



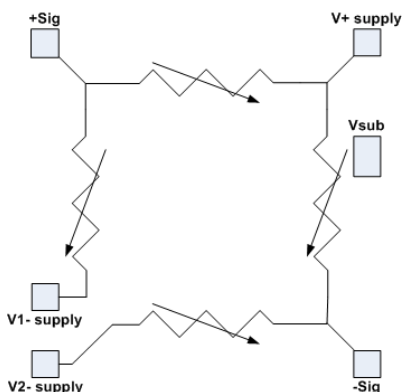
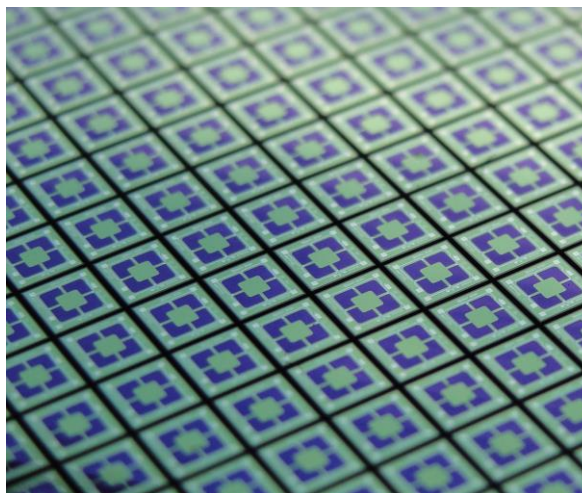
# Acuity Series AC3055 10 mBar High Linearity Pressure Sensor Die

**Acuity Incorporated**  
Fremont, California  
USA 94539

The AC3055 series of very low pressure die is an extension of the AC3050 low pressure series, meant specifically for passive compensation sensor modules. 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.

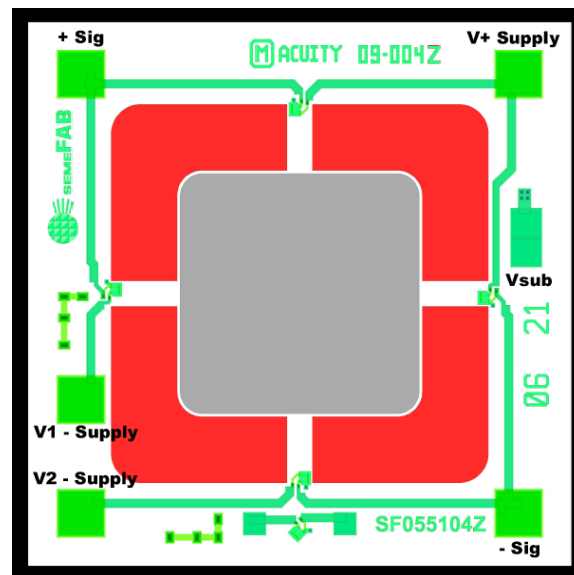
The AC3055 is based on the same structure and sensing element of the AC3050 but optimized for improved linearity in the 10 mBar full-scale range. The improved linearity of upwards of 3X over the AC3050 comes at a small sacrifice in maximum sensitivity of about 85% of the AC3050 die. In addition to these 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 where the die may be used in an uncompensated package or in a passively compensated design where no correction can be made for linearity errors. The AC3055 finds uses in such applications as HVAC, air-flow and a variety of industrial pressure and flow applications.



### Equivalent Circuit Diagram

*For maximum performance, VSub should be tied to the highest voltage in the circuit.*



### Pin-out of Acuity AC3055 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 - AC3055				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		24	40	60	mV	5
TCS		-2100	-1800	-1400	ppm/degree C	2
Pressure Nonlinearity		-0.25	0.08	0.25	%	6
Pressure Nonlinearity - F/B		-0.25	0.08	0.25	%	7
<b>Mechanical Pressure</b>						
Full Scale Pressure Ranges		10			mBar	8
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:**

**AC3055-XXX**

where XXX=010 for 10 mBar.

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