

Solid State Pressure Sensor

ANALOG
OUTPUT



Model : 53A Series

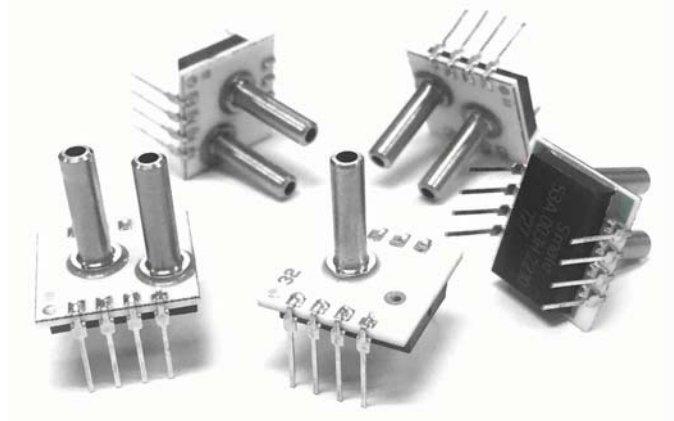
0.5V ~ 4.5V Output

0 ~ 0.15, 0.3, 0.5, 1, 2, 3, 5, 7, 15, 30, 50, 100, 150 PSI

Gage, Differential Type

Features

- Easy Design-in
- Temperature Compensated
- Calibrated & Amplified Output
- Low Cost



Applications

- Process Control
- HVAC
- Consumer Electronics
- Medical Devices

Description

The 53A Series is a smart pressure sensor with a calibrated and amplified analog output. Compensation of sensor offset, sensitivity, temperature drift and nonlinearity is accomplished in the factory via the latest ASIC technology with calibration coefficients stored in an on-chip EEPROM.

A variety of output configurations, including response time and voltage level are available to provide a simple and ready-to-use solution for a wide range of applications. The low voltage version operates from 2.7 to 3.3V while the regular version operates from 4.5 to 5.5V.

The available pressure range from 0.15 psi to 150psi.

*The extended temperature version has compensated temperature from 0 ~ 85°C and operating temperature from -40 ~ 125°C

Selection Table Pressure Sensors

Type	Part Name	Measurement Range			Input Voltage	Output
		PSI	KPa	mmHg		
Gage	53A-L15H-XXXX	0 ~ 0.15	0 ~ 1.034	0 ~ 7.7	DC 5V	0.5V ~ 4.5V
	53A-L30H-XXXX	0 ~ 0.3	0 ~ 2.068	0 ~ 15.5		
	53A-L50H-XXXX	0 ~ 0.5	0 ~ 3.447	0 ~ 25.8		
	53A-001H-XXXX	0 ~ 1	0 ~ 6.894	0 ~ 51.7		
	53A-002H-XXXX	0 ~ 2	0 ~ 13	0 ~ 103		
	53A-003H-XXXX	0 ~ 3	0 ~ 20	0 ~ 155		
	53A-005H-XXXX	0 ~ 5	0 ~ 34	0 ~ 258		
	53A-007H-XXXX	0 ~ 7	0 ~ 48	0 ~ 362		
	53A-015H-XXXX	0 ~ 15	0 ~ 103	0 ~ 775		
	53A-030H-XXXX	0 ~ 30	0 ~ 206	0 ~ 1551		
	53A-050H-XXXX	0 ~ 50	0 ~ 344	0 ~ 2585		
	53A-100H-XXXX	0 ~ 100	0 ~ 689	0 ~ 5171		
	53A-150H-XXXX	0 ~ 150	0 ~ 1034	0 ~ 7757		
Differential	53A-L15D-XXXX	± 0.15	± 1.034	± 7.7	DC 5V	0.5 ~ 4.5V (Zero = 2.5V)
	53A-L30D-XXXX	± 0.3	± 2.068	± 15.5		
	53A-L50D-XXXX	± 0.5	± 3.447	± 25.8		
	53A-001D-XXXX	± 1	± 6.894	± 51.7		
	53A-002D-XXXX	± 2	± 13	± 103		
	53A-003D-XXXX	± 3	± 20	± 155		
	53A-005D-XXXX	± 5	± 34	± 258		
	53A-007D-XXXX	± 7	± 48	± 362		
	53A-015D-XXXX	± 15	± 103	± 775		
	53A-030D-XXXX	± 30	± 206	± 1551		

