PERFORMANCE SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Conditions	Min	Max	Unit	Notes
Supply voltage	V_{DD}	Ta = 25 °C	-0.3	4	V	
Storage temperature	T_S		-40	+125	°C	1
Overpressure	P	Ta = 25 °C		50	bar	

NOTE

1) Storage and operation in an environment of dry and non-corrosive gases.

ABSOLUTE MAXIMUM RATINGS

(Ta = 25 °C, V_{DD} = 3.0 V unless noted otherwise)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Operating pressure range	p		0		30	bar
Supply voltage	V_{DD}		2.2	3.0	3.6	V
Supply current, average (1) during conversion (2) standby (no conversion)	 I_{avg} I_{sc} I_{ss}	V_{DD} = 3.0 V		 4 1	 0.1	 µA mA µA
Current consumption into MCLK (3)		MCLK = 32.768 kHz			0.5	µA
Operating temperature range	T		-40		+125	°C
Conversion time	t_{conv}	MCLK = 32.768 kHz			35	ms
External clock signal (4)	MCLK		30.000	32.768	35.000	kHz
Duty cycle of MCLK			40/60	50/50	60/40	%
Serial data clock	SCLK				500	kHz

NOTES

1) Under the assumption of one conversion every second. Conversion means either a pressure or a temperature measurement started by a command to the serial interface of MS5535-30C.
2) During conversion the sensor will be switched on and off in order to reduce power consumption; the total on time within a conversion is about 2 ms.
3) This value can be reduced by switching off MCLK while MS5535-30C is in standby mode.
4) It is strongly recommended that a crystal oscillator be used because the device is sensitive to clock jitter. A square-wave form of the clock signal is a must.

PERFORMANCE SPECIFICATIONS (CONTINUED)

PRESSURE OUTPUT CHARACTERISTICS

With the calibration data stored in the interface IC of the MS5535-30C, the following characteristics can be achieved:

(V_{DD} = 3.0 V unless noted otherwise)

Parameter	Conditions	Min	Typ	Max	Unit	Notes
Resolution			3		mbar	1
Absolute Pressure Accuracy (Temperature range 0 .. +40 °C)	p = 0 .. 10 bar p = 0 .. 20 bar p = 0 .. 30 bar	-65 -150 -375		+50 +150 +150	mbar	2
Absolute Pressure Accuracy (Temperature range -20 .. +85 °C)	p = 0 .. 10 bar p = 0 .. 20 bar p = 0 .. 30 bar	-100 -150 -400		+250 +450 +500	mbar	2
Absolute Pressure Accuracy (Temperature range -20 ..+125°C)	p = 0 .. 10 bar p = 0 .. 20 bar p = 0 .. 30 bar	-200 -250 -750		+500 +500 +500	mbar	2
Long-term Stability	1 year		50		mbar	3
Maximum Error over Supply Voltage	V_{DD} = 2.2 .. 3.6 V p = const.		±40		mbar	

NOTES

1) A stable pressure reading of the given resolution requires taking the average of 2 to 4 subsequent pressure values due to noise of the ADC.
2) Maximum error of pressure reading over the pressure range.
3) The long-term stability is measured with non-soldered devices.

TEMPERATURE OUTPUT CHARACTERISTICS

This temperature information is not required for most applications, but it is necessary to allow for temperature compensation of the output.

(V_{DD} = 3.0 V unless noted otherwise)

Parameter	Conditions	Min	Typ	Max	Unit	Notes
Resolution		0.005	0.01	0.015	°C	
Accuracy	T = 20 °C, P = 0..10 bar	-0.8		0.8	°C	
	T = -40 .. +125°C	-4		+6	°C	1
Maximum Error over Supply Voltage	V_{DD} = 2.2 .. 3.6 V		±0.2		°C	

NOTE

1) With the second-order temperature compensation as described in Section "FUNCTION". See next section for typical operating curves.