

NOVOSENSE

NOVOSENSE MAGNETIC SENSOR PRODUCT SELECTION GUIDE



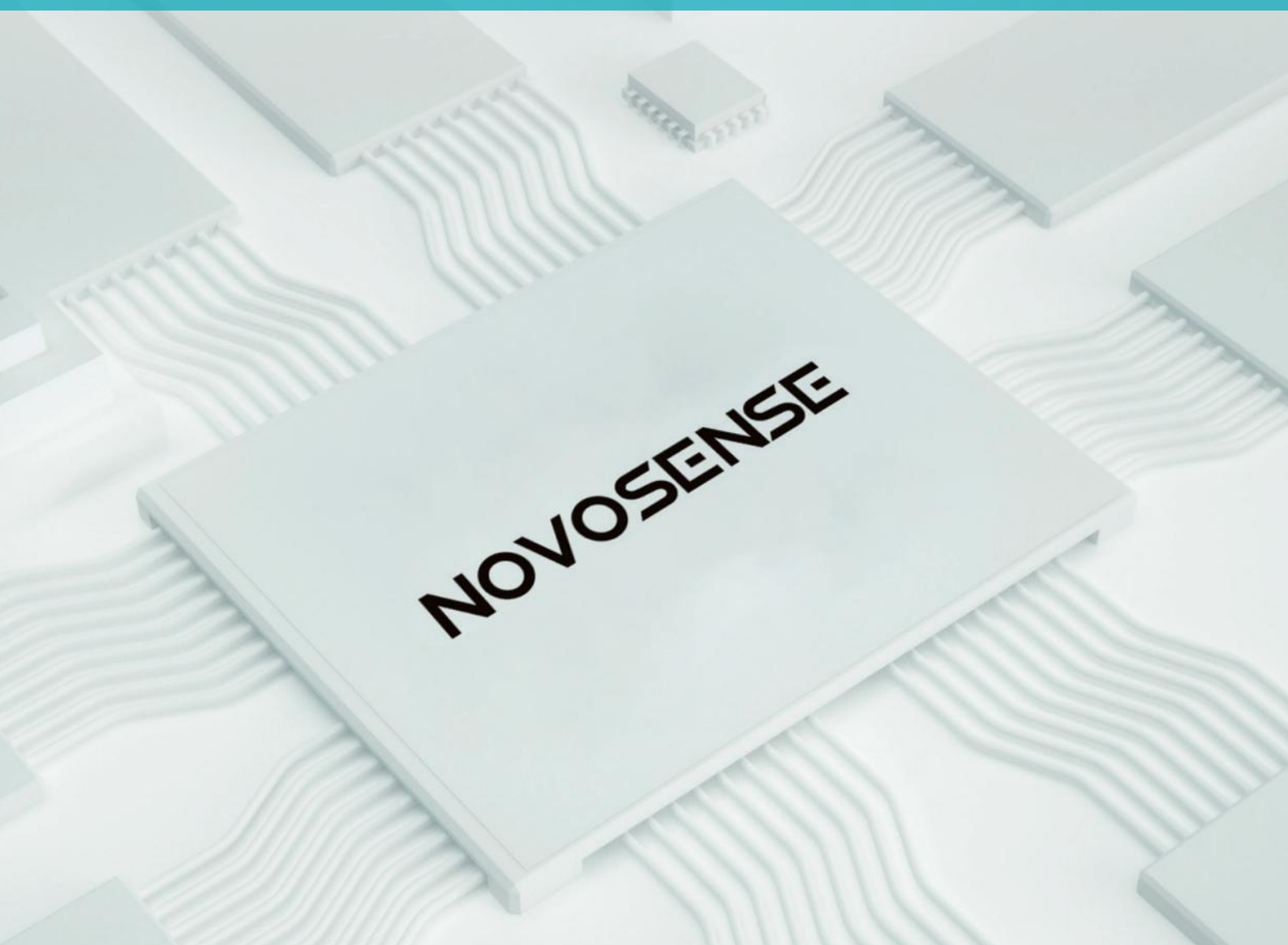
www.novosns.com

About NOVOSENSE

NOVOSENSE Microelectronics (NOVOSENSE, SSE Stock Code: 688052; HKEX: 02676.HK) is a highly robust & reliable analog and mixed signal chip company. Since its establishment in 2013, the company has been focusing on sensor, signal chain, and power management, providing comprehensive semiconductor products and solutions, which are widely used in automotive, industrial, information communication and consumer electronics markets.

With the mission of "Sense & Drive the Future, Build a Green, Smart and Connected World with Semiconductors", the company is committed to providing chip-level solutions to link the digital world and the real world.

For more information, please visit: www.novosns.com

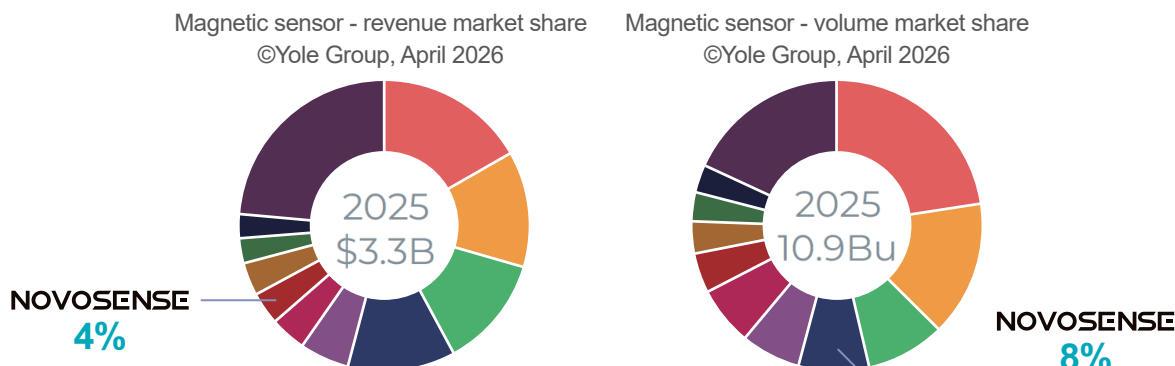


NOVOSENSE

NOVOSENSE Magnetic Sensor IC at a Glance

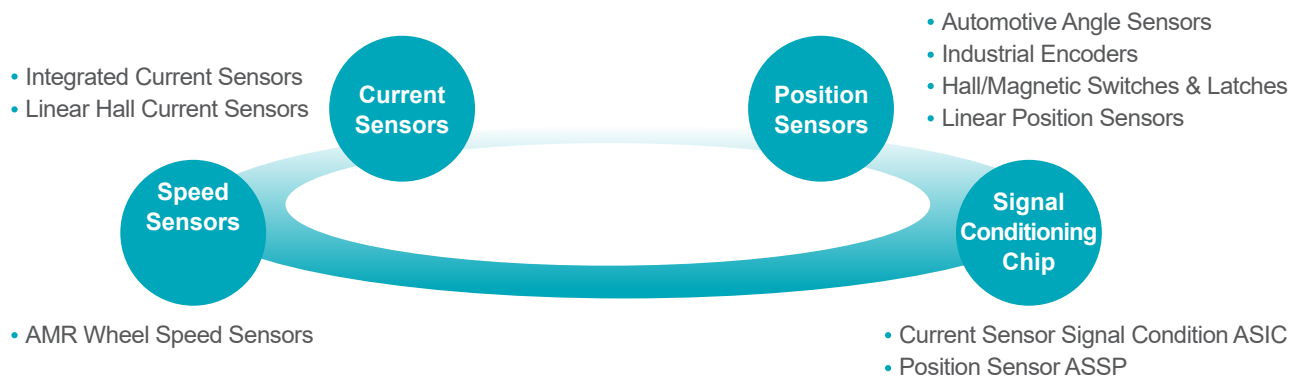
NOVOSENSE provides magnetic sensing solutions across current, angle, position, speed and switching applications - built on Hall, xMR, inductive and fluxgate technologies.

Global Top4 by Volume

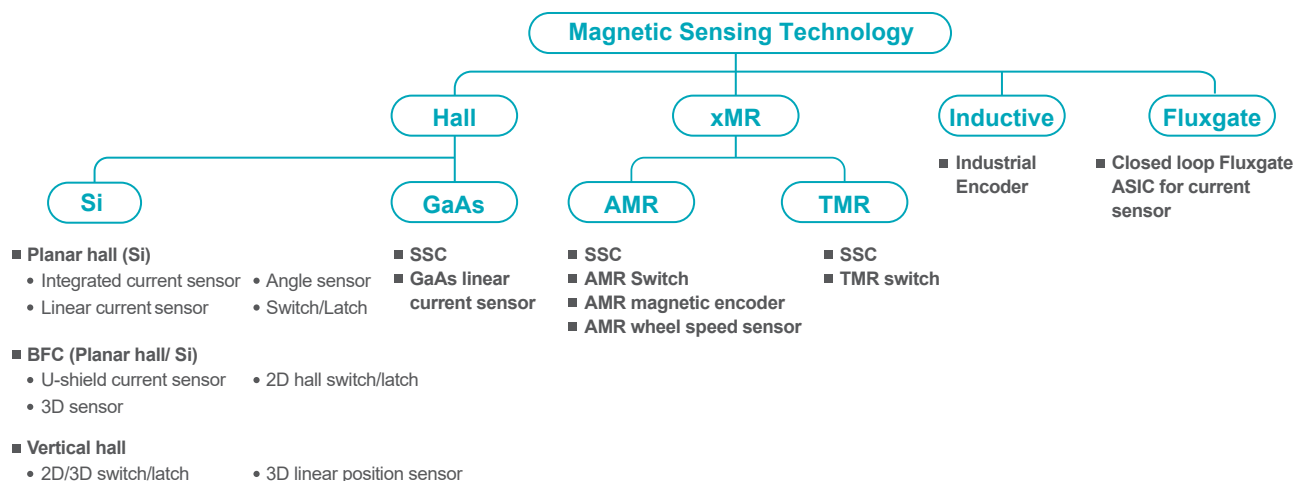


Reference: Magnetic Sensors 2026 | www.yolegroup.com

Comprehensive Product Portfolio



Broad Technology Coverage



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Integrated Current Sensor



Integrated Current Sensor

Part Number	Primary resistance (mΩ)	Dielectric strength (Vrms)	Creepage (mm)	Power supply (V)	Bandwidth (Hz)	Response time (us typ.)	Working temperature (°C)	Offset (V)	Current sense range (A)	Packaging	Application grade
NSM2011	0.85	5000	8	3.3/5	240K	2.2	-40~125	50%VCC	-20~20、-30~30、0~30、-50~50、0~50、-65~65、-100~100	SOW16	Industrial
NSM2011-Q1	0.85	5000	8	3.3/5	240 K	2.2	-40~125	50%VCC	±30、30、±50、50、±65	SOW16	Automotive
NSM2012	1.2	3000	4	3.3/5	400K	1.5	-40~125	50%VCC、1.65、2.5、10%VCC、0.5、0.33	±2、±5、±10、10、±20、±25、±30、30、±40、±50、50、±65	SOP8	Industrial
NSM2012-Q1	1.2	3000	4	3.3/5	400K	1.5	-40~125	50%VCC、1.65、2.5、10%VCC、0.5、0.33	10、±20、20、30、50	SOP8	Automotive
NSM2012P	1.2	3000	4	5	400K	1.5	-40~125	2.5	±30	SOP8	Industrial
NSM2013	0.85	5000	8	3.3/5	240K	2.2	-40~125	2.5、1.65、50%VCC	±20、±25、±30、±40、±50、±65、±80、±100	SOW16	Industrial
NSM2013-Q1	0.85	5000	8	3.3/5	240K	2.2	-40~125	1.65	±65	SOW16	Automotive
NSM2013P	0.85	5000	8	5	400K	2.2	-40~125	2.5	±10	SOW16	Industrial
NSM2013P-Q1	0.85	5000	8	5	400K	2.2	-40~150	2.5	±20	SOW16	Automotive
NSM2015	0.85	5000	8	3.3/5	320K	1.5	-40~125	1.65、2.5、0.33	±10、±20、±30、30 ±33.3、±40、±50、±66、±80、±100	SOW16	Industrial
NSM2015-Q1	0.85	5000	8	3.3/5	320K	1.5	-40~125	1.65、2.5	±20、±30、±40、±50、±66、±80、±100	SOW16	Automotive
NSM2015P-Q1	0.85	5000	8	5	320K	1.5	-40~125	2.5	±66	SOW16	Automotive
NSM2016	1.2	3000	4	3.3/5	380K	1.5	-40~125	0.5、1.65、2.5	±20、±25、±30、±45、±50、50	SOP8	Industrial
NSM2016-Q1	1.2	3000	4	3.3/5	380K	1.5	-40~125	2.5、0.5	50	SOP8	Automotive
NSM2017-Q1	0.85	5000	8	3.3/5	320K	1.5	-40~125	50%VCC	±40、±65	SOW16	Automotive
NSM2019	0.27	5000	8.2	3.3/5	320K	1.5	-40~150	1.65、2.5、0.5	±50、±75、±80、±100、100、±110、±150、±200、150	SOW10	Industrial
NSM2019-Q0	0.27	5000	8.2	3.3/5	320K	1.5	-40~150	1.65、2.5	±80、±100	SOW10	Automotive
NSM2019P	0.27	5000	8.2	5	320K	1.5	-40~150	2.5	±100	SOW10	Industrial
NSM2110	1.2	3000	4	3.3	1M、2M	0.4、0.15	-40~150	1.65	±40	SOP8	Industrial
NSM2111	0.27	5000	8.2	3.3/5	1M	0.15	-40~150	2.5	±50、±125、±166、±180	SOW10	Industrial
NSM2112	1.2	3000	4	3.3/5	1M、2M	0.4、0.15	-40~150	1.65、50%VCC、2.5、0.5	±20、±40、±65、±30、±50、80	SOP8	Industrial
NSM2112-Q0	1.2	3000	4	3.3/5	1M	0.4	-40~150	1.65、2.5	±50、±65	SOIC8	Automotive

Part Number	Primary resistance (mΩ)	Dielectric strength (Vrms)	Creepage (mm)	Power supply (V)	Bandwidth (kHz)	Response time (us typ.)	Working temperature (°C)	Offset (V)	Current sense range (A)	Packaging	Application grade
NSM2113	0.27	5000	8.2	3.3/5	1M	0.15	-40~150	2.5	±50、±100	SOW10	Industrial
NSM2113-Q0	0.27	5000	8.2	3.3/5	1M	0.15	-40~150	1.65、2.5	±25、±50、±66、±100、±180	SOW10	Automotive
NSM2115	1	5000	8	3.3/5	1M	0.4	-40~150	50%VCC	±40、±65、±75	SOW16	Industrial
NSM2115-Q0	1	5000	8	3.3/5	1M	0.4	-40~150	50%VCC	±20、±50、±40、±65、±75	SOW16	Automotive
NSM2117	0.85	5000	8	3.3/5	1M、400k	0.3、1.5	-40~150	2.5	±50、±65	SOW16	Industrial
NSM2117-Q0	0.85	5000	8	3.3/5	1M	0.3、1.5	-40~150	1.65、2.5	±20、±66、±40、±50、±65、±100	SOW16	Automotive
NSM2119	0.85	5000	8	3.3/5	1M	0.3	-40~150	1.65、2.5	±50	SOW16	Industrial
NSM2311	0.1	5000	6.9	3.3/5	147k	2.4	-40~150	1.65、2.5、50%VCC	±150	DIP-5L	Industrial
NSM2040	0.1	100	1	5.0	320k	1.5	-40~150	2.5	±100	QFN7	Automotive
NSM2041	0.6	100	0.8	5.0	300k	1.5	-40~125	2.5	±30	QFN12	Automotive

NSM201x: Integrated Current Sensor

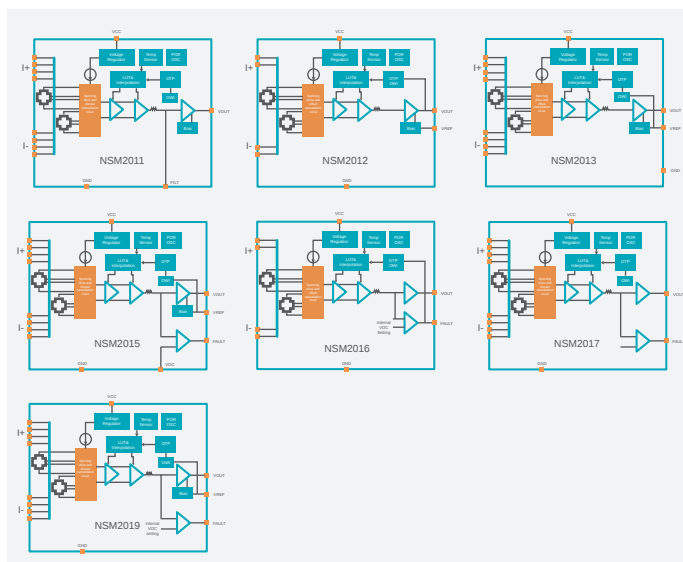
◆ Product introduction

NSM201x series is a Integrated Current Sensor under 200A which is mainly used for isolation measurement of current under 200A.

◆ Product feature

- 2~200A Wide current range available
- AC/DC input
- 3.3V/5V single power supply (different version)
- As low as 0.27mOhm primary conductor resistance
- $\leq \pm 2\%$ current measurement accuracy (sensitivity error over temperature)
- 1.5us/2us response time typ.
- Up to 400kHz bandwidth
- Withstand up to 20kA surge current (8μs /20μs surge current waveform)
- Multiple types of output:
 - Ratio metric output
 - Fixed output + Pseudo Differential Output
 - Reference output
- Multiple types of package:
 - SOW16 package: 1550VDC working isolation voltage / 5000Vrms @ 1 min Withstand isolation voltage (2011/13/15/17)
 - SOP8 package: 600VDC working isolation voltage / 3000Vrms @ 1 min Withstand isolation voltage (2012/16)
 - SOW10 package: 1618VDC working isolation voltage / 5000Vrms @ 1 min Withstand isolation voltage (2019)
- Over Current detection by Fault Pin (2015/16/17/19)
- Over Current threshold can be set by VOC Pin (2015)

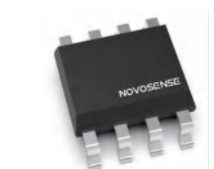
◆ Functional block diagram



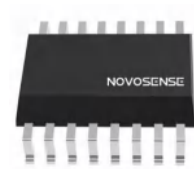
◆ Safety certificate

- UL62368/EN62368 safety certification

◆ Package



NSM2012/2016: SOP8



NSM2011/2013/2015
/2017: SOW16



NSM2019: SOW10

◆ Application

Automotive



OBC



DC/DC



PTC heater



Charging gun



PDU

Industrial



PV inverter



Industrial
frequency
converter



Power supply
(UPS, SMPS)



PDU

Consumer



Service robots



Drones



Two-wheeled
vehicles



Vacuum cleaners

NSM201x-P: Integrated Current Sensor with High-precision

◆ Product introduction

NSM201x-P is an integrated current sensor with high precision and a very low on-resistance of $0.27\text{m}\Omega$, reducing heat loss on the chip. NOVOSENSE innovative isolation technology and signal conditioning design can meet high isolation levels while sensing the current flowing through the internal Busbar. A differential Hall pair is used internally, so it has a strong immunity to external stray magnetic fields. NSM201x-P senses the magnetic field generated by the Busbar current flowing under the chip to indirectly detect the current.

NSM201x-P eliminates the need for the primary side power supply and has a simple and convenient layout. At the same time, it has extremely high isolation withstand voltage and Lifetime stability.

In high-side current monitoring applications, NSM201x-P can reach a working voltage for basic isolation of 1618Vpk , and it can withstand 10kV surge voltage and 20kA surge current without adding any protection devices.

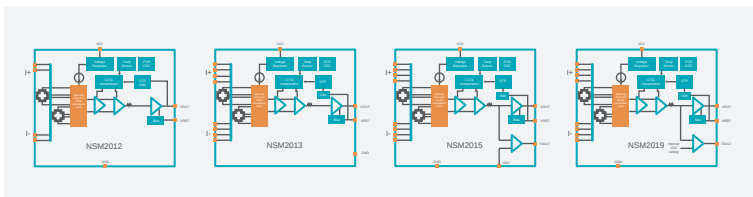
NSM201x-P has a pseudo-differential output mode (fixed output), the sensitivity will not change within a certain supply voltage, eliminating LDO on the system, making BOM simpler.

Due to NSM201x-P internal accurate temperature compensation algorithm and factory accuracy calibration this current sensor can maintain good accuracy in the full temperature working range, and the customer does not need to do secondary programming or calibration. NSM201x-P Provides overcurrent protect function and supports adjusting the overcurrent threshold. Support $3.3\text{V}/5\text{V}$ power supply (different version)

◆ Product feature

- High-Precision Current Measurement:
 - Sensitivity error $< 1\%$ over the full temperature range
 - Ultra-low offset error over the full temperature range:
 - $< \pm 1\text{mV}$ (NSM2012/2013), $< \pm 3\text{mV}$ (NSM2015/2019)
- High bandwidth and fast response time
- 400kHz bandwidth
- $1.5\mu\text{s}$ response time
- High-precision current measurement
- Differential Hall sets can immune stray field
- High isolation level that meets UL standards
- Working Voltage for Basic Isolation (VWVBI): $1550\text{Vpk}/1097\text{Vrms}$
- Withstand isolation voltage (VISO): 5000Vrms
- Maximum surge isolation withstand voltage (VIOSM): 10kV
- Maximum surge current (I_{surge}): 20kA
- CMTI $> 100\text{V/ns}$
- CTI(1)
- Creepage distance/Clearance distance: $4\text{mm}/8\text{mm}/8.2\text{mm}$
- Fault Overcurrent Protection
- NOVOSENSE innovative 'Spin Current' technology makes offset temperature drift very small
- Fixed output with V_{ref}
- Working temperature: $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}/-40^{\circ}\text{C} \sim 150^{\circ}\text{C}$
- Primary internal resistance: $1.2\text{m}\Omega/0.85\text{m}\Omega/0.27\text{m}\Omega$
- Package: SOP8/SOW16/SOW10
- UL62368/EN62368 safety certification
- ROHS compliance

◆ Functional block diagram



◆ Package



◆ Application



Solar system



Industrial power supply



Motor control



OBC/DCDC/PTC Heater



Charging pile

NSM211x: High-bandwidth Integrated Current Sensors

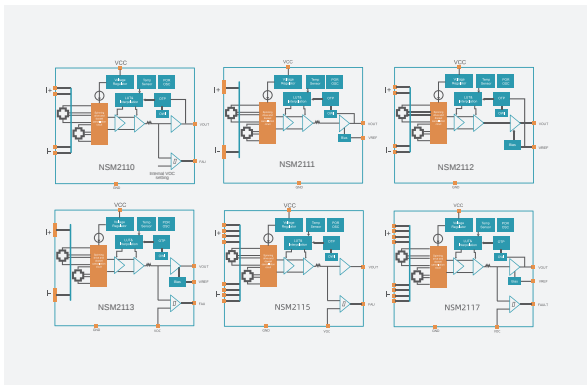
◆ Product introduction

The NSM211x series of high-bandwidth integrated current sensors are primarily based on the Hall effect principle, using isolation to convert currents within $\pm 200\text{A}$ into linear voltage outputs. They are suitable for various isolated current sampling applications, such as PV input side of photovoltaic string inverters, current detection for MPPT (Maximum Power Point Tracking), and AC side current detection. They are also used for busbar current and phase current sampling in industrial frequency converters, UPS and server power supplies, isolated current sampling in charging piles, current detection for automotive OBC PFC, resonant cavity current detection, and more.