- NOTES:
1. The output of Gage pressure is proportional to the difference between 0 psiG (Port A) and Port B. Output swings positive when Port B > Port A.
 2. The output of Differential pressure is proportional to the difference between Port A and Port B. Output swings positive when Port B > Port A.
 3. Differential pressure can only be specified to a maximum of +/-30 psi.
 4. The meaning of XXX is compensated temperature option. please check the ordering page.

Characteristics

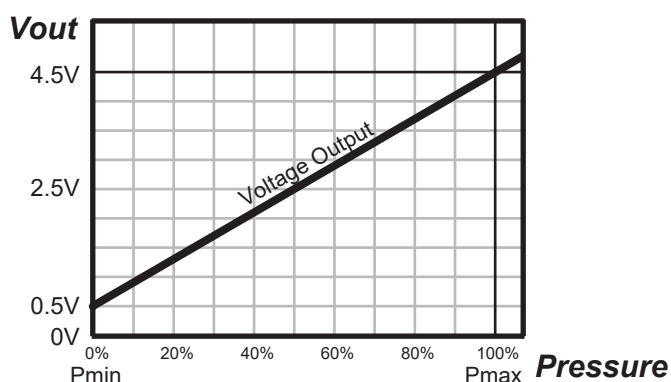
Unless otherwise specified, all parameters are measured at 25 °C and excitation of 5 Vdc

Parameters	Min	Typ	Max	Unit
Supply Voltage	4.75	5	5.25	Vdc
Supply Current			3	mA
Pressure Range	0.15		150	psi
Offset	0.428	0.5	0.572	V
Span		4.0		V
Accuracy (≤ 3 psi)			2.2	%FS
Accuracy (≥ 5 psi)			1.8	%FS
Over Pressure (≤ 3 psi)			3X	Rated Pressure
Over Pressure (≥ 5 psi)			2X	Rated Pressure
Temp - Compensated	0		+50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C
Extend Temperature Option				
Extend - Temp - Compensated	0		+85	°C
Extend - Temp - Operating	-40		+125	°C
Extend - Temp - Storage	-40		+125	°C

NOTES:

1. Accuracy includes non-linearity, hysteresis, TCS and TCO from 10 to 50 deg C, best fit straight line definition
2. Wetted material contains Nickel, RTV, glass, silicon and ceramic and Au
3. See ordering information for list of available pressure ranges
4. Output is ratiometric to supply voltage

Output Graph (Vin 5V)

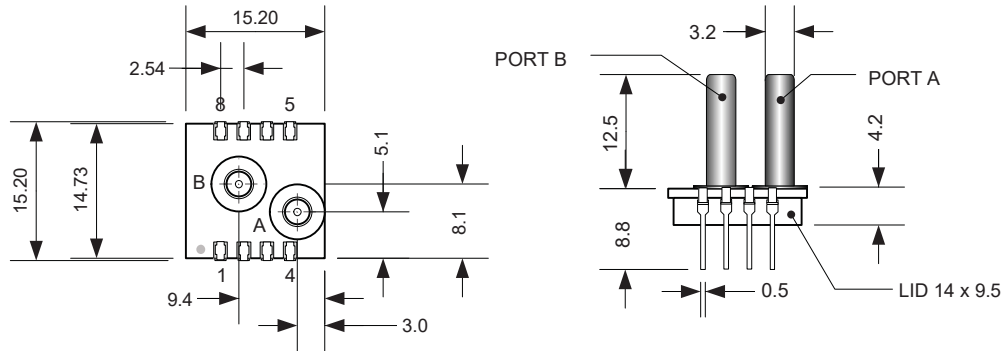


$$\text{Output Voltage} = \frac{(\text{Vin} \times 80\%)}{\text{Pmax} - \text{Pmin}} \times (\text{Pressure}_{\text{Applied}} - \text{Pmin}) + 0.5$$

