

# Solid State Pressure Sensor

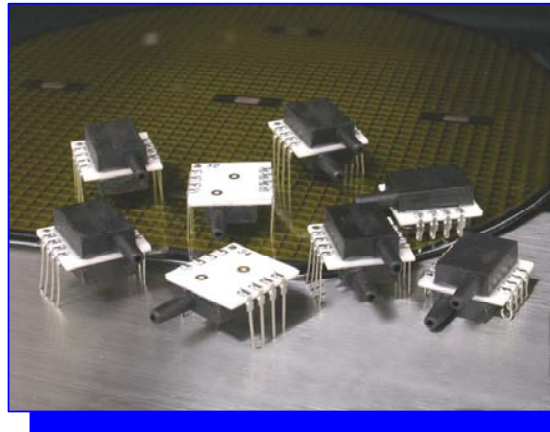
ANALOG  
OUTPUT



## CCD Series – Model 54A

### FEATURES

- DIP or SMD Package
- Calibrated Span and Offset
- Multi-order Temperature compensation
- Multi choice of output
- 3V or 5V Supply
- Customized Configuration upon request



### DESCRIPTION

The Series CCD Model 54A is a smart pressure transducer with ratiometric analog output. Digital compensation of sensor offset, sensitivity, temperature drift and nonlinearity is accomplished in factory via an internal DSP running a correction algorithm with calibration coefficients stored in on-chip EEPROM.

A variety of characteristic configuration, including accuracy, sampling rate, temperature compensated range are available to provide simple and ready-to-use solution for a wide range of application. It can be operated in supply voltage of 3V or 5V, and can be extended to 30V with an external JFET.

The Series CCD 54A is available for pressure range from 0.15 psi to 150 psi. Special configuration as low as 2.5 mbar is also applicable. Please contact factory for detail.

# Ordering Information

Series CCD 54 Analog

**54A L - XXX G - X 0 X X**

**Series**

### Supply Voltage

Blank = 4.75 to 5.25 V  
L = 2.75 to 3.33 V

### Type of Pressure

**G:** Gage (Port B only)  
**H:** Gage (Dual Port)  
**A:** Absolute (Port A only)  
**D:** Differential  
**I:** Negative Gage (Port B only)

### Option

**10:** No special request  
**97:** Compensated Temp 0~85 degC

Other options available upon request.

### Pressure range

#### Medium Pressure

**003** = 0 ~ 3 psi  
**005** = 0 ~ 5 psi  
**007** = 0 ~ 7 psi  
**015** = 0 ~ 15 psi  
**030** = 0 ~ 30 psi  
**050** = 0 ~ 50 psi  
**100** = 0 ~ 100 psi  
**150** = 0 ~ 150 psi

#### Low Pressure

**L15** = 0 ~ 0.15 psi  
**L30** = 0 ~ 0.3 psi  
**L50** = 0 ~ 0.5 psi  
**L70** = 0 ~ 0.7 psi

#### Ultra-low Pressure

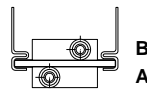
**L03** = 0 ~ 2.5 mbar  
**L07** = 0 ~ 5 mbar

#### Notes:

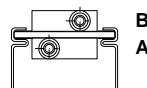
Custom ranges and units are available upon request. Please contact factory.

### Leading Direction

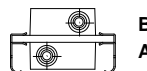
**1=** Leads opposite side as Port A



**2=** Leads same side as Port A



**3=** J-bend Leads same side as Port A



1. Port B is used for positive differential
2. Port A is used for absolute
3. Port B is used for gage

### Type of Output

**0** = 1-wire P  
**1** = 1-wire P+T  
**2** = 0.5 to 4.5 V  
**3** = 0.2 to 4.8 V  
**4** = N/A  
**5** = 0 to 1 V  
**6** = 0.2 to 4.7 V  
**7** = N/A  
**8** = I<sup>2</sup>C  
**9** = SPI  
**S** = Special

### NOTES:

1. Specifying differential pressure means a  $\pm$  pressure range.
2. Differential pressure can be specified to a maximum of +/- 150 psi.
3. Custom output, pressure range and temperature compensated range are available.
4. Negative gage normally has offset (0.5V) at 0 psi and full scale output (4.5V). Reverse is also applicable.
5. Accuracy may vary on pressure range
6. Minimum absolute pressure that can be specified is 15 psia
7. Medium is available for clean air. For other medium please contact factory.

