Full Production

Product Line Details

Xscend sensors support resistive and capacitive sensing, have wide operating voltage ranges, and support analog and digital output. With response times under one millisecond, high accuracy and extended industrial and automotive temperature ranges, Xscend sensors will meet your demanding accuracy and quality requirements.

Part #	Sensor Type	Operating Voltage	Input	Output Type	Output	Response Time	Accuracy	Compen-sation	Interface	Diagnosis
XPS3500	R	2.7-5.5V	>10mV	Analog	Voltage	<1ms	0.6% 12b DAC	N order	DIO	Connect
XPS3501	R	3-40V	>25uv	Analog/ Digital	Voltage	<1ms	0.1% 20b ADC	3rd order	DIO I2C	Connect
XPS3502	C	3-40V	>25uv	Analog/ Digital	Voltage	<1ms	0.1% 20b ADC	3rd order	DIO I2C	Connect
XPS3505	R	3-40V	>25uv	Analog/ Digital	Voltage	<1ms	0.1% 20b ADC	3rd order	DIO I2C	Connect RPP Low Vdrop
XPS3506	C	3-40V	>25uv	Analog/ Digital	Voltage	<1ms	0.1% 20b ADC	3rd order	DIO I2C	Connect RPP Low Vdrop
XPS3601	R	3-40V	>25uv	Analog/ Digital	Voltage w/Constant Current	<1ms	0.05% 20b ADC	3rd order	DIO I2C/SPI	Connect RPP Constant Current
XPS3602	C	3-40V	>25uv	Analog/ Digital	Voltage w/Constant Current	<1ms	0.05% 20b ADC	3rd order	DIO I2C/SPI	Connect RPP Constant Current

Why Choose Xscend Sensor Solutions?

Automotive & Industrial Focus: Our products are tailored to meet the specific needs of automotive and industrial applications, including extended tempurature, power efficiency, and rugged reliability.

Cutting-Edge Innovation: Xscend sensors are designed to provide fast response times, high precision, and low temp/time drift after calibration.

Cost-Efficiency: Our solutions reduce BOM costs and increase integration flexibility, helping customers achieve optimal performance at lower cost.

Discover more about Xscend's innovative semiconductor solutions at xscend.com.

XPS3500 Resistive Bridge Analog Output Voltage Sensing Chip

Full Production

Description

The XPS3500 is a resistive bridge analog output pressure sensing chip designed for use with resistive pressure sensors. It operates at an input voltage range of 2.7-5.5V and amplifies small differential signals greater than 10mV generated by the sensor's Wheatstone bridge configuration. The chip provides a precise analog voltage output through its integrated 12-bit DAC, offering 0.6% accuracy and a fast response time of less than 1ms. Featuring "N order" compensation, the XPS3500 ensures stable and reliable operation under varying conditions. Its digital input/output (DIO) interface and built-in "Connect" diagnostic feature make it suitable for a variety of real-time automotive and industrial and pressure-sensing applications.

The XPS3500 is calibrated to flexibly support different characteristics of the client's sensors, and the calibration accuracy is within 0.1%. The XPS3500 supports two different operating modes, proportional voltage and fixed reference voltage, and the analog output voltage has a 4-position programmable limit function to prevent overshooting of the output voltage. In addition to offset voltage and sensitivity compensation, the XPS3500 offers unique temperature compensation by detecting the linear temperature coefficient, providing better temperature compensation while reducing detection costs. The XPS3500 is available in MSOP8 or SSOP16 pin packages to meet commercial and industrial-grade operating temperature ranges.