◆ Product feature

- 5~200A Wide current range available
- AC/DC input
- 3.3V/5V single power supply (different version)
- As low as 0.27mOhm primary conductor resistance
- $< \pm 2\%$ current measurement accuracy (sensitivity error over temperature)
- 0.15 μs response time typ.
- Up to 2MHz bandwidth
- Withstand up to 20kA surge current (8 μs /20 μs surge current waveform)
- Multiple types of output:
 - Ratio metric output
 - Fixed output + Pseudo Differential Output
 - Reference output
- Multiple types of package:
 - SOW16 package: 1550VDC working isolation voltage / 5000Vrms @ 1 min Withstand isolation voltage (2115/17/19)
 - SOP8 package: 600VDC working isolation voltage / 3000Vrms @ 1 min Withstand isolation voltage (2112)
 - SOW10 package: 1618VDC working isolation voltage / 5000Vrms @ 1 min Withstand isolation voltage (2111/13)
- Over Current detection by Fault Pin (2113/15/17/19)

◆ Functional block diagram



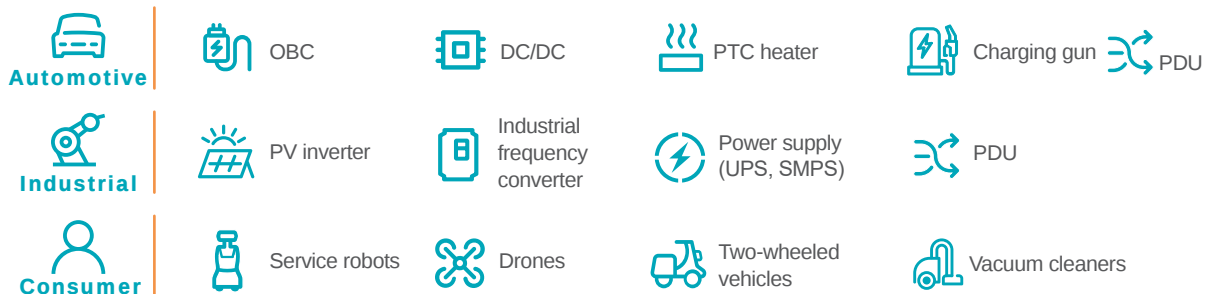
◆ Safety certificate

- UL62368/EN62368 safety standard certification

◆ Package



◆ Application



NSM2311: Low-impedance Integrated Current Sensor

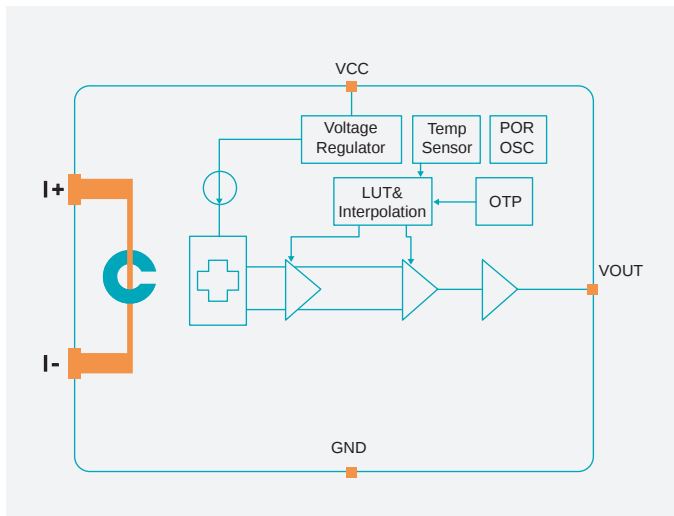
◆ Product introduction

NSM2311 is a high performance module-alternative current sensor which is mainly used for isolation measurement of current under 400A, to achieve a compact, low-cost, and high-precision sensing solution.

◆ Product feature

- 50A~400A Wide current range available
- AC/DC input
- 3.3V/5V single power supply (different version)
- As low as 100 μ Ohm primary conductor resistance
- $<\pm 2\%$ current measurement accuracy (sensitivity error over temperature)
- 2.4 μ s response time typ.
- Up to 147kHz bandwidth
- Withstand up to 20kA surge current (8 μ s /20 μ s surge current waveform)
- Multiple types of output:
 - Ratio metric output
 - Fixed output
- DIP-5L package:
 - Basic insulation working voltage: 1358 Vdc, 960 Vrms
 - Reinforced insulation working voltage: 672 Vdc, 475 Vrms

◆ Functional block diagram



◆ Safety Certification

- UL62368/EN62368 safety certification

◆ Package



◆ Application



industrial frequency
converter



PDU



PV inverter



power supply
(UPS, SMPS, etc.)

NSM204x: Compact Integrated Current Sensor

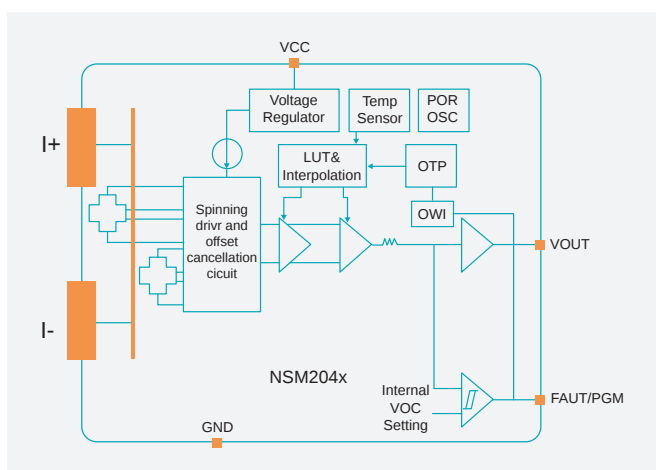
◆ Product introduction

The NSM204x series of integrated current sensors leverages advanced magnetic sensing technology to achieve contactless current sampling, serving as a superior alternative to traditional "shunt + operational amplifier" solutions. This series eliminates the need for a primary-side power supply, resulting in a streamlined PCB layout that simplifies system design and reduces the Bill of Materials (BOM), while its QFN package further minimizes the board footprint. Within the series, the NSM2040 features an ultra-low insertion resistance of $0.1\text{m}\Omega$ to ensure minimal thermal loss and utilizes a pseudo-differential fixed output mode to remain immune to power supply fluctuations; meanwhile, the NSM2041 offers a low insertion resistance of $0.6\text{m}\Omega$ with an analog output mode for enhanced circuit design flexibility. Both products incorporate precision temperature compensation algorithms and factory calibration to maintain high accuracy across the full temperature range without requiring secondary calibration. Additionally, they feature adjustable threshold overcurrent protection and support 3.3V/5V power supplies, making them ideal for industrial power supplies, energy storage, motor drives, and other diverse applications.

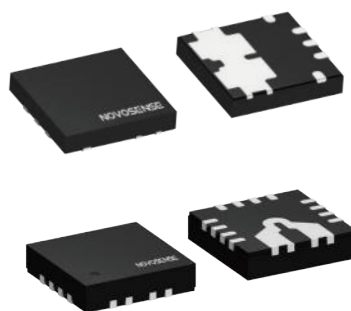
◆ Product feature

- High Bandwidth:
NSM2040: 320kHz
NSM2041: 300kHz
- Fast Response: $1.5\mu\text{s}$ response time
- High-Precision Current Measurement
- Differential Hall Configuration: Robust immunity against stray magnetic field interference
- Fault Overcurrent Protection (OCP)
- NOVOSNS Innovative "Spin Current" Technology:
Minimizes offset temperature drift
- Operating Temperature Range:
NSM2040: -40°C to 150°C
NSM2041: -40°C to 125°C
- Primary-Side Internal Resistance:
NSM2040: $0.1\text{m}\Omega$
NSM2041: $0.6\text{m}\Omega$
- Package Specifications:
NSM2040: QFN $4\text{mm} \times 4\text{mm}$
NSM2041: QFN $3\text{mm} \times 3\text{mm}$
- RoHS Compliant

◆ Functional block diagram



◆ Package



◆ Application



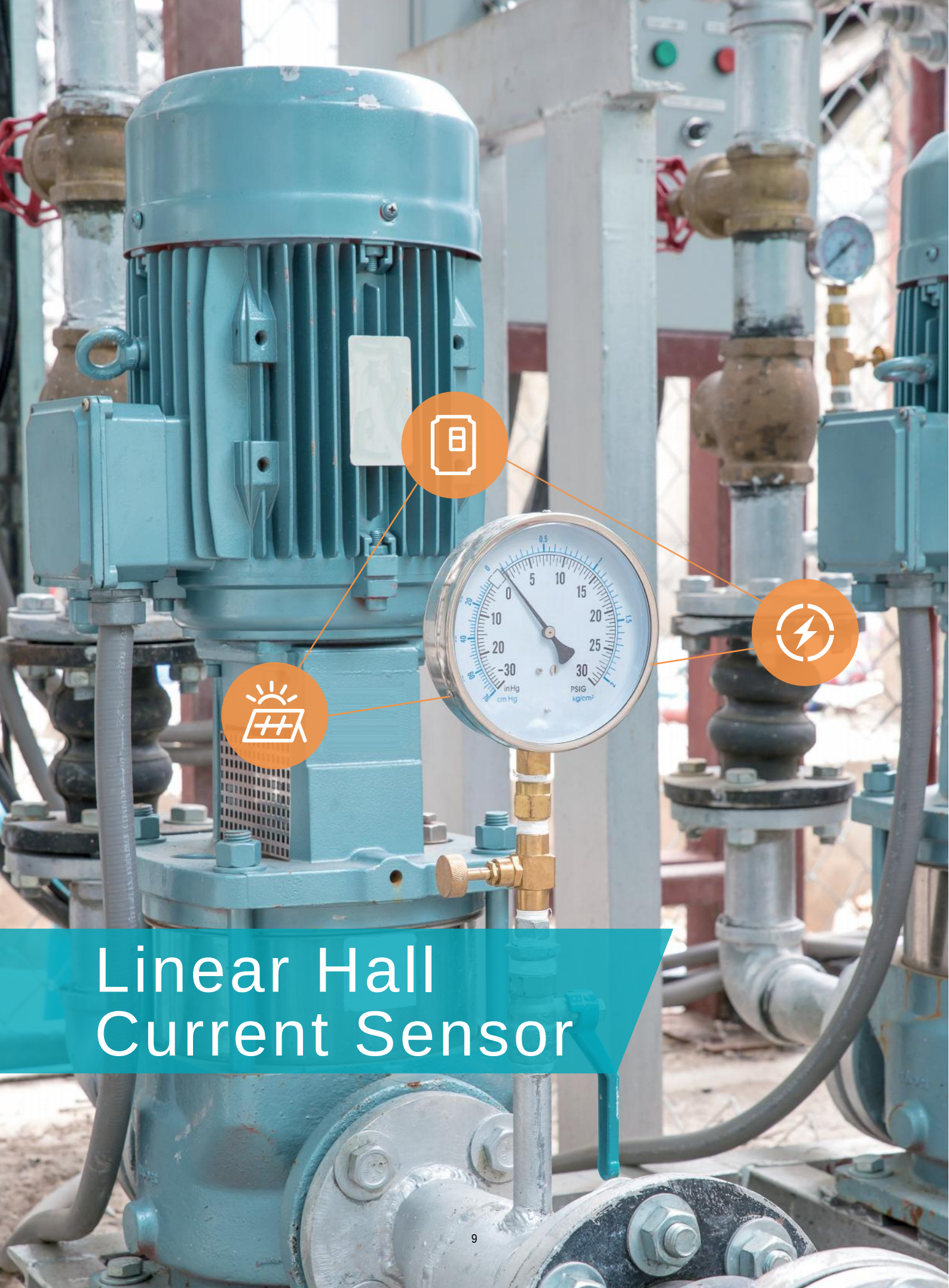
Automotive Systems



Motor control



Over-Current
Fault Protection



Linear Hall Current Sensor

Linear Hall Current Sensor

Part Number	Operating Voltage (V)	Power Consumption (mA typ.)	Bandwidth (KHz)	Response Time (us typ.)	Operating Temperature (°C)	Sensitivity (mV/Gs)	Quiescent Output(V)	Linearity (%max.)	Package	Application grade
NSM2031-Q0	5	10	240	2.2	-40~150	0.5~15	50%VCC	< ±0.5	TO94, BV Bending	Automotive
NSM2032	5	10	400	1.5	-40~150	0.5~30	50%VCC	< ±0.2	TO94, BS,BZ, BV Bending	Automotive
NSM2034	5	10	400	1.5	-40~150	0.5~30	50%VCC	< ±0.2	TO94 (Thickness:1.6mm)	Industrial
MT9519	5	15	250	2.2	-40~150	2.5/4/6/6.66/10	50%VCC	< ±0.5	SOP8	Automotive

NSM2031: Linear Hall Current Sensor

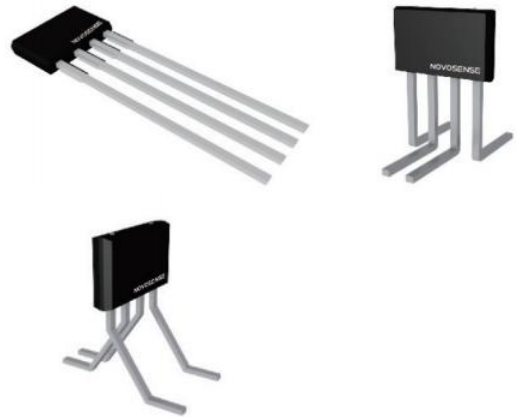
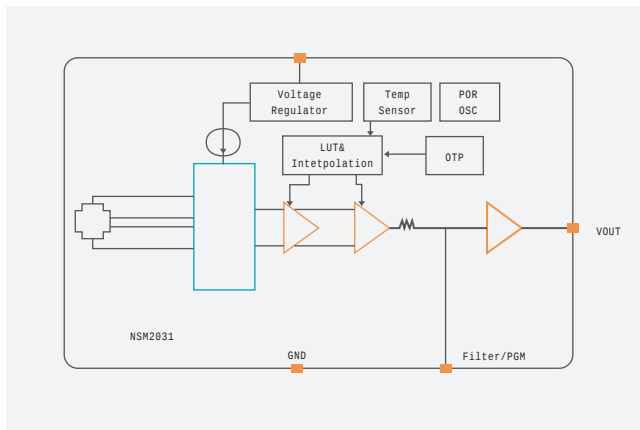
◆ Product introduction

NSM2031 linear Hall effect current sensor chip can provide a high-precision solution for large range current detection based on magnetic ring. It is widely used in the phase current detection of electric vehicle electric drive system and the large current detection of current module in industrial system.

◆ Product feature

- 3.3V/5V single power supply (different version)
- Wide programmable sensitivity range: 0.5~15mV/Gs
- $<\pm 2\%$ sensitivity error over full temperature range
- $<\pm 10\text{mV}$ offset error full temperature range
- Industry-leading noise performance
- 240kHz bandwidth
- 2.2 μs response time typ.
- Industry leading ESD performance: HBM: $\pm 8\text{kV}$, CDM: $\pm 2\text{kV}$
- 1mm, TO94 package and a variety of pin bent form
- Multiple types of output:
Ratio metric output
Fixed output
- Over-current protection, users can configure over-current protection output threshold for the current range of 50% to 200%
- RoHS-compliant package

◆ Functional block diagram



◆ Application



Traction motor inverter



DC/DC converters



PDU



Industrial motor control



Photovoltaic inverter

NSM2032: Linear Hall Current Sensor

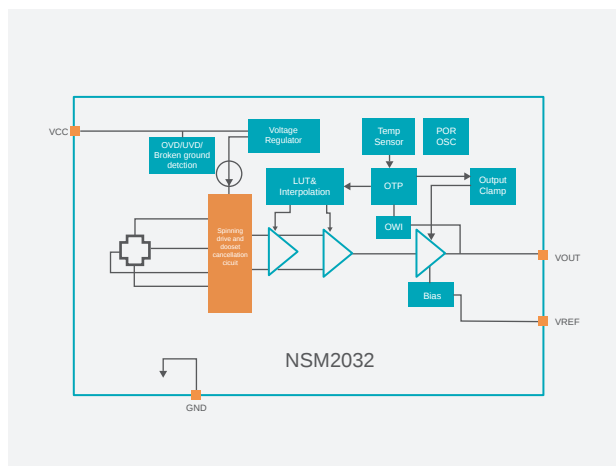
◆ Product introduction

NSM2032 linear Hall effect current sensor chip can provide a high-precision solution for large range current detection based on magnetic ring. It is widely used in the phase current detection of electric vehicle electric drive system and the large current detection of current module in industrial system.

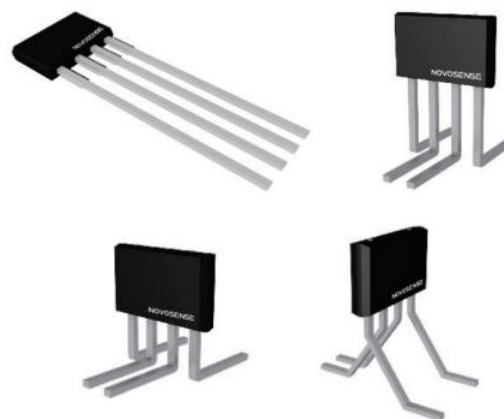
◆ Product feature

- 3.3V/5V single power supply (different version)
- Wide programmable sensitivity range: 0.5~30mV/Gs
- $<\pm 1\%$ sensitivity error over full temperature range
- $<\pm 5\text{mV}$ offset error full temperature range
- Industry-leading noise performance
- 400kHz bandwidth
- 1.5 μs response time typ.
- Industry leading ESD performance: HBM: $\pm 8\text{kV}$, CDM: $\pm 2\text{kV}$
- 1mm, TO94 package and a variety of pin bent form
- Multiple types of output:
 - Ratio metric output
 - Fixed output
 - Reference output (only in fixed mode)
- Under voltage/Over voltage detection
- RoHS-compliant package

◆ Functional block diagram



◆ Package



◆ Application



Traction motor inverter



DC/DC converters



PDU



Industrial motor control



Photovoltaic inverter

NSM2034: Linear Hall Current Sensor

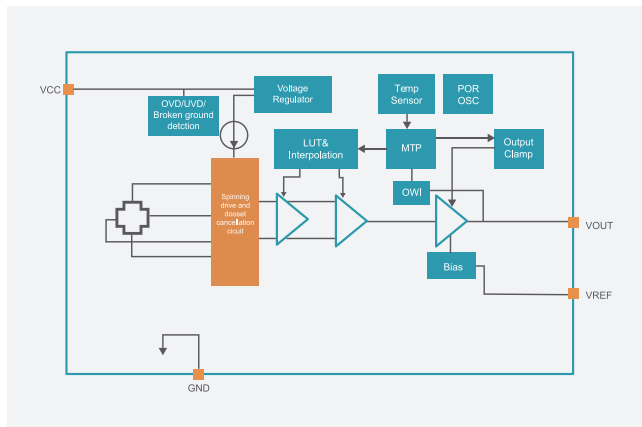
◆ Product introduction

The NSM2034 linear Hall effect current sensor chip provides a high-precision solution for current detection based on magnetic core, widely used in current sensor modules in industrial systems.

◆ Product feature

- 3.3V/5V single power supply (different version)
- Wide programmable sensitivity range: 0.5~30mV/Gs
- $<\pm 1\%$ sensitivity error over full temperature range
- $<\pm 5\text{mV}$ offset error full temperature range
- Industry-leading noise performance
- 400kHz bandwidth
- 1.5 μs response time typ.
- Industry leading ESD performance: HBM: $\pm 8\text{kV}$, CDM: $\pm 2\text{kV}$
- 1.6mm, TO94 package
- Types of output:
 - Fixed output
 - Reference output
- Under voltage/Over voltage detection
- RoHS-compliant package

◆ Functional block diagram



◆ Package



◆ Application



Industrial motor control



Photovoltaic inverter

MT9519: Linear Hall Current Sensor

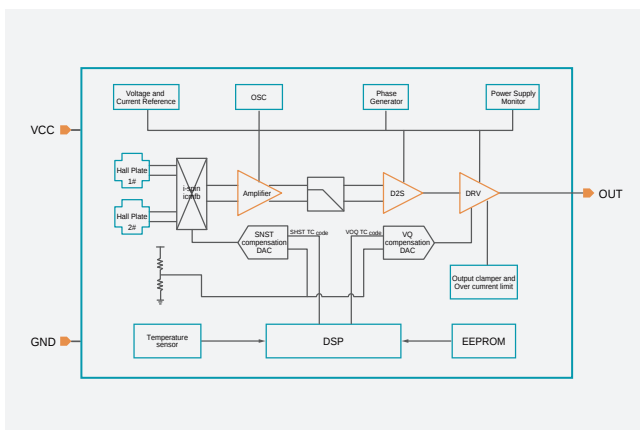
◆ Product introduction

The MT9519 product series is a current IC that utilizes a built-in magnetic collector to convert a vertical magnetic field into horizontal magnetic dection (HMD). The traditional Planar Hall technology is only sensitive to the magnetic flux density applied perpendicular to the IC surface. The sensor IC using HMD technology is only sensitive to the magnetic flux density applied parallel to the surface of the IC. This is achieved by placing two pieces of magnetic conductive metal on the chip. This chip is a highly integrated Hall sensor IC that provides an output signal proportional to the magnetic flux density applied horizontally, making it suitable for current measurement. Due to its small size and use of SOP-8 package, it is very suitable as an open-loop current sensor for PCB or busbar installation. It is suitable for various current ranges from a few amperes to 1000 amperes or higher.

