Feature

HP04S

. Integrated Digit pressure sensor Module.
. 300-1100hpa absolute pressure range.
. Temperature Compensated for pressure.
. Digit signal output , easy SPI interface with MCU.
. Low power consumption.
. Compact size and easy control.
. Operating voltage: 2.4v – 3.6v.
. Low cost and no external components required.
.

Application

. Pressure measurement system.
. Weather forecast product.
. Mobile altimeter/ barometer system.
. Adventure and Multi-mode Watch.. GPS Receivers.

General description

1. The HP04S is a miniature barometer module that include a pressure sensor, a high accuracy A/D converter and a MCU(for calculation and communication). It include CS(chip select), CP, DATA, VDD port to interface with MCU.
2. Hp04s serial output both temperature data and pressure data.
3. Hp04s Test value through the jump point (+ / 2,4,6) compensation for the current pressure value

Pin Descriptions:

Pad no.	Pad name	I/O	Description
1	VDD	I	Module power supply.
2	GND	---	Negative power supply.
3	CS	I	Enable hp04s module operation.(High level active).
4	CP	I	Clock input from control system.
5	DATA	O	Data signal output.
6	VPP	---	For test only.

Absolute Maximum Ratings.

Parameter	Symbol	Min	Max	Unit
Supply voltage	VDD	- 0.3	4	V
Over pressure	Pov		15	Bar(abs)

Tel: +86-755-82973805 Fax: +86-755-82973550 E-mail: sales@hoperf.com http://www.hoperf.com

Storage temperature	Tstg	- 40	125	℃

Recommended Operation Condition

Parameter	Symbol	Condition	Min	Type	Max	Unit
Supply voltage	VDD		2.4	3.0	3.6	V
Operating current	Iop	VDD=3V			500	uA
StandBy current	Istdby	VDD=3V			1	uA
Operate pressure range	Prng		750		1100	Hpa
Operating temperature range	Trng		-20	25	60	℃
CP pin frequency	Fcp				10	KHz

Pressure and temperature output characteristic

Parameter	Symbol	Condition	Min	Type	Max	Unit
Resolution			1			Hpa
Absolute pressure accuracy		750 – 1100 @ 0～50℃	-3		3	Hpa
Absolute pressure accuracy		750 – 1100 @ −20～60℃	-5		5	Hpa
Long term Stability		12 months		2		Hpa
Temperature accuracy		0～+50	-1		1	℃
Temperature accuracy		-20～+60	-2.0		2.0	℃

Data translation.

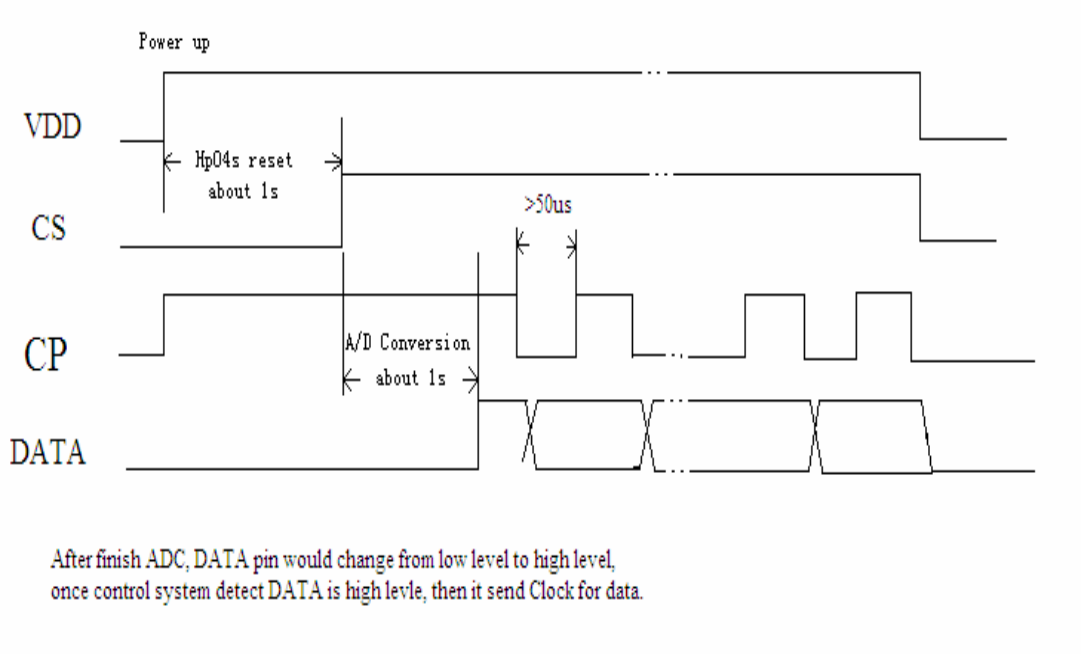
1. The data translation is HEX format, MSB first. After Hp04s finished the conversation, DATA pin would change from low level to high level(ACK). Once the control system detect ACK of DATA pin, then control system serial output clock signal to read data.
2. if the temperature is 25.2℃, then the output data is: 04E4H[1000 + 252] (The first byte is 04h, the second byte is E4H); if temperature is -10.3℃, then the output data is: 0381h [1000 + (-103)].
3. If the pressure is 1012hpa, then the output data is: 03F4H(The first byte is 03H, the second byte is F4H).

Functional Description.