SSOP16

MSOP8

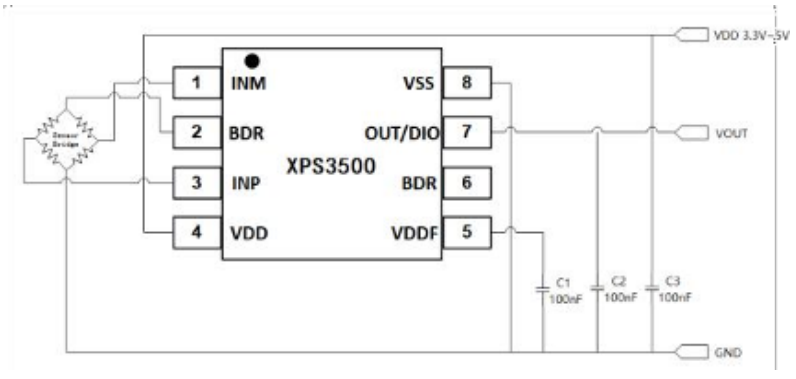
Applications

- Data transmitter
- Strain Gauge
- Ventilator
- Instrumentation and metering

Key Features

- Operating voltage range: 2.7V~5.5V
- Input full-amplitude sensitivity range: 4mV/V to 60mV/V
- Adjustable Transmission Voltage Limiter
- DIO single-wire serial communication
- On-chip or external temperature detection
- 1.1mA low current power consumption
- Response time less than 0.7ms
- Operating Temperature Range: -40℃~125℃

Circuit Example



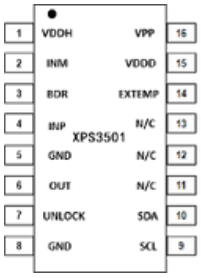
XPS3501 Resistive Bridge Analog/Digital Output Voltage Sensing Conditioning Chip

Full Production

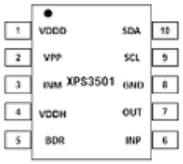
Description

The XPS3501 is a resistive bridge analog output pressure sensing chip designed for use with resistive pressure sensors. It operates with an input power voltage range of 3-40V. It amplifies small differential signals greater than 25uV produced by the sensor's Wheatstone bridge configuration. It provides a precise analog voltage output through its integrated 20-bit DAC, offering 0.1% accuracy and a fast response time of less than 1 ms. Featuring 3rd-order compensation, the XPS3501 ensures stable and reliable operation under varying conditions. It supports both digital I/O (DIO) and I²C interfaces, along with a "Connect" diagnostic feature, making it ideal for high-precision, real-time pressure measurement in industrial and advanced sensing applications.

The XPS3501 offers external compensation algorithms for flexible calibration, including zero-point, sensitivity, third-order temperature drift, and non-linear sensor calibration. The chip supports both proportional and fixed voltage operating modes, with a programmable voltage limit feature, as well as overvoltage protection and sensor diagnostics. The XPS3501 supports both proportional and fixed voltage modes of operation for analog output voltage with a programmable limit function. The XPS3501 supports overvoltage protection and sensor diagnostics. The XPS3501 is available in MSOP10 or SSOP16 pin packages in automotive and industrial-grade operating temperature ranges.