◆ Product feature

- End-of-line programmable
- Typical Accuracy: $\pm 1.0\%$ (25°C)
- High Linearity: $\pm 0.5\%$ (25°C)
- High Bandwidth: 250kHz
- Wide Operating Temperature: -40°C~150°C
- Fast Output Response Time: 2.2 μ s (typ.)
- Package Option: SOP-8
- High stability over operation temperature range:
 $\pm 1.5\%$ (25°C~125°C)
 $\pm 1.5\%$ (-40°C~25°C)
- Ratiometric Output from Supply Voltage
- Low-Noise Analog Signal Path
- RoHS Compliant: (EU)2015/863

◆ Functional block diagram



◆ Package



◆ Application



Vehicle mounted drive motor inverter



PV string inverters



Battery management system



Switching power supplies



Overcurrent protection

Hall-based Angle Encoder Sensor IC



Hall-based Angle Encoder Sensor IC

Part Number	Principle	Supply Voltage (V)	Operating Temperature (°C)	ISO 26262	Output Overvoltage Protection	Redundant Design Package	Simulated output curve programming	Analog Output	PWM Output	Output Interface	ABZ Output	UVW Output	Angular Accuracy	Package	AEC-Q100
NSM3011	Differential hall	3.3/5	-40~125	No	6.5V	-	Any 3-point Programming	Yes	Yes	-	No	No	<±1.0°	SOP-8	Yes
NSM3011-Q1	Differential hall	3.3/5	-40~125	Yes	6.5V	-	Any 3-point Programming	Yes	Yes	-	No	No	<±1.0°	SOP-8	Yes
NSM3012	Differential hall	3.3/5	-40~125	No	6.5V	-	Any 3-point Programming	Yes	Yes	SPI	No	No	<±1.0°	SOP-8	Yes
NSM3012-Q1	Differential hall	3.3/5	-40~125	Yes	6.5V	-	Any 3-point Programming	Yes	Yes	SPI	No	No	<±1.0°	SOP-8	Yes
NSM3013	Differential hall	3.3/5	-40~125	No	6.5V	-	Any 3-point Programming	Yes	Yes	-	Yes	No	<±1.0°	SOP-8	Yes
NSM3013-Q1	Differential hall	3.3/5	-40~125	No	6.5V	-	Any 3-point Programming	Yes	Yes	-	Yes	No	<±1.0°	SOP-8	Yes
MT652x	3D HALL (XY,XZ,YZ)	5	-40~160	Yes	18V	Yes	Any 8-point Programming or 17-point piece-wise-linear Programming	Yes	Yes	SPI, SENT	No	No	<±3.0°	SOP-8, TSSOP-16	Yes
MT6511	Differential hall	5	-40~150	Yes	30V	Yes	Any 8-point Programming or 17-point piece-wise-linear Programming	Yes	Yes	SPI, SENT	Yes	Yes	±1.0°	SOP-8, TSSOP-16	Yes
MT6620	Hall array	3.3/5	-40~125	No	6.5V	-	Any 8-point Programming or 17-point piece-wise-linear Programming	No	Yes	SPI	Yes	Yes	±0.2°	TSSOP-24	No
MT6701	Differential hall	3.3/5	-40~125	No	7V	-	-	Yes	Yes	I2C, SSI	Yes	Yes	<±1°	SOP-8, QFN3*3-16L	No

NSM301x: Hall-based Angle Sensor

◆ Product introduction

The NSM301x is a non-contact rotation angle sensor that supports accurate rotation angle measurement of 360° in ambient temperatures ranging from -40°C to 125°C.

This series is based on planar Hall array, which converts the angle position information of bipolar magnet into analog voltage, PWM, SPI and other output forms through internal DSP.

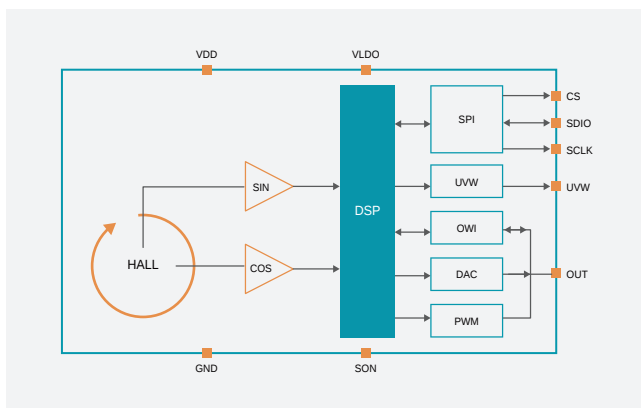
The NSM301x provides SPI and OWI interfaces for signal path configuration as well as erasable programming register blocks (MTP). It has an automatic gain (AGC) adjustment module that can adjust the gain of the signal path to accommodate different mechanical constraints and magnetic fields. This approach provides maximum flexibility in system design because it can be integrated directly into existing architectures, providing high accuracy.

The chip supports 3.3V, 5V power supply voltage (different power supply versions)

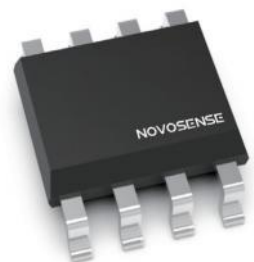
◆ Product feature

- 14-bit Analog output DAC/12-bit PWM output
- SON digital output to judge the strength of magnetic field with programmable threshold
- 3/4-wire SPI and OWI programmable interface
- $\pm 0.2^\circ$ accuracy after four-segment calibration
- Built-in automatic gain compensation circuit to compensate the gain loss caused by the temperature characteristics of the magnet and the Z-direction installation position tolerance
- Abnormal diagnosis function
- Differential Hall sensor for stray field suppression
- NOVOSENSE innovative 'Spin Current' technology for offset temperature drift suppression
- Lead-free component, suitable for lead free soldering profile: 260 °C, MSL3
- AEC-Q100 reliability standard: Grade 1
- RoHS & REACH Compliant

◆ Functional block diagram



◆ Package



MT652x: Automotive-grade Planar Hall and Integrated Magnetic Concentrator (IMC) Magnetic Angle and Position Encoder

◆ Product introduction

The MT652x series is a new generation of magnetic angle and position detection sensor chip based on the principle of horizontal Hall and Magnetic Concentrate (IMC) technology launched by Microelectronics. The chip contains two pairs of horizontal Hall arrays and concentrator sheets placed at 90° to each other, which can realize the magnetic field change detection of XY, XZ and YZ planes according to different model configurations, and output two voltage signals of sine and cosine, and then obtain the angle value (α) after amplification, compensation and calculation of subsequent special circuits.

The MT652x series's OUT output pin provides programmable choice of analog, PWM, and SENT outputs. In addition, these three outputs can be programmed to any 8-point or 17-point (16-segment) equal parts of the output curve.

The MT652x series also provides two communication interfaces, output single-wire (OWI) and 3-wire SPI, allowing users to read 16-bit absolute angular data and read and write other internal registers. Users can also use SPI and OWI interfaces to program the EEPROM inside the chip.

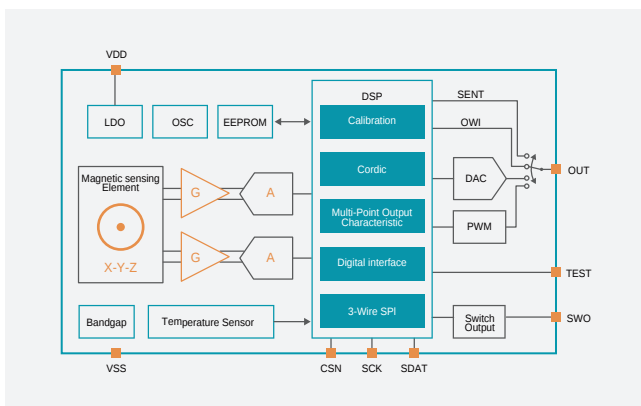
For some special applications, the MT652x series also provides a separate switching output (SWO) in an angular position, and the parameters of the switching point and switching hysteresis window are user-programmable.

As a chip mainly for automotive applications, the MT652x series is designed with a series of functional safety mechanisms such as self-test and diagnosis, which can support the functional safety requirements of single-channel chip ASIL-B and dual-channel chip ASIL-B (D).

◆ Product feature

- Support XY (MT6521), XZ (MT6522), YZ (MT6523) Mode Angle or Linear Position Measurement
- Selectable Analog (Ratio metric), PWM or Switch Output
- Programmable Linear Transfer Characteristic (Arbitrary 8-point or 17-point Piece-Wise-Linear)
- One/3-Wire SPI and SENT programmable interface
- $\pm 3^\circ$ accuracy
- Over-Voltage, Over-Current, Broken Wire, Weak Magnetic Field etc. Diagnostic Modes
- AEC-Q100 reliability standard: Grade 0
- RoHS Compliant
- ISO26262 ASIL

◆ Functional block diagram



◆ Package



MT6511: Automotive-grade Differential Hall Magnetic Angle Encoder

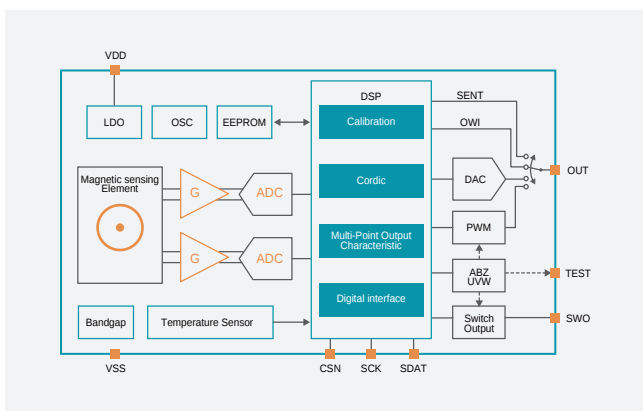
◆ Product introduction

The MT6511 is a next-generation magnetic angle sensor IC developed by for the automotive market based on differential Hall magnetic sensing technology. MT6511 can provide 0~360° analog linear output or PWM, ABZ, UVW and other outputs, and also provides SENT and SPI communication interfaces. MT6511 supports the programming of output curves up to any 8 points or 17 equal points, which can be applied to various complex angle control scenarios. As an automotive-grade product, the MT6511 can withstand up to $\pm 30\text{V}$ DC high voltage between the power supply and ground, and 30V high voltage between the output terminal to the ground. The MT6511 meets AEC-Q100 and ISO26262 functional safety requirements, and is available in both single SOP-8 and dual TSSOP-16 (redundant design) packages, making it suitable for a variety of applications such as automotive electronic shifters, steering wheel angle detection, electronic throttle valves, EGR valves, and more.

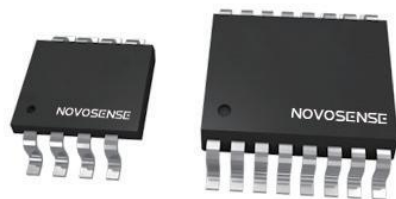
◆ Product feature

- Selectable Analog (Ratio metric), PWM or Switch Output
- Programmable Linear Transfer Characteristic (Arbitrary 8-point or 17-point Piece-Wise-Linear)
- ABZ Incremental Output Resolution 1~4,096 Pulses per Revolution User Programmable
- UVW Output Resolution 1~16 Pole-Pairs per Revolution User Programmable
- One/3-Wire SPI and SENT programmable interface
- $\pm 1^\circ$ accuracy
- Immunity to Stray Magnetic Field Interference, MFI testing can pass 4000 A/M
- AEC-Q100 reliability standard: Grade 0
- RoHS Compliant
- ISO26262 ASIL

◆ Functional block diagram



◆ Package



MT6620: 2mm Fixed Magnet Spacing Axial Angle and Position Encoder

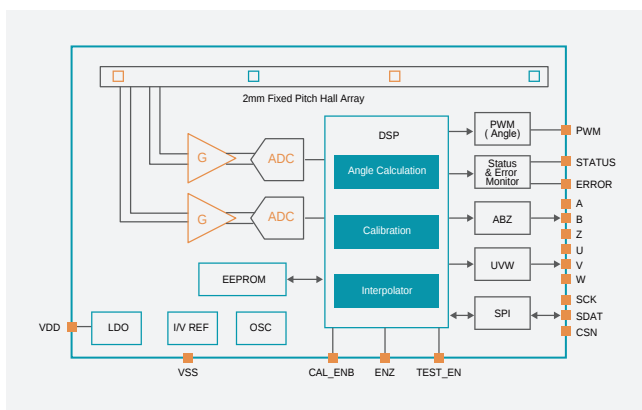
◆ Product introduction

The MT6620 is sensor chip for off-axis angle and position sensing based on fixed pole Hall magnetic sensing technology. When the magnetic scale or magnetic ring corresponding to the pole distance of 2mm passes above the chip Hall array, the chip can induce the sine and cosine voltage signals that change with the angle position through the Hall principle, and obtain the corresponding position and angle data after subsequent processing. The MT6620 provides an incremental ABZ output similar to a traditional optical encoder, with a maximum resolution of 2500 pulses/magnetic counter or 10,000 steps/magnetic counter. At the same time, MT6620 also provides incremental UVW output, and the resolution supports 1~63 pairs/magnetic pairs. The core performance improvement of MT6620 is that it provides a convenient self-calibration mode for the client (no data interaction required), through which various nonlinearities caused by the unsatisfactory magnet and the deviation of the structure installation can be compensated, so as to greatly improve the linearity.

◆ Product feature

- Scan of Magnetic-grids and Pole Wheels Featuring a Pole Pitch of 2mm
- User Convenient-Auto-Calibration without Data Interaction
- Independent Output Interface: ABZ, UVW, PWM, SPI
- ABZ Incremental Output Resolution 1~2500 Pulses per Revolution User Programmable
- UVW Output Resolution 1~63 Pole-Pairs per Revolution User Programmable
- 3-Wire SPI programmable interface
- $\pm 0.2^\circ$ accuracy after User Convenient-Auto-Calibration

◆ Functional block diagram



◆ Package



MT6701: Differential Hall Magnetic Angle Encoder

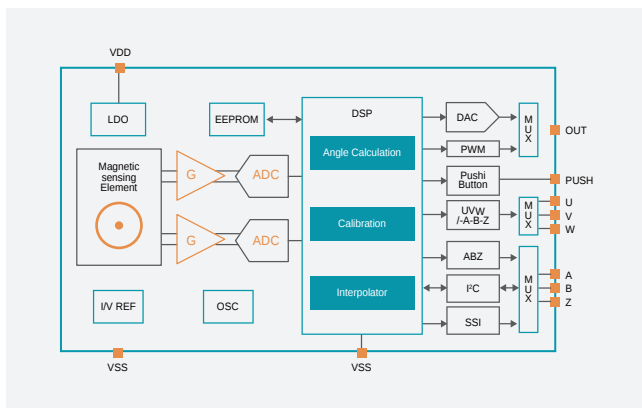
◆ Product introduction

The MT6701 is a new generation of magnetic angle encoder IC based on the principle of differential Hall induction from. MT6701 induces the magnetic field component perpendicular to the surface of the chip, and with the rotation of the radial magnet magnetized at 1 pair of poles on the surface of the chip, the corresponding output of MT6701 is an angle signal of 0~360°. In addition to ABZ/UVW incremental and analog/PWM absolute angle outputs, the MT6701 also provides 14 bits of digital angle output via the I²C/SSI interface. In addition to the rotation angle measurement, the MT6701 also provides a "press" output to enable a single-chip push button (rotation + press) function.

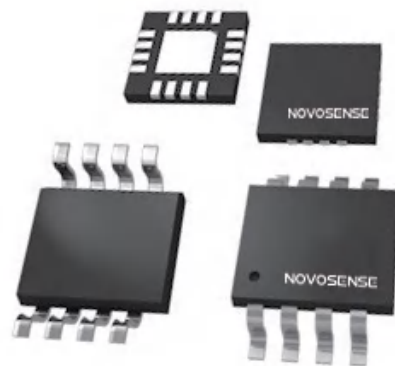
◆ Product feature

- Maximum Rotation Speed 55,000RPM
- Output Propagation Delay <5us
- Independent Output Interface: I2C, SSI, ABZ, UVW, Analog, PWM, Push-Button Function on Z-Axis
- ABZ Incremental Output Resolution 1~1024 Pulses per Revolution User Programmable
- UVW Output Resolution 1~16 Pole-Pairs per Revolution User Programmable
- I2C or SSI interface read 14bit Absolute Angle Position data
- ±1° accuracy
- RoHS Compliant

◆ Functional block diagram



◆ Package



xMR Angle Encoder Sensor IC



xMR Angle Encoder Sensor IC

Part Number	Supply Voltage (V)	Operating Temperature (°C)	Propagation Delay (Constant Speed)	Rotation Speed	INL	ABZ Output	UVW Output	PWM Output	Core Resolution	Output Interface	Simulated output curve programming	Package	Automotive Grade Certification
MT6835	3.3/5.0	-40~125	<2μs	<120,000RPM	±0.02°	1~16384lines programmable	1~16pole pairs programmable	12bit	21bit	4-wire SPI	-	TSSOP-16	No
MT6825	3.3/5.0	-40~125	<2μs	<25,000RPM	±0.5°	1~4096lines programmable	1~16pole pairs programmable	12bit	18bit	3-wire SPI/ 4-wire SPI	-	TSSOP-16	No
MT6826S	3.3/5.0	-40~125	<2μs	<120,000RPM	±0.1°	1~4096lines programmable	1~16pole pairs programmable	12bit	15bit	4-wire SPI	-	TSSOP-16, QFN4X4	No
MT6816	3.3/5.0	-40~125	<2μs	<25,000RPM	±0.75°	1~1024lines programmable	1~16pole pairs programmable	12bit	14bit	3-wire SPI/ 4-wire SPI	-	SOP-8	Yes
MT6501	3.3/5.0	-40~150	-	-	-	N	N	12bit	-	3-wire SPI	Any 4 points	SOP-8, TSSOP-16 (redundant package)	Yes

MT6835: 21-bit Magnetic Angle Encoder

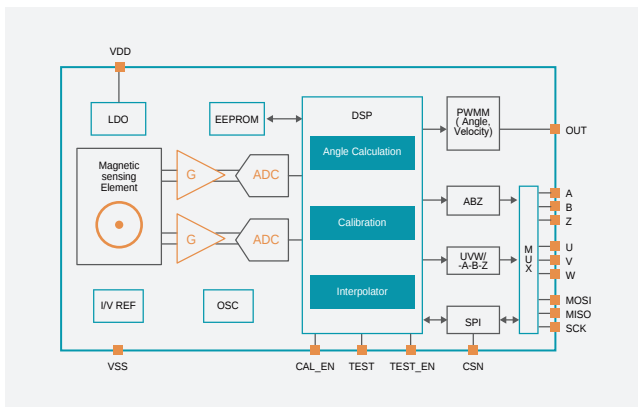
◆ Product introduction

The MT6835 chip is the latest fourth-generation magnetic angle encoder IC, that is, the new upgrade chip of MT6825, based on anisotropic magnetoresistive (AMR) technology and proprietary signal processing technology to achieve absolute angle measurement of $0^{\circ}\sim 360^{\circ}$. The chip consists of a pair of AMR Wheatstone bridges and signal processing ASIC circuits. With the rotation of the magnetic field parallel to the surface of the chip, the chip can output angular signals such as ABZ/UVW, PWM, etc., and the user can also read the 21-bit absolute angle data inside the chip through the SPI interface that supports up to 16MHz clock. It supports speeds up to 120,000 rpm. The MT6835 chip can be applied to various application scenarios with high-speed and high-precision control requirements, such as closed-loop stepper motor control, 2500-line servo and 17-bit absolute servo motor control.

◆ Product feature

- Maximum Rotation Speed 120,000RPM
- Output Propagation Delay <2us
- Independent Output Interface: ABZ, UVW, PWM, SPI
- ABZ Incremental Output Resolution 1~16384 Pulses per Revolution User Programmable
- UVW Output Resolution 1~16 Pole-Pairs per Revolution User Programmable
- 4-Wire SPI interface read 21bit Absolute Angle Position data
- PWM interface read 12bit Absolute Angle Position data
- User Auto-Calibration and Distortion Compensation with Target $\pm 0.02^{\circ}$ accuracy

◆ Functional block diagram



◆ Package



MT6825: 18-bit Magnetic Angle Encoder

◆ Product introduction

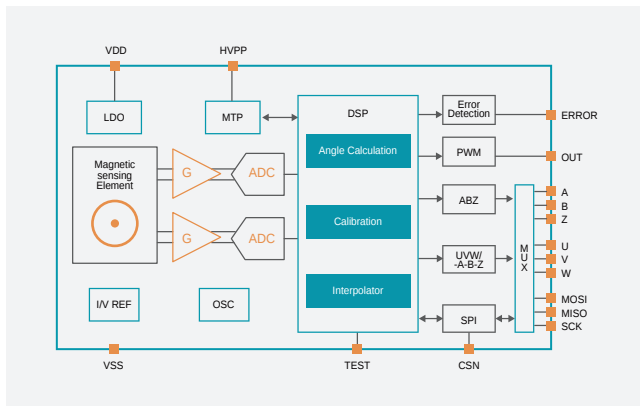
The MT6825 is third-generation magnetic angle encoder chip, which is based on anisotropic magnetoresistive (AMR) technology and proprietary signal processing technology to achieve absolute angle measurement of 0~360°. The chip consists of a pair of AMR Wheatstone bridges and signal processing ASIC circuits. As the magnetic field parallel to the surface of the chip rotates, the chip outputs a corresponding encoded angle signal with a signal delay of less than 2 μ s, and the user can also read the angle data calculated inside the chip through the high-speed SPI interface.

Compared with traditional Hall sensors, AMR angle sensors are easier for customers to install because they operate in the saturation zone, which reduces the magnetic field requirements. The MT6825 is available in a TSSOP-16 package, which can output ABZ, UVW and SPI signals simultaneously, and is widely used in various consumer and industrial applications such as motor position feedback control and rotation control.

◆ Product feature

- Maximum Rotation Speed 25,000RPM
- Output Propagation Delay <2 μ s
- Independent Output Interface: ABZ, UVW, PWM, SPI
- ABZ Incremental Output Resolution 1~4096 Pulses per Revolution User Programmable
- UVW Output Resolution 1~16 Pole-Pairs per Revolution User Programmable
- 4-Wire SPI interface read 18bit Absolute Angle Position data
- PWM interface read 12bit Absolute Angle Position data
- $\pm 0.5^\circ$ accuracy

◆ Functional block diagram



◆ Package



MT6826S: 15-bit Magnetic Angle Encoder

◆ Product introduction

MT6826S is a new generation of high-speed and high-precision angle encoder chips based on advanced anisotropic magnetoresistive (AMR) technology. The chip integrates two pairs of AMR Wheatstone bridges positioned at 45° to each other as a sensitive element and a high-performance dedicated signal processing circuit. Since AMR devices operate in the saturation region (with a saturation field of 300 Gaussian) when used as an angle measurement application, the chip only responds to changes in the direction of the magnetic field parallel to the surface of the chip, regardless of the strength of the magnetic field. Therefore MT6826S in the process of use, the processing error of the magnet itself and the installation distance error of the magnet and the chip are relatively low.

