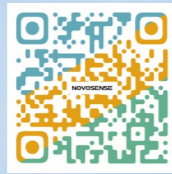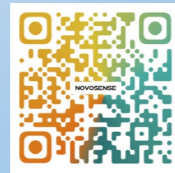# NOVOSENSE

NOVOSENSE
Company Brochure

NOVOSENSE
Product Selection Guide

NOVOSENSE
Automotive Solution

NOVOSENSE
PV, Storage and EV
Charger Solution

NOVOSENSE
Industrial
Control Solution

NOVOSENSE
Home Appliance
Application Solutions

NOVOSENSE Microelectronics

✉ sales@novosns.com

🌐 www.novosns.com

in NOVOSENSE Microelectronics

▶ NOVOSENSE Microelectronics

Release Date: Sep, 2024

NOVOSENSE

NOVOSENSE Home Appliance
Application Solutions

NOVOSENSE

High-Performance & High-Reliability Analog & Mixed Signal Chip Company

- 2013 Establishment
- ~900 Employees
- 2022 IPO on The Science and Technology Innovation Board
- A leading provider for digital isolators and sensors
- A leading chip provider for automotive applications
- A provider for all-category analog & mixed signal chips

NOVOSENSE Microelectronics (NOVOSENSE, SSE Stock Code 688052) 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 and sample application, please visit: **www.novosns.com**

Highlights of NOVOSENSE Home Appliance Solution

Empowering Appliances for the Era of Smart and Precision Technology
- High-Precision Detection
- High-Performance Control

- Pressure Sensor
- Gate Driver
- Motor Driver
- Magnetic Sensor
- Temperature & Humidity Sensor

NOVOSENSE

NOVOSENSE Home Appliance Application Solutions

NOVOSENSE

Constant Temperature Humidifier
- Hall-effect Switches
- Temperature & Humidity Sensor

Handheld Garment Steamer
- Temperature Sensor

Air Conditioner
- Magnetic Current Sensor
- Hall-effect Switches & Latches
- TMR Switches & Latches
- Temperature & Humidity Sensor
- Isolated Driver
- Non-Isolated Driver

Washing Machine/ Dryer
- Magnetic Current Sensor
- Hall-effect Switches
- TMR Switches & Latches
- Hall-based Angle Sensor
- Temperature & Humidity Sensor
- Pressure Sensor
- Isolated Driver
- Non-Isolated Driver

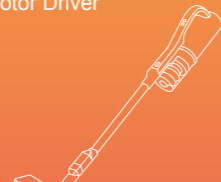## Smart Toilet
- Hall-based Angle Sensor
- Hall-effect Switches

Vacuum-mop Combo Machine
- Hall-effect Switches
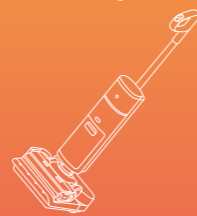- Pressure Sensor
- Temperature & Humidity Sensor

Handheld Vacuum Cleaner
- Hall-effect Switches
- Pressure Sensor
- Motor Driver

Floor Cleaning Machine
- Hall-effect Switches
- Pressure Sensor
- Hall-based Angle Sensor

Refrigerator
- Magnetic Current Sensor Hall-effect Switches & Latches
- TMR Switches & Latches
- Hall-based Angle Sensor
- Pressure Sensor
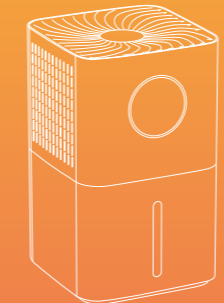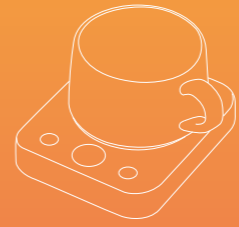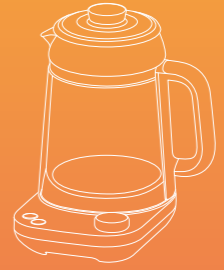
Kettle
- Temperature Sensor

Coffee Machine
- Hall-effect Switches
- Pressure Sensor
- Temperature & Humidity
- Sensor

NOVOSENSE Kitchen Small Appliance Application Solution

Dishwasher
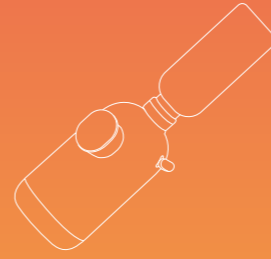- Magnetic Current Sensor
- Pressure Sensor

Coffee Machine
- Hall-effect Switches
- Pressure Sensor
- Temperature & Humidity Sensor

Microwave-steam-oven Combo
- Hall-effect Switches
- Temperature Sensor
- Temperature & Humidity Sensor
- TMR Switches & Latches
- Pyroelectric Infrared Sensors

