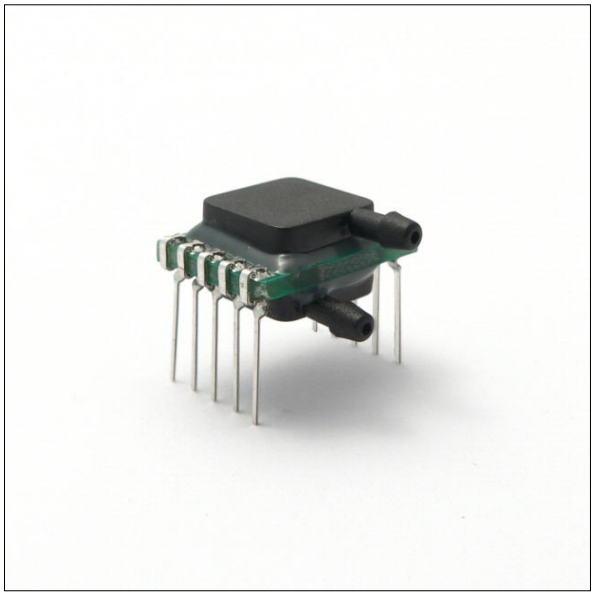
LBA Series

Low differential pressure sensors

PRELIMINARY

FEATURES

- **Pressure ranges 250 and 500 Pa (1 and 2 inch H_2O)**
- **Pressure sensor based on thermal micro-flow measurement**
- **Calibrated and temperature compensated**
- **Linear 0.5...4.5 V output**
- **High flow impedance up to 200 kPa/(ml/s)**
- **RoHS compliant**
- **Sensortechnics PRO services**



MEDIA COMPATIBILITY

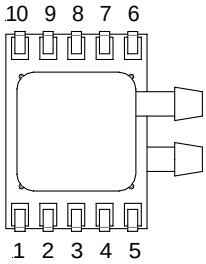
Dry air and other non-corrosive gases

SPECIFICATIONS

Maximum ratings

Supply voltage V_S	4.75 ... 5.25 V_{DC}
Output current	1 mA
Lead specifications	
Average preheating temperature gradient	2.5 K/s
Soak time	ca. 3 min
Time above 217°C	50 s
Time above 230°C	40 s
Time above 250°C	15 s
Peak temperature	260°C
Cooling temperature gradient	-3.5 K/s
Temperature ranges	
Compensated	0 ... +70 °C
Operating	-20 ... +80 °C
Storage	-40 ... +80 °C
Humidity limits (non-condensing)	97 %RH
Vibration[1]	20 g
Mechanical shock[2]	500 g

ELECTRICAL CONNECTION



Pin	Connection
1	GND
2	+Vs
3	GND (Main)
4	Vout (bidirectional devices)
5	Vout (unidirectional devices)
6, 7, 8, 9, 10	GND

Note: All GND pins 1, 3, 6, 7, 8, 9, 10 have to be connected.

Specification notes:

1. Sweep 20 to 2000 Hz, 8 min, 4 cycles per axis, MIL-STD-883, Method 2007.
2. 5 shocks, 3 axes, MIL-STD-883E, Method 2002.4.

PRELIMINARY

PRESSURE SENSOR CHARACTERISTICS

Part no.	Operating pressure	Proof pressure[6]	Burst pressure[6]
LBAS250U...	0...250 Pa/0...2.5 mbar (1 inch H_2O)	2 bar (30 psi)	2 bar (30 psi)
LBAS250B...	0...±250 Pa/0...±2.5 mbar (±1 inch H_2O)		
LBAS500U...	0...500 Pa/0...5 mbar (2 inch H_2O)		
LBAS500B...	0...±500 Pa/0...±5 mbar (±2 inch H_2O)		

PERFORMANCE CHARACTERISTICS[5]

(V_S=5.0 V_{DC}, T_A=20°C, P_{Abs}=1 bara, calibrated in air, output signal is **ratiometric** to V_S for all LBA...8... devices and **non ratiometric** to V_S for all LBA...6... devices)

Characteristics			Min.	Typ.	Max.	Unit
Non-linearity				±(1.5 % of reading + 0.2 %FSO)	±(2.0 % of reading + 0.2 %FSO)	
Thermal effects	Offset	5...55 °C			±25	mV
		0...70 °C			±40	
	Span	5...55 °C			±1.75	%
		0...70 °C			±2.5	
Total accuracy[3]		5...55 °C			±(1.5 % of reading + 1.5 %FSS)	
		0...70 °C			±(3.5 % of reading + 1.5 %FSS)	
Offset warm-up shift				±1	±5	mV
Offset long term stability[7]				±0.3		% p.a.
Current consumption (no load)				4	5	mA
Response time (t_{63})				1-2		ms
Power-on time					10	