MT6826S provides an incremental ABZ output interface to replace traditional optical encoders, with a maximum resolution of 4,096 pulses/revolution or 16,384 steps/revolution. At the same time MT6826S it also provides incremental UVW output, and the resolution supports 1~16 poles/circle.

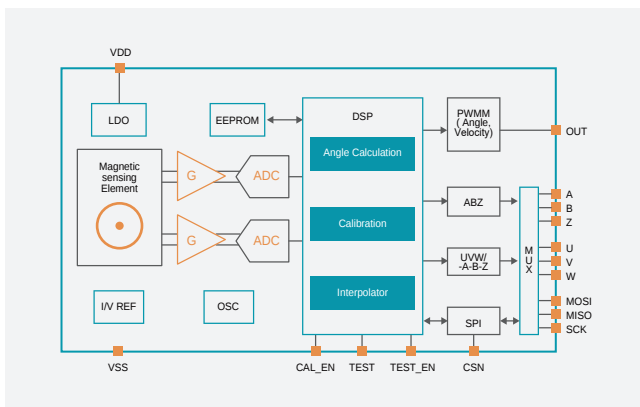
MT6826S provides a 4-wire SPI interface for the host computer or MCU to read the 15-bit absolute angle value inside the chip. At the same time, the single-line output PWM can also provide absolute angle data with a resolution of 12 bits.

The core performance improvement of the MT6826S is that it provides a convenient self-calibration mode for the client, through which various nonlinearities caused by the unsatisfactory magnet and the deviation of the structure installation can be compensated, so as to greatly improve the INL characteristics.

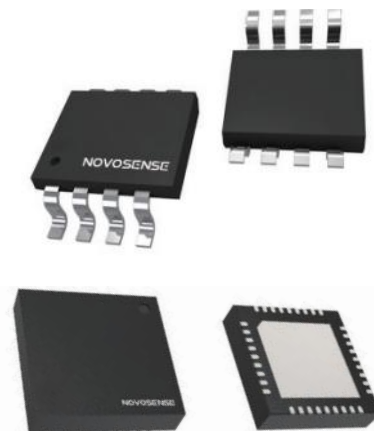
◆ Product feature

- Maximum Rotation Speed 120,000RPM
- Output Propagation Delay <2us
- Independent Output Interface: ABZ, UVW, PWM, SPI
- ABZ Incremental Output Resolution 1~4096 Pulses per Revolution User Programmable
- UVW Output Resolution 1~16 Pole-Pairs per Revolution User Programmable
- 4-Wire SPI interface read 15bit Absolute Angle Position data
- PWM interface read 12bit Absolute Angle Position data
- User Auto-Calibration and Distortion Compensation with Target $\pm 0.1^\circ$ accuracy

◆ Functional block diagram



◆ Package



MT6816: 14-bit Magnetic Angle Encoder

◆ Product introduction

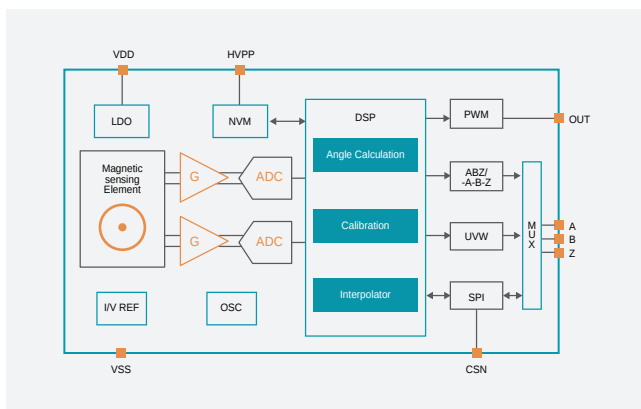
The MT6816 is third-generation magnetic angle encoder chip, which is based on anisotropic magnetoresistive (AMR) technology and proprietary signal processing technology to achieve absolute angle measurement of 0~360°. The chip consists of a pair of AMR Wheatstone bridges and signal processing ASIC circuits. As the magnetic field parallel to the surface of the chip rotates, the chip outputs a corresponding encoded angle signal with a signal delay of less than 2 μ s, and the user can also read the angle data calculated inside the chip through the high-speed SPI interface.

Compared with traditional Hall sensors, AMR angle sensors are easier for customers to install because they operate in the saturation zone, which reduces the magnetic field requirements. The MT6816 is available in a SOP-8 package, which is widely used in various consumer and industrial fields such as position feedback control and rotation control of various motors.

◆ Product feature

- Maximum Rotation Speed 25,000RPM
- Output Propagation Delay <2 μ s
- Independent Output Interface: ABZ, UVW, PWM, SPI
- ABZ Incremental Output Resolution 1~1024 Pulses per Revolution User Programmable
- UVW Output Resolution 1~16 Pole-Pairs per Revolution User Programmable
- 4-Wire SPI interface read 15bit Absolute Angle Position data
- PWM interface read 12bit Absolute Angle Position data
- $\pm 0.75^\circ$ accuracy

◆ Functional block diagram



◆ Package



MT6501: Automotive-grade Magnetic Angle Encoder

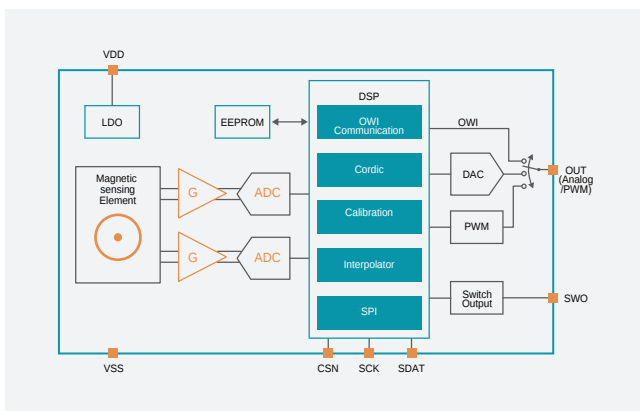
◆ Product introduction

MT6501 is a rotational angle sensor chip based on anisotropic magnetoresistive (AMR) technology. The chip consists of a pair of AMR Wheatstone bridges and signal processing ASIC circuits, and as the magnetic field parallel to the surface of the chip rotates, the chip outputs a corresponding angular signal. Compared with traditional Hall sensors, AMR angle sensors are easier for customers to install because they operate in the saturation zone, which reduces the magnetic field requirements. In addition to a single SOP-8 package, the MT6501 is also available in a dual TSSOP-16 package, making it widely suitable for automotive throttle, EGR valve, accelerator pedal control, and other applications that require dual-channel redundancy.

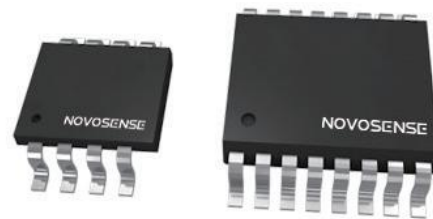
◆ Product feature

- Selectable Analog (Ratio metric), PWM or Switch Output
- Programmable Linear Transfer Characteristic (Arbitrary 4-point Piece-Wise-Linear)
- 3-Wire SPI and 1-Wire programmable interface
- $\pm 1^\circ$ accuracy
- Over-Voltage and Over-Current Protection
- AEC-Q100 reliability standard: Grade 0
- RoHS Compliant

◆ Functional block diagram



◆ Package



Speed Sensor

Part Number	Working voltage (V): 5.4-18	Output format	Working temperature (°C)	Jitter feature	Package
NSM4101	4.4~20	STA	-40~150	0.15%	TO2
NSM4102	5.3~20	AK	-40~150	0.15%	TO2
NSM4103	4.4~20	PWM	-40~150	0.15%	TO2
NSM4104	5.3~20	AK(without vibration suppression functionality)	-40~150	0.15%	TO2
NSM4111	4.4~20	STA	-40~150	0.15%	TO2
NSM4122	5.3~20	AK	-40~150	0.15%	TO2
NSM4113	4.4~20	PWM	-40~150	0.15%	TO2
NSM4114	5.3~20	AK(without vibration suppression functionality)	-40~150	0.15%	TO2

Speed Sensor



NSM41xx: AMR Speed Sensor

◆ Product introduction

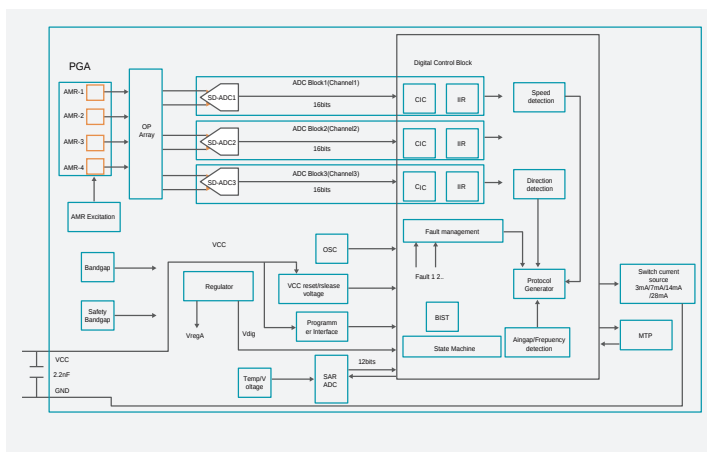
Based on the anisotropic magneto resistive (AMR) effect, the NSM41xx detect the rotational speed of a ferromagnetic/magnetic encoder wheel. This design provides speed information over a wide range of rotational frequency, air gap and temperature. It provides the speed information via a current switching protocol: PWM/Standard/AK protocol at the supply pin by current modulation. Diagnostic features are implemented to report the internal fault.

With internal capacitor and high ESD performance, in harsh automotive environments, NSM41XX can provide state of art EMC performance.

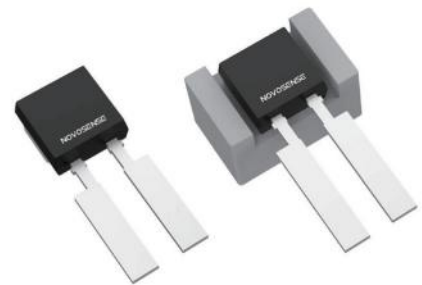
◆ Product feature

- System in package, application-specific integrated circuit, sensor and capacitor.
- AK/PWM/Standard protocol can be selected by part number
- Large range of operating terminal voltage
- Automotive qualified in accordance with AEC-Q100 grade0
- Vibration suppression
- ASIL-B(D) support for safety critical applications according to ISO26262
- High air gap performance
- Immunity against external dynamic fields
- Operation temperature: -40°C~150°C
- NOVOSENSE patented AMR wheel speed solution

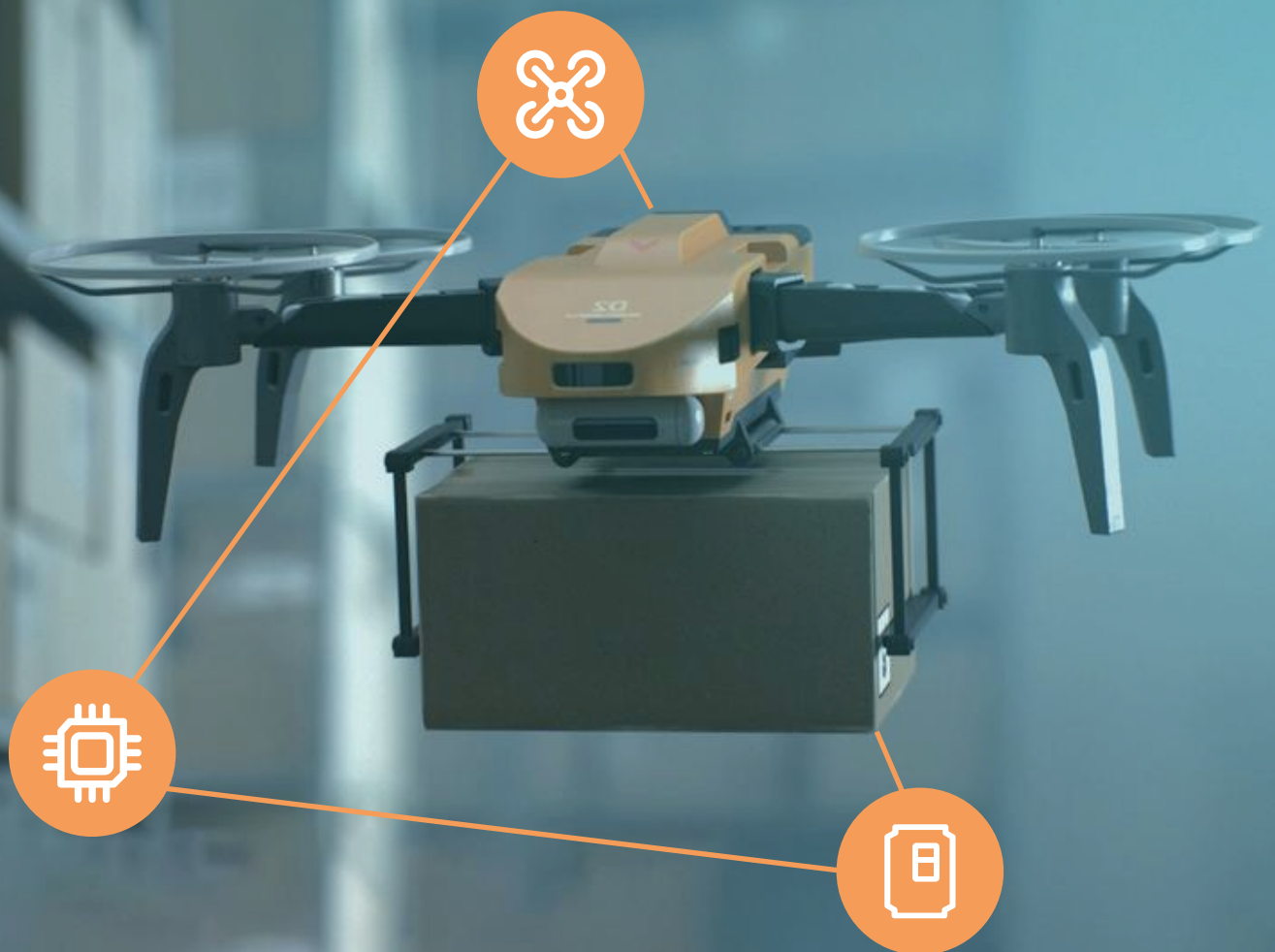
◆ Functional block diagram



◆ Package



Linear Position Sensor



Linear Position Sensor

Part Number	Type	Working voltage (V)	Bandwidth (KHz)	Working Temperature (°C)	Sensitivity (mV/A)	Working Power Consumption (mA)	Sleep Power Consumption (mA)	Automotive Grade Certification	Packaging
MT9105DT	Linear Position Sensor	3.3/5	30	-40~150	5	6.7	-	-	DFN1616
MT9103DT	Linear Position Sensor	3.3/5	30	-40~150	3.4	6.7	-	-	DFN1616
MT9102DT	Linear Position Sensor	3.3/5	30	-40~150	2.5	6.7	-	-	DFN1616
MT9101DT	Linear Position Sensor	3.3/5	30	-40~150	1.5	6.7	-	-	DFN1616
MT9101	Linear Position Sensor	3.3/5	30	-40~150	1.5	6.7	-	-	Small SOT-23, Flat TO-92,DFN1616
MT9102	Linear Position Sensor	3.3/5	30	-40~150	2.5	6.7	-	-	Small SOT-23, Flat TO-92,DFN1616
MT9103	Linear Position Sensor	3.3/5	30	-40~150	3.4	6.7	-	-	Small SOT-23, Flat TO-92,DFN1616
MT9105	Linear Position Sensor	3.3/5	30	-40~150	5	6.7	-	-	Small SOT-23, Flat TO-92,DFN1616
MT9106	Linear Position Sensor	3.3/5	30	-145	1.5	6.7	-	AEC-Q100	Small SOT-23, Flat TO-92
MT9107	Linear Position Sensor	3.3/5	30	-40~105	2.5	6.7	-	AEC-Q100	Small SOT-23, Flat TO-92
MT9108	Linear Position Sensor	3.3/5	30	-40~105	3.4	6.7	-	AEC-Q100	Small SOT-23, Flat TO-92
MT9109	Linear Position Sensor	3.3/5	30	-40~105	5	6.7	-	AEC-Q100	Small SOT-23, Flat TO-92
MT9363	Linear Position Sensor	1.8/5	10	-20~85	3.78	2.0	0.05mA	-	DFN2030,SOT-23
MT9365	Linear Position Sensor	1.8/5	10	-20~85	10	2.0	25μA	-	DFN2030,SOT-23
MT9352	Linear Position Sensor	1.8/5	10	-20~85	2.5	2.0	0.05mA	-	DFN2030
MT9353	Linear Position Sensor	1.8/5	10	-20~85	5	2.0	0.05	-	DFN2030
MT9355	Linear Position Sensor	1.8/5	10	-20~85	10	2.0	0.05	-	DFN2030
MT8001	Linear Position Sensor	3.3/5	16K (I²C)	-20~85	<100Code/GS (programmable)	2.8	5μA	-	DFN1616
MT9321	Linear Position Sensor	1.8/3.3	5	-40~100	1.04	0.7	-	-	Small SOT-23, DFN1616
MT9321	Linear Position Sensor	1.8/3.3	5	-40~100	1.66	0.7	-	-	Small SOT-23, DFN1616
MT9321	Linear Position Sensor	1.8/3.3	5	-40~100	2.24	0.7	-	-	Small SOT-23, DFN1616
MT9325	Linear Position Sensor	1.8/3.3	5	-40~100	3.28	0.7	-	-	Small SOT-23, DFN1616
MT9111	Linear Position Sensor	3.3	30	-40~125	1.00	2	-	-	Small SOT-23, Flat TO-92,DFN1616

Part Number	Type	Working voltage (V)	Bandwidth (KHz)	Working Temperature (°C)	Sensitivity (mV/A)	Working Power Consumption (mA)	Sleep Power Consumption (mA)	Automotive Grade Certification	Packaging
MT9112	Linear Position Sensor	3.3	30	-40~125	1.60	2	-	-	Small SOT-23, Flat TO-92,DFN1616
MT9113	Linear Position Sensor	3.3	30	-40~125	2.15	2	-	-	Small SOT-23, Flat TO-92,DFN1616
MT9115	Linear Position Sensor	3.3	30	-40~125	3.15	2	-	-	Small SOT-23, Flat TO-92,DFN1616
MT9121	Linear Position Sensor	3.3	30	-40~125	2.0	2	-	-	SOT23-3L,Flat TO-92
MT9122	Linear Position Sensor	3.3	30	-40~125	3.2	2	-	-	SOT23-3L,Flat TO-92
MT9123	Linear Position Sensor	3.3	30	-40~125	4.3	2	-	-	SOT23-3L,Flat TO-92
MT9125	Linear Position Sensor	3.3	30	-40~125	6.3	2	-	-	SOT23-3L,Flat TO-92

MT910x: Linear Position Sensor

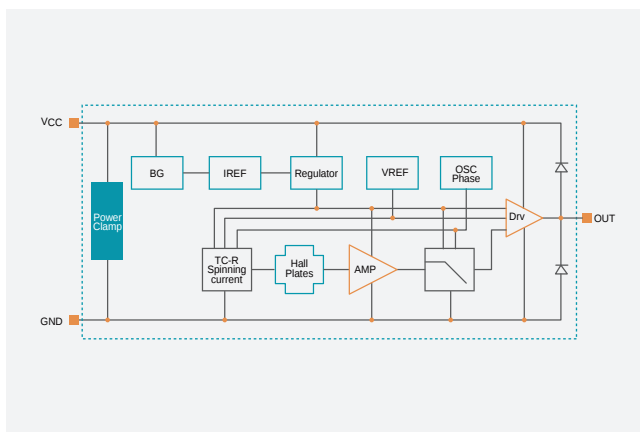
◆ Product introduction

The MT910x adopts BCD process, which has high performance and high reliability. 3.0V~5.5V working voltage, when there is no applied magnetic field, the output is one-half V_{CC} , and the output changes linearly with the magnetic field strength. And it has excellent temperature compensation ability, so that the chip can work in the environment of $-40\sim 150^{\circ}\text{C}$, and maintain excellent performance and consistency.

◆ Product feature

- Wide Operating Voltage Range: 3.0V to 5.5V
- Low Operating Current: 6mA (typ.)
- Low Sensitivity Drift: $\pm 1.5\%$
- Low Linearity Error: $\pm 1.5\%$
- Low Noise: 1.9mG/ $\sqrt{\text{Hz}}$
- High Bandwidth: 30kHz
- Wide Operating Temperature Range: -40°C to 150°C
- ESD Protection: $\pm 3000\text{V}$ (HBM)
- Multiple Sensitivity Options:
 - MT9101 / MT9106: 1mV/Gs (typ)@3.3V, 1.5mV/Gs @5V
 - MT9102 / MT9107: 1mV/Gs (typ)@3.3V, 2.5mV/Gs @5V
 - MT9103 / MT9108: 1mV/Gs (typ)@3.3V, 3.4mV/Gs @5V
 - MT9105 / MT9109: 1mV/Gs (typ)@3.3V, 5mV/Gs @5V
- AEC-Q100 Qualified

◆ Functional block diagram



◆ Package



MT9363: Linear Position Sensor

◆ Product introduction

The MT9363 series is a user-definable wake-up/sleep mode for low-voltage, low-power linear Hall-effect sensor chips. The chip can work at an ultra-low operating voltage of 1.7V~3.6V. In addition, by enabling SLEEP > VINH, the chip enters normal operation mode, consumes 2mA, induction of unidirectional S-pole magnetic field output proportional signal.

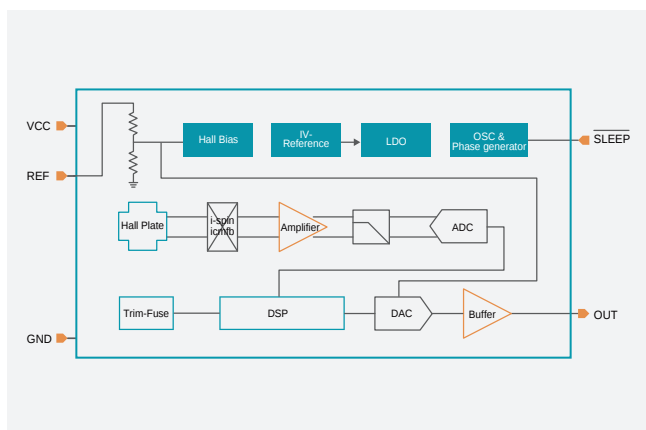
The MT9363 series is ideal for many battery-powered applications because users can switch between sleep and operating modes via the SLEEP pin, which helps users further reduce overall power consumption. In sleep mode, multiple MT9363 chip outputs are allowed to share a single ADC interface because the output enters a "high-impedance state".