High-speed Blender、Soy Milk Maker
- Hall-effect Switches
- Temperature Sensor
- TMR Switches & Latches
- Pyroelectric Infrared Sensors

Smart Electric Pressure Cooker
- Hall-effect Switches
- Temperature Sensor

Air Fryer
- Infrared Sensor
- Hall-effect Switches
- Temperature Sensor

Electric Hot Pot
- Temperature Sensor

Personal Care & Health & Innovative Small Appliance Application Solutions

Constant Temperature Humidifier
- Hall-effect Switches
- Temperature & Humidity Sensor

Mug Warmer
- Temperature Sensor

Electric Kettles
- Temperature Sensor

Electric Heater
- NTC Temperature Probe

Instant Hot Water Dispenser
- Temperature Sensor

Handheld Garment Steamer
- Temperature Sensor

Bottle Warmer
- Temperature Sensor

Electric Breast Pump
- Pressure Sensor

Air Conditioner Application Block Diagram

Washing Machine Application Block Diagram
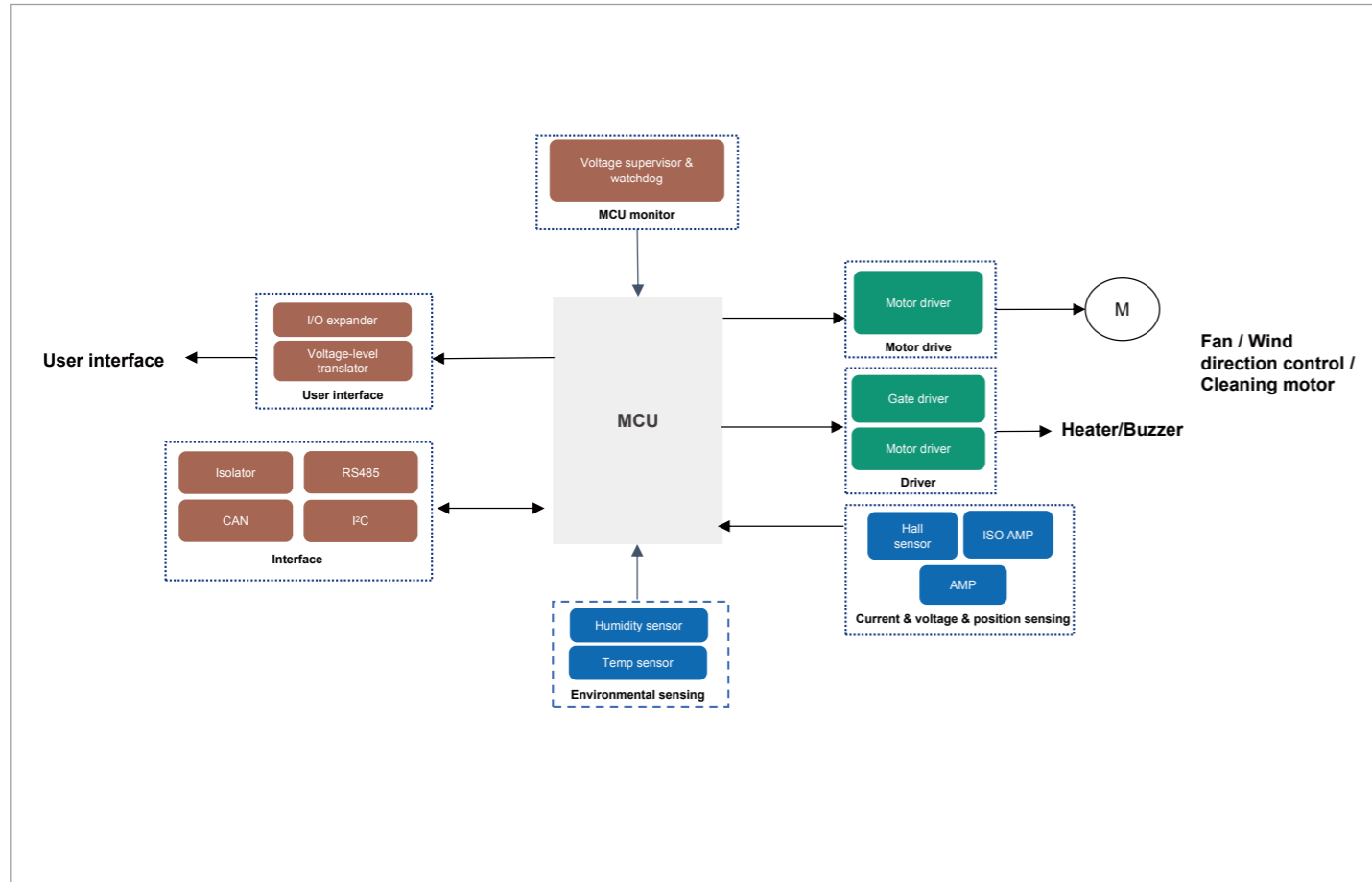
Current & voltage & temperature & humidity sensing