$$\text{For 53A-007H-2297, } 2\text{V} = \frac{(5\text{V} \times 80\%)}{\{7 \text{ psi} - (0 \text{ psi})\}} \times \{2.625 \text{ psi} - (0 \text{ psi})\} + 0.5$$

$$\text{For 53A-007D-2297, } 2\text{V} = \frac{(5\text{V} \times 80\%)}{\{7 \text{ psi} - (-7 \text{ psi})\}} \times \{-1.75 \text{ psi} - (-7 \text{ psi})\} + 0.5$$

Dimensions



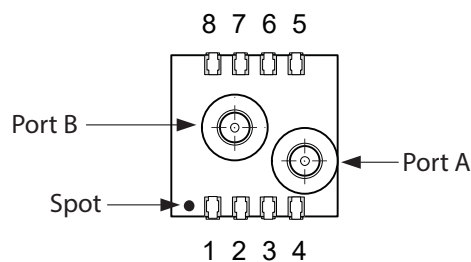
NOTES:

1. Differential Type : Port B is used for positive differential, Port A is used for negative differential
2. Gage Type : Port B is used for Gage, Port A is reference Atmospheric pressure
3. Soldering of lead pins : 250°C for 5 sec max
4. All dimensions are in mm

Pin Connection

PIN #	Description
1	N.C.
2	GND
3	VOUT
4	VDD
5	N.C.
6	N.C.
7	N.C.
8	N.C.

Top View

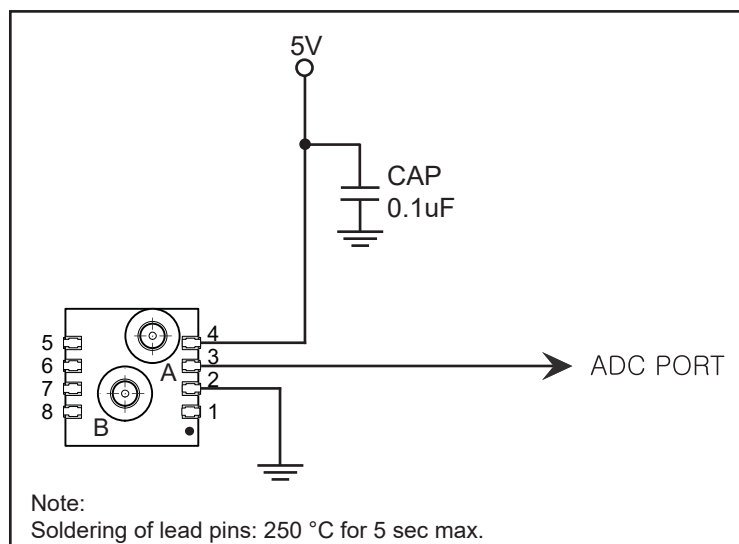


NOTES:

