

# LBA Series D-grade

## Low differential pressure sensors

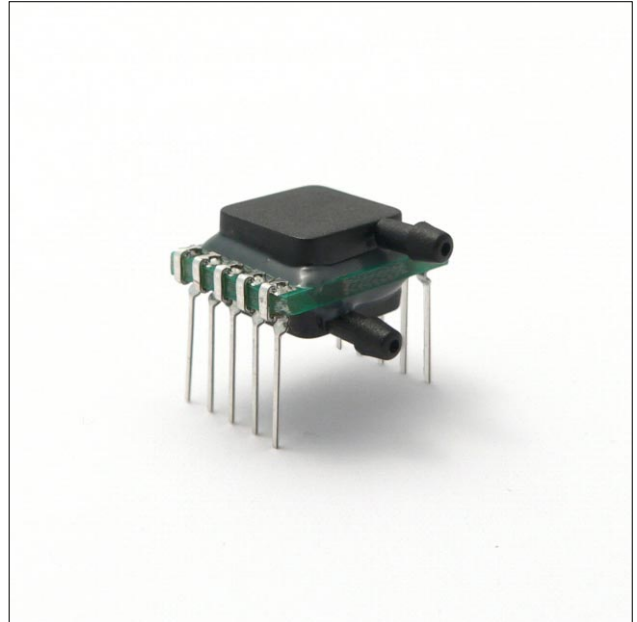
### SPEC PROPOSAL

#### FEATURES

- Pressure ranges 250, 500 and 1250 Pa (1, 2 and 5 inH<sub>2</sub>O)
- Pressure sensor based on thermal micro-flow measurement
- Calibrated and temperature compensated
- High flow impedance
- RoHS compliant

#### 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

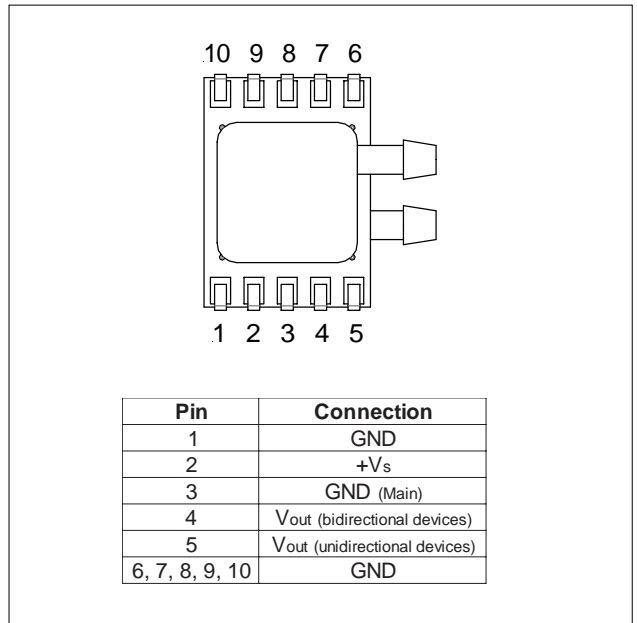
Compensated 5 ... +55 °C

Operating -20 ... +80 °C

Storage -40 ... +80 °C

Humidity limits (non-condensing) 0 ... +85 %RH

#### ELECTRICAL CONNECTION



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### PRESSURE SENSOR CHARACTERISTICS

Part no.	Operating pressure
LBAS250U...	0...250 Pa/0...2.5 mbar (1 inH <sub>2</sub> O)
LBAS250B...	0...±250 Pa/0...±2.5 mbar (±1 inH <sub>2</sub> O)
LBAS500U...	0...500 Pa/0...5 mbar (2 inH <sub>2</sub> O)
LBAS500B...	0...±500 Pa/0...±5 mbar (±2 inH <sub>2</sub> O)
LBAH005U...	0...1250 Pa/0...12.5 mbar (5 inH <sub>2</sub> O)
LBAH005B...	0...±1250 Pa/0...±12.5 mbar (±5 inH <sub>2</sub> O)

### PERFORMANCE CHARACTERISTICS<sup>2</sup>

(V<sub>S</sub>=5.0 V<sub>DC</sub>, T<sub>A</sub>=20°C, P<sub>Abs</sub>=1 bara, calibrated in air, output signal is non ratiometric to V<sub>S</sub>)

Characteristics		Min.	Typ.	Max.	Unit	
Dynamic range			>10,000			
Resolution	5...55 °C	up to 20 % of FSO		0.01	%FSO	
		near 100 % of FSO		0.1		
Non-linearity <sup>1</sup>	5...55 °C	up to 20 % of FSO		±2	%FSO	
	23 °C	near 100 % of FSO		-75...-125		
Thermal effects	5...55 °C	Offset	unidirectional devices		±15	mV
			bidirectional devices		±12	
		Span	up to 20 % of FSO	±2.0	%FSO	
	near 100 % of FSO	±15				
Offset warm-up shift				±2	mV	
Current consumption (no load)			4.0		mA	
Response time (t <sub>63</sub> )			2		ms	

