

FEATURES

- 0...1 to 0...100 psi,
0...±1 to 0...±100 psi
- Absolute, gage or
differential pressure
- 0.5...4.5 V ratiometric output
- Precision ASIC conditioning
- Temperature compensated

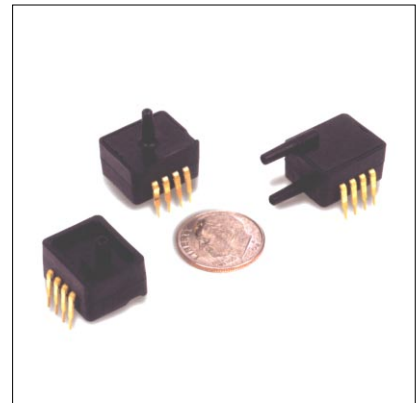
APPLICATIONS

- Medical instrumentation
- Barometry
- HVAC controls
- Pneumatic controls

GENERAL DESCRIPTION

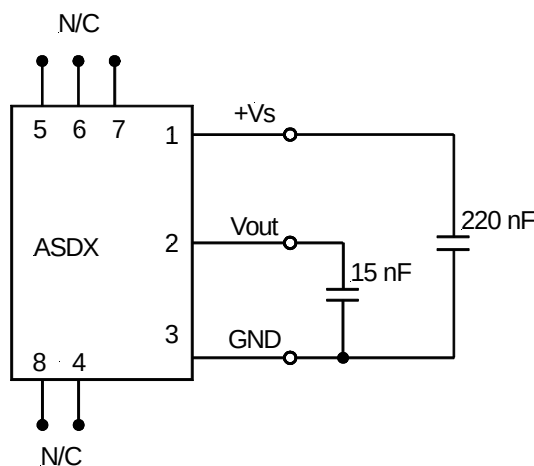
The amplified ASDX offers a high level (4.0 V span) output on a very cost-effective basis. This family is fully calibrated and temperature compensated using an on-board ASIC. These sensors are intended for use with non-corrosive, non-ionic working fluids such as air and dry gases.

Devices are available to measure absolute, differential, and gage pressures from 1 to 100 psi. The absolute devices have an internal vacuum reference and an output voltage proportional to absolute pressure. Differential devices allow application of pressure to either side of the sensing diaphragm and can be used for gage or differential measurements.



All ASDX devices are accurate to within ± 2.0 %FSS. The devices are characterized for operation from a single 5 V supply. The sensor is designed and manufactured according to standards laid down in ISO 9001.

ELECTRICAL CONNECTION



Note: Capacitor 220 nF required between +Vs and GND and 15 nF between Vout and GND.

It is important to place the capacitors as close to the pins as possible!

Pins 4, 5, 6, 7 and 8 are internal device connections and should not be connected for any reason!

PRESSURE SENSOR CHARACTERISTICS

Maximum ratings

Supply voltage V_s	4.75 V to 5.25 V _{DC} max. 6.50 V _{DC}
Output current	
Sink	2 mA
Source	2 mA
Lead temperature (2 - 4 sec.)	250 °C

Environmental specifications

Temperature ranges	
Compensated	0 to +85 °C
Operating	-20 to +105 °C
Storage	-40 to +125 °C
Vibration:	10 g at 20 - 2000 Hz
Shock:	100 g for 11 ms

Caution! The sensor is not reverse polarity protected.
Incorrect applications of excitation voltage or ground to the wrong pin can cause electrical failure.
Application of supply voltage above the maximum can cause electrical failure.

PRESSURE RANGES SPECIFICATIONS

($V_s = 5.0 V_{DC}$, $T_A = 25^\circ C$)

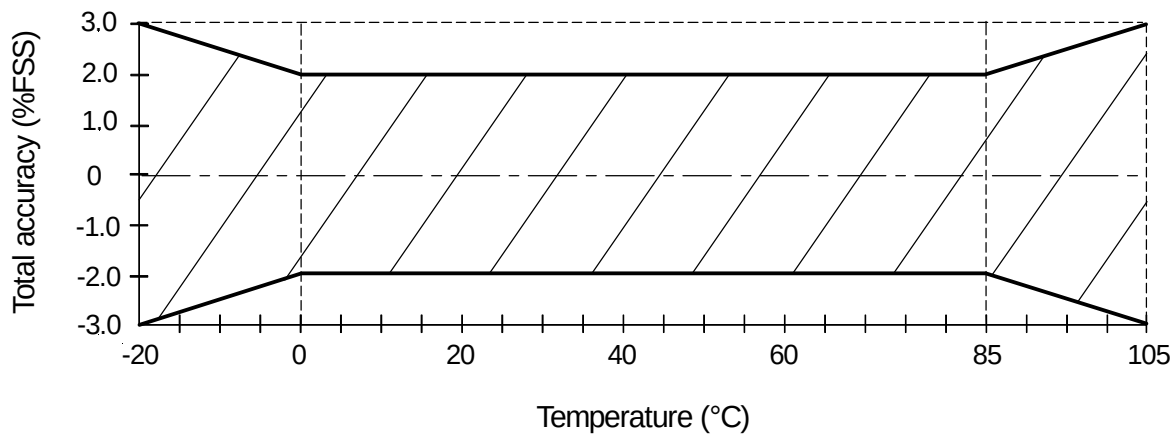
Part number	Pressure range	Burst pressure ¹	Sensitivity (typ.)
ASDX015A24R	0 to 15	30	0.267
ASDX030A24R	0 to 30	60	0.133
ASDX100A24R	0 to 100	150	0.040
ASDX001G24R / D44R	0 to 1	5	4.00
ASDX005G24R / D44R	0 to 5	20	0.80
ASDX015G24R / D44R	0 to 15	30	0.267
ASDX030G24R / D44R	0 to 30	60	0.133
ASDX100G24R / D44R	0 to 100	150	0.040
ASDX001D44D	0 to ± 1	5	2.00
ASDX005D44D	0 to ± 5	20	0.40
ASDX015D44D	0 to ± 15	30	0.133
ASDX030D44D	0 to ± 30	60	0.067
ASDX100D44D	0 to ± 100	150	0.020