1. CS Pin. (Enable A/D Convertion input pin). If the CS keep Low level, the hp04m module keep in waiting status; once the CS is High level, the hp04m module would enter A/D Convertion and communication status.
2. CP pin. (Clock input pin from control system). When the clock is in falling edge, hp04s output data,

Tel: +86-755-82973805 Fax: +86-755-82973550 E-mail: sales@hoperf.com http://www.hoperf.com

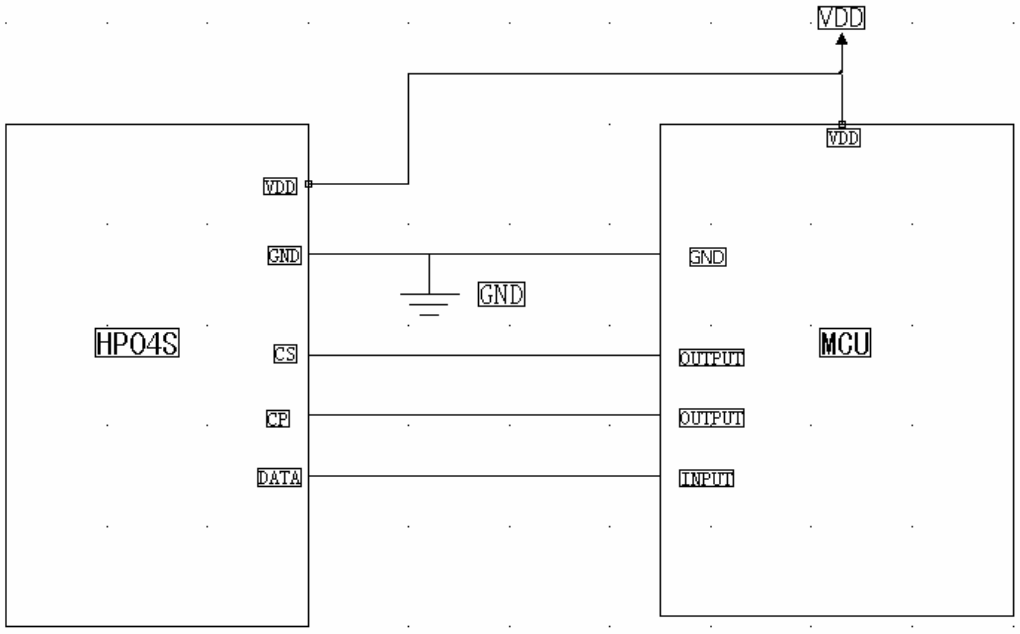
when the clock rising edge, control system receive data.
3. DATA pin. (Data output pin). Data would change from low level to high level, after finished the A/D conversation. The data is serial output in clock falling edge and keep the level in clock rising edge.
4. VDD pin. (power supply pin).
5. GND pin. Negative power supply pin.
6. VPP pin. For test only.
Timing Diagram:



Data translate sequence:(MSB first, HEX format).

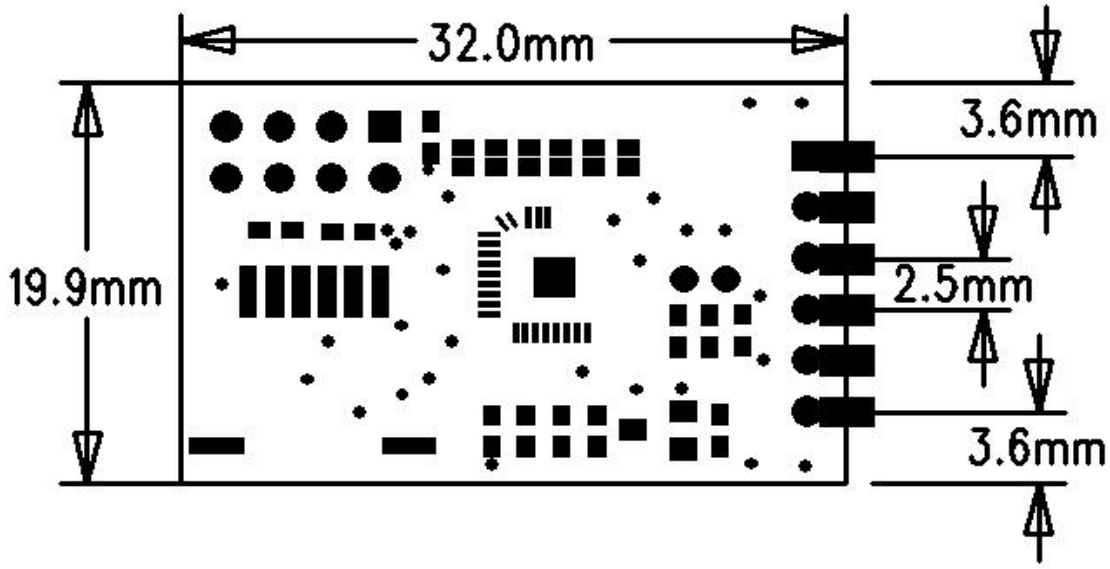
TEMPH(8 Bits)	TEMPL(8 Bit)	PRESH(8 Bit)	PRESL(8 Bit)

Typical Application Circuit Diagram



Tel: +86-755-82973805 Fax: +86-755-82973550 E-mail: sales@hoperf.com http://www.hoperf.com

Mechanical Dimension



Module max high:5.8mm

Important Notice.

- Never unplug the module when power on.
- Do not use this product as safety or emergency stop device or in any application when failure of this product count lead personal injury. Failure to comply with these instructions could result with death or serious injury.
- Should buyer purchase or use HOPE RF products for any such unintended or unauthorized application, buyer should indemnify and hold HOPE RF and its officers, employees, affiliates and distributors harmless against all claims, costs, damages and expense, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury associated with such intended or unauthorized use, even if such claim alleges that HOPE RF was negligent regarding the design or manufacturing of the part.
- HOPE RF reserve the right, without further notice, to change the product specification and/or information in this document and to improve reliability, function and design.

Tel: +86-755-82973805 Fax: +86-755-82973550 E-mail: sales@hoperf.com http://www.hoperf.com