SSOP16



MSOP10

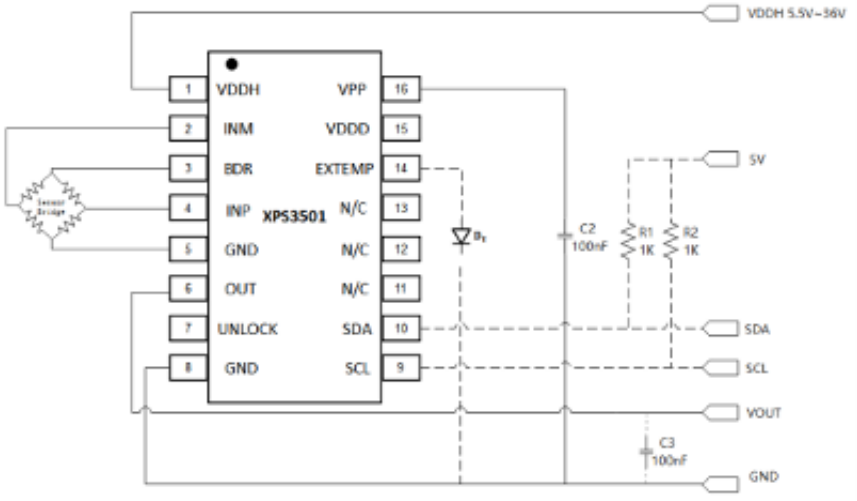
Applications

- Data transmitter
- Strain Gauge
- Ventilator
- Instrumentation and metering

Key Features

- Operating voltage range: 3V~40V
- Adjustable Transmission Voltage Limiter
- DIO single-wire serial communication
- On-chip or external temperature detection
- 1.1mA low current power consumption
- Response time less than 0.7ms
- Operating Temperature Range: -40℃~150℃

Circuit Example



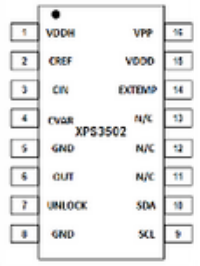
XPS3502 Analog/Digital Output Capacitive Sensing Conditioning Chip

Full Production

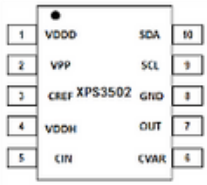
Description

The XPS3502 is a capacitive analog output pressure sensing conditioning chip designed to interface with capacitive pressure sensors. It operates at an input power voltage range of 3-40V and processes small input signals greater than 25μV from the sensor. The chip provides a precise analog voltage output, leveraging an integrated 20-bit ADC with 0.1% accuracy and a rapid response time of less than 1ms. With third-order compensation, the XPS3502 ensures stable performance and accurate signal conditioning under various environmental conditions. It supports both digital I/O (DIO) and I²C interfaces, along with a "Connect" diagnostic feature, making it ideal for high-precision, real-time pressure measurement in industrial and advanced sensing applications.

The XPS3502 offers external compensation algorithms for flexible calibration, including zero-point, sensitivity, third-order temperature drift, and non-linear sensor calibration. The chip supports both proportional and fixed voltage operating modes, with a programmable voltage limit feature, as well as overvoltage protection and sensor diagnostics. The XPS3502 supports both proportional and fixed voltage operating modes and analog output voltage with programmable limit function. The XPS3502 supports overvoltage protection and sensor diagnostics. The XPS3502 is available in MSOP10 or SSOP16 pin packages for automotive and industrial-grade operating temperature ranges.



SSOP16



MSOP10

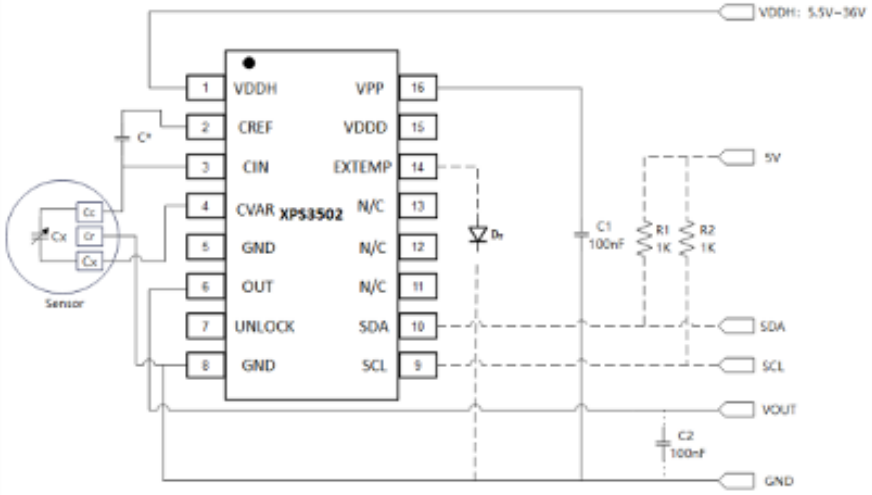
Applications

- Data transmitter
- Strain Gauge
- Ventilator
- Instrumentation and metering

Key Features

- Operating voltage range: 3.0V-40V
- Adjustable Transmission Voltage Limiter
- DIO single-wire serial communication
- On-chip or external temperature detection
- 1.1mA low current power consumption
- Response time less than 0.7ms
- Operating Temperature Range: -40℃~150℃