#### Unidirectional devices

Characteristics	Min.	Typ.	Max.	Unit
Zero pressure offset	0.49	0.50	0.51	V
Full scale span		3.50		
Full scale output	3.30	4.00	4.70	

#### Bidirectional devices

Characteristics	Min.	Typ.	Max.	Unit
Zero pressure offset	2.49	2.50	2.51	V
Full scale span		1.75		
Output	at max. specified pressure	3.90	4.25	
	at min. specified pressure		0.75	

#### Specification notes:

1. Measured as deviation from straight line corresponding to Low-ΔP-Sensitivity.
2. 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<sub>eff</sub> = True differential pressure

ΔP<sub>sensor</sub> = Differential pressure as indicated by output voltage

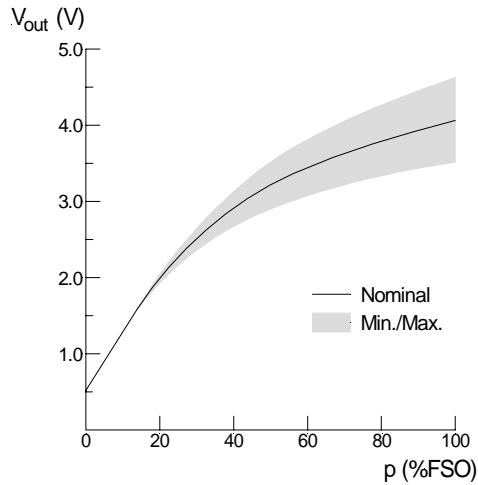
P<sub>abs</sub> = Current absolute common mode pressure

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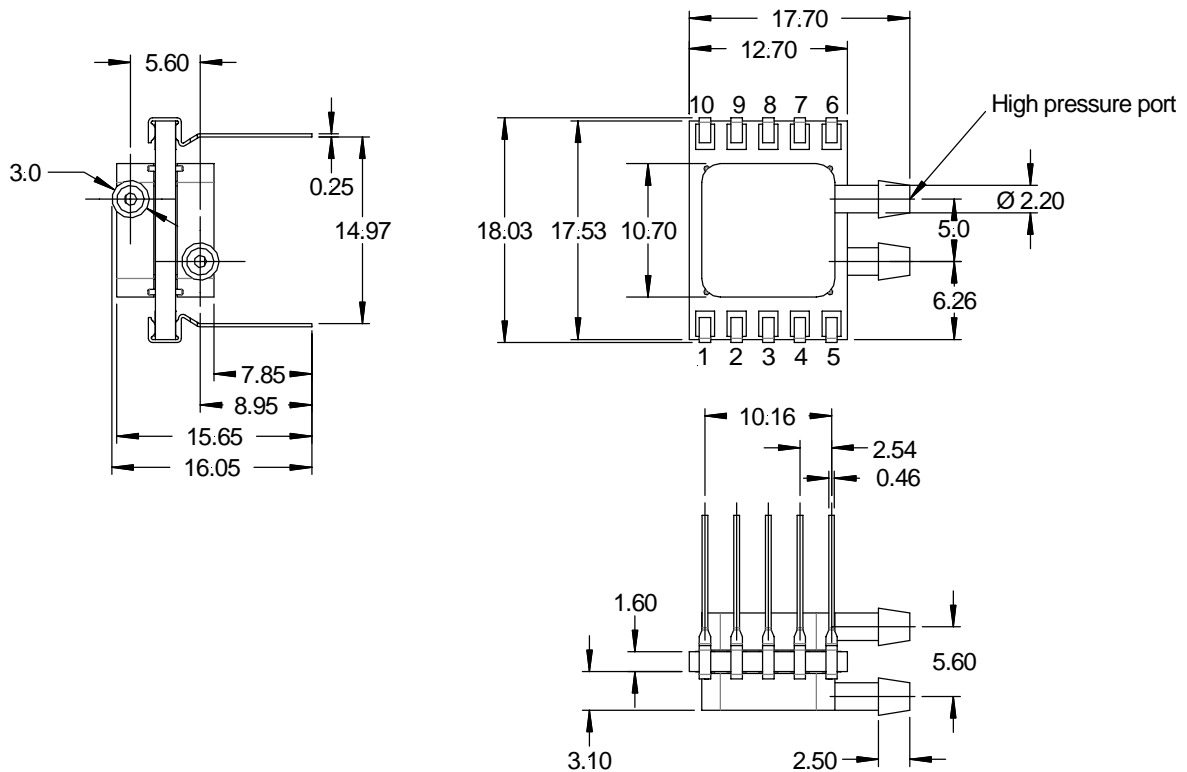
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### SPEC PROPOSAL

#### SENSOR OUTPUT CURVE (unidirectional devices)



#### OUTLINE DRAWING



dimensions in mm

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