- Hall sensor (NSM2011, NSM2013, NSM2015, NSM2017, NSM2019, NSM2113)
- Isolated amplifier (NSI1400, NSI1300, NSI1200C, NSI1312, NSI1311)
- Temperature sensor (NST1002, NST86)
- Temperature & humidity sensor (NSHT3x)
- Amplifier (NSOPA9xxx, NSOPA8xxx)

Interface & digital isolation

- CAN transceiver (NSI1042, NSI1050, NCA1051A, NCA1042B)
- RS485 (NSI83085, NSI83086, NCA3485)
- I²C (NSI8200, NSI8100)
- Isolator (NSI8266, NSI822x, NSI823x, NSI824x, NSIP894x, NIRSP31, NIRS21, NIRS31)
- I²C I/O expander (NCA9555)

Gate driver & motor driver

- Gate driver (NSI68515, NSD1624, NSI6801, NSI6601, NSI6601M, NSI6611)
- Motor driver (NSD731x, NSD8308, NSD8312, NSD8381)

MCU monitor & others

- Voltage supervisor (NSR7808)
- Voltage-level translator (NCA9306)
- I/O expander (NCA9555)

Current & voltage & temperature sensing

- Hall sensor (NSM2011, NSM2013, NSM2015, NSM2017, NSM2019, NSM211x)
- Water-level sensor (NSPGD1(M))
- Temperature sensor (NST1002, NST86)
- Amplifier (NSOPA9xxx, NSOPA8xxx)
- Position sensor (NSM107x, NSM105x)
- Isolated amplifier (NSI1400, NSI1300, NSI1200C, NSI1312, NSI1311)
- Temperature & humidity sensor (NSHT3x)

Gate driver & motor driver

- Gate driver (NSI68515, NSD1624, NSI6801, NSI6601, NSI6601M, NSI6611)

Power management

- LDO (NSR31xxx, NSR33xxx, NSR35xxx)
- Buck (NSR104xx)
- Flyback (NSR28C4x)

Interface & digital isolation

- CAN transceiver (NSI1042, NSI1050, NCA1051A, NCA1042B) RS485 (NSI83085, NSI83086, NCA3485)
- I²C (NSI8200, NSI8100)
- Isolator (NSI8266, NSI822x, NSI823x, NSI824x, NSIP894x, NIRSP31, NIRS21, NIRS31)

MCU monitor & reference & others

- Voltage supervisor (NSR7808)
- Reference (NSREF30xx, NSREF31xx)
- Voltage-level translator (NCA9306)
- I/O expander (NCA9555)

Key Product Recommendations (Magnetic Sensors)

Part Number	Product
NSM201x	Chip-level Current Sensor with Integrated Current Path
NSM301x	Hall-based Angle Sensor
NSM107x	Hall Switch
NSM105x	xMR Switch& Latch

NSM201x: Chip-level Current Sensor with Integrated Current Path

◆ Product introduction

NSM201x series is a chip-level current sensor under 200A launched by NOVOSENSE which is mainly used for isolation measurement of current under 200A.

◆ Product feature

- Wide current range available 2.5A~200A
- AC/DC input
- 3.3V/5V single power supply
- Input conduction impedance as low as to 0.27mOhm
- ±2% current measurement accuracy
- Withstand up to 20kA surge current (8μs /20μs surge current waveform)
- Multiple output type
  Single-end proportional output
  Pseudo difference fixed output
- Three types of package
  SOP8 package: 600VDC working isolation voltage / 3000

Vrms @ 1min withstand isolation voltage (NSM2012/NSM2016)
SOW16 package: 1550VDC working insulation voltage / 5000 Vrms @ 1 min withstand isolation voltage (NSM2011/NSM2013/NSM2015/NSM2017)
SOW10 package：1618VDC working isolation voltage / 5000 Vrms @ 1min withstand isolation voltage （NSM2019）

- Overcurrent protection OCD output (NSM2015/NSM2016/NSM2017/NSM2019)
  Overcurrent protection response in micro seconds
  Overcurrent protection threshold is configurable

◆ Package

NSM2012/2016: SOP8 NSM2019：SOW10 NSM2011/2013/2015/2017: SOW16

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

- Operating temperature: -40°C to 125°C
- Various output interface forms: 14-bit linear DAC analog output or 12-bit resolution PWM output, SPI output UVW output, Z-direction programmable threshold judgment switch output (SON)
- Provide SPI and OWI user-programmable communication interfaces
- Provide angle output with accuracy of ±1°
- Support four-section fitting one by one, with fit accuracy up to ±0.2°
- 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
- It has abnormal diagnosis function
- Differential Hall detection can resist external stray magnetic field
- NOVOSENSE's new chopper and spin current excitation technology make angular temperature drift very small

- Automotive-qualified and industrial-qualified model
- available, with automotive-qualified model meeting AEC -Q100 reliability standard

◆ Package

- SOP8

NSM107x: Hall Switch

◆ Product introduction

NSM107x is a 3-wire fixed sensitivity Hall switch, which are industrial-grade magnetic sensors based on the planar Hall-effect to support high-precision, contactless digital position measurement within an ambient temperature range of -40°C to 125°C. The low power version of the NSM107x with 20Hz sampling frequency has an operating current as low as 1.5μA at the common supply voltage of 3.3V, making it suitable for battery-powered applications such as IOT devices.