The output of the MT9363 series is proportional based on the VREF pin, and when there is no magnetic field, $V_{OUT} = 6.47\%V_{REF}$, so it is independent of power supply.

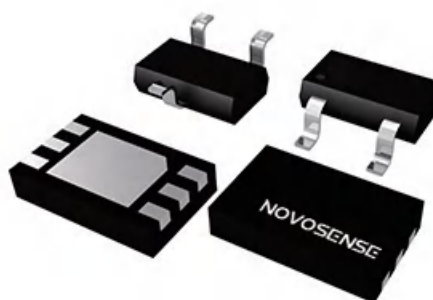
◆ Product feature

- Type: Linear simulation allows users to customize sleep mode
- Working voltage: 1.7-3.6V
- Bandwidth: 10KHz
- Working temperature: -20~85°C
- Sensitivity: 3.78mV/A
- Working power consumption: 2mA
- Sleep power consumption: 0.05mA
- Packaging: DFN2030,SOT-23

◆ Functional block diagram



◆ Package



MT935x: Linear Position Sensor

◆ Product introduction

The MT935X series is a user-definable wake-up/sleep mode for low-voltage, low-power linear Hall-effect sensor chips. The chip can work at an ultra-low operating voltage of 1.7V~3.6V. In addition, by enabling SLEEPVINH, the chip enters normal operation mode, consumes 2mA, consumes 2mA, and provides an output voltage signal proportional to the induced magnetic field.

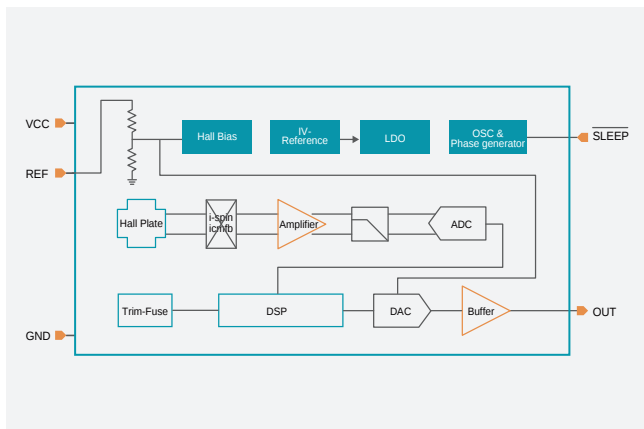
The MT935X series is ideal for many battery-powered applications because users can switch between sleep and operating modes via the SLEEP pin, which helps users further reduce overall power consumption. In sleep mode, multiple MT935X chip outputs are allowed to share a single ADC interface because the output enters a "high-impedance state".

The output of the MT935X series is proportional based on the VREF pin, and when there is no magnetic field, $V_{OUT} = 50\% V_{REF}$, so it is independent of power supply.

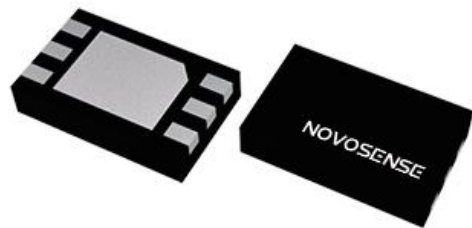
◆ Product feature

- Type: Linear simulation allows users to customize sleep mode
- Working voltage: 1.7-3.6V
- Bandwidth: 10KHz
- Working temperature: -20~85°C
- Sensitivity: 2.5mV/A
- Working power consumption: 2mA
- Sleep power consumption: 0.05mA
- Packaging: DFN2030

◆ Functional block diagram



◆ Package



MT8001: Micro-distance magnetic detection chip

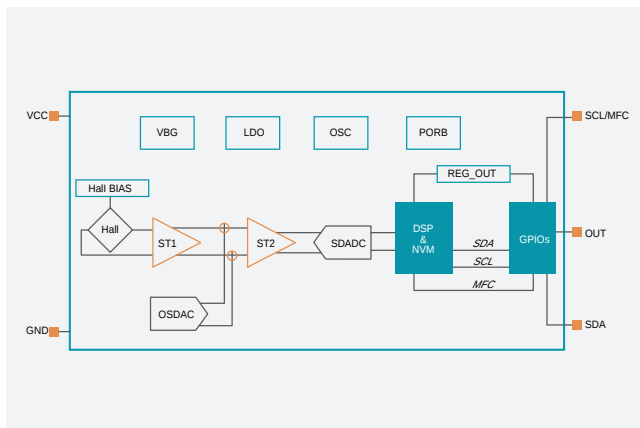
◆ Product introduction

The MT8001 chip is latest micro-distance magnetic detection chip, which is designed and developed based on high-sensitivity Hall. The MT8001 magnetic Hall sensor can output a 12-bit accurate vertical magnetic field strength signal value through I2C communication, and provides a programmable signal gain & signal bias magnetic field calibration function, making it suitable for a variety of position detection applications.

◆ Product feature

- Type: Digital output linear Hall effect
- Working voltage (V): 2.6~5.0
- Working power consumption (mA): 2.8
- Sleep power consumption (mA): <5
- Working temperature (°C): -20~85
- Output format: Open leakage output&I2C communication
- Packaging: DFN1616

◆ Functional block diagram



◆ Package



MT911x: Linear Position Sensor

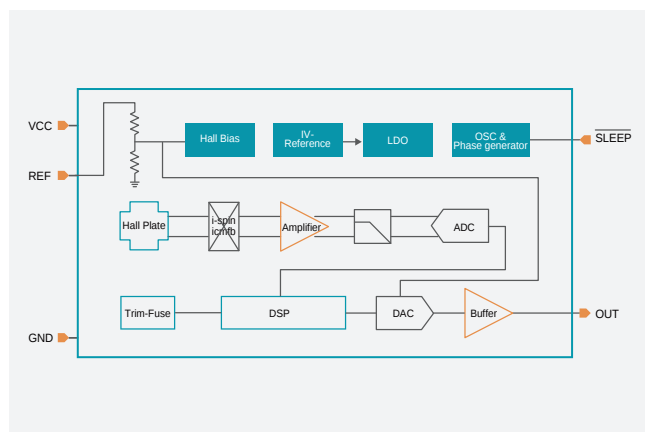
◆ Product introduction

The MT911x device is a linear Hall effect IC that responds proportionally to magnetic flux density. The device can be used for accurate position sensing in a wide range of applications. The device operates from 3.0V to 3.6V power supplies. When no magnetic field is present, the analog output drives $\frac{1}{2}$ of VCC. The output changes linearly with the applied magnetic flux density, and four sensitivity options enable maximal output voltage swing based on the required sensing range. North and south magnetic poles produce unique voltages. The MT911x family provides a variety of packages to customers. SOT-23 (Thin Outline) for surface mount and flat TO-92 for through-hole mount. All packages are RoHS compliant.

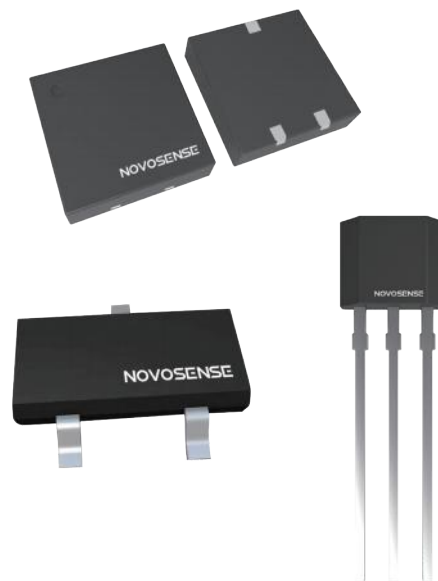
◆ Product feature

- Type: Analog output
- Operating voltage: 3.0 - 3.6V
- Bandwidth: 30KHz
- Operating temperature: -40~125°C
- Sensitivity:
MT9111: 1.1mV/Gs; MT9112: 1.6mV/Gs;
MT9113: 2.1mV/Gs; MT9115: 3.1mV/Gs
- Operating power consumption: 2mA
- Package: DFN1616, SOT-23, TO92S

◆ Functional block diagram



◆ Package



◆ Application



Motor position detection



angle detection



linear position
detection

MT912x: Linear Position Sensor

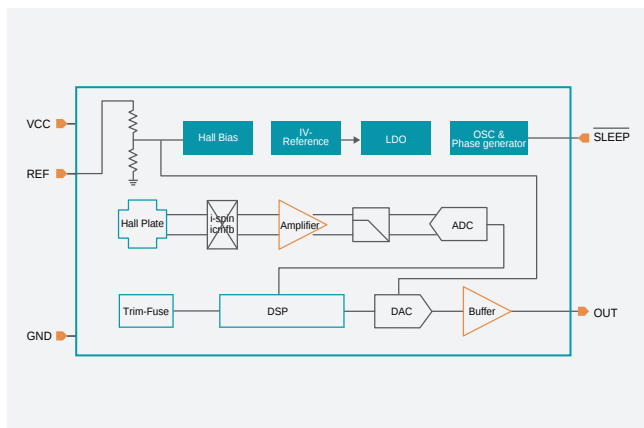
◆ Product introduction

The MT912X device is a unipolar linear Hall effect IC that responds proportionally to magnetic flux density. The device can be used for accurate position sensing in a wide range of applications. The device operates from 3.0V to 3.6V power supplies. When no magnetic field is present, the analog output drives 85%VCC. The output changes linearly with the applied magnetic flux density, and four sensitivity options enable maximal output voltage swing based on the required sensing range. North and south magnetic poles produce unique voltages. The MT912X family provides a variety of packages to customers. SOT-23 (Thin Outline) for surface mount and flat TO-92 for through-hole mount. All packages are RoHS compliant.

◆ Product feature

- Type: Analog output
- Operating voltage: 3.0-3.6V
- Bandwidth: 30KHz
- Operating temperature: -40~125°C
- Sensitivity:
 - MT9121: 2.0mV/Gs; MT9122: 3.2mV/Gs;
 - MT9123: 4.3mV/Gs; MT9125: 6.3mV/Gs
- Operating power consumption: 2mA
- Package: DFN1616, SOT-23

◆ Functional block diagram



◆ Package



◆ Application



Linear position
detection



keyboards



gamepads

MT932x: Linear Position Sensor

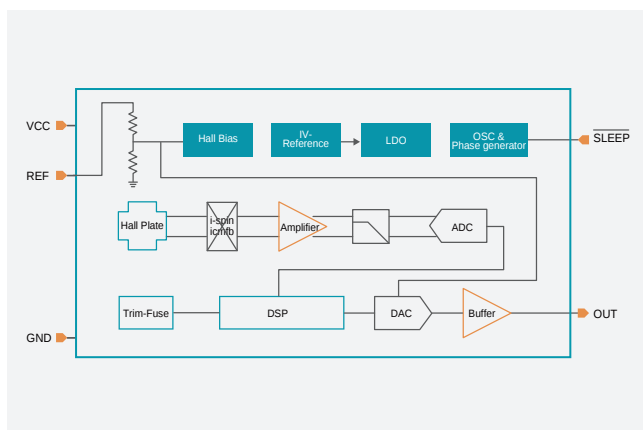
◆ Product introduction

The MT932x device is a low power low power consumption linear Hall effect IC that that responds proportionally to magnetic flux density. The device can be used for accurate position sensing in a wide range of applications. The device operates from 1.7V to 3.6V power supplies. When no magnetic field is present, the analog output drives $\frac{1}{2}$ of VCC. The output changes linearly with the applied magnetic flux density. The MT932X family provides a variety of packages to customers. DFN1616 & SOT-23 (Thin Outline) for surface mount. All packages are RoHS compliant.

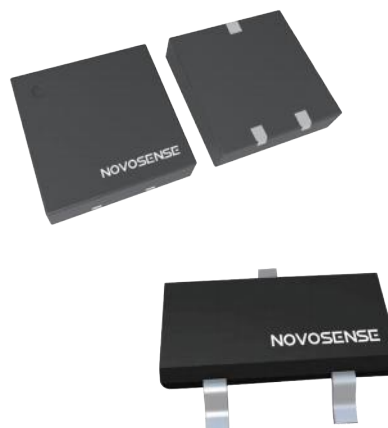
◆ Product feature

- Type: Analog output
- Operating voltage: 1.7 - 3.6V
- Bandwidth: 5KHz
- Operating temperature: -40~125°C
- Sensitivity:
 - MT9321: 1mV/Gs; MT9322: 1.6mV/Gs;
 - MT9321: 2.1mV/Gs; MT9321: 3.1mV/Gs
- Operating power consumption: 0.7mA
- Package: DFN1616, SOT-23

◆ Functional block diagram



◆ Package



◆ Application



Linear position
detection



Magnetic
grating ruler



gamepads

Hall-effect Switch & Latches



HALL-effect Switch & Latches

Part Number	Sampling frequency (Hz)	Type	Operating voltage (V)	Power consumption (mA)	Working temperature (°C)	Operating points (Gs)	Release points (Gs)	Output format	Automotive level certification	Output status corresponding to BOP situation	Packaging
NSM1011-A-Q0	50K	Unipolar hall switch	2.7~28V	2.5	-40~150°C	15	5	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1011-B-Q0	50K	Unipolar hall switch	2.7~28V	2.5	-40~150°C	35	25	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1011-C-Q0	50K	Unipolar hall switch	2.7~28V	2.5	-40~150°C	75	65	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1011-D-Q0	50K	Unipolar hall switch	2.7~28V	2.5	-40~150°C	100	90	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1011-E-Q0	50K	Unipolar hall switch	2.7~28V	2.5	-40~150°C	150	130	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1012-A-Q0	50K	Omni-polar hall switch	2.7~28V	2.5	-40~150°C	±15	±5	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1012-B-Q0	50K	Omni-polar hall switch	2.7~28V	2.5	-40~150°C	±35	±25	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1012-C-Q0	50K	Omni-polar hall switch	2.7~28V	2.5	-40~150°C	±75	±65	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1012-D-Q0	50K	Omni-polar hall switch	2.7~28V	2.5	-40~150°C	±100	±90	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1012-E-Q0	50K	Omni-polar hall switch	2.7~28V	2.5	-40~150°C	±150	±130	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1013-A-Q0	50K	Hall latch	2.7~28V	2.5	-40~150°C	15	-15	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1013-B-Q0	50K	Hall latch	2.7~28V	2.5	-40~150°C	35	-35	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1013-C-Q0	50K	Hall latch	2.7~28V	2.5	-40~150°C	75	-75	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1013-D-Q0	50K	Hall latch	2.7~28V	2.5	-40~150°C	100	-100	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1013-E-Q0	50K	Hall latch	2.7~28V	2.5	-40~150°C	150	-150	Open drain output	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
NSM1030-Q0	50K	Programmable Hall Switch	2.7~28V	2.5	-40~150°C	±1~±600	±1~±600	Open drain output	AEC-Q100	Programmable	SOT-23, Flat TO-92
MT7201-OLL	100K	Hall latch	2.8~26V	4	-40~150°C	50	-50	Open drain output	AEC-Q100	Low	Small SOT-23, SOT-23, Flat TO-92
MT7202-OLL	100K	Hall latch	2.8~26V	4	-40~150°C	20	-20	Open drain output	AEC-Q100	Low	Small SOT-23, SOT-23, Flat TO-92
MT7201-OLH	100K	Hall latch	2.8~26V	4	-40~150°C	50	-50	Open drain output	AEC-Q100	High	Small SOT-23, SOT-23, Flat TO-92
MT7202-OLH	100K	Hall latch	2.8~26V	4	-40~150°C	20	-20	Open drain output	AEC-Q100	High	Small SOT-23, SOT-23, Flat TO-92
MT7201-OUL	25K	Unipolar hall switch	2.8~26V	2.5	-40~150 ° C	30	20	Open drain output	AEC-Q100	Low	Small SOT-23, SOT-23, Flat TO-92
MT7202-OUL	25K	Unipolar hall switch	2.8~26V	2.5	-40~150 ° C	85	50	Open drain output	AEC-Q100	Low	Small SOT-23, SOT-23, Flat TO-92

Part Number	Sampling frequency (Hz)	Type	Operating voltage (V)	Power consumption (mA)	Working temperature (°C)	Operating points (Gs)	Release points (Gs)	Output format	Automotive level certification	Output status corresponding to BOP situation	Packaging
MT7203-OUL	25K	Unipolar hall switch	2.8~26	2.5	-40~150°C	140	105	Open drain output	AEC-Q100	Low	Small SOT-23, SOT-23, Flat TO-92
MT7205-OUL	25K	Unipolar hall switch	2.8~26	2.5	-40~150°C	255	210	Open drain output	AEC-Q100	Low	Small SOT-23, SOT-23, Flat TO-92
MT7201-OUH	25K	Unipolar hall switch	2.8~26	2.5	-40~150°C	30	20	Open drain output	AEC-Q100	High	Small SOT-23, SOT-23, Flat TO-92
MT7202-OUH	25K	Unipolar hall switch	2.8~26	2.5	-40~150°C	85	50	Open drain output	AEC-Q100	High	Small SOT-23, SOT-23, Flat TO-92
MT7203-OUH	25K	Unipolar hall switch	2.8~26	2.5	-40~150°C	140	105	Open drain output	AEC-Q100	High	Small SOT-23, SOT-23, Flat TO-92
MT7205-OUH	25K	Unipolar hall switch	2.8~26	2.5	-40~150°C	255	210	Open drain output	AEC-Q100	High	Small SOT-23, SOT-23, Flat TO-92
MT7201-CLL	25K	Hall latch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	50	-50	-	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
MT7202-CLL	25K	Hall latch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	20	-20	-	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
MT7201-SLL	25K	Hall latch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	50	-50	-	AEC-Q100	Low & High selectable	Flat TO-92 (with 100nf capacitor)
MT7202-SLL	25K	Hall latch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	20	-20	-	AEC-Q100	Low & High selectable	Flat TO-92 (with 100nf capacitor)
MT7201-CUL	25K	Unipolar hall switch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	30	20	-	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
MT7202-CUL	25K	Unipolar hall switch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	85	50	-	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
MT7203-CUL	25K	Unipolar hall switch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	140	105	-	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
MT7205-CUL	25K	Unipolar hall switch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	255	210	-	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
MT7201-COL	25K	Omnipolar hall switch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	±30	±20	-	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
MT7202-COL	25K	Omnipolar hall switch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	±85	±50	-	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
MT7203-COL	25K	Omnipolar hall switch, 2 wire	2.8~26	5.95 (L) 、 14.5 (H)	-40~150°C	±140	±105	-	AEC-Q100	Low & High selectable	SOT-23, Flat TO-92
MT7301-OS	100K	Hall latch	3.0~24	7	-40~150°C	25	-25	Speed+ speed	AEC-Q100	Low	SOT-23-6L, TO-94
MT7301-OD	100K	Hall latch	3.0~24	7	-40~150°C	25	-25	Speed+ direction	AEC-Q100	Low	SOT-23-6L, TO-94
MT7302-OS	100K	Hall latch	3.0~24	7	-40~150°C	50	-50	Speed+ speed	AEC-Q100	Low	SOT-23-6L, TO-94
MT7302-OD	100K	Hall latch	3.0~24	7	-40~150°C	50	-50	Speed+ direction	AEC-Q100	Low	SOT-23-6L, TO-94
MT8311	200K	Unipolar hall switch	3.8~60	4	-40~150°C	140	105	Open drain output	AEC-Q100	-	Small SOT-23, SOT-23, Flat TO-92

Part Number	Sampling frequency (Hz)	Type	Operating voltage (V)	Power consumption (mA)	Working temperature (°C)	Operating points (Gs)	Release points (Gs)	Output format	Automotive level certification	Output status corresponding to BOP situation	Packaging
MT8312	200K	Unipolar hall switch	3.8~60	4	-40~150°C	255	210	Open drain output	AEC-Q100	-	Small SOT-23, SOT-23, Flat TO-92
MT8313	200K	Unipolar hall switch	3.8~60	4	-40~150°C	85	50	Open drain output	AEC-Q100	-	Small SOT-23, SOT-23, Flat TO-92
MT8315	200K	Unipolar hall switch	3.8~60	4	-40~150°C	30	20	Open drain output	AEC-Q100	-	Small SOT-23, SOT-23, Flat TO-92
MT8361	200K	Hall latch	3.8~60	4	-40~150°C	50	-50	Open drain output	AEC-Q100	-	Small SOT-23, SOT-23, Flat TO-92
MT8361-HX	200K	Hall latch (X-Axis Detection)	3.8~60	4	-40~150°C	35	-35	Open drain output	AEC-Q100	-	Small SOT-23, Flat TO-92
MT8362	200K	Hall latch	3.8~60	4	-40~150°C	20	-20	Open drain output	AEC-Q100	-	Small SOT-23, SOT-23, Flat TO-92
MT8381	200K	Hall latch	3.8~60	4	-40~150°C	50	-50	Built in 10K pull-up resistor	AEC-Q100	-	Small SOT-23, SOT-23, Flat TO-92
MT8382	200K	Hall latch	3.8~60	4	-40~150°C	20	-20	Built in 10K pull-up resistor	AEC-Q100	-	Small SOT-23, SOT-23, Flat TO-92
MT8111	400K	Unipolar hall switch	2.8~24	3.5	-40~150°C	110	80	Open drain output	-	-	Small SOT-23, SOT-23, Flat TO-92
MT8161	400K	Hall latch	2.8~24	3.5	-40~150°C	20	-20	Open drain output	-	-	Small SOT-23, SOT-23, Flat TO-92, WLCSP
MT8162	400K	Hall latch	2.8~24	3.5	-40~150°C	60	-60	Open drain output	-	-	Small SOT-23, SOT-23
MT8911	100K	Unipolar hall switch	2.7~24	4.5	-40~125°C	140	105	Open drain output	AEC-Q100	-	SOT-23
MT8912	100K	Unipolar hall switch	2.7~24	4.5	-40~125°C	255	210	Open drain output	AEC-Q100	-	SOT-23
MT8962	100K	Hall latch	2.7~24	4.5	-40~125°C	25	-25	Open drain output	AEC-Q100	-	Small SOT-23, SOT-23
MT8962-PLUS	100K	Hall latch	2.7~24	4.5	-40~125°C	110	-110	Open drain output	AEC-Q100	-	Small SOT-23, SOT-23
MT8962-HX	100K	Hall latch (X-Axis Detection)	2.7~24	4.5	-40~125°C	25	-25	Open drain output	AEC-Q100	-	Small SOT-23, SOT-23
MT8181	400K	Hall latch	2.8~24	3.5	-40~150°C	20	-20	Built in 10K pull-up resistor	-	-	Small SOT-23, SOT-23, Flat TO-92
MT8762	100K	Hall latch	2.4~24	1.2	-40~150°C	20	-20	Open drain output	-	-	Small SOT-23, SOT-23, Flat TO-92
MT8511	25K	Unipolar hall switch	3.0~24	1	-40~150°C	28	18	Open drain output	-	-	Small SOT-23, SOT-23, Flat TO-92
MT8512	25K	Unipolar hall switch	3.0~24	1	-40~150°C	120	90	Open drain output	-	-	Small SOT-23, SOT-23, Flat TO-92
MT8562	25K	Hall latch	3.0~24	1	-40~150°C	20	-20	Open drain output	-	-	Small SOT-23, SOT-23, Flat TO-92
MT8571	25K	Omnipolar hall switch	3.0~24	1	-40~150°C	±32	±27	Built in 10K pull-up resistor	-	-	SOT-23, Flat TO-92