PERFORMANCE CHARACTERISTICS0.5 to 4.5 V ratiometric output ($V_S = 5.0 V_{DC}$, $T_A = 25^\circ\text{C}$)**All ASDX...A24R, ...G24R, ...D44R**

Characteristics	Min.	Typ.	Max.	Units
Zero pressure offset	0.42	0.50	0.58	V
Full scale span (FSS) ²		4.00		
Full scale output	4.42	4.50	4.58	
Total accuracy (0 to 85°C) ³			±2.0	%FSS
Sample rate	100			Hz
Response delay ⁴	2.73		14.11	ms
Quantization step ⁵		3		mV
Current consumption		6		mA

All ASDX...D44D

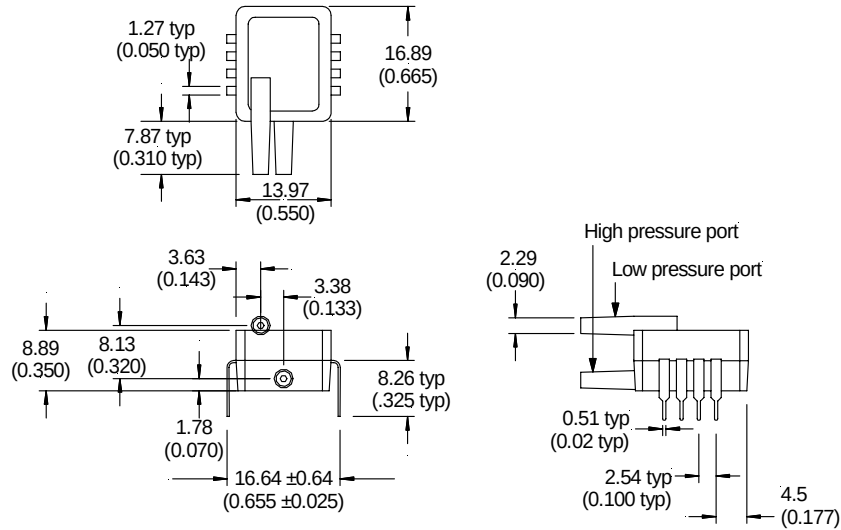
Characteristics	Min.	Typ.	Max.	Units
Zero pressure offset	2.42	2.50	2.58	V
Full scale span (FSS) ²		4.00		
Output	at max. specified pressure	4.42	4.50	
	at min. specified pressure	0.42	0.50	
Total accuracy (0 to 85°C) ³			±2.0	%FSS
Sample rate	100			Hz
Response delay ⁴	2.73		14.11	ms
Quantization step ⁵		3		mV
Current consumption		6		mA

TOTAL ACCURACY (-20 to +105°C)**Specification notes:**

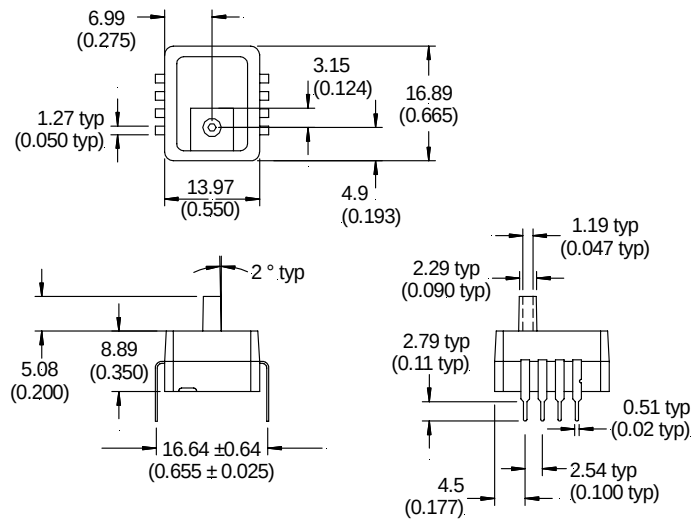
1. If maximum burst pressure is exceeded, even momentarily, the package may leak or burst, or the pressure sensing die may fracture.
2. Full Scale Span (FSS) is the algebraic difference between the output signal for the highest and lowest specified pressure. Span is ratiometric to the supply voltage.
3. Total accuracy is the combined error from offset and span calibration, linearity, pressure hysteresis, and temperature effects. Linearity is the measured deviation based on a straight line. Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure. Calibration errors include the deviation of offset and full scale from nominal values.
4. Delay time between sampling and signal change at the output.
5. The smallest change in the output voltage, given any change in pressure.

