

PERFORMANCE SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Conditions	Min.	Typ.	Max	Unit
Supply voltage	V _{DD}		-0.3		+3.6	V
Storage temperature ⁽³⁾	T _S		-40		+125	°C
Overpressure	P _{max}	ISO6425 ⁽¹⁾			30	bar
Maximum Soldering Temperature ⁽²⁾	T _{max}	40 sec max			250	°C
ESD rating		Human Body Model	-4		+4	kV
Latch up		JEDEC standard No 78	-100		+100	mA

⁽¹⁾ The MS5807-05BA is qualified referring to the ISO 6425 standard and can withstand an absolute pressure of 30 bar in salt water.

⁽²⁾ Refer to application note 808

⁽³⁾ Storage in an environment of dry and non-corrosive gases

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Min.	Typ.	Max	Unit
Operating Supply voltage	V _{DD}		1.8	3.0	3.6	V
Operating Temperature	T		-40	+25	+85	°C
Supply current (1 sample per sec.)	I _{DD}	OSR 4096 2048 1024 512 256		12.5 6.3 3.2 1.7 0.9		μA
Peak supply current		during conversion		1.4		mA
Standby supply current		at 25°C		0.02	0.14	μA
VDD Capacitor		From VDD to GND	100			nF

ANALOG DIGITAL CONVERTER (ADC)

Parameter	Symbol	Conditions	Min.	Typ.	Max	Unit
Output Word				24		bit
Conversion time ⁽⁴⁾	t _c	OSR 4096 2048 1024 512 256	7.40 3.72 1.88 0.95 0.48	8.22 4.13 2.08 1.06 0.54	9.04 4.54 2.28 1.17 0.60	ms

⁽⁴⁾ Maximum values must be used to determine waiting times in I2C communication

PERFORMANCE SPECIFICATIONS (CONTINUED)

PRESSURE OUTPUT CHARACTERISTICS ($V_{DD} = 3\text{ V}$, $T = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Conditions	Min.	Typ.	Max	Unit
Operating Pressure Range	P_{range} Full Accuracy	0		5	bar
Absolute Accuracy, autozero at one pressure point 300...1100 mbar ⁽¹⁾	at 20°C, 300..1100 mbar	-1.5		+1.5	mbar
	at 0..50°C, 300..1100 mbar	-4.0		+4.0	
	at -40..85°C, 300..1100 mbar	-15.0		+15.0	
Absolute Accuracy, autozero at one pressure point 0...5000 mbar ⁽¹⁾	at 20°C, 0..5000 mbar	-80		+80	mbar
	at 0..50°C, 0..5000 mbar	-100		+100	
	at -40..85°C, 0..5000 mbar	-120		+120	
Maximum error with supply voltage ⁽³⁾	$V_{DD} = 1.8\text{ V} \dots 3.6\text{ V}$		+/-5		mbar
Long-term stability ⁽²⁾			+/-1		mbar/yr
Resolution RMS	OSR		0.036		mbar
	4096		0.054		
	2048		0.081		
	1024		0.126		
	512		0.195		
	256				

(1) Wet/dry cycle: sensor must be dried typically once a day.

(2) The long-term stability is measured with non-soldered devices.

(3) With autozero at 3V point

TEMPERATURE OUTPUT CHARACTERISTICS ($V_{DD} = 3\text{ V}$, $T = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Conditions	Min.	Typ.	Max	Unit
Absolute Accuracy	0..85°C	-2.5		+2.5	°C
	-40..85°C	-5.0		+5.0	
Maximum error with supply voltage ⁽⁴⁾	$V_{DD} = 1.8\text{ V} \dots 3.6\text{ V}$		+/-0.5		°C
Resolution RMS	OSR		0.002		°C
	4096		0.003		
	2048		0.005		
	1024		0.008		
	512		0.012		
	256				

(4) With autozero at 3V point