Part Number	Sampling frequency (Hz)	Type	Operating voltage (V)	Power consumption (mA)	Working temperature (°C)	Operating points (Gs)	Release points (Gs)	Output format	Automotive level certification	Output status corresponding to BOP situation	Packaging
MT8572	25K	Omnipolar hall switch	3.0~24	1	-40~125°C	±80	±60	Built in 10K pull-up resistor	-	-	SOT-23, Flat TO-92
MT8573	25K	Omnipolar hall switch	3.0~24	1	-40~125°C	±60	±40	Built in 10K pull-up resistor	-	-	SOT-23, Flat TO-92
MT8551	25K	Omnipolar hall switch	3.0~24	1	-40~125°C	±32	±27	Open drain output	-	-	SOT-23, Flat TO-92
MT8552	25K	Omnipolar hall switch	3.0~24	1	-40~125°C	±80	±60	Open drain output	-	-	SOT-23, Flat TO-92
MT8553	25K	Omnipolar hall switch	3.0~24	1	-40~125°C	±60	±40	Open drain output	-	-	SOT-23, Flat TO-92
MT8711	15K	Unipolar hall switch	2.4~24	0.6	-40~150°C	85	55	Open drain output	-	-	Small SOT-23, SOT-23, Flat TO-92
MT8712	15K	Unipolar hall switch	2.4~24	0.6	-40~150°C	130	100	Open drain output	-	-	Small SOT-23, SOT-23, Flat TO-92
MT8713	15K	Unipolar hall switch	2.4~24	0.6	-40~150°C	30	20	Open drain output	-	-	Small SOT-23, SOT-23, Flat TO-92
MT8763	15K	Hall latch	2.4~24	0.6	-40~150°C	20	-20	Speed+ speed	-	-	Small SOT-23, SOT-23, Flat TO-92
MT8901-SD	100K	Hall latch	2.7~24	4.5	-40~150°C	25	-25	Speed+ direction	AEC-Q100	-	SOT-23-6L, Flat TO-94
MT8901-SS	100K	Hall latch	2.7~24	4.5	-40~150°C	25	-25	Speed+ speed	AEC-Q100	-	SOT-23-6L, Flat TO-94
MT8902-SD	100K	Hall latch	2.7~24	4.5	-40~150°C	25	-25	Speed+ direction	AEC-Q100	-	SOT-23-6L, Flat TO-94
MT8911-DUAL	100K	Unipolar hall switch	2.7~24	4.5	-40~150°C	140	105	Dual circuit open drain	AEC-Q100	-	SOT-23-6L, Flat TO-94
MT8912-DUAL	100K	Unipolar hall switch	2.7~24	4.5	-40~150°C	255	210	Dual circuit open drain	AEC-Q100	-	SOT-23-6L, Flat TO-94
MT8631	20K	Omnipolar hall switch	2.0~5.5	1.2	-40~125°C	±37	±25	Push pull output	-	-	SOT-23, Flat TO-92, DFN1616
MT8632	20K	Omnipolar hall switch	2.0~5.5	1.2	-40~125°C	±15	±9	Push pull output	-	-	SOT-23, Flat TO-92
MT8632-3D	20K	Omnipolar hall switch (3D Detection)	2.0~5.5	1.2	-40~125°C	±15	±9	Push pull output	-	-	SOT-23
MT8633	20K	Omnipolar hall switch	2.0~5.5	1.2	-40~125°C	±10	±6	Push pull output	-	-	SOT-23, Flat TO-92
MT8651	20K	Omnipolar hall switch	2.0~5.5	1.2	-40~125°C	±37	±25	Open drain output	-	-	SOT-23, Flat TO-92
MT8652	20K	Omnipolar hall switch	2.0~5.5	1.2	-40~125°C	±16	±9	Open drain output	-	-	SOT-23, Flat TO-92
MT8652-3D	20K	Omnipolar hall switch (3D Detection)	2.0~5.5	1.2	-40~125°C	±16	±9	Open drain output	-	-	SOT-23
MT8831	20K	Omnipolar hall switch	1.6~5.0	1.7	-40~85°C	±30	±20	Push pull output	-	-	SOT-23, Flat TO-92, DFN1608, DFN1616

Part Number	Sampling frequency (Hz)	Type	Operating voltage (V)	Power consumption (mA)	Working temperature (°C)	Operating points (Gs)	Release points (Gs)	Output format	Automotive level certification	Output status corresponding to BOP situation	Packaging
MT8891	20	Unipolar hall switch	1.6~5.0	1.7	-40~85	30	20	Push pull output	-	-	SOT-23, Flat TO-92, DFN1608, DFN1616
MT8822	20(Ctrl=1; 1.2KHz)	Hall latch	1.6~5.0	1.7	-40~85	20	-20	Push pull output	-	-	DFN1616
MT8823	1.2K	Hall latch	1.6~5.0	60	-40~85	20	-20	Push pull output	-	-	SOT-23

NSM101x: High-Reliability Automotive-Grade Hall Switches and Latches

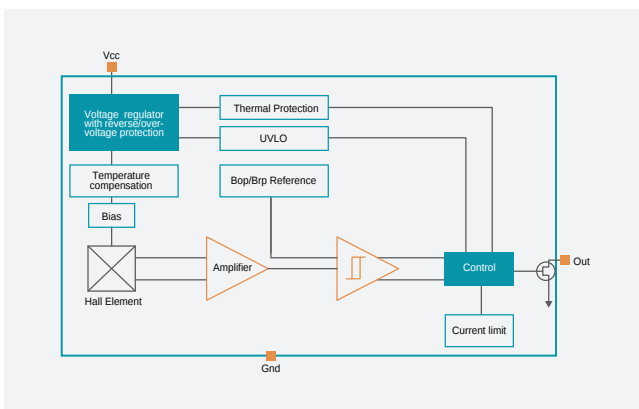
◆ Product introduction

NSM101x series is a high-reliability automotive-grade Hall switch and latch, a magnetic sensor based on planar Hall effect technology. It enables high-precision, non-contact digital position measurement within an ambient temperature range of -40°C to 150°C. The product meets AEC-Q100 quality standards and supports ASIL A functional safety compliance.

◆ Product feature

- Wide Operating Voltage Range:
Standard version: 2.7V ~ 28V
Low-power version: 3.1V ~ 28V
- Low Supply Current:
Standard version: 3mA (typ)
Low-power version: 65μA (typ)
- Output Current Capability: 30mA (max)
- High Reliability:
AEC-Q100 Grade 0 qualified
ISO 26262 ASIL A functional safety compliant
Wide operating temperature range: -40°C to 150°C
ESD: ±8kV (HBM)
Under-voltage and Over-voltage protection
Reverse polarity protection
Output current limiting protection
Over-temperature protection
- Multiple Operation Types Options:
NSM1011: Unipolar
NSM1012: Omnipolar
NSM1013: Latch

◆ Functional block diagram



◆ Package



NSM1030: Switches & Latches

◆ Product introduction

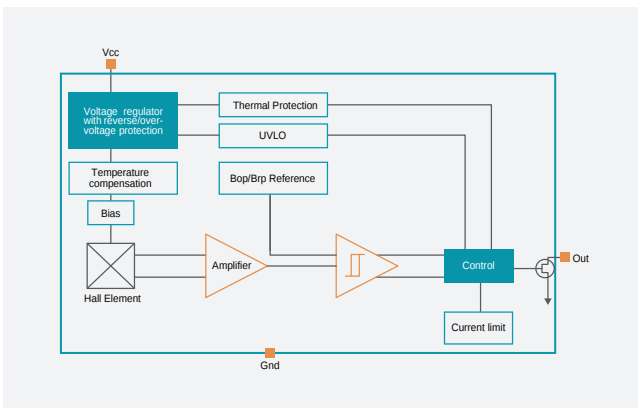
The NSM1030 is a 3-wire programmable Hall switch/latch, an automotive-grade magnetic sensor based on planar Hall effect technology. It supports high-precision, non-contact digital position measurement within an operating temperature range of -40°C to 150°C. Designed to meet automotive application requirements, the NSM1030 complies with AEC-Q100 Grade 0, operating in environments up to 150°C, and is developed according to the ISO 26262:2011 standard, supporting ASIL A functional safety level.

The NSM1030 offers flexible user programming, allowing for post-production configuration on the user's production line to optimize sensor or module performance. Users can choose device type (unipolar switch, omnipolar switch, latch), switching points, temperature coefficients, output polarity, magnetic field polarity, power mode, and more.

◆ Product feature

- AEC-Q100 Grade 0
- ISO 26262: ASIL A
- Operating temperature range: -40°C~150°C
- Absolute maximum ratings - Supply voltage range: -20~38V
- Operating voltage range: 2.7~28V
- ESD (HBM): ±8kV
- Supports low power mode, with supply current as low as 65μA
- Supports short-circuit protection and thermal protection
- User-configurable parameters:
 - Wide operating point/release point range: $\pm 1\sim\pm 60\text{mT}$
 - Magnetic field polarity: South, North
 - Output polarity: High, Low
 - Temperature compensation coefficient: None, SmCo, NdFeB, Ferrite
 - Operating modes: Continuous, Low Power

◆ Functional block diagram



◆ Package



MT72xx: Switches & Latches

◆ Product introduction

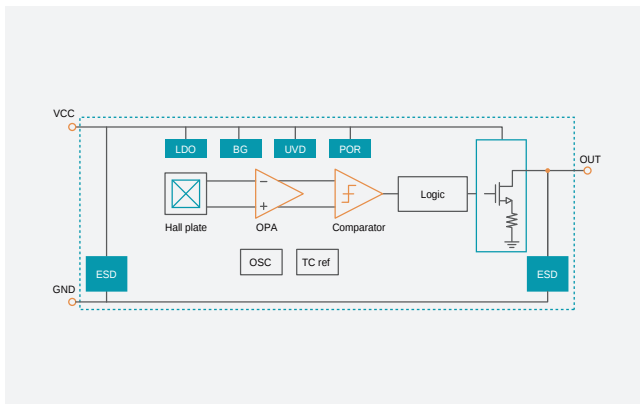
The MT72xx series features BCD technology for high performance and reliability. Hall ICs have an integrated LDO that operates from a supply voltage of 2.8 V to 26 V, and also includes temperature compensation circuitry, a signal amplifier, a dynamic offset cancellation system, a Schmitt trigger, and an open-collector output. It also includes an output clamp diode and power supply reverse protection, which enhances the robustness of the Hall IC.

The MT72xx series offers customers a variety of packages: SOT-23 and SOT-23 (small package) for surface mount and flat TO-92 for through-hole mount. All packages are RoHS compliant.

◆ Product feature

- Sampling Frequency: 100 kHz
- Selectable Operating Types:
 - MT720x-xLx: Latching
 - MT720x-xUx: Unipolar
 - MT720x-xOx: Bipolar
- Operating voltage: 2.8–26 v
- Power consumption: 4.0 mA
- Operating temperature: –40 to 150°C
- Multiple magnetic field thresholds available
- Output type: Open-drain output
- Automotive-grade certification: AEC-Q100
- ISO 26262 ASIL-A Compliant
- Package: Small SOT-23, SOT-23, Flat TO-92

◆ Functional block diagram



◆ Package



MT72xx-xxx: Switches & Latches

◆ Product introduction

The MT72xx-xxx family is produced by BCD technology with both high performance and high reliability.

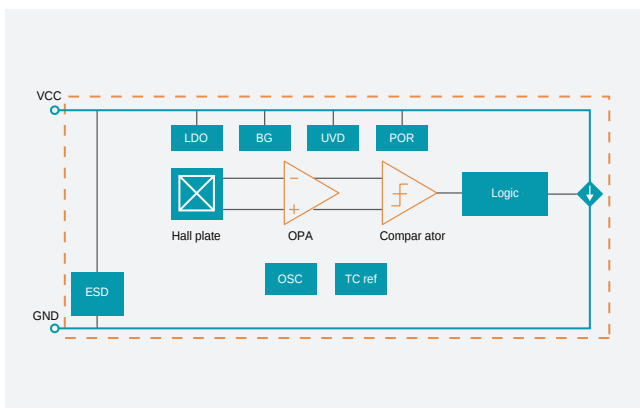
The Hall IC internally includes an on-chip Hall voltage generator, a voltage regulator for operation with supply voltage from 2.8V to 26V, temperature compensation circuitry, small-signal amplifier, Hall IC with dynamic offset cancellation system and Schmitt.

The MT72xx-xxx using two-wire interface during the application, can saving one wire compared with traditional open-drain output switches. The MT72xx-xxx family provides a variety of packages to customers: SOT-23 & SOT-23 (Thin-Outline) for surface mount and flat TO-92 for through-hole mount. All packages are RoHS compliant.

◆ Product feature

- Selectable operating types:
 - MT720x-xLx: Latch
 - MT720x-xUx: Unipolar
 - MT720x-xOx: Omnipolar
- Operating voltage range: 2.8~26V
- Package option: Flat TO-92/SOT-23/SOT-23 (Thin Outline)
- Reversed current clamping
- -30V Reversed power supply protection
- Robust ESD performance (HBM=12kV)
- RoHS Compliant:(EU)2023/863
- Automotive-Grade certification: AEC-Q100
- ISO 26262 ASIL-A Compliant

◆ Functional block diagram



◆ Package



MT73xx-Oxx: Automotive-grade Dual-output Hall-Effect Latch with Speed and Direction Output

◆ Product introduction

The MT73xx-Oxx family is a Hall-effect dual latch produced by BCD technology with both high performance and high reliability. The Hall IC internally includes an on-chip Hall voltage generator, a voltage regulator for operation with supply voltage of 3.0V to 24V, temperature compensation circuitry, small-signal amplifier, Hall IC with dynamic offset cancellation system, Schmitt trigger and two open drain output, all in a single package.

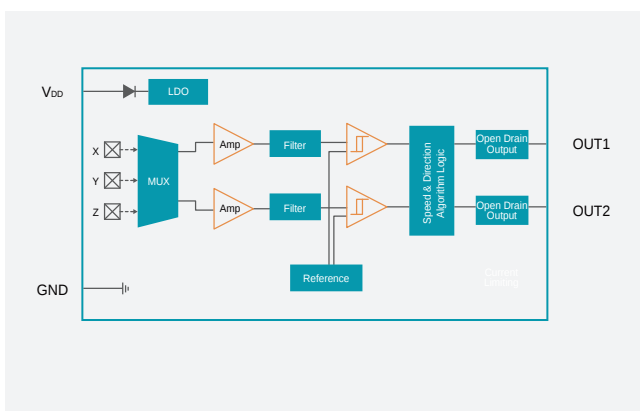
The MT73xx-Oxx family have been designed with free pitch dual latch sensor IC. The MT73xx-Oxx has integrated two Hall plate which sense magnetic field from two different axis, which allows each sensor to detect a quadrature component of the same magnetic field. One of the Hall plate provide the speed signal output. The combination of both the Hall plate signals is then internally processed to directly deliver a direction signal output.

The MT73xx-Oxx family provides SOT-23-6L for surface mount to customers & flat TO-94 for through-hole mount. All packages are RoHS compliant.

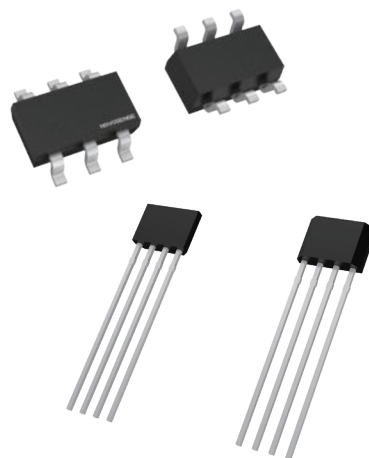
◆ Product feature

- Based on 3D Hall Principle
- Operating voltage range: 3.0–24V
- Operating temperature range: –40 to 150°C
- Package options: SOT-23-6L / Flat TO-94
- Magnetic sensitivity options:
 - MT73X1-OXXBOP = $\pm 25\text{Gs}$ (BRP = -25Gs)
 - MT73X2-OXXBOP = $\pm 50\text{Gs}$ (BRP = -50Gs)
- Speed and Direction Open-Drain Output
- Dual-Speed Open-Drain Output
- –30 V Reverse power supply protection
- Output overcurrent protection
- RoHS Compliant: (EU) 2015/863
- Automotive-Grade certification: AEC-Q100

◆ Functional block diagram



◆ Package



MT83xx: High-Voltage, High-Speed Automotive-Grade Hall Switches and Latches

◆ Product introduction

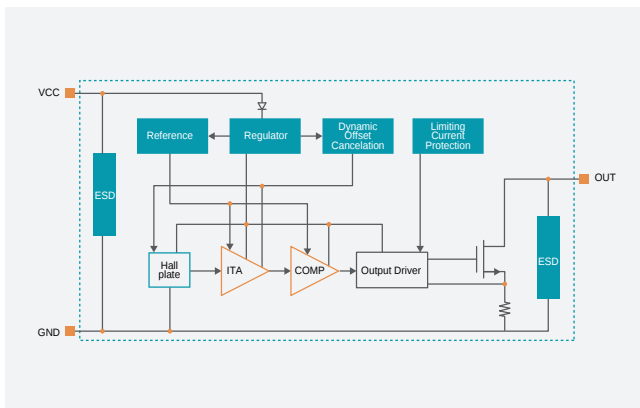
The MT83xx uses BCD process for high performance and reliability. A Hall sensing element is integrated into the chip. It has a wide operating voltage (3.8V~60V), as well as good reverse voltage protection ability and overcurrent protection ability, and a sampling frequency of 200KHz. And it has excellent temperature compensation ability, so that the chip can work in the environment of -40~150°C, and maintain excellent performance and consistency.

◆ Product feature

- Absolute Maximum Ratings:
 - Supply Voltage Range: -20V to 65V
- Wide Operating Voltage Range: 3.8V to 60V
- Low Operating Current: 4mA (typ)
- Output Current Capability: 40mA
- Sampling Frequency: 200kHz
- Open-Drain Output
- High Reliability:
 - Compliant with AEC-Q100 Grade 0 quality standards
 - Wide Operating Temperature Range: -40°C to 150°C
 - ESD Protection: $\pm 2500\text{V}$ (HBM)
 - Output current limit protection
 - Reverse voltage protection

- Multiple Output Type Options:
 - MT831x / MT836X: Open-drain output
 - MT838x: Built-in 10k Ω pull-up resistor
- Multiple Operation Types Options:
 - MT831x: Unipolar
 - MT836x: Latch
 - MT838x: Latch

◆ Functional block diagram



◆ Package



MT8361-Hx: Automotive Hall Latch

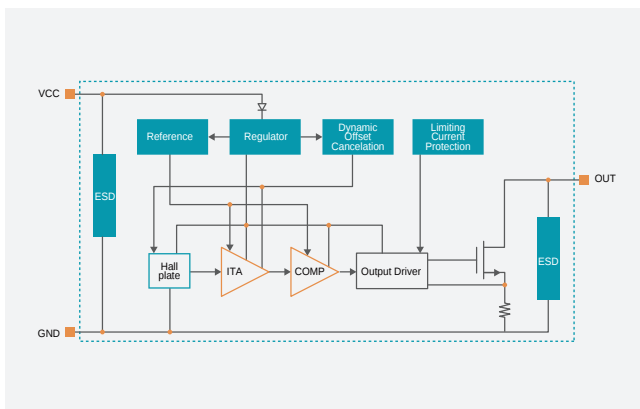
◆ Product introduction

The MT836x-Hx series is produced using the BCD process for high performance and high reliability. Inside the Hall IC is an on-chip Hall voltage generator, a voltage regulator for 3.8V to 60V supply voltage operation, a temperature compensation circuitry, a small signal amplifier, a Hall IC with a dynamic offset cancellation system, a Schmitt trigger, and an open-collector output. It also includes a clamping diode at the output and reverse power protection to enhance the robustness of the Hall IC.

◆ Product feature

- Sampling frequency: 200KHz
- Type: Hall latch (horizontal sensing)
- Working voltage: 3.8~60V
- Power consumption: 4.0mA
- Working temperature: -40~150°C
- Multiple magnetic field thresholds available
- Output format: Open drain output
- Automotive level certification: AEC-Q100
- Packaging: Small SOT-23, Flat TO-92

◆ Functional block diagram



◆ Package



MT8111: Low-power Unipower Hall Switches

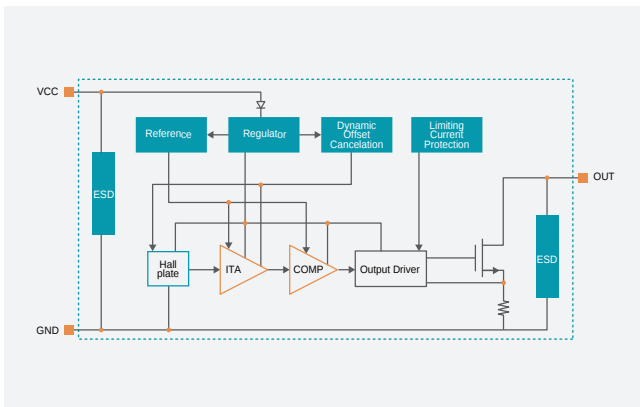
◆ Product introduction

The MT8111 uses BCD process for high performance and reliability. A Hall sensing element is integrated into the chip. Working voltage (2.8V~24V), good reverse voltage protection ability and overcurrent protection ability, sampling frequency of 400KHz. And it has excellent temperature compensation ability, so that the chip can work in the environment of -40~150°C, and maintain excellent performance and consistency.