## Characteristics

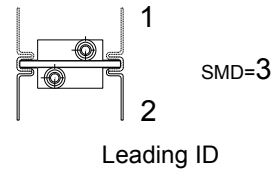
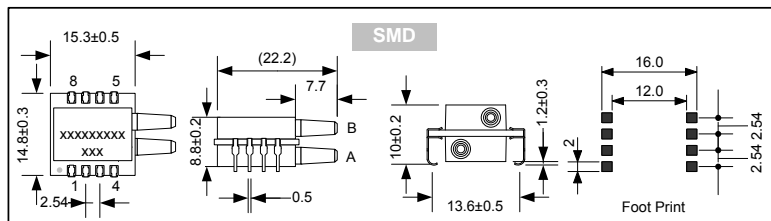
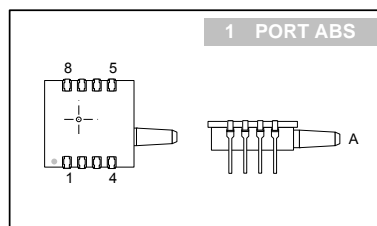
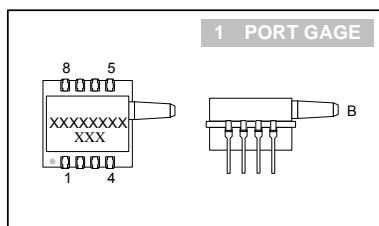
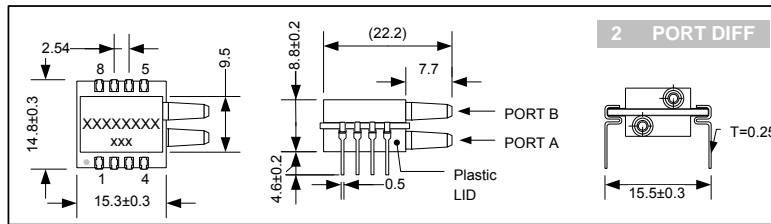
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

Parameters	Min	Typ	Max	Unit
Supply Voltage <sup>1</sup>	2.75		5.25	V
Supply Current <sup>1</sup>		2.5		mA
Pressure Range <sup>2</sup>	3		150	PSI
Zero Output <sup>4</sup>	0.428	0.50	0.572	V
Span Output <sup>4</sup>		4.00		V
Accuracy <sup>3</sup>			1.8	%FS
Linearity <sup>3</sup>	-0.5		+0.5	%FS
Thermal Hysteresis <sup>3</sup>	-0.15		+0.15	%FS
Response Time		1	2	ms
Over Pressure <sup>5</sup>			3X	Rated Pressure
Temp - Compensating	0		+50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C

NOTES:

- Supply 3V or 5V must be ordered separately.
- Smaller range and other units are also available for ordering
- Accuracy includes NOL, hysteresis, TCS and TCO over 0/50°C, BFSL definition
- For differential, offset = 2.50V, Span = ±2.00V
- 1.2X for 150 psi
- Wetted material: PA, RTV, Epoxy, ceramic, Au, nickel and silicon
- Output is ratiometric to supply voltage
- Output load resistance to Vss or Vdd: 2.5KΩ (min), 10KΩ (typ)

## Dimension



NOTE:

- Port B is used for positive differential
- Port A is used for absolute
- Port B is used for gage
- All dimensions are mm
- Tube Size: Tygon tube, 4 (o.d.) 2.5 (i.d.) mm

Pin #	Description
1	N.C.
2	V <sub>SS</sub>
3	OUT
4	V <sub>DD</sub>
5~8	N.C.