The NSM107x series consists of 2 product models, namely NSM1071 (unipolar Hall switch) and NSM1072 (omnipolar Hall switch), which allow users to select different switching points, power consumption modes, output interfaces, package forms, etc.

◆ Product feature

- Operating ambient temperature: -40°C~125°C
- Operating voltage range: 1.65~5.5V
  ESD(HBM): ±4kV
- Optional parameters:
  Different operate/release points
  Power consumption modes:regular power consumption version, low power consumption version (20Hz)
  Output interface: Open-drain, Push-pull

◆ Package

- SOT23-3L
- TO-92s

NSM105x: xMR 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

○ Operating ambient temperature: -40°C~125°C
○ Operating voltage range: 1.8~5.5V
○ ESD (HBM): ±4kV
○ Extremely low power consumption, with supply currents as low as 200nA
○ Optional parameters:
  Different operate /release points
  Magnetic polarity: South, North
  Output polarity : High, Low
  Sampling frequency: 5kHz, 2.5kHz, 1.25kHz, 156Hz
  Output interface: Open-drain, Push-pull

◆ Package

○ SOT23-3L
○ TO-92s
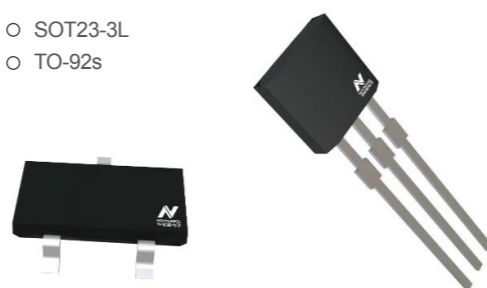
Key Product Recommendations (Temperature&Humidity Sensor)

Part Number	Product
NST1001	D-NTC® Digital Pulse Output Temperature Sensor
NST1002	D-NTC Single Bus-type Digital Temperature Sensor
NSHT30	High-precision, Low-power I²C Digital Interface Temperature and Humidity Sensor

NST1001: D-NTC® Digital Pulse Output Temperature Sensor
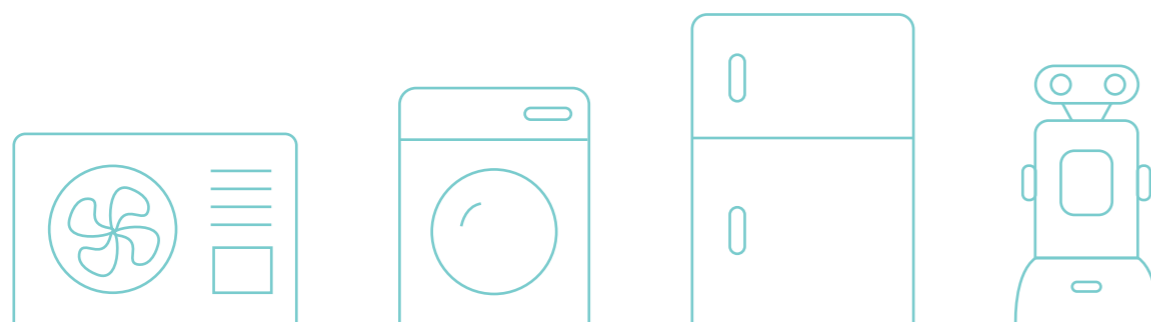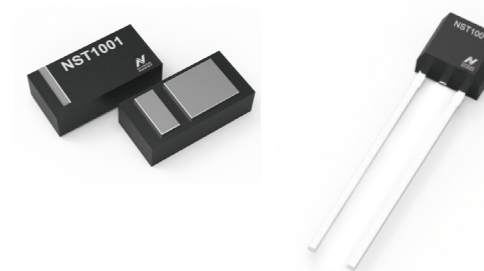
◆ Product introduction

NST1001 is a high-precision double-pin digital output temperature sensor. NST1001 features pulse counting digital output and high precision in a wide temperature range, which can be directly connected with MCU, while ensuring measurement accuracy and reducing overhead. The NST1001 device supports a maximum accuracy of ±0.75 °C over temperatures ranging from -50 °C to 150 °C, while providing extremely high resolution (0.0625 °C) without system calibration or hardware/software compensation. The pulse-counting digital port is designed for direct connection to GPIO or comparator inputs to simplify component implementation. Simple two-pin architecture is adopted. So the NST1001 device can be easily converted into a two-wire temperature probe.

