Emulator Knob Converter	SC4019
		Position Detection	SC4019 SC4015 SC4011
	Game Controller	Hall Joystick	SC49XX SC4011 SC4009 SC410X SC48XX
		Linear Trigger	SC410X SC49XX SC470X





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