◆ Product feature

- Type: Unipolar switch
- Sampling frequency: 400KHz
- Working voltage: 2.8~24V
- Power consumption: 3.5mA
- Working temperature: -40~150°C
- Multiple magnetic field thresholds available
- Output format: Open drain output
- Packaging: Small SOT-23, SOT-23, Flat TO-92

◆ Functional block diagram



◆ Package



MT87xx: Low-Power, High-Speed Hall Switches and Latches

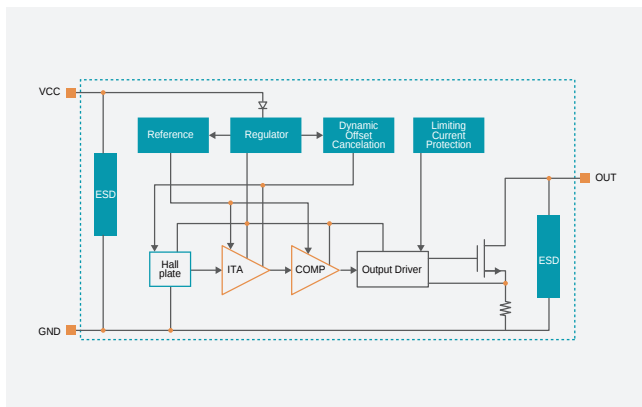
◆ Product introduction

The MT87xx uses BCD process for high performance and reliability. A Hall sensing element is integrated into the chip. It has a wide range of working voltage (2.4V~24V), as well as good reverse voltage protection ability and overcurrent protection ability, and a sampling frequency of 15KHz. And it has excellent temperature compensation ability, so that the chip can work in the environment of -40~150°C, and maintain excellent performance and consistency.

◆ Product feature

- Sampling frequency:
MT871x / MT8763: 15 kHz
MT8762: 100 kHz
- Wide operating voltage range: 2.4~24 V
- Ultra-low operating current:
MT871x / MT8763: 0.6 mA
MT8762: 1.2 mA
- Wide operating temperature range: -40 to 150 °C
- Output current capability: 25mA (max)
- Output overcurrent protection
- Reverse polarity protection
- ESD Protection: $\pm 6\text{kV}$ (HBM)
- Selectable operating types:
MT871x: Unipolar
MT876x: Latching

◆ Functional block diagram



◆ Package



MT85xx: Hall Switches and Latches with Low Power Consumption

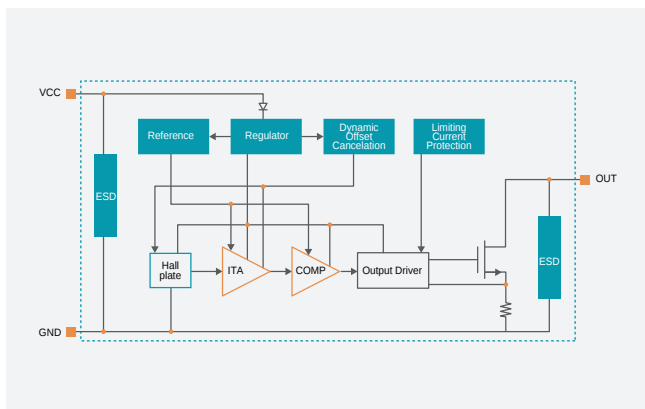
◆ Product introduction

The MT85xx uses BCD process for high performance and reliability. A Hall sensing element is integrated into the chip. It has a wide operating voltage (3.0V~24V), as well as good reverse voltage protection and overcurrent protection ability, and a sampling frequency of 25KHz. And it has excellent temperature compensation ability, so that the chip can work in the environment of -40~150°C, and maintain excellent performance and consistency.

◆ Product feature

- Absolute Maximum Ratings:
Supply Voltage Range: -16V to 30V
- Wide Operating Voltage Range: 3.0V to 24V
- Ultra-Low Operating Current: 1mA (typ)
- Supports Multiple Output Types:
MT851X/MT855X/MT856X: Open-drain output
MT857X: Built-in 10kΩ pull-up resistor
- Output Current Capability: 55mA (max)
- High Sampling Frequency: 25kHz
- Protection Features: Output current limiting protection
- Reverse polarity protection
- Wide Operating Temperature Range: -40°C to 125°C
- ESD Protection: ±2kV (HBM)
- Multiple Operation Types Options:
MT851X: Unipolar
MT856X: Latch
MT857X: Omnipolar

◆ Functional block diagram



◆ Package



MT890x: Dual-output Automotive-grade Hall Latch

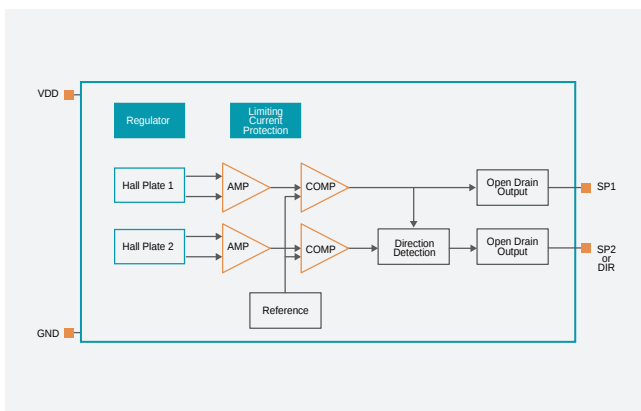
◆ Product introduction

The MT89xx uses BCD process for high performance and reliability. A Hall sensing element is integrated into the chip. It has a wide operating voltage (2.7V~24V), as well as good reverse voltage protection and overcurrent protection ability, and a sampling frequency of 100KHz. And it has excellent temperature compensation ability, so that the chip can work in the environment of -40~150°C, and maintain excellent performance and consistency.

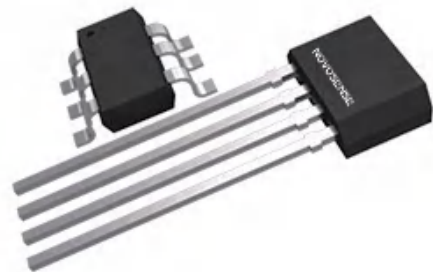
◆ Product feature

- Integrated Dual Hall Plates for Direction Detection
1.45mm pitch
- Wide Operating Voltage Range: 2.7V~24V
- Low Operating Current: 4.5mA (typical)
- Output Current Capability: 40mA (max)
- Multiple Output Options:
MT8901-SS: Speed and Speed
MT8901-SD: Speed and Direction
- High Response Frequency: 100kHz
- High Reliability:
AEC-Q100 Grade 0 qualified
Wide operating temperature range: -40°C to 150°C
ESD Protection: $\pm 4\text{kV}$ (HBM)
Output short-circuit protection
Reverse polarity protection
- High Sensitivity:
Magnetic field threshold typ. ± 25 Gauss

◆ Functional block diagram



◆ Package



MT891x: Automotive Unipolar Hall Switch

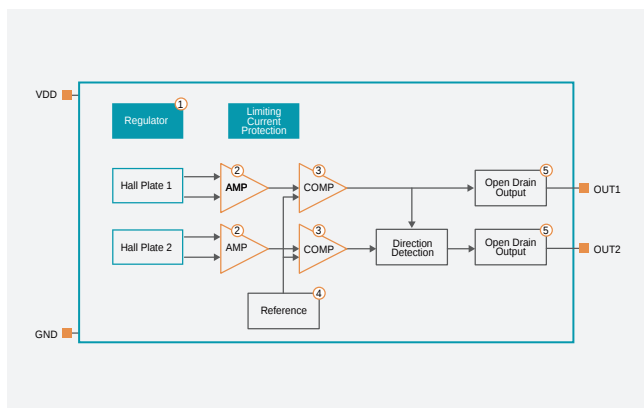
◆ Product introduction

The MT891x uses BCD process for high performance and reliability. A Hall sensing element is integrated into the chip. It has a wide operating voltage (2.7V~24V), as well as good reverse voltage protection and overcurrent protection ability, and a sampling frequency of 100KHz. And it has excellent temperature compensation ability, so that the chip can work in the environment of -40~150°C, and maintain excellent performance and consistency.

◆ Product feature

- Wide Operating Voltage Range: 2.7V~24V
- Low Operating Current: 4.5mA (typical)
- Output Current Capability: 40mA (max)
- High Response Frequency: 100kHz
- High Reliability:
 - AEC-Q100 Grade 0 qualified
 - Wide operating temperature range: -40°C~150°C
 - ESD Protection: ±4kV (HBM)
 - Output short-circuit protection
 - Reverse polarity protection
- Multiple Magnetic Threshold Options Available

◆ Functional block diagram



◆ Package



MT891x-DUAL: Automotive-grade Dual-output Unipolar Hall Switch

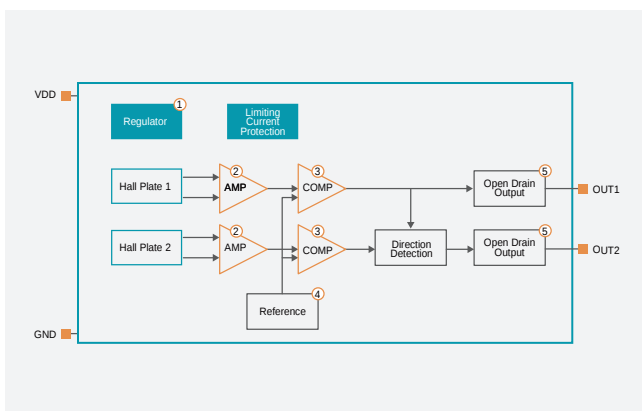
◆ Product introduction

The MT891x-DUAL uses BCD process for high performance and reliability. A Hall sensing element is integrated into the chip. It has a wide operating voltage (2.7V~24V), as well as good reverse voltage protection and overcurrent protection ability, and a sampling frequency of 100KHz. And it has excellent temperature compensation ability, so that the chip can work in the environment of -40~150°C, and maintain excellent performance and consistency.

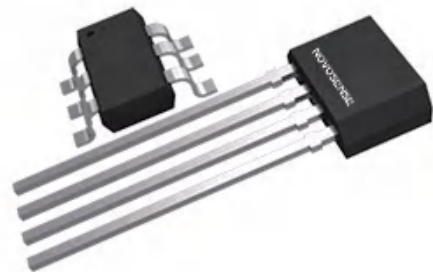
◆ Product feature

- Wide Operating Voltage Range: 2.7V~24V
- Low Operating Current: 4.5mA (typical)
- Output Current Capability: 40mA (max)
- High Response Frequency: 100kHz
- High Reliability:
 - AEC-Q100 Grade 0 qualified
 - Wide operating temperature range: -40°C to 150°C
 - ESD Protection: ±4kV (HBM)
 - Output short-circuit protection
 - Reverse polarity protection
- Multiple Magnetic Threshold Options Available
 - Multiple Output Options:
 - Speed and Speed Output
 - Speed and Direction Output

◆ Functional block diagram



◆ Package



MT86xx: Ultra-low Power Omnipolar Hall Switch

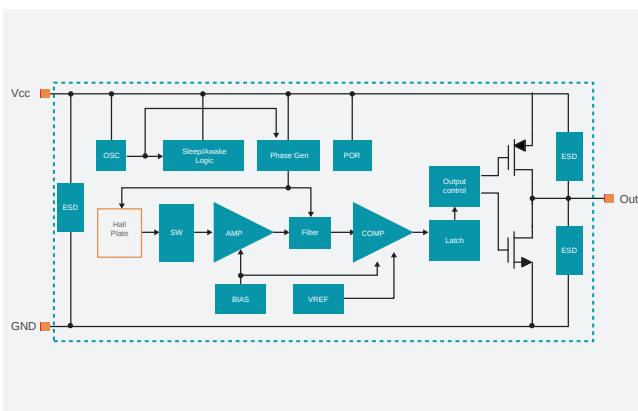
◆ Product introduction

The MT86xx adopts CMOS process, which has high performance and high reliability. A Hall sensing element is integrated into the chip. 2V~5.5V working voltage, 1uA ultra-low power consumption, and excellent temperature compensation ability, so that the chip can work in the environment of -40~125°C, and maintain excellent performance and consistency.

◆ Product feature

- Wide Operating Voltage Range: 2.0V to 5.5V
- Ultra-Low Power Consumption (ICCavg):
 - 0.6μA (typ) @ Vcc = 2V
 - 1.2μA (typ) @ Vcc = 3.6V
- Supports Multiple Output Types:
 - MT865X: Open-drain output
 - MT863X: Push-pull output
- Sampling Frequency: 20Hz
- Wide Operating Temperature Range: -40°C to 125°C
- ESD Protection: ±5kV (HBM)
- Multiple Magnetic Threshold Options Available

◆ Functional block diagram



◆ Package



MT8632-3D Ultra-low Power 3D Omnipolar Hall Switch

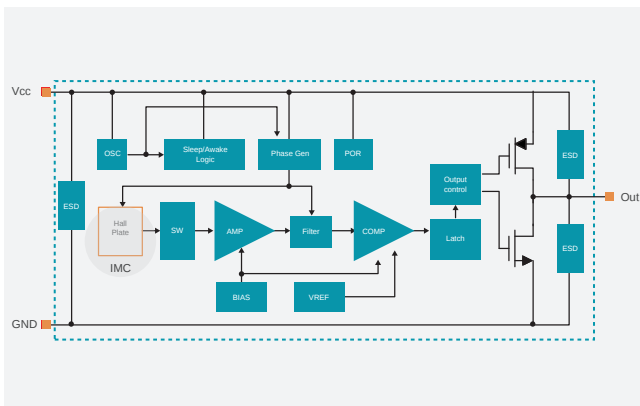
◆ Product introduction

The MT8632-3D is CMOS processed, which provides high performance and high reliability. A Hall sensing element is integrated into the chip. 2V~5.5V working voltage, 1uA ultra-low power consumption, and excellent temperature compensation ability, so that the chip can work in the environment of -40~125°C, and maintain excellent performance and consistency.

◆ Product feature

- Sampling frequency: 20 hz
- Type: Bipolar switch (3D sensing)
- Operating voltage: 2.0~5.5 v
- Power consumption: 1.2 μ A
- Operating temperature: -40 to 125 °C
- Multiple magnetic field thresholds available
- Output type: Push-pull output
- Package: SOT-23

◆ Functional block diagram



◆ Package



MT8652-3D Ultra-low Power 3D Detection Omnipolar Hall Switch

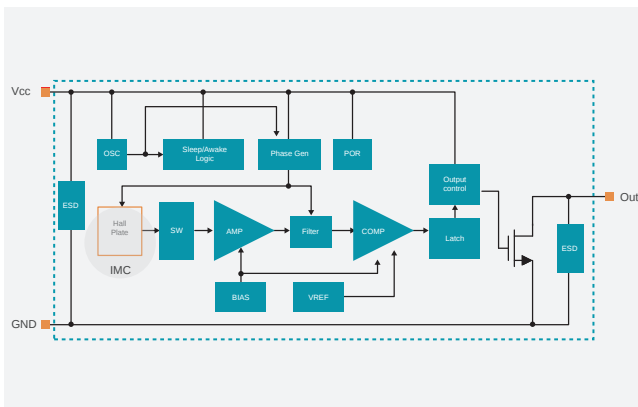
◆ Product introduction

The MT8652 is CMOS processed, which has high performance and high reliability. A Hall sensing element is integrated into the chip. 2V~5.5V working voltage, 1uA ultra-low power consumption, and excellent temperature compensation ability, so that the chip can work in the environment of -40~125°C, and maintain excellent performance and consistency.

◆ Product feature

- Sampling frequency: 20Hz
- Type: Bipolar switch (3d sensing)
- Operating voltage: 2.0~5.5v
- Power consumption: 1.2μA
- Operating temperature: -40 to 125°C
- Multiple magnetic field thresholds available
- Output type: Open-drain output
- Package: SOT-23

◆ Functional block diagram



◆ Package



MT88xx: Ultra-low Power Omnipolar Hall Switch&Latch

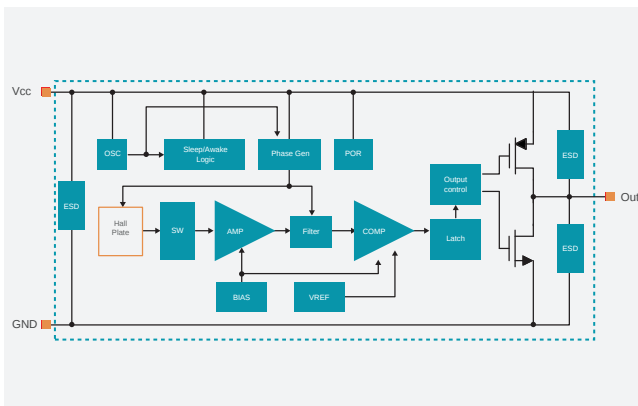
◆ Product introduction

The MT88xx is CMOS processed, which has high performance and high reliability. A Hall sensing element is integrated into the chip. 1.6V~5.0V working voltage, 1.7 μ A ultra-low power consumption, and excellent temperature compensation ability, so that the chip can work in the environment of -40~85°C, and maintain excellent performance and consistency.

◆ Product feature

- Wide Operating Voltage Range: 1.6V~5.5V
- Ultra-Low Power Consumption (ICCAvg):
typ. 1 μ A @ Vcc = 2V
typ. 1.7 μ A @ Vcc = 3.3V
- Push-Pull Output
- Sampling Frequency: 20Hz
- Wide Operating Temperature Range: -40°C to 85°C
- ESD Protection: $\pm$ 5kV (HBM)
- Multiple Operation Types Options:
MT8831: Omnipolar
MT8891: Unipolar
MT8822/23: Latch

◆ Functional block diagram



◆ Package



MT81xx: Automotive Hall Latch

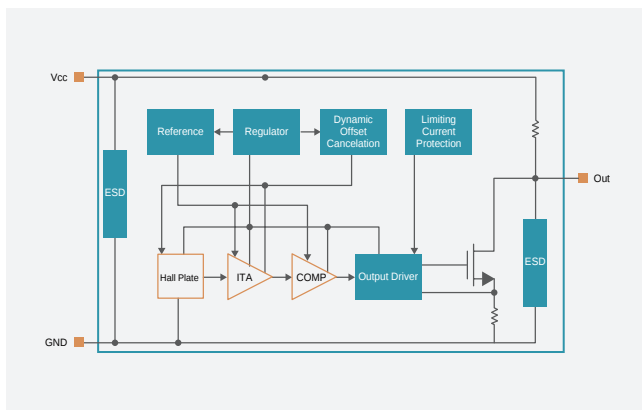
◆ Product introduction

The MT81xx uses BCD process for high performance and reliability. A Hall sensing element is integrated into the chip. Working voltage (2.8V~24V), good reverse voltage protection ability and overcurrent protection ability, sampling frequency of 400KHz. And it has excellent temperature compensation ability, so that the chip can work in the environment of -40~150°C, and maintain excellent performance and consistency.

◆ Product feature

- Wide Operating Voltage Range: 2.8V~24V
- Low Operating Current: 3.5mA (typ)
- Output Current Capability: 50mA (max)
- High Sampling Frequency: 400kHz
- Open-Drain Output
- Supports Multiple Output Types:
 - MT811x / MT816x: Open-drain output
 - MT8181: Built-in 10kΩ pull-up resistor
- Wide Operating Temperature Range: -40°C~150°C
- ESD Protection: ±5500V (HBM)
- Multiple Operation Types Options:
 - MT811x: Unipolar
 - MT816x: Latch
 - MT8181: Latch

◆ Functional block diagram



◆ Package



xMR Switch & Latch



xMR Switch & Latch

Part Number	Type	Sampling Frequency (Hz)	Working Voltage (V)	Power Consumption (mA)	Working Temperature (°C)	Working Points (Gs)	Release Points (Gs)	Output Format	Packing
MT6325	AMR, Omnipolar switch	900	1.8~5.5	4.1mA	-40~125	±17	±14	Push pull output	DFN1616
MT6325-L	AMR, Omnipolar switch	900	1.8~5.5	4.1mA	-40~125	±47	±38	Push pull output	DFN1616
MT6341	AMR, Omnipolar switch	20	1.8~5.5	1.3mA	-40~125	±10	±8	Push pull output	SOT-23, Flat TO-92
MT6343	AMR, Omnipolar switch	20	1.8~5.5	1.3mA	-40~125	±18	±15	Push pull output	SOT-23, Flat TO-92
MT6131	AMR,2D Omnipolar switch	20	1.65~5.0	2uA	-40~125	±18	±13	Push pull output	SOT-23
MT6132	AMR,2D Omnipolar switch	1K	1.65~5.0	15uA	-40~125	±18	±13	Push pull output	SOT-23
MT6133	AMR,2D Omnipolar switch	20	1.65~5.0	2uA	-40~125	±18	±13	Open drain output	SOT-23
NSM1051-1	TMR, Unipolar switch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA, 0.4uA, 0.6uA, 1.1uA selectable	-40~125	14	10	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1051-2	TMR, Unipolar switch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA, 0.4uA, 0.6uA, 1.1uA selectable	-40~125	18	13	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1051-3	TMR, Unipolar switch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA, 0.4uA, 0.6uA, 1.1uA selectable	-40~125	35	25	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1051-4	TMR, Unipolar switch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA, 0.4uA, 0.6uA, 1.1uA selectable	-40~125	50	40	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1051-5	TMR, Unipolar switch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA, 0.4uA, 0.6uA, 1.1uA selectable	-40~125	75	65	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1052-1	TMR, Omnipolar switch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA,0.6uA,1uA, 2uA selectable	-40~125	±14	±10	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1052-2	TMR, Omnipolar switch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA,0.6uA,1uA, 2uA selectable	-40~125	±18	±13	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1052-3	TMR, Omnipolar switch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA,0.6uA,1uA, 2uA selectable	-40~125	±35	±25	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1052-4	TMR, Omnipolar switch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA,0.6uA,1uA, 2uA selectable	-40~125	±50	±40	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1052-5	TMR, Omnipolar switch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA,0.6uA,1uA, 2uA selectable	-40~125	±75	±65	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1053-1	TMR, Latch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA, 0.4uA, 0.6uA, 1.1uA selectable	-40~125	14	-14	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1053-2	TMR, Latch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA, 0.4uA, 0.6uA, 1.1uA selectable	-40~125	18	-18	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1053-3	TMR, Latch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA, 0.4uA, 0.6uA, 1.1uA selectable	-40~125	35	-35	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1053-4	TMR, Latch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA, 0.4uA, 0.6uA, 1.1uA selectable	-40~125	50	-50	Open drain/ Push-pull	SOT-23,Flat TO-92
NSM1053-5	TMR, Latch	156K,1.25K,2.5K, 5KHz selectable	1.8~5.5	0.2uA, 0.4uA, 0.6uA, 1.1uA selectable	-40~125	75	-75	Open drain/ Push-pull	SOT-23,Flat TO-92

NSM105x: Ultra-low Power TMR Switch&Latch

◆ Product introduction

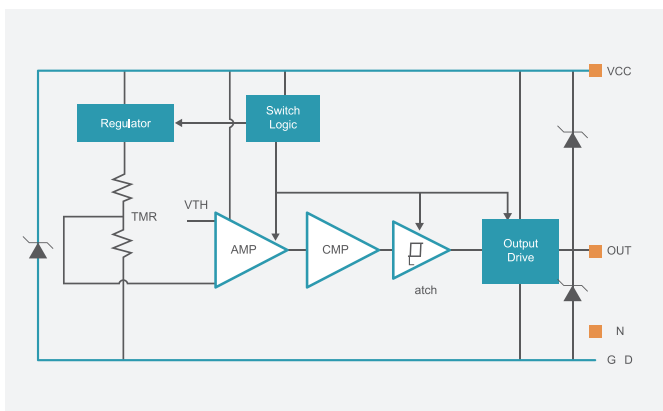
NSM105x is a 3-wire fixed sensitivity TMR switch/latches, which is industrial-grade magnetic sensors based on the tunnel magnetoresistance (TMR) effect to support high-precision, contactless digital position measurement within an ambient temperature range of -40°C to 125°C. NSM105x features extremely low power consumption, with operating currents as low as 1.5μA for the 5kHz sampling frequency version and 200nA for the 156Hz sampling frequency version.