◆ Product feature

○ Operating temperature range: -50°C~150°C
○ High accuracy in full temperature range
  25°C~45°C: ±0.2°C (typical) @ NST1001
  25°C~45°C:±0.2°C(max.) @ NST1001HA
  Accuracy within range -20 °C~85°C: ±0.5°C (max.)
  Accuracy within range -50°C~-20°C: ±0.75°C (max.)
  Accuracy within range 85°C~150°C: ±0.75°C (max.)
○ High resolution: 0.0625°C（1 LSB）
○ Quick temperature response: silicone oil τ63%0.21S（DFN2L）
○ Single temperature conversion time: 50mS
○ Ultra-low power consumption: 30μA operating current, zero standby power consumption
○ Supply voltag e range: 1.65V to 5.5V
○ Pulse count type digital output to reduce the AD conversion port on master side
○ Support dual pin simplified temperature measurement solution
○ DFN2L ultra small packaging, with same resistance size as 0603

◆ Package

○ TO-92S (4mm x 3mm)
○ DFN2L (1.6mm x 0.8mm)

NST1002: D-NTC Single Bus-type Digital Temperature Sensor

◆ Product introduction

NST1002 is a high-precision dual-pin single bus-type temperature sensor. NST1002 has a single bus protocol output interface and high precision in a wide temperature range. It can be directly connected with MCU to ensure the measurement accuracy and reduce the overhead. The NST1002 device supports a maximum accuracy of ±0.5°C over temperatures ranging from -40°C to 125°C, while providing extremely high resolution (0.0078125°C) without system calibration or hardware/software compensation. The digital interface of the single bus protocol is designed to connect directly to GPIO, simplifying hardware design. The simple dual-pin architecture enables the NST1002 device to be easily converted into a two-wire temperature probe.

◆ Product feature

○ Operating temperature range: –50°C to 150°C
○ High accuracy over –50°C to 150°C
   DFN-2L
   0°C~85°C: ±0.1°C (typical) ±0.25°C(max.)
   -40°C ~125°C: ±0.5°C (max.)
   -40°C ~150°C: ±0.5°C (max.)@3.3V
   TO-92S-2L
   0°C~85°C: ±0.2°C (typical)
   -20°C ~85°C: ±0.35°C (max.)
   -40°C ~125°C: ±0.7°C (max.)
   -40°C ~125°C: ±0.7°C (max.) @3.3V
   High resolution: 0.0078125°C (1 LSB)
   Quick temperature response: 0.27S (DFN2L)
   Single temperature conversion time: 32ms
   Ultra-low power consumption: 30μA operating current, zero

   standby power consumption
○ Supply voltage range: 1.7V to 5.5V
○ Single bus protocol digital output, without AD conversion port
○ Support dual pin simplified temperature measurement solution
○ DFN2L ultra small packaging, with same size as 0603 resistance

◆ Package

○ TO-92S (4mm x 3mm)   ○ DFN2L (1.6mm x 0.8mm)
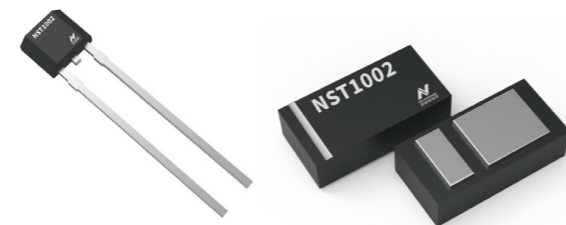
NSHT30: High-precision, Low-power I²C Digital Interface Temperature and Humidity Sensor

◆ Product introduction

NSHT30 is a CMOS-MEMS-based relative humidity (RH) and temperature sensor. NSHT30 integrates a complete sensor system on a single chip, including capacitive relative humidity sensor, CMOS temperature sensor and signal processor and I²C digital communication interface, in the DFN and LGA packages of 2.5mm2.5mm0.9mm. The communication mode of its I²C interface, extremely small package and low power consumption characteristics allow NSHT30 to be more widely integrated into a variety of applications. In addition, NSHT30's I²C interface features two unique, selectable I²C addresses, communication rates up to 1MHz, and a wide voltage operating range, making NSHT30 more compatible in a variety of application environments. It also has programmable interrupt thresholds that can provide alarms and system awakenings without the need for a microcontroller to continuously monitor the system.

