



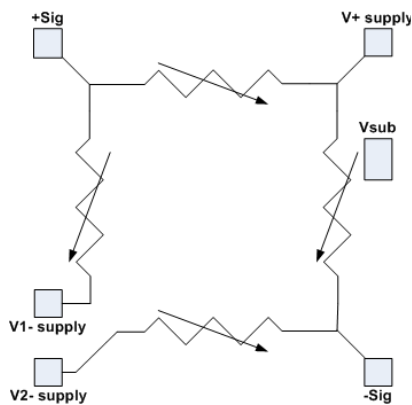
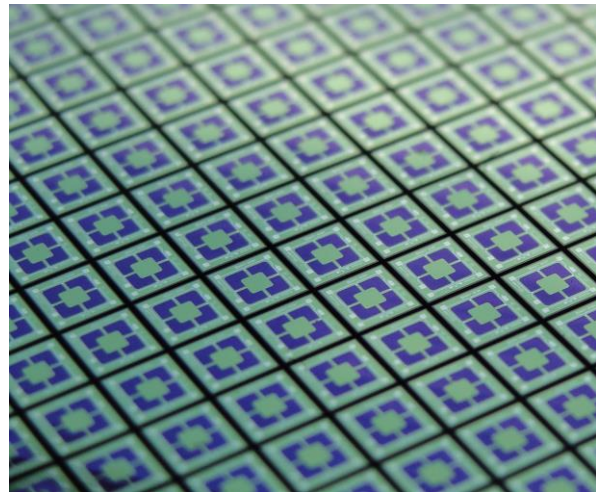
# Acuity Series AC3050 10 mBar Very Low Pressure Sensor Die

Acuity Incorporated  
Fremont, California  
USA 94539

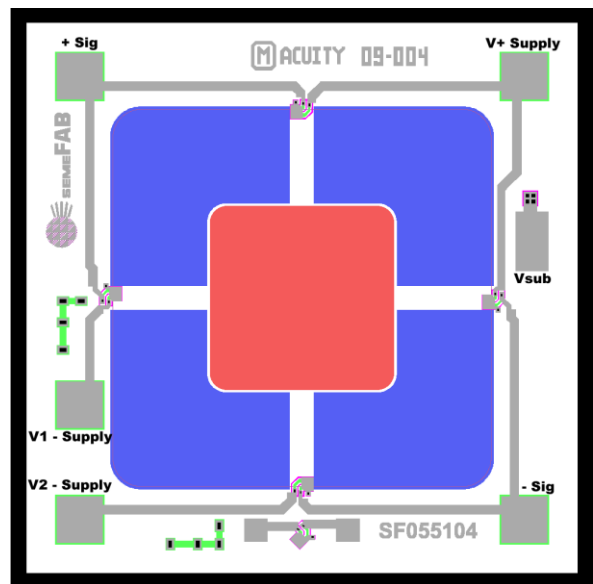
The AC3050 series of very low pressure die is an extension of the AC3030 low pressure series to reach even lower full scale ranges. Despite a die size that is much smaller than traditional low-pressure die, it provides improved zero-stability, reduced g-sensitivity and reduced sensitivity to humidity. This added stability permits use with added amplification to achieve accurate performance in ranges much lower than its nominal 10 mBar rating.

The AC3050 is based on the same structure and sensing element of the AC3030 but optimized for 10 mBar full-scale and below. While it is a slightly larger layout (1.9 mm square), it remains much smaller than traditional low-pressure die. It can be further amplified for lower pressure sensitivity. In addition to these standard pressure ranges, the die is available for higher full-scale ranges on a special order basis.

Suitable for a wide range of packages, it is particularly designed for low-pressure differential sensing in such applications as HVAC, air-flow and a variety of industrial pressure and flow applications.



Equivalent Circuit Diagram



Pin-out of Acuity AC3050  
Low-Pressure Die

+ Sig increases and -Sig decreases  
when pressure is applied to the top of the die



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Specification	Acuity Low Pressure Sensor - AC3050					Note
		Min	Nominal	Max	Unit	
<b>Mechanical</b>						
Stepping size	X	1.899	1.900	1.901	mm	
	Y	1.899	1.900	1.901	mm	
Unconstrained wafer thickness	Z	0.401	0.406	0.411	mm	
<b>Electrical</b>						
<b>Resistance</b>						
Bridge resistance		3.25	3.70	4.25	kohms	1
TCR		2300	2800	3100	ppm/degree C	2
Resistance Ratiometricity		-1.0	0.1	1.0	%	3
<b>Offset</b>						
Offset - No Pressure		-100.0	0.0	25.0	mV	1
Offset Ratiometricity		-0.2	0	0.2	mV/V	3
TCO		-25	2	25	microV/V/degree C	2
<b>Leakage</b>						
Current Leakage - individual		0.1	2.1	20	nA	4
<b>Sensitivity</b>						
Sensitivity		30	55	82	mV	5
TCS		-2100	-1800	-1400	ppm/degree C	2
Pressure Nonlinearity		-0.75	0.15	0.75	%	6
Pressure Nonlinearity - F/B		-1.25	0.15	1.25	%	7
<b>Mechanical Pressure</b>						
<b>Full Scale Pressure Ranges</b>		<b>10</b>			<b>mBar</b>	<b>8</b>
Overpressure - Burst		>30X			FS Pressure	
Overpressure - Proof		>10X			FS Pressure	

**Note**

- 1 Measured at 5.0 volts
- 2 Measured at +25 and +75 °C, normalized by reading at 25 °C
- 3 Measured at -2.5 and 5.0 Volts, normalized by reading at 5.0 volts
- 4 Measured from VSub substrate contact to any Resistor Pad at 10 V
- 5 Full scale output at 5 Volt drive and rated pressure
- 6 1/2 TBNL (Terminal Base Nonlinearity at 0, 50%, and 100% FS) with topside pressure
- 7 Ratio of sensitivity with +FS and - FS pressures applied
- 8 For custom pressure ranges, consult Acuity.

**Ordering Information:**

**AC3050-XXX**

where XXX=010 for 10 mBar.

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