The NSM105x series consists of 3 product models, namely NSM1051 (unipolar TMR switch), NSM1052 (omnipolar TMR switch), and NSM1053 (TMR latch), which allow users to select different switching points, magnetic polarity, output polarity, low power modes, output interfaces, and package forms.

◆ Product feature

- Wide Operating Voltage Range: 1.8V~5.5V
- High Response Frequencies with Multiple Options: 156Hz, 1.25kHz, 2.5kHz, 5kHz
- Ultra-Low Power Consumption with Multiple Settings: 0.2μA, 0.5μA, 1μA, 1.5μA
- Selectable Magnetic Response Polarity:
Responds to either south or north magnetic pole, with configurable high or low level output
- Output Type Options:
Open-drain output
Push-pull output
- High Reliability:
Wide Operating Temperature Range: -40°C~125°C
ESD Protection: ±4kV (HBM)
- Multiple Operation Types Options:
NSM1051: Unipolar
NSM1052: Omnipolar
NSM1053: Latch

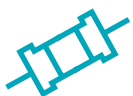
◆ Functional block diagram



◆ Package



◆ Application



Reed switch replacement



Liquid level detection



Proximity switch



Water, gas, heat meter



Speed detection



Wake-up switch

MT632x: Ultra-low Power Omnipolar AMR Switch

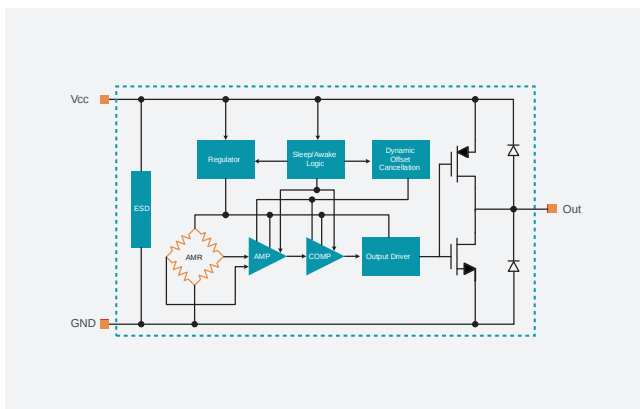
◆ Product introduction

The MT632x is integrated in a single-chip process with high performance and reliability. The chip integrates an AMR bridge resistor and an ASIC chip. 1.8V–5.5V working voltage, and has excellent temperature compensation ability, so that the chip can work in -40~125°C environment, and maintain excellent performance and consistency.

◆ Product feature

- Based on AMR Technology, Capable of Detecting X-Axis Magnetic Fields
- Wide Operating Voltage Range: 1.8V–5.5V
- Low Power Consumption: 4.1 μ A
- Sampling Frequency: 900Hz
- Push-Pull Output
- Wide Operating Temperature Range: -40°C~125°C
- High ESD Protection: ± 5000 V (HBM)
- Multiple Magnetic Threshold Options:
 - MT6325: $\pm 17 / \pm 14$ Gauss
 - MT6325-L: $\pm 40 / \pm 33$ Gauss

◆ Functional block diagram



◆ Package



MT634x: Ultra-low Power Omnipolar AMR Switch

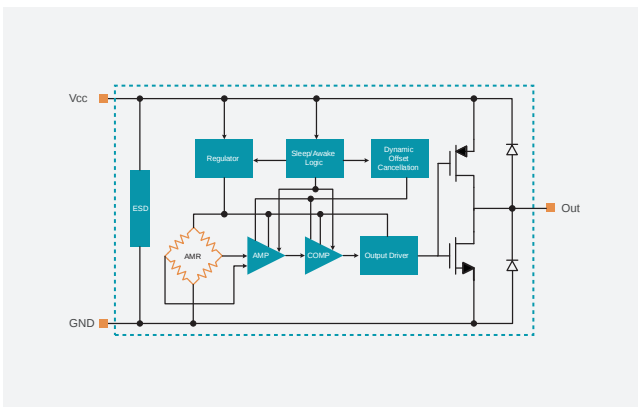
◆ Product introduction

The MT634x is integrated in a single-chip process for high performance and reliability. The chip integrates an AMR bridge resistor and an ASIC chip. 1.8V~5.5V working voltage, and has excellent temperature compensation ability, so that the chip can work in -40~125°C environment, and maintain excellent performance and consistency.

◆ Product feature

- Based on AMR Technology, Capable of Detecting Magnetic Fields Along X-Axis or Y-Axis
- Wide Operating Voltage Range: 1.8V~5.5V
- Ultra-Low Power Consumption: 1.3μA
- Sampling Frequency: 20Hz
- Push-Pull Output
- Wide Operating Temperature Range: -40°C~125°C
- High ESD Protection: ±6000V (HBM)
- Selectable Sensing Directions:
 - SOT23-3L: X-axis magnetic field detection
 - TO92S: Y-axis magnetic field detection
- High Sensitivity with Multiple Magnetic Threshold Options:
 - MT6341: ±10 / ±8 Gauss
 - MT6343: ±18 / ±15 Gauss

◆ Functional block diagram



◆ Package



MT613x: Ultra-low Power Omnipolar 2D Detection AMR Switch

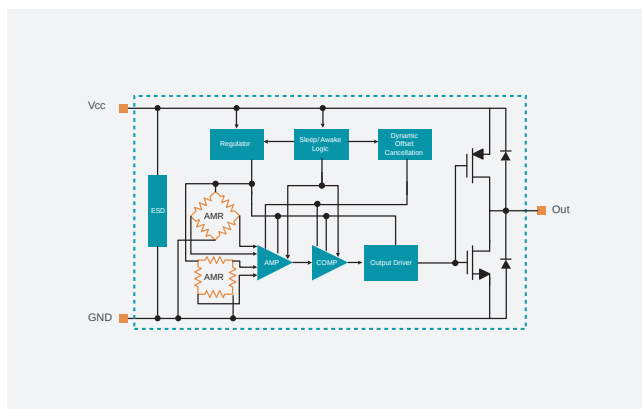
◆ Product introduction

The MT613x is integrated in a single-chip process with high performance and reliability. The chip integrates an AMR bridge resistor and an ASIC chip. 1.65V~5.5V working voltage, and has excellent temperature compensation ability, so that the chip can work in -40~125°C environment, and maintain excellent performance and consistency.

◆ Product feature

- Based on AMR Technology, Capable of 2D Magnetic Field Detection Along X-Axis and Y-Axis
- Wide Operating Voltage Range: 1.65V~5.5V
- Low Power Consumption:
 - MT6131 & MT6133: 1μA
 - MT6132 & MT6135: 11μA
- Sampling Frequency:
 - MT6131 & MT6133: 20Hz
 - MT6132 & MT6135: 1kHz
- Multiple Output Options:
 - MT6131 & MT6132: Open-drain output
 - MT6133: Push-pull output
- Wide Operating Temperature Range: -40°C~125°C
- High ESD Protection: ±4000V (HBM)
- High Sensitivity
- Compact Package: SOT23-3L

◆ Functional block diagram



◆ Package



Current Sensor Signal Condition ASIC

Part Number	Compatible Sensors	PGA Programmable Gain Range	Temperature Compensation Segments	Package	Temperature Range	Supply Voltage/Current	Output Bias Voltage	Typical Applications
NSA5312	MEMS pressure, magnetic reluctance, Hall	0.9456x~1843x	14	KGD (for DFN, please contact NOVOSENSE)	-40~150	3~5.5V/6.5mA	2.5V/1.65V/0.5V	Current Sensor Modules, Pressure Sensors

Current Sensor Signal Condition ASIC



NSA5312: Magnetic Sensor Signal Conditioning Chip/Programmable Instrumentation Amplifier

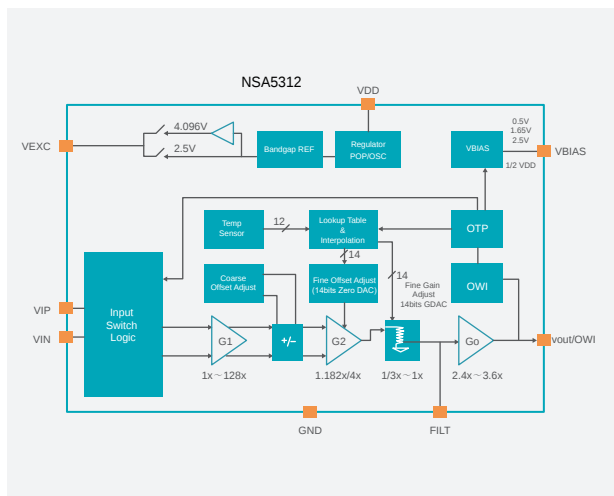
◆ Product introduction

The NSA5312 is a user programmable instrumentation amplifier. It is mainly used to provide voltage type drive signal for Wheatstone bridge sensors (such as TMR sensors), and amplify, calibrate and compensate the output signal to ensure that the sensor can get high linear output accuracy in a wide temperature range.

◆ Product feature

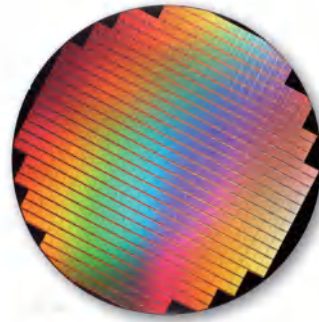
- Provide 2.5V / 4.096V voltage excitation
- Provide 0.9456~1843x programmable gain setting
- Provide 14-bit sensor sensitivity and offset calibration
- Provide sensor temperature calibration based on lookup table
- Programmable output signal bandwidth, with maximum signal bandwidth is about 600kHz
- Fast response time <1μs
- Proportional output and fixed output are available. The output reference voltage is available in 0.5V/1.65V/2.5V.
- Provide user programmable interface OWI, and support customer module level post-calibration

◆ Functional block diagram



◆ Package

- KGD



◆ Application



Current sensor module



Pressure sensor module



Industrial transmitter



Position Sensor ASSP



Position Sensor ASSP

Part Number	Type	Supply Voltage (V)	Operating Temperature (°C)	Supply Current (mA)	ABZ Output	PWM Output	UVW Output	Resolution	ESD	Package
MT6728	Encoder Decoding Chip	3.3~5.0	-40~125	20mA	1~16384 Pulse/cycle	12bit/cycle	1~63Polarity/Cycle	21bit	>4000V	QFN7x7
MT6709	Encoder Decoding Chip	3.3~5.0	-40~125	20mA	1~2500 Pulse/cycle	12bit/cycle	1~63Polarity/Cycle	17 bit	>4000V	QFN7x7
MTL200	Inductor Chip	3.6-5.5	-40~125	2mA	-	-	-	-	-	QFN2X2
MT5201	Driver Chip	3.8-30	-40~125	80uA	-	-	-	-	-	DFN2X3
MT5301	Driver Chip	8.0-36	-40~125	200uA	-	-	-	-	-	DFN2X3

MT6728: Magnetic Encoded Chips - Off-axis magnetic angle encoded ICs

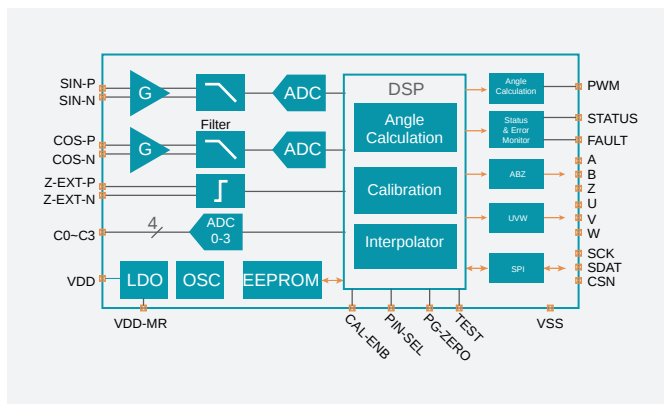
◆ Product introduction

MT6728 is a new generation of interpolation subdivision chip for external input sine and cosine signals launched by Microelectronics. MT6728 receives differential sine and cosine analog inputs from external inputs, compensates and decodes the input signal, and outputs an AB incremental signal with a maximum resolution of 16,384 pulses/cycle or 65,536 steps/cycle (Z signal can also be obtained from external inputs). At the same time, MT6728 also provides incremental UVW output, and the resolution supports 1~63 poles/cycle. MT6728 provides a 3-wire SPI interface for the host computer or MCU to read the 21-bit angle and position values inside the chip. At the same time, the PWM with a single-line output can also provide angle data with a resolution of 12 bits. The core advantage of the MT6728 is that it provides a simple self-calibration mode on the user side. Users do not need to interact with the MT6728 chip, do not need to refer to the source, and only need to move in a fixed direction for a few cycles to compensate for the misalignment, amplitude and phase of the external input sine and cosine signals.

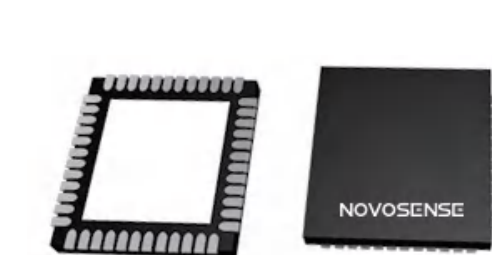
◆ Product feature

- Working voltage (V): 3.3~5.0
- Working temperature (°C): -40~125
- Power consumption (mA): 20
- ABZ incremental output: 1~16384Pulse/cycle
- PWM output: 12bit/cycle
- UVW incremental output: 1~63Polarity/Cycle
- resolving power: 21bit
- ESD: >4000V
- Packaging: QFN7x7

◆ Functional block diagram



◆ Package



MT6709: Magnetic Encoded Chips - Off-axis magnetic angle encoded ICs

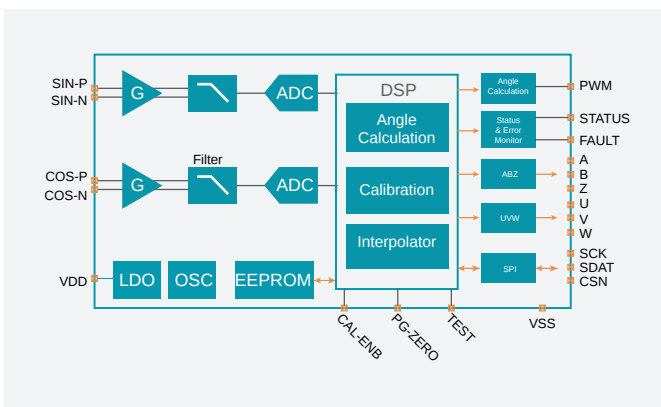
◆ Product introduction

MT6709 is a new generation of decoding chip launched by Microelectronics for angle calculation of sine and cosine analog signals input from external linear Hall (working with 1 pair of pole magnetic rings). As the rotation shaft drives the rotation of a single pair of pole magnetic rings (one N pole, one S level), four linear Hall chips placed at 90 degrees around the magnetic rings will induce the output of sine and cosine analog signals, and MT6709 can obtain absolute angle data with a resolution of 17 bits after compensating, calculating and decoding the four differential sine and cosine analog input signals; The angular data is further encoded into a maximum resolution of 2,500 pulses/cycle or 10,000 steps/cycle in AB increments; The MT6709 also provides a UVW output with a resolution of 1~63 poles/cycle. The MT6709 provides a 3-wire SPI interface for the host computer or MCU to read the 17-bit absolute angle data inside the chip. At the same time, the PWM with a single-line output can also provide angle data with a resolution of 12 bits. The STATUS and FAULT interrupt pins will output some working status and diagnostic information of the chip in real time. The core advantage of the MT6709 is that it provides a simple self-calibration mode on the user side. Users do not need to interact with the MT6709 chip, do not need to reference the source, and only need to move for a few cycles to compensate for the misalignment, amplitude and phase errors of the external input sine and cosine signals.

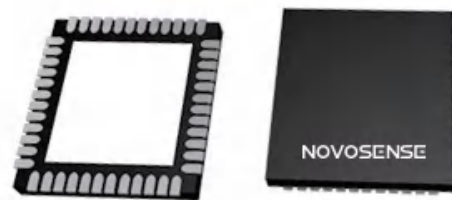
◆ Product feature

- Working voltage (V): 3.3~5.0
- Working temperature (°C): -40~125
- Power consumption (mA): 20
- ABZ incremental output: 1~2500Pulse/cycle
- PWM output: 12bit/cycle
- UVW incremental output: 1~63Polarity/Cycle
- resolving power: 17bit
- ESD: >4000V

◆ Functional block diagram



◆ Package



MTL200 Dedicated Chip for Inductors

◆ Product introduction

MTL200QA supports a wide range of inductive position sensors. MTL200QA is an IC that can process signals from various sensing position sensors. It integrates an oscillator, LDO, temperature sensor, and signal processing module. MTL200QA provides package QFN2*2-14L for surface mount (MSL2), which is RoHS compliant.

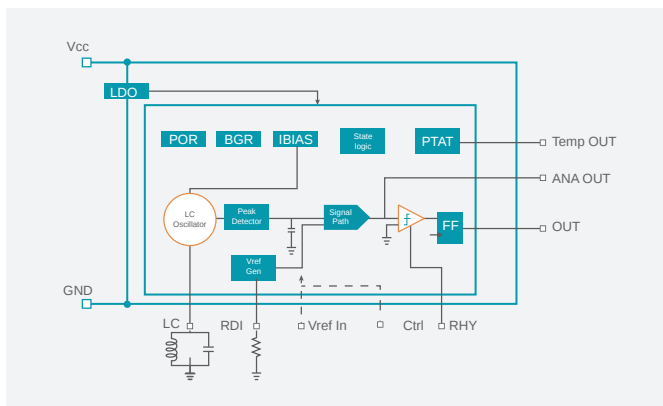
◆ Product feature

- Working voltage (V): 3.6~5.5
- Working current: 2mA
- Working temperature (°C): -40~105
- Sampling frequency (Hz): 4K
- Packaging: QFN2X2

◆ Package



◆ Functional block diagram



MT5201 Position Sensor ASSP

◆ Product introduction

The MT5201 supports both 2-wire and 3-wire applications for all types of position detection sensors. The MT5201 is an IC capable of processing a wide range of position sensor signals. It integrates an LDO, a signal processing module, a driver, and a protection module. MT5201DT-NPN and MT5201DT-PNP have fixed output modes internally. The MT5201 is available in DFN2*3-8L package (MSL1) and is RoHS compliant.

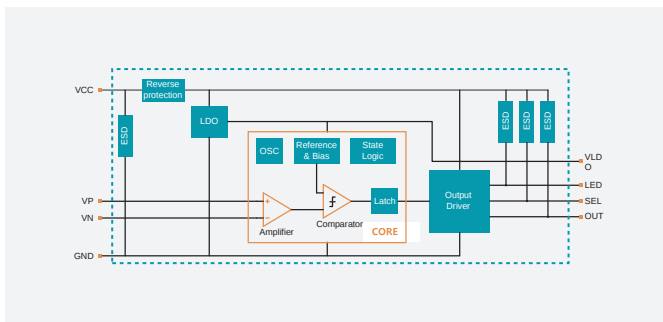
◆ Product feature

- Working voltage (V): 3.8~30
- Working current: 80uA
- Working temperature (°C): -40~105
- Sampling frequency (Hz): 20K
- Packaging: DFN2X2

◆ Package



◆ Functional block diagram



MT5301 Position Sensor ASSP

◆ Product introduction

The MT5301 supports a variety of three-wire applications for position detection sensors.

The MT5301 is an integrated circuit capable of processing a wide range of position sensor signals. It integrates LDO, signal processing module, driver and protection module.

The MT5301 implements the protection function of over-current, reverse voltage and over-temperature conditions.

The MT5301 provides MT5301DT-NPN and MT5301DT-PNP internal fixed output modes, with the MT5301DT-NPN corresponding to the low-side driver and the MT5301DT-PNP corresponding to the right-hand driver.

MT5301 encapsulates DFN 2*3-8L, RoHS compliant.

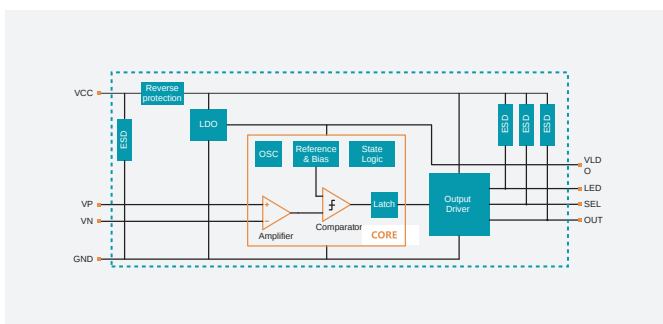
◆ Product feature

- Working voltage (V): 8.0-36
- Working current: 200uA
- Working temperature (°C): -40~105
- Sampling frequency (Hz): 20K
- Packaging: DFN2X3

◆ Package



◆ Functional block diagram



NOVOSENSE



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Company Brochure



NOVOSENSE
Product Selection Guide



NOVOSENSE
Automotive Solution



NOVOSENSE
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Supply Solution



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Control Solution



NOVOSENSE
Home Appliance
Solution

NOVOSENSE Microelectronics

✉ sales@novosns.com

🌐 www.novosns.com

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