◆ Product feature

○ Relative humidity (RH) sensor：
   Working range：0%RH~100%RH
   Accuracy：±3%RH（typ.）
○ Temperature sensor：
   Operating temperature range：-40°C~125°C
   Accuracy：±0.3°C（typ.）
○ Digital output for relative humidity and temperature compensation
○ Wide supply voltage range：2.0V~5.5V
○ I²C digital interface, communication rate up to 1MHz
   2 optional addresses
   Data protection with CRC check

○ Low-power：average current: 3.2μA
○ 8-Pin LGA and DFN package available
○ AEC-Q100 qualified (DFN package)

◆ Package

○ DFN-8 （2.5mm x 2.5mm x 0.9mm）

Key Product Recommendations (Pressure Sensor)

Part Number	Product
NSPGS2	NSPGS2 series: Integrated Gauge Pressure Sensor with Air Nozzle in SOP Package
NSPGD1(M)	NSPGD1(M) series: Integrated Gauge Pressure Sensor with Air Nozzle in DIP8 Package

NSPGS2 series: Integrated Gauge Pressure Sensor with Air Nozzle in SOP Package
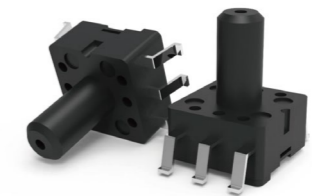
◆ Product introduction

NSPGS2 is a calibrated gauge pressure sensor launched by NOVOSENSE for the market of small household appliances and healthcare equipment. This series of products adopts high-performance signal conditioning chip to calibrate and compensate the temperature and pressure of MEMS piezoresistive die. It comes in SOP6 package form with vertical air nozzle for easy soldering and use. This series of pressure sensors can convert pressure signals from -100kPa to +250kPa into analog/digital output signals with a customized output range. They are suitable for pressure detection of non-corrosive gases compatible with the structural materials of pressure sensitive components, especially for small household appliances, healthcare, industry and the IoT.

◆ Product feature

○ Customizable range: -100kPa ~+250kPa
○ Wide temperature range: -40°C~70°C
○ The comprehensive accuracy in the full temperature range is better than ± 2.5%
○ Analog voltage output/ I²C digital output/SPI
○ High stability, 100% calibration, temperature compensation
○ Packaging with single air nozzle, easy to install and seal
○ Front air intake for chips avoid blockage

◆ Package

○ SOP-8 (7.0mm x 7.0mm)

NSPGD1(M) series: Integrated Gauge Pressure Sensor with Air Nozzle in DIP8 Package

◆ Product introduction

NSPGD1(M) is a series of calibrated gauge pressure sensors launched by NOVOSENSE for the home appliance and medical market. The series of products adopts high-performance signal conditioning chip to calibrate and compensate the temperature and pressure of MEMS piezoresistive die output. The NSPGD1 series integrated pressure sensor has an optional pressure range from -10kPa to +10kPa. It adopts DIP8 package form with air nozzle, which is convenient for soldering and use. It is suitable for gauge pressure detection of non-corrosive gases with pressure sensitive components, especially for non-contact liquid level detection. It is also suitable for industrial, IoT and other fields. This series pressure sensor supports analog output /I²C digital output and unique frequency output, which is more flexible for multi-applications.

◆ Product feature

○ Customizable range: -10kPa ~ +10kPa
○ Wide temperature range: 0°C~70°C
○ The comprehensive accuracy in the full temperature range is better than ± 2.5%
○ Analog voltage /I²C digital output/frequency output
○ High stability, 100% calibration, temperature compensation
○ DIP package with air nozzle, easy to install and seal
○ Front air intake for chips avoid blockage
   Internal waterproof moisture-proofing treatment

◆ Package

○ DIP8

Key Product Recommendations (Motor Driver)

Part Number	Product
NSD7312	40V Peak Current 3.6A Brushed DC Motor Driver IC

NSD7312: 40V Peak Current 3.6A Brushed DC Motor Driver IC

◆ Product introduction

NSD7312 is a brushed DC motor driver IC. The IC has built-in N-MOSFET and provides full protection for the power level, including power supply undervoltage protection, overcurrent protection and overtemperature protection. This product can provide 3.6A peak current and supports PWM current regulation. In version A product, the internal power path current mirror function is added, and the external ADC/MCU can directly obtain the current value from the pin of the product, saving power sampling resistor and optimizing the layout. The Automotive version has passed the AEC-Q100 qualification to meet the requirements in terms of quality and reliability of vehicles.

◆ Product feature

- Wide operating voltage range: 5V-36V (Absolute max rating 40V)
- On-resistance (HS + LS) 520mΩ
- Peak current 3.6A
- AEC-Q100 qualified
- Supporting current modulation
- Undervoltage protection
- Overcurrent protection
- Over-temperature protection
- Operating temperature: Tj=-40°C~150°C

◆ Package

- HSOP8
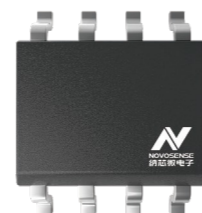
Key Product Recommendations(Gate Driver)

Isolated Gate Driver	
Part Number	**Product**
NSI6601M	Isolated Single-channel Gate Driver
NSI6651	Smart Isolated Gate Driver Integrated with DESAT Protection
NSI68515	Opto-compatible Smart Isolated Gate Driver Integrated with DESAT Protection
Non-isolated Gate Driver	
Part Number	**Product**
NSD1026V	Dual-channel Low-side Gate Driver

