HPSD 3000 PRESSURE TRANSDUCER

- **Single 5 V supply voltage**
- **High accuracy**
- **Ultra low to high pressure range**
- **High-Performance OEM applications**

The Pressure Transducer model HPSD 3000 is a pressure sensing device with
high performance and accuracy that enables use of this transducer in many applications with dry air or non-corrosive gases and liquids. Signal conditioning consists of complete temperature compensation and ASIC. The HPSD 3000 is designed for through hole PCB assembly with one or two pressure ports.

Applications:

HVAC
Air flow monitoring
Medical instrumentation
Process control
Respirators
Pneumatics control

Ultra low pressure range

Specifications			
Pressure range	1 mbar (100 Pa)	2.5 mbar (250 Pa)	5 mbar (500 Pa)
Pressure types	differential / gauge / bidirectional differential		
V_{out}	0.5 to 4.5 V		
Operating Temp	-25 to 85° C		
Compensated Temp.	0 to 70° C		
Storage Temp	-40 to 125° C		
Over pressure	100 mbar		
Burst pressure	150 mbar		

Low pressure range

Specifications				
Pressure range	10 mbar (0.15 psi)	20 mbar (0,3 psi)	50 mbar (0,8 psi)	100 mbar (1,5 psi)
Pressure types	differential / gauge / bidirectional differential			
V_{out}	0.5 to 4.5 V			
Operating Temp	-25 to 85° C			
Compensated Temp.	0 to 70° C			
Storage Temp	-40 to 125° C			
Over pressure	100 mbar	200 mbar	500 mbar	1 bar
Burst pressure	150 mbar	300 mbar	750 mbar	1.5 bar

High pressure range

Specifications					
Pressure range	350 mbar (5 psi)	1 bar (15 psi)	2 bar (30 psi)	4 bar (60 psi)	7 bar (100 psi)
Pressure types	differential / gauge / bidirectional differential / absolute				
V_{out}	0.5 to 4.5 V				
Operating Temp	-25 to 85° C				
Compensated Temp.	0 to 70° C				
Storage Temp	-40 to 125° C				
Over pressure	1 bar	3 bar	6 bar	8 bar	14 bar
Burst pressure	1.7 bar	5 bar	10 bar	12 bar	21 bar

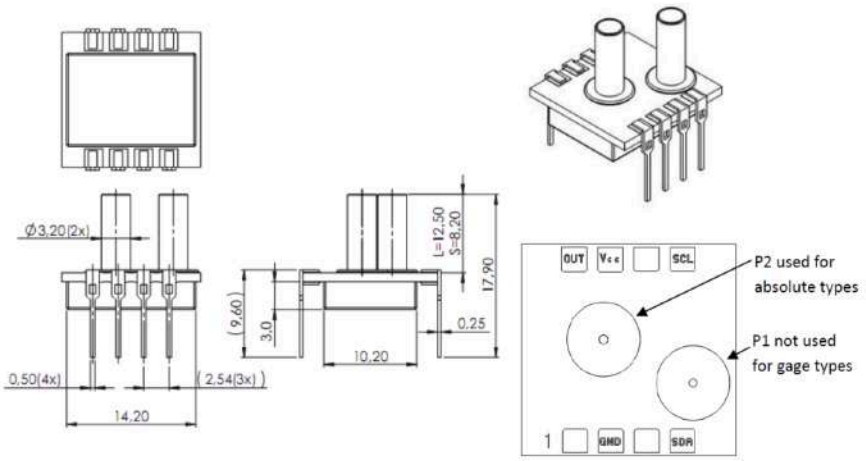
Performance characteristics **TAMB = 25° C** **Vcc = 5 V, unless otherwise noted**

