



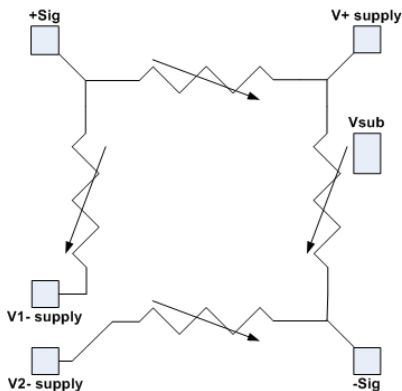
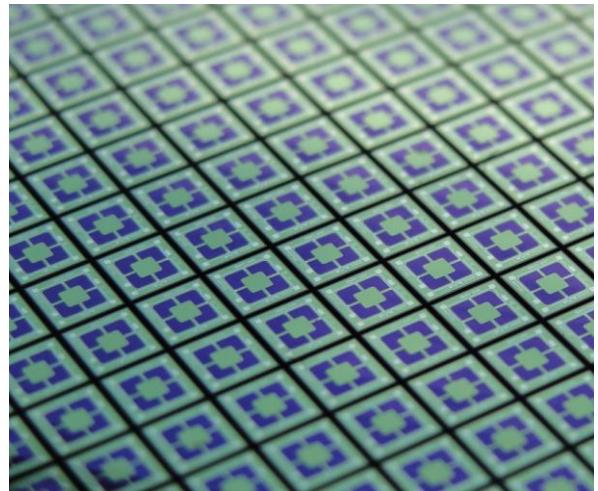
Acuity Series AC3055 10 mBar High Linearity Pressure Sensor Die

Acuity Incorporated
Fremont, California
USA 94539

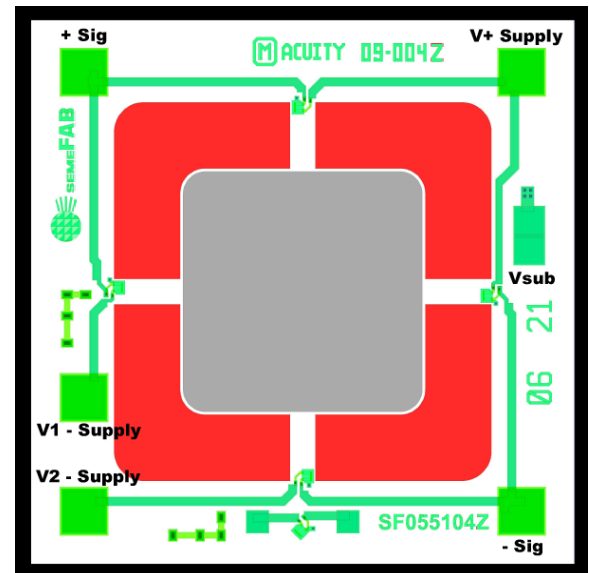
The AC3055 series of very low pressure die is an extension of the AC3050 low pressure series, meant specifically for passive compensation sensor modules. Despite a die size that is much smaller than traditional low-pressure die, it provides improved zero-stability, reduced g-sensitivity and reduced sensitivity 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 medical ventilation and respiration, HVAC, air-flow and a variety of industrial pressure and flow applications.



Equivalent Circuit Diagram



**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	
Mechanical						
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	
Electrical						
Resistance						
Bridge resistance		3.30	3.70	4.20	kohms	1
TCR		2400	2800	3100	ppm/degree C	2
Resistance Ratiometricity		-1.0	0.1	1.0	%	3
Offset						
Offset - No Pressure		-100.0	0.0	25.0	mV	1
Offset Ratiometricity		-0.2	0	0.2	mV/V	3
TCO		-20	2	20	microV/V/degree C	2
Leakage						
Current Leakage - individual		0.1	2.5	20	nA	4
Sensitivity						
Sensitivity		24	40	60	mV	5
TCS		-2200	-1900	-1600	ppm/degree C	2
Pressure Nonlinearity		-0.25	0.08	0.25	%	6
Pressure Nonlinearity - F/B		-0.25	0.08	0.25	%	7
Mechanical Pressure						
Full Scale Pressure Ranges		10			mBar	8
Overpressure - Burst		>15X			FS Pressure	
Overpressure - Proof		>5X			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)
- 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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