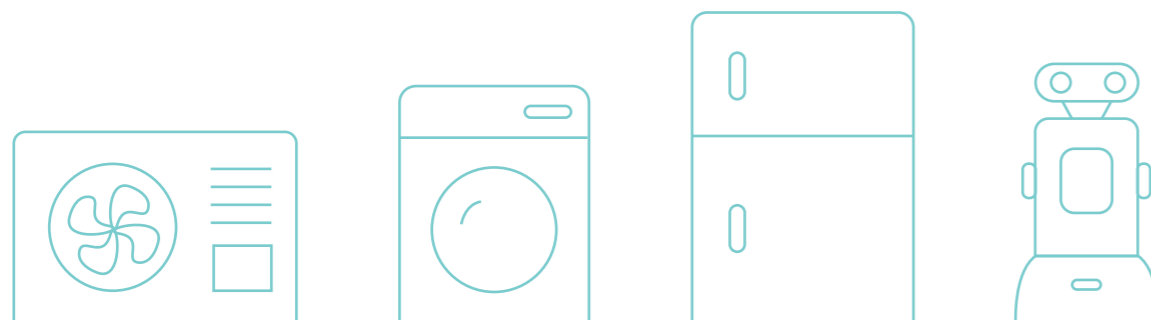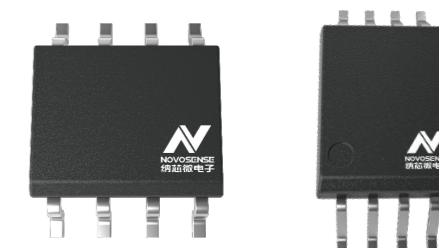### NSI6601M: Isolated Single-channel Gate Driver

◆ Product introduction

NSI6601M is a single-channel isolated gate driver suitable for driving IGBT, power MOSFET and SiC MOSFET in many applications. Separate outputs are provided to control the rising and falling duration respectively. It can provide peak source/sink current of 5A/5A. The 150kV/μs minimum common mode transient immunity (CMTI) ensures the robustness of the system. The absolute max rating of the driver side is 35V, and the input side is supplied with a power supply voltage of 3.1V to 17V. All power pins support undervoltage lockout (UVLO) protection. NSI6601 is designed with high drive current, excellent durability, wide power supply voltage range and fast signal propagation, and is suitable for switching power supply systems which require high reliability, high power density and high efficiency.

◆ Product feature

- Single-channel isolated driver
- Input side supply voltage: 3.1V to 17V
- Driver side supply voltage: Absolute max rating 35V, with UVLO
- Version M supports Miller Clamp function (NSI6601M) with current up to 5A
- Peak source/sink current of 5A/5A
- High CMTI:150kV/μs
- Typical propagation delay: 78ns
- Operation ambient temperature: -40°C to 125°C
- AEC-Q100
- UL certification:
  SOP8: 3000Vrms for 1 minute
  SOW8: 5700Vrms for 1 minute
- VDE certification: DIN VDE V 0884-11:2017-01
- CSA certification: CSA components has passed 5A approval
- CQC certification: GB4943.1-2011

◆ Package

- SOP8
- SOW8

NSI6651: Smart Isolated Gate Driver Integrated with DESAT Protection

◆ Product introduction

NSI6651 is a single-channel smart isolated gate driver designed to drive IGBT, power MOSFET and SiC MOSFET and other power transistors in many applications and provide protection for their safe operation. It can provide separate output to control the rising and falling duration respectively, it supports rail-to-rail output, and can provide a maximum 10A/10A source and sink current capability. NSI6651 can provide protection functions, such as UVLO, Miller clamp, DESAT protection, soft turnoff, and when short circuit fault or undervoltage occurs, the fault can be indicated through a separate pin. NSI6651 features large drive current, wide power supply voltage range, and high CMTI, and is designed with excellent protection. It is suitable for switching power supply systems and inverters which require high reliability, high power density and high efficiency.

◆ Product feature

- ○ Smart Single-channel isolated Driver
- ○ Input side power supply voltage: 3V~5.5V
- ○ Driver side power supply voltage:
  Absolute max rating 35V, with UVLO
- ○ Peak source and sink current 10A/10A
- ○ High CMTI: 150kV/μs
- ○ Typical propagation delay: 80ns
- ○ Maximum pulse width distortion: 30ns
- ○ Minimum receivable input pulse width: 40ns
- ○ Rail-to-rail output, with separate output as an option
- ○ Protection mode:
  Miller Clamp 4.0A
  DESAT protection with a threshold of 9V
  Support soft turnoff at a current of 400mA
  Support fault reporting, reset or enable
- ○ Operating temperature: -40°C~125°C