Parameter	Unit	Min.	Typ.	Max.
Power supply				
Supply voltage V_{cc}	V	4.75		5.25
Current consumption I_{cc}	mA		4	6.5
Analog output (pressure)				
Offset voltage V_O	V		0.50	
Full scale output (FSO) V_{FS}	V		4.50	
Full scale span (FSS) V_{FSO}	V		4.00	
Offset voltage (bidirectional devices) V_O	V		2.50	
Digital output (pressure), 15 bits				
Offset voltage VO	counts		3277	
Full scale output (FSO) V_{FS}	counts		29491	
Full scale span (FSS) V_{FSO}	counts		26214	
Offset voltage (bidirectional devices) V_O	counts		16384	
Digital output (temperature), 15 bits				
Temperature output @ 0° C	counts		8192	
Temperature output @ 70° C	counts		24576	
Accuracy (pressure) @ 25°C				
Ultra Low pressure (1 to 10 mbar)	%FSO		0.5	±1.5
Low pressure (20 to 100 mbar)	%FSO		0.2	±1.0
Standard pressure (all other)	%FSO		0.1	±0.3
Total accuracy (pressure) @ 0 to 70° C				
Ultra Low pressure (1 to 10 mbar)	%FSO		1	±2
Low pressure (20 to 100 mbar)	%FSO		0.5	±1.5
Standard pressure (all other)	%FSO		0.3	±0.5
Resolution				
A/D converter				15
D/A converter			11	
Response time	ms		1.5	
Repeatability	%FSO		±0.05	
Nonlinearity / pressure hysteresis (BFSL)	%FSO		±0.1	±0.3
Load resistance	k	2		∞
Media compatibility	see spec. note			
Weight	g		3	

Specification notes

1) Over pressure is the maximum pressure which may be applied without causing damage to the sensing element
2) Burst pressure is the maximum pressure which may be applied without causing leakage damage to the sensing element
3) Analog output signal is ratiometric to power supply Vcc, digital signal is not ratiometric to the power supply.
4) Offset voltage is the voltage output at zero pressure.
5) Full scale output is the voltage output at full pressure range.
6) Full scale span is the algebraic difference between the output at full scale pressure range and offset.
7) Digital output signal (temperature) is not ratiometric to power supply Vcc. Temperature data are read directly on the sensing element.
8) Accuracy includes all effects (offset, span, nonlinearity, pressure hysteresis and repeatability) at room temperature and represents maximum deviation of transducer signal from ideal characteristic.
9) Total accuracy includes all effects (offset, span, nonlinearity, pressure hysteresis and repeatability) included with all temperature effects of offset and span. It describes overall error and represents maximum deviation of transducer signal from ideal characteristic in compensated temperature range from 0 to 70°C.
10) Repeatability is defined as typical deviation of the output signal after 10 pressure cycles.
11) Nonlinearity is defined as the BFSL (best fit straight line) across entire pressure range
12) Media compatibility: on pressure port P1: clean, dry and noncorrosive gases to silicone, RTV, ceramics, Al2O3, Pyrex, LCP plastics, epoxy, solder, tin.
13) Media compatibility: on pressure port P2: noncorrosive gases or liquids to silicone, Pyrex, RTV, ceramics Al2O3, solder, tin.

Dimensions


Ø3,20(2x)
L=12,50
S=8,20
17,90
(9,60)
3,0
0,25
10,20
0,50(4x)
(2,54(3x))
14,20
OUT
Vcc
SCL
SDA
GND
1
P2 used for
absolute types
P1 not used
for gage types

Ordering information

(Please use the characters in the chart below to create your product code)

Sample Code HPSD3000 - 020M - G - B - P - L

Pressure range

See table below*

Pressure Type

D	differential
G	gauge pressure
A	absolute (for ps 1 bar)

Pressure direction

0	0 to press range
B	bidirectional

Pressure Port

P	Positive Pressure on P1
N	Positive Pressure on P2

Contact Pins

S	Short (8.3 mm)
L	Long (12.5 mm)

Pressure Range								
mBar	1	2.5	5	10	20	50	100	350
Order Code	001M	2P5M	005M	010M	020M	050M	100M	350M

Pressure Range				
Bar	1	2	4	7
Order Code	001B	002B	004B	007B

If you require a customized solution for your program contact our sales team.