Circuit Example



XPS3505 Resistive Bridge Analog/Digital Output Voltage Sensing Conditioning Chip

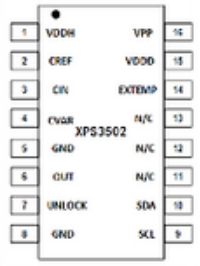
Full Production

Description

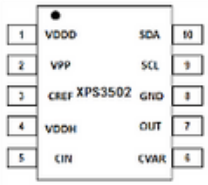
The XPS3505 is an automotive-grade, highly integrated, mixed-signal processor designed for resistive sensor signal conditioning. It supports both analog voltage output and I²C digital communication, making it versatile for automotive pressure sensor applications. The chip integrates amplification, calibration, temperature compensation, and non-linear compensation functions. Using DSP technology for flexible nonlinear signal processing and DAC for signal offset and span calibration, the XPS3505 ensures sensor interchangeability across different products.

With support for a 36V high-voltage power supply and reverse polarity protection, the XPS3505 is robust and reliable for demanding automotive environments. It enables external compensation algorithms for flexible calibration, including zero-point, sensitivity, third-order temperature drift, and non-linear sensor calibration. The chip supports both proportional and fixed voltage operating modes, with a programmable voltage limit feature, as well as overvoltage protection and sensor diagnostics.

The XPS3505 is available in SOP8, MSOP10, and SSOP16 pin packages, meeting automotive-grade temperature requirements, making it ideal for advanced automotive pressure sensor applications.



SSOP16



MSOP10

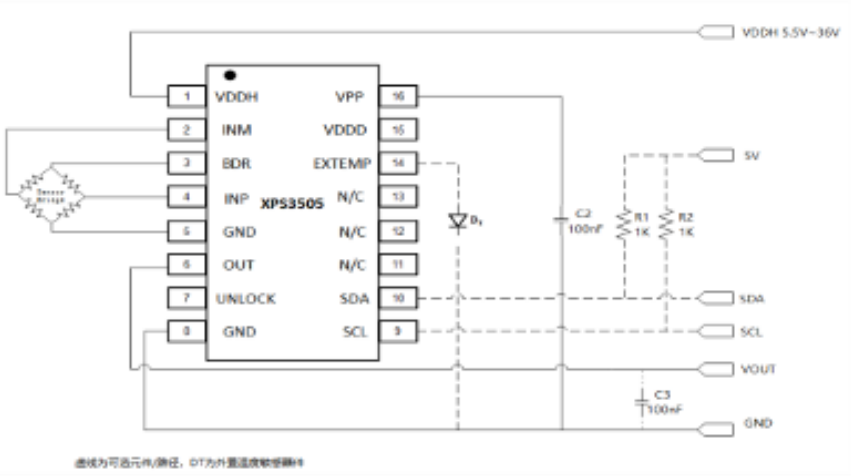
Applications

- Data transmitter
- Strain Gauge
- Ventilator
- Instrumentation and metering

Key Features

- Operating voltage range: 3V - 40V
- Adjustable Transmission Voltage Limiter
- DIO single-wire serial communication
- I2C communication
- On-chip or external temperature detection
- 1.1mA low current power consumption
- Response time less than 0.7ms
  - Operating Temperature Range: -40℃~150℃

Circuit Example



XPS3506 Capacitive Analog/Digital Output Sensing Conditioning Chip

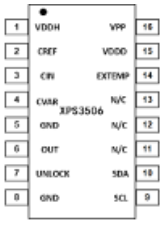
Full Production

Description

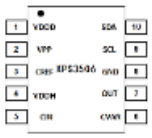
The XPS3506 is a highly integrated mixed-signal processor designed for capacitive sensor signal conditioning, supporting both analog voltage output and I²C digital input. It features amplification, calibration, temperature compensation, and non-linear compensation functions. Utilizing DSP technology for flexible nonlinear signal processing and DAC-based signal offset and span calibration, the XPS3506 ensures compatibility and interchangeability across various sensor products. Its robust design includes reverse polarity protection and support for a 36V high-voltage power supply, making it ideal for automotive pressure sensor applications.