Unidirectional devices

Characteristics	Min.	Typ.	Max.	Unit
Zero pressure offset[4]	0.47	0.50	0.53	V
Full scale span[4]	3.94	4.00	4.00	
Full scale output		4.50		

Bidirectional devices

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset[4]		2.47	2.50	2.53	V
Full scale span[4]		3.94	4.00	4.00	
Output	at max. specified pressure		4.50		
	at min. specified pressure		0.50		

Specification notes (cont.):

3. Total accuracy is the combined error from offset and span calibration, linearity, pressure hysteresis and temperature effects.
4. Min. and Max. values are calculated for 5...55 °C temperature range.
5. The sensor is calibrated with a common mode pressure of 1 bar absolute. Due to the mass flow based measuring principle, variations in absolute common mode pressure need to be compensated according to the following formula:

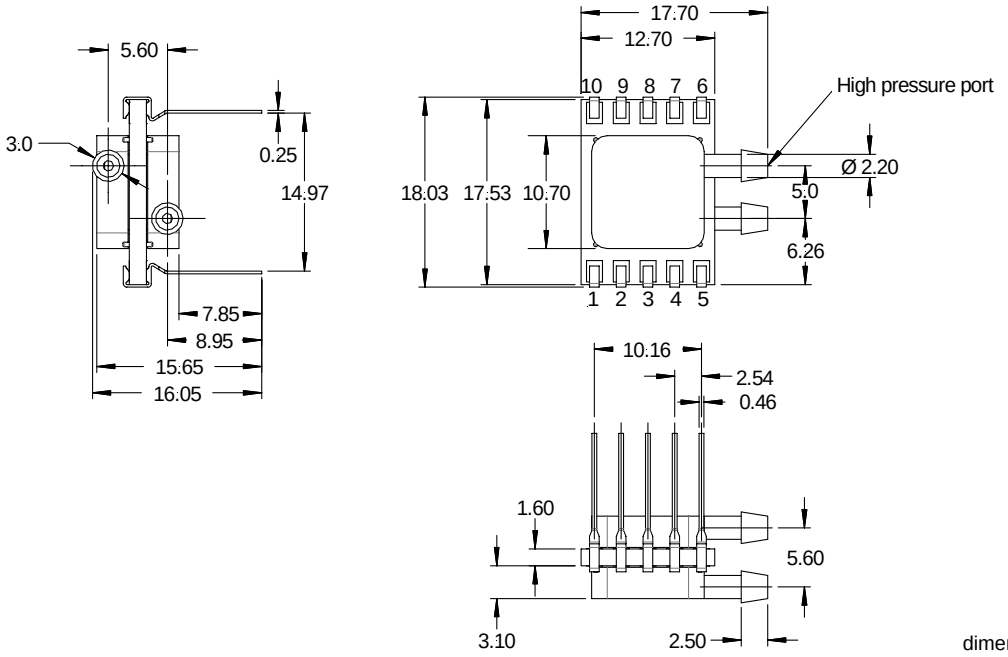
$$\Delta P_{eff} = \Delta P_{sensor} \times \frac{1\,bara}{P_{abs}}$$

ΔP_{eff} = True differential pressure
ΔP_{sensor} = Differential pressure as indicated by output voltage
P_{abs} = Current absolute common mode pressure

6. The max. common mode pressure is 2 bar.
7. Figure based on accelerated lifetime test corresponding to 1 year of life.

PRELIMINARY

OUTLINE DRAWING



dimensions in mm

ORDERING INFORMATION

	Series	Pressure range		Calibration		Housing		Output		Grade	
Options	**LBA**	**S250**	250 Pa (1 inch H_2O)	**B**	Bidirectional	**F**	DIP, 2 ports same side	**6**	0.5...4.5 non ratiometric	**S**	High
		S500	500 Pa (2 inch H_2O)	**U**	Unidirectional			**8**	0.5...4.5 ratiometric		
Example:	**LBA**	**S250**		**B**		**F**		**8**		**S**	

Sensortechnics PRO services:

- Extended warranty period of 2 years
- Advanced logistics models for supply inventory and short delivery times
- Technical support through application engineers on the phone or at your site
- Fastest possible technical response for design and QA engineers

... plus other services on request