◆ Package

- ○ SOW16

NSI68515: Opto-compatible Smart Isolated Gate Driver Integrated with DESAT Protection
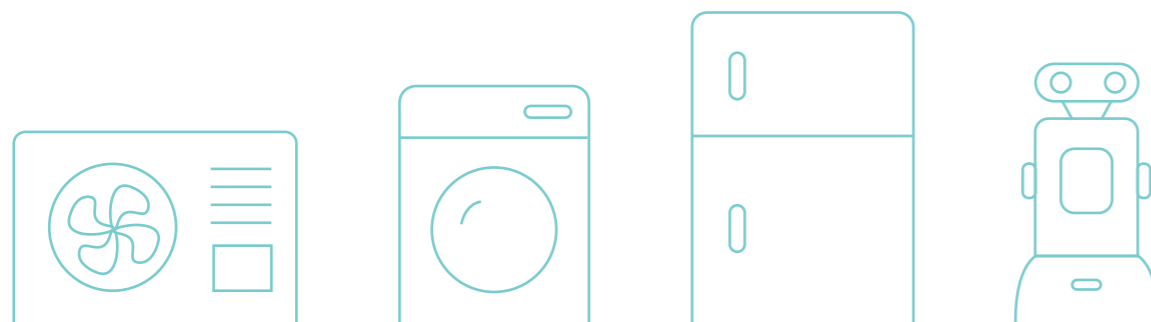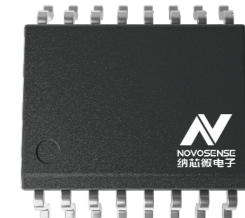
◆ Product introduction

NSI68515 is an opt-compatible single-channel smart isolated gate driver integrated with DESAT protection designed to drive and provide protection for safe operation of IGBTs, power MOSFETs and SiC MOSFETs in many applications. NSI68515 can provide up to +5A/-5A source/sink current capability. The absolute max rating of the driver side is 35V, and the input side accepts supply voltages from 3V to 5.5V. It can provide excellent protection function, such as UVLO, Miller clamp, DESAT protection, and soft turnoff, etc., and send alarm by a separate pin when detecting a short circuit fault or undervoltage. It is available in automatic alarm reset version, rail to rail output version and non-rail to rail output version. It supports a minimum common-mode transient immunity (CMTI) of 150kV/μs to improve system robustness. NSI68515 features high driver current, wide range of power supply voltage, high CMTI, and has excellent protection function, which is suitable for motor drive, inverter, switching power system and other systems with high reliability, high power density and high efficiency.

◆ Product feature

- ○ Smart isolated single-channel driver integrated
- ○ with DESAT protection
- ○ Input side supply voltage: 3V - 5.5V
- ○ Driver side supply voltage:
- ○ Absolute max rating 35V, with UVLO
- ○ Peak 5A/5A source/sink current capacity
- ○ High CMTI: 150kV/μs
- ○ 100ns typical propagation delay
- ○ 100ns maximum pulse width distortion
- ○ Acceptable minimum input pulse width 40ns
- ○ NSI68515LC/UC/AC rail to rail output, NSI68515AC
  non- rail to rail output
- ○ NSI68515AC/RC supports automatic resetting
- ○ Protection mode
  Miller clamp 4.0A
  DESAT protection, with threshold of 6.5V
  Support soft shutdown function, with soft shutdown current of 140mA
  Support alarm feedback
- ○ Operating temperature: -40°C~125°C

◆ Package

- ○ SOW16

NSD1026V: Dual-channel Low-side Gate Driver

◆ Product introduction

NSD1026V is an in-phase dual-channel high-speed gate driver suitable for driving MOSFET, IGBT, GaN and SiC power devices. It can provide 5A source current and sink current to drive capacitive loads, as well as rail-to-rail voltage swing in Miller platform area, which helps to reduce the Miller effect during MOSFET switching. In addition, the short rising and falling duration and the matching propagation delay of the two output channels make the NSD1026V series suitable for high frequency and dual-gate drive power applications, such as synchronous rectifiers.

Both the input pin and the enable pin support -10V input, thus increasing robustness, while the enable pin can help users realize control functions in different applications. Moreover, the internal circuit allows under-voltage lockout (UVLO), which keeps the output low until the power supply voltage returns to the operating range. The hysteresis function between high and low thresholds provides excellent immunity.

◆ Product feature

- ○ Supply voltage range: 4.5V to 26V (Absolute max rating 30V)
- ○ Source/sink drive current: 5A (peak)
- ○ Each channel output is designed with two independent enable pins
- ○ Supporting inputs as low as -10V
- ○ CMOS/TTL compatible logic input

- ○ The 5A reverse current function eliminates the need for output protection
- ○ Operating temperature range: -40°C~125°C
- ○ Propagation delay: 21 ns (typical)
- ○ AEC-Q100 qualified

◆ Package

- ○ SOP8, HSOP8, HMSOP8, DFN8