The XPS3506 is calibrated through external compensation algorithms, allowing it to adapt to the unique characteristics of different client sensors. It supports zero-point calibration, third-order temperature drift compensation, and non-linear sensor calibration. The chip also offers proportional and fixed voltage operating modes with a programmable voltage limit function.

Additional features include overvoltage protection, sensor diagnostics, and support for I²C and DIO single-bus communication. The XPS3506 is available in SOP8, MSOP10, or SSOP16 pin packages, meeting automotive-grade operating temperature requirements and ensuring suitability for demanding automotive applications.



SSOP16



MSOP10

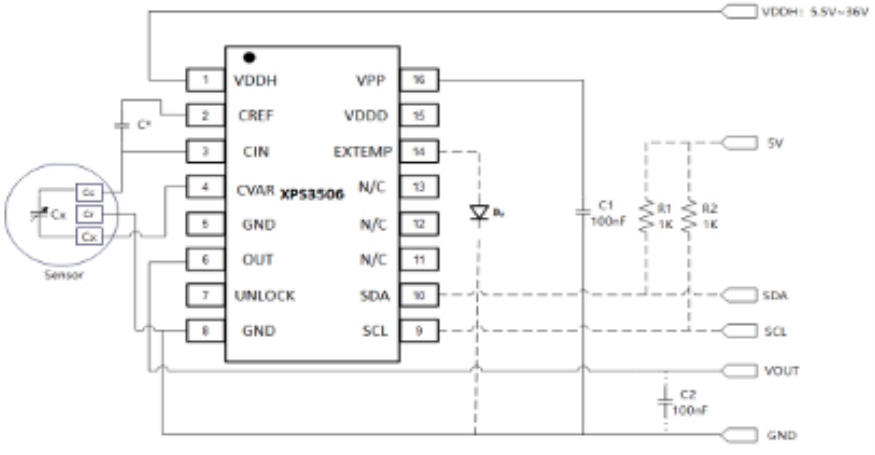
Applications

- Data transmitter
- Strain Gauge
- Ventilator
- Instrumentation and metering

Key Features

- Operating voltage range: 3V -40V
- Adjustable Transmission Voltage Limiter
- DIO single-wire serial communication
- I2C communication
- On-chip or external temperature detection
- 1.1mA low current power consumption
- Response time less than 0.7ms
- Operating Temperature Range: -40℃~150℃

Circuit Example



XPS3601 Resistive Bridge Current Mode Output Sensor

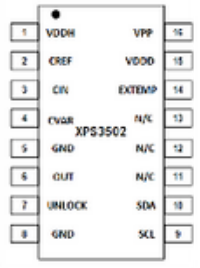
Sampling

Description

The XPS3601 is an automotive-grade, highly integrated, mixed-signal processor designed for resistive sensor signal conditioning. It supports constant current analog voltage output or DIO, I²C and SPI digital communication, making it versatile for a variety of sensing applications. The chip integrates amplification, calibration, temperature compensation, and non-linear compensation functions. Using DSP technology for flexible nonlinear signal processing and DAC for signal offset and span calibration, the XPS3691 ensures sensor interchangeability across different products.

With support for a 36V high-voltage power supply and reverse polarity protection, the XPS3601 is robust and reliable for demanding automotive environments. It enables external compensation algorithms for flexible calibration, including zero-point, sensitivity, third-order temperature drift, and non-linear sensor calibration. The chip supports both proportional and fixed voltage operating modes, with a programmable voltage limit feature, as well as overvoltage protection and sensor diagnostics.

