



LBA Series

Low differential pressure sensors

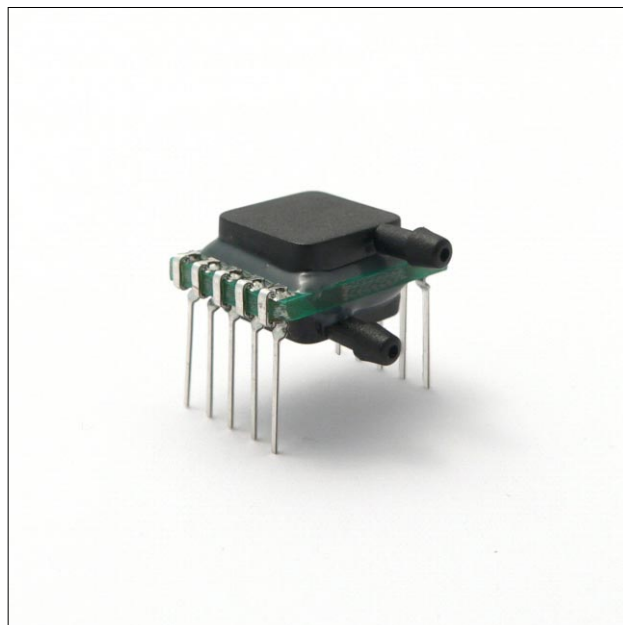
PRELIMINARY

FEATURES

- Pressure ranges 250 and 500 Pa (1 and 2 inch H₂O)
- 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
- Sensortek 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

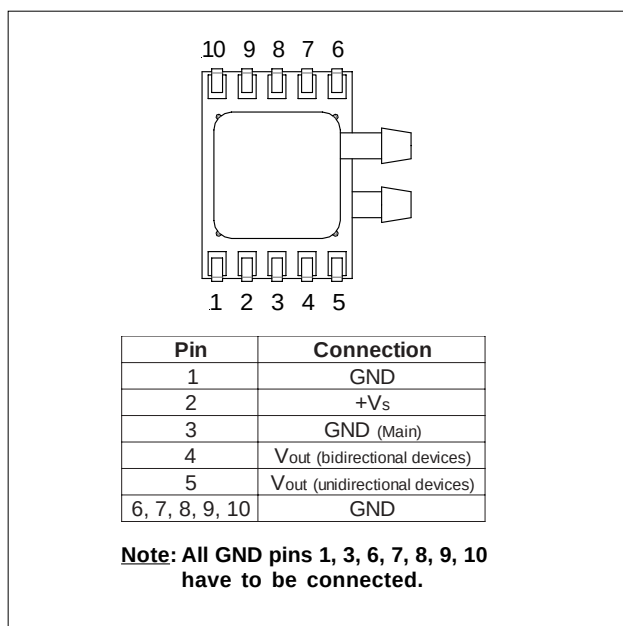
Storage -40 ... +80 °C

Humidity limits (non-condensing) 97 %RH

Vibration¹ 20 g

Mechanical shock² 500 g

ELECTRICAL CONNECTION



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.



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PRESSURE SENSOR CHARACTERISTICS

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

PERFORMANCE CHARACTERISTICS⁵

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

- Total accuracy is the combined error from offset and span calibration, linearity, pressure hysteresis and temperature effects.
- Min. and Max. values are calculated for 5...55 °C temperature range.
- 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:

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

ΔP_{eff} = True differential pressure

ΔP_{sensor} = Differential pressure as indicated by output voltage

P_{abs} = Current absolute common mode pressure

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

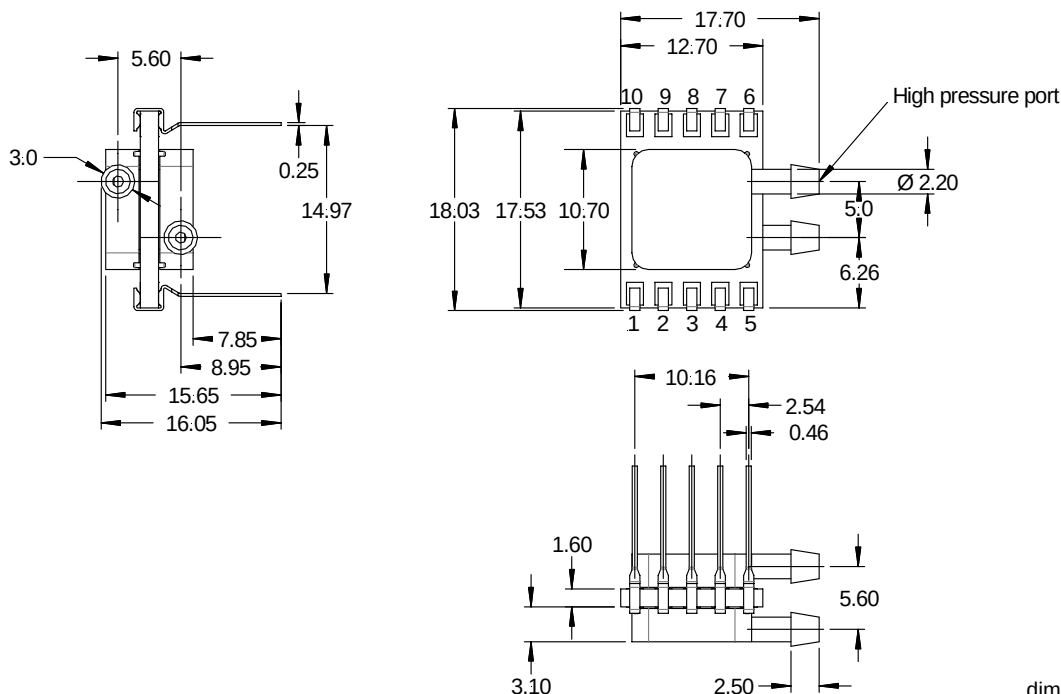


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OUTLINE DRAWING



dimensions in mm

ORDERING INFORMATION

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

Sensortech 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

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