PHYSICAL DIMENSIONS

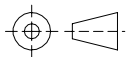
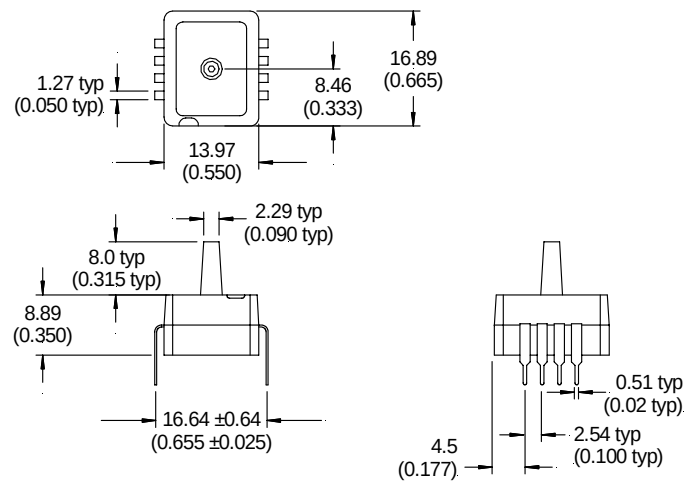
D4 package



G2 package



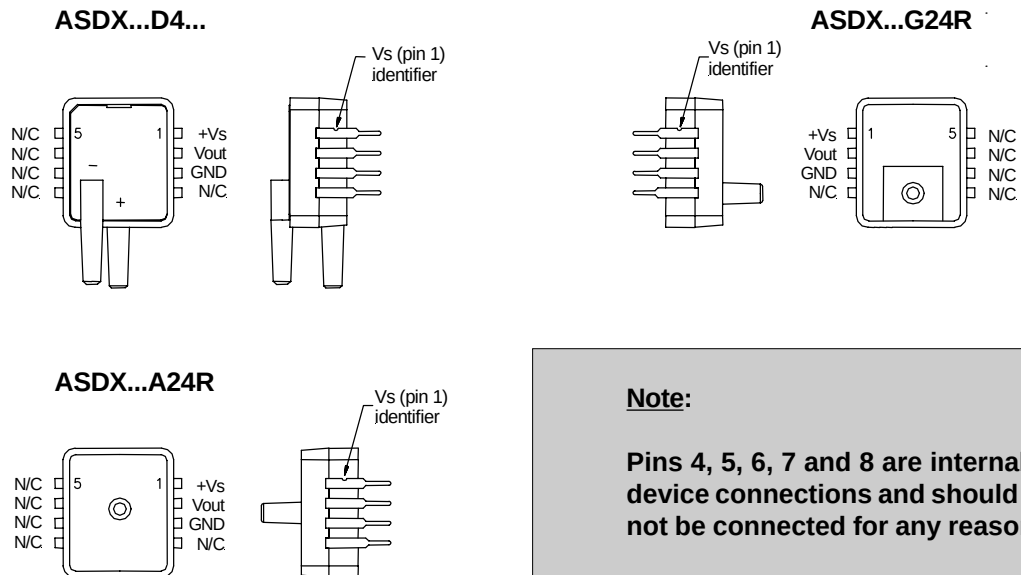
A2 package



third angle projection

dimensions in mm (inches)

ELECTRICAL CONNECTIONS



ORDERING INFORMATION

Pressure range	Absolute	Gage	Differential/Gage
0 to 1 psi	ASDX015A24R ASDX030A24R ASDX100A24R	ASDX001G24R	ASDX001D44R
0 to 5 psi		ASDX005G24R	ASDX005D44R
0 to 15 psi		ASDX015G24R	ASDX015D44R
0 to 30 psi		ASDX030G24R	ASDX030D44R
0 to 100 psi		ASDX100G24R	ASDX100D44R
0 to ±1 psi			ASDX001D44D
0 to ±5 psi			ASDX005D44D
0 to ±15 psi			ASDX015D44D
0 to ±30 psi			ASDX030D44D
0 to ±100 psi			ASDX100D44D

Other pressure ranges or calibrations are available on request

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