The XPS3601 is available in SOP8, MSOP10, and SSOP16 pin packages, meeting automotive-grade temperature requirements, making it ideal for advanced automotive pressure sensor applications.



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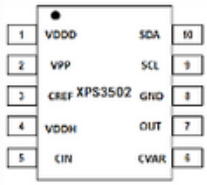


MSOP10

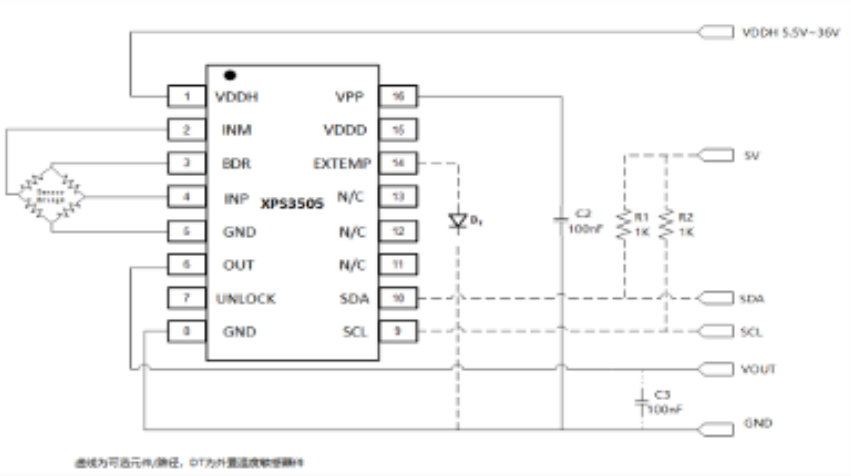
Applications

- Data transmitter
- Strain Gauge
- Ventilator
- Instrumentation and metering

Key Features

- Operating input voltage: 3V -40V
- Adjustable Transmission Voltage Limiter
- Constant current voltage output
- DIO single-wire serial communication
- I2C communication
- On-chip or external temperature detection
- 1.1mA low current power consumption
- Response time less than 0.7ms
- Operating Temperature Range: -40℃~150℃

Circuit Example



XPS3602 Capacitive Sensing Chip With Current Mode Output Chip

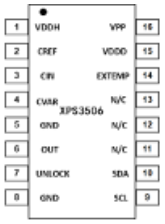
Sampling

Description

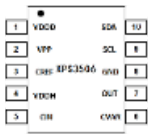
The XPS3602 is an automotive-grade, highly integrated, mixed-signal processor designed for capacitive sensor signal conditioning. It supports constant current analog voltage output or DIO, I²C and SPI digital communication, making it versatile for a variety of sensing applications. It features amplification, calibration, temperature compensation, and non-linear compensation functions. Utilizing DSP technology for flexible nonlinear signal processing and DAC-based signal offset and span calibration, the XPS3602 ensures compatibility and interchangeability across various sensor products. Its robust design includes reverse polarity protection and support for a 36V high-voltage power supply, making it ideal for automotive pressure sensor applications.

The XPS3602 is calibrated through external compensation algorithms, allowing it to adapt to the unique characteristics of different client sensors. It supports zero-point calibration, third-order temperature drift compensation, and non-linear sensor calibration. The chip also offers proportional and fixed voltage operating modes with a programmable voltage limit function.

Additional features include overvoltage protection, sensor diagnostics, and support for I²C and DIO single-bus communication. The XPS3602 is available in SOP8, MSOP10, or SSOP16 pin packages, meeting automotive-grade operating temperature requirements and ensuring suitability for demanding automotive applications.



SSOP16



MSOP10

Applications

- Data transmitter
- Strain Gauge
- Ventilator
- Instrumentation and metering

Key Features

- Operating voltage range: 3V-40V
- Adjustable Transmission Voltage Limiter
- Constant current voltage output
- DIO single-wire serial communication
- I2C communication
- On-chip or external temperature detection
- 1.1mA low current power consumption
- Response time less than 0.7ms
- Operating Temperature Range: -40℃~150℃

Circuit Example