NOTES:

- N.C. pins must be left floating
- A 0.1µf capacitor must be connected between V<sub>DD</sub> and V<sub>SS</sub>
- Package : 12 pcs/tube

## Characteristics

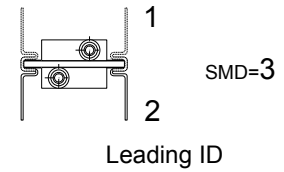
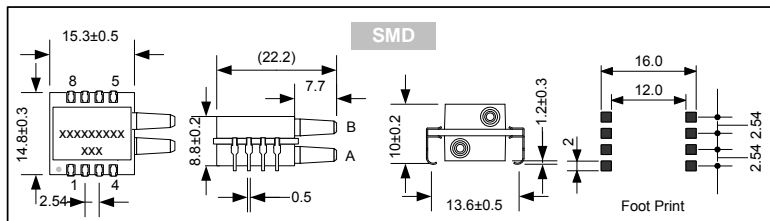
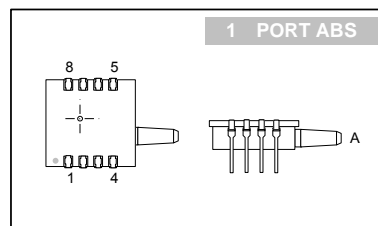
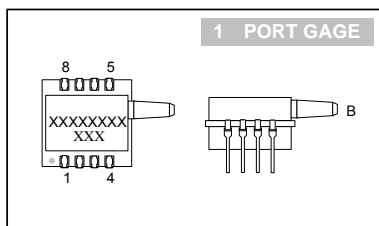
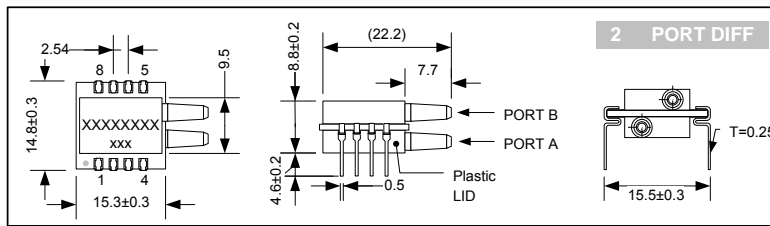
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

Parameters	Min	Typ	Max	Unit
Supply Voltage <sup>1</sup>	2.75		5.25	V
Supply Current <sup>1</sup>		2.5		mA
Pressure Range <sup>2</sup>	0.15		3	PSI
Zero Output <sup>4</sup>	0.412	0.50	0.588	V
Span Output <sup>4</sup>		4.00		V
Accuracy <sup>3</sup>			2.2	%FS
Linearity <sup>3</sup>	-0.5		+0.5	%FS
Thermal Hysteresis <sup>3</sup>	-0.15		+0.15	%FS
Response Time		1	2	ms
Over Pressure <sup>5</sup>			3X	Rated Pressure
Temp - Compensating	0		+50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C

**NOTES:**

- Supply 3V or 5V must be ordered separately.
- Smaller range and other units are also available for ordering
- Accuracy includes NOL, hysteresis, TCS and TCO over 0/50°C, BFSL definition
- For differential, offset = 2.50V, Span = ±2.00V
- Over-pressure will vary on different range
- Wetted material: PA, RTV, Epoxy, ceramic, Au, nickel and silicon
- Output is ratiometric to supply voltage
- Output load resistance to Vss or Vdd: 2.5KΩ (min), 10KΩ (typ)
- Zeroing at installation is required

## Dimension



**NOTE:**

- Port B is used for positive differential
- Port A is used for absolute
- Port B is used for gage
- All dimensions are mm
- Tube Size: Tygon tube, 4 (o.d.) 2.5 (i.d.) mm

Pin #	Description
1	N.C.
2	V <sub>SS</sub>
3	OUT
4	V <sub>DD</sub>
5~8	N.C.

