

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⁾			50	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 MS5803-30BA is qualified referring to the ISO 6425 standard and can withstand an absolute pressure of 50 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 V, T = 25°C UNLESS OTHERWISE NOTED)

Parameter	Conditions		Min.	Typ.	Max	Unit
Operating Pressure Range	P _{range}	Full Accuracy	0		30	bar
Absolute Accuracy, (1) Temperature range 0 ... 40 °C	0 ... 6 bar		-50		+50	mbar
	0 ... 20 bar		-100		+100	
	0 ... 30 bar		-250		+250	
Absolute Accuracy, (1) Temperature range -40 ... 85 °C	0 ... 6 bar		-100		+100	mbar
	0 ... 20 bar		-200		+200	
	0 ... 30 bar		-400		+400	
Maximum error with supply voltage (3)	V _{DD} = 1.8 V ... 3.6 V			+/-50		mbar
Long-term stability (2)				-50		mbar/yr
Resolution RMS	OSR	4096		0.5		mbar
		2048		0.75		
		1024		1		
		512		1.5		
		256		2.5		

- (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 V, T = 25°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(1)	V _{DD} = 1.8 V ... 3.6 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