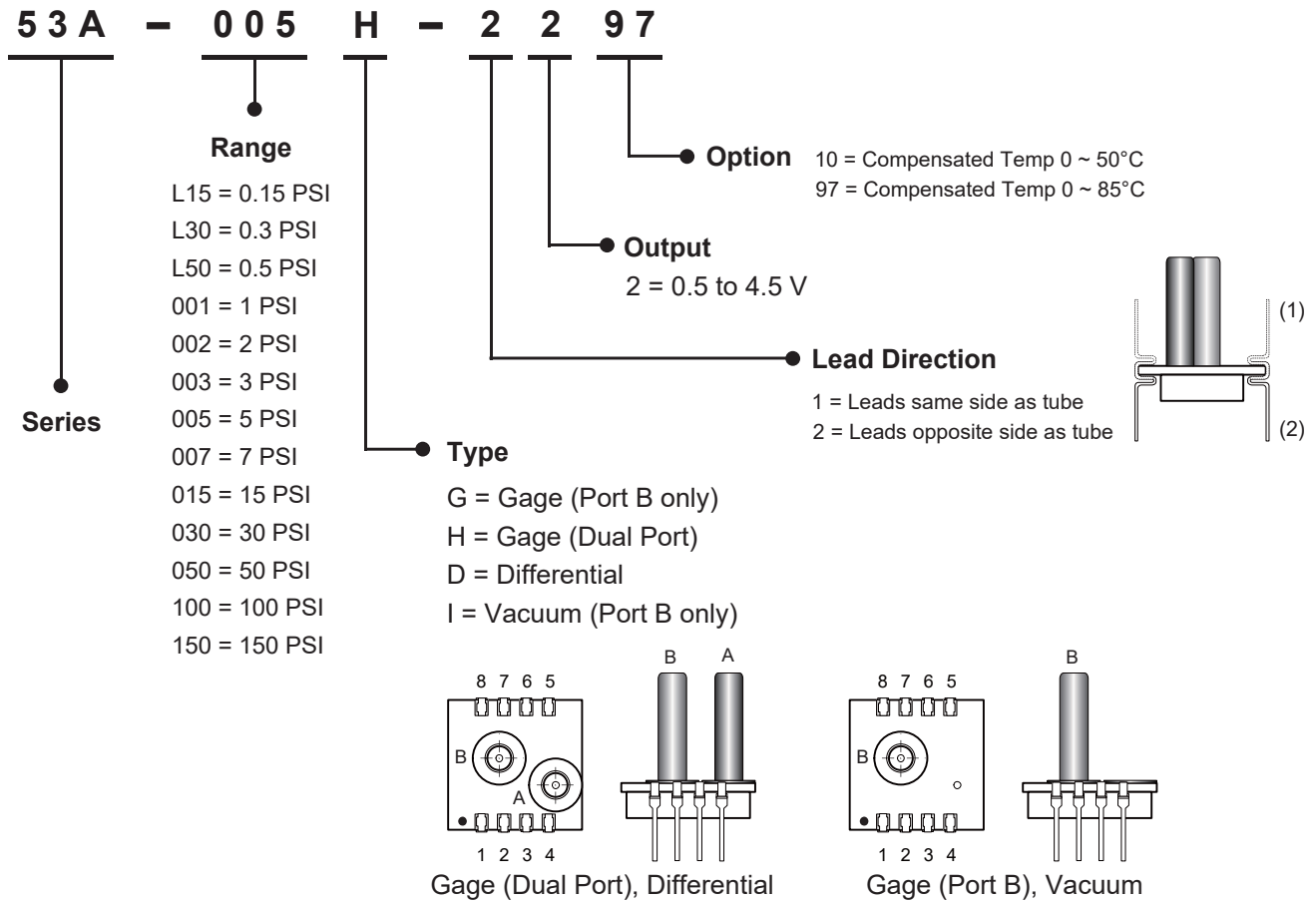
1. Differential Type : Port B is used for positive differential ex) 2.5V to 4.5V
2. Differential Type : Port A is used for negative differential ex) 2.5V to 0.5V
3. Gage Type : Port B is used for positive pressure ex) 0.5V to 4.5V
4. Gage Type : Port A is reference Atmospheric pressure

Basic Schematic

- N.C. pins must be left floating
- A 0.1uF capacitor must be connected between VDD and GND



Ordering Information



NOTES:

1. The output of Gage pressure is proportional to the difference between 0 psiG (Port A) and Port B. Output swings positive when Port B > Port A.
2. The output of Differential pressure is proportional to the difference between Port A and Port B. Output swings positive when Port B > Port A.
3. Differential pressure can only be specified to a maximum of +/-30 psi.
4. Maximum pressure for Vacuum is -15 psi. Vacuum has the offset (0 psi) at 0.5V and the span (-XX psi) at 4.5V.

Contact us

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