

PERFORMANCE SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Conditions	Min.	Typ.	Max	Unit
Supply voltage	V _{DD}		-0.3		+4.0	V
Storage temperature ⁽³⁾	T _S		-40		+125	°C
Overpressure	P _{max}	ISO 6425 ⁽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 MS5807-14BA 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		14	bar
Absolute Accuracy, ⁽¹⁾ Temperature range 0 ... 40 °C	0 ... 6 bar		-20		+20	mbar
	0 ... 10 bar		-60		+20	
	0 ... 14 bar		-150		+20	
Absolute Accuracy, ⁽¹⁾ Temperature range -40 ... 85 °C	0 ... 6 bar		-40		+40	mbar
	0 ... 10 bar		-120		+80	
	0 ... 14 bar		-200		+100	
Maximum error with supply voltage ⁽³⁾	$V_{DD} = 1.8\text{ V} \dots 3.6\text{ V}$			+/-20		mbar
Long-term stability ⁽²⁾				-20		mbar/yr
Resolution RMS	OSR	4096		0.2		mbar
		2048		0.3		
		1024		0.4		
		512		0.6		
		256		1.0		

- (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 ... 10 bar		-0.8		+0.8	°C
	-20..85°C		-2.0		+2.0	
	-40..85°C		-4.0		+4.0	
Maximum error with supply voltage ⁽⁴⁾	$V_{DD} = 1.8\text{ V} \dots 3.6\text{ V}$			+/-0.5		°C
Resolution RMS	OSR	4096		0.002		°C
		2048		0.003		
		1024		0.005		
		512		0.008		
		256		0.012		

- (4) With autozero at 3V point