**NOTES:**

- N.C. pins must be left floating
- A 0.1µf capacitor must be connected between V<sub>DD</sub> and V<sub>SS</sub>
- Package : 12 pcs/tube

## Characteristics

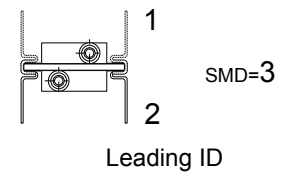
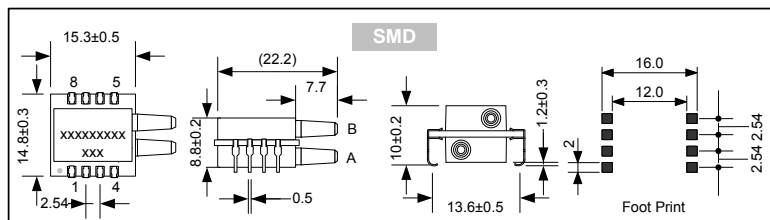
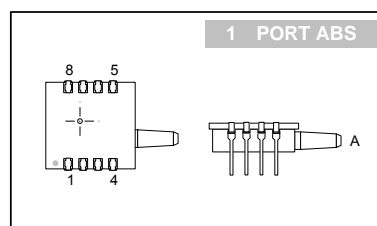
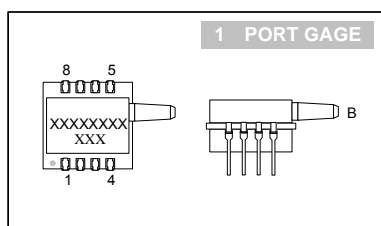
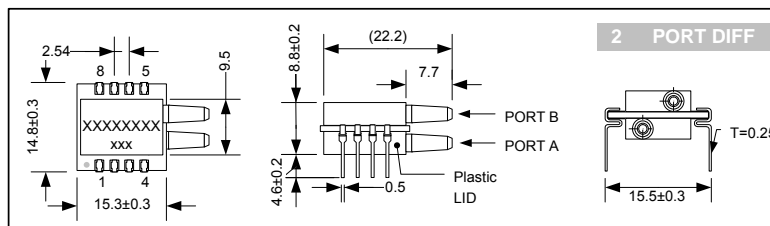
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

Parameters	Min	Typ	Max	Unit
Supply Voltage <sup>1</sup>	2.75		5.25	V
Supply Current <sup>1</sup>		2.5		mA
Pressure Range <sup>2</sup>	2.5		10	mbar
Zero Output <sup>4</sup>	0.32	0.50	0.68	V
Span Output <sup>4</sup>		4.00		V
Accuracy <sup>3</sup>			4.5	%FS
Linearity <sup>3</sup>	-1.5		+1.5	%FS
Thermal Hysteresis <sup>3</sup>	-0.3		+0.3	%FS
Response Time		1	2	ms
Over Pressure <sup>5</sup>	5X			Rated Pressure
Burst Pressure <sup>5</sup>	15X			Rated Pressure
Temp - Compensating	0		+50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C

NOTES:

- Supply 3V or 5V must be ordered separately.
- Smaller range and other units are also available for ordering
- Accuracy includes NOL, hysteresis, TCS and TCO over 0/50°C, BFSL definition
- For differential, offset = 2.50V, Span = ±2.00V
- Over-pressure will vary on different range
- Wetted material: PA, RTV, Epoxy, ceramic, Au, nickel and silicon
- Output is ratiometric to supply voltage
- Output load resistance to Vss or Vdd: 2.5KΩ (min), 10KΩ (typ)
- Zeroing at installation is required

## Dimension



NOTE:

- Port B is used for positive differential
- Port A is used for absolute
- Port B is used for gage
- All dimensions are mm
- Tube Size: Tygon tube, 4 (o.d.) 2.5 (i.d.) mm

Pin #	Description
1	N.C.
2	V <sub>SS</sub>
3	OUT
4	V <sub>DD</sub>
5~8	N.C.

