

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}		300		1200	mbar
Extended Pressure Range	P_{ext}	Linear Range of ADC	10		2000	mbar
Relative Accuracy ^{(1) (4)}	600...1000 mbar, at 20°C		-0.5		+0.5	mbar
	300...1100 mbar, $0...60^\circ\text{C}$		-2		+2	
	300...1100 mbar, $-20...85^\circ\text{C}$		-4		+4	
Resolution RMS	OSR	8192		0.016		mbar
		4096		0.021		
		2048		0.028		
		1024		0.039		
		512		0.062		
		256		0.11		
Maximum error with supply voltage ⁽²⁾	$V_{DD} = 1.5\text{ V}...3.6\text{ V}$			± 2		mbar
Long-term stability				± 2		mbar/yr
Reflow soldering impact	IPC/JEDEC J-STD-020C (Refer to application note AN808)			± 4		mbar
Recovering time after reflow ⁽³⁾				7		days

⁽¹⁾ With autozero at one pressure point⁽²⁾ With autozero at 3V point⁽³⁾ Time to recover at least 66% of reflow impact⁽⁴⁾ Wet/dry cycle: sensor must be dried typically once a dayTEMPERATURE OUTPUT CHARACTERISTICS ($V_{DD} = 3\text{ V}$, $T = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Conditions		Min.	Typ.	Max	Unit
Relative Accuracy	$0...60^\circ\text{C}$, 600...1100 mbar			± 1		$^\circ\text{C}$
	$-20...85^\circ\text{C}$, 300...1100 mbar		-2		+2	$^\circ\text{C}$
Maximum error with supply voltage	$V_{DD} = 1.5\text{ V}...3.6\text{ V}$			± 0.3		$^\circ\text{C}$
Resolution RMS	OSR	8192		0.002		$^\circ\text{C}$
		4096		0.003		
		2048		0.004		
		1024		0.006		
		512		0.009		
		256		0.012		

MS5840-02BA

Low profile, gel-filled, ultra-compact watertight pressure sensor, with stainless steel cap

DIGITAL INPUTS (SDA, SCL)

Parameter	Symbol	Conditions	Min.	Typ.	Max	Unit
Serial data clock	SCL				400	kHz
Input high voltage	V _{IH}		80% V _{DD}		100% V _{DD}	V
Input low voltage	V _{IL}		0% V _{DD}		20% V _{DD}	V
Input leakage current	I _{leak}	T = 25 °C			0.1	μA

DIGITAL OUTPUTS (SDA)

Parameter	Symbol	Conditions	Min.	Typ.	Max	Unit
Output high voltage	V _{OH}	I _{source} = 1 mA	80% V _{DD}		100% V _{DD}	V
Output low voltage	V _{OL}	I _{sink} = 1 mA	0% V _{DD}		20% V _{DD}	V