NOTES:

- N.C. pins must be left floating  
**A 0.1µf capacitor must be connected between V<sub>DD</sub> and V<sub>SS</sub>**  
 Package : 12 pcs/tube

## Characteristics

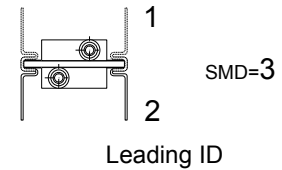
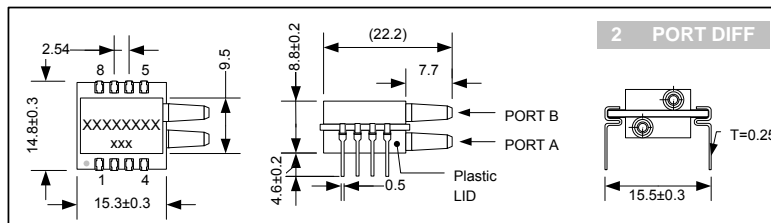
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Parameters	Min	Typ	Max	Unit
Supply Voltage <sup>1</sup>	2.75		5.25	V
Supply Current <sup>1</sup>		2.5		mA
Pressure Range <sup>2</sup>	3		150	PSI
Zero Output <sup>4</sup>	0.428	0.50	0.572	V
Span Output <sup>4</sup>		4.00		V
Accuracy <sup>3</sup>			1.8	%FS
Linearity <sup>3</sup>	-0.5		+0.5	%FS
Thermal Hysteresis <sup>3</sup>	-0.15		+0.15	%FS
Response Time		1	2	ms
Over Pressure <sup>5</sup>			3X	Rated Pressure
Temp - Compensating	0		+85	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C

NOTES:

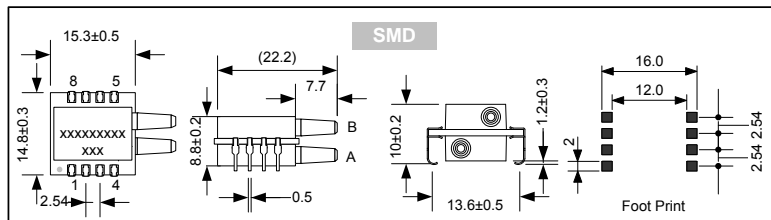
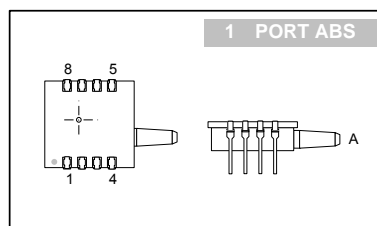
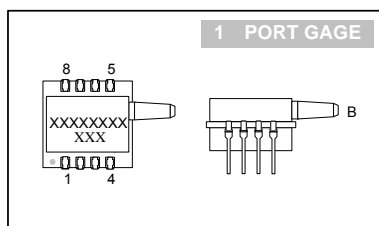
- 1. Supply 3V or 5V must be ordered separately.
- 2. Smaller range and other units are also available for ordering
- 3. Accuracy includes NOL, hysteresis, TCS and TCO over 0/50°C, BFSL definition
- 4. For differential, offset = 2.50V, Span = ±2.00V
- 5. 1.2X for 150 psi
- 6. Wetted material: PA, RTV, Epoxy, ceramic, Au, nickel and silicon
- 7. Output is ratiometric to supply voltage
- 8. Output load resistance to Vss or Vdd: 2.5KΩ (min), 10KΩ (typ)

## Dimension



NOTE:

- 1. Port B is used for positive differential
- 2. Port A is used for absolute
- 3. Port B is used for gage
- 4. All dimensions are mm
- 5. Tube Size: Tygon tube, 4 (o.d.) 2.5 (i.d.) mm



Pin #	Description
1	N.C.
2	V <sub>SS</sub>
3	OUT
4	V <sub>DD</sub>
5~8	N.C.

NOTES:

- N.C. pins must be left floating
- A 0.1µf capacitor must be connected between V<sub>DD</sub> and V<sub>SS</sub>
- Package : 12 pcs/tube

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