

Product introduction

电子秤宣传介绍

PMD040应用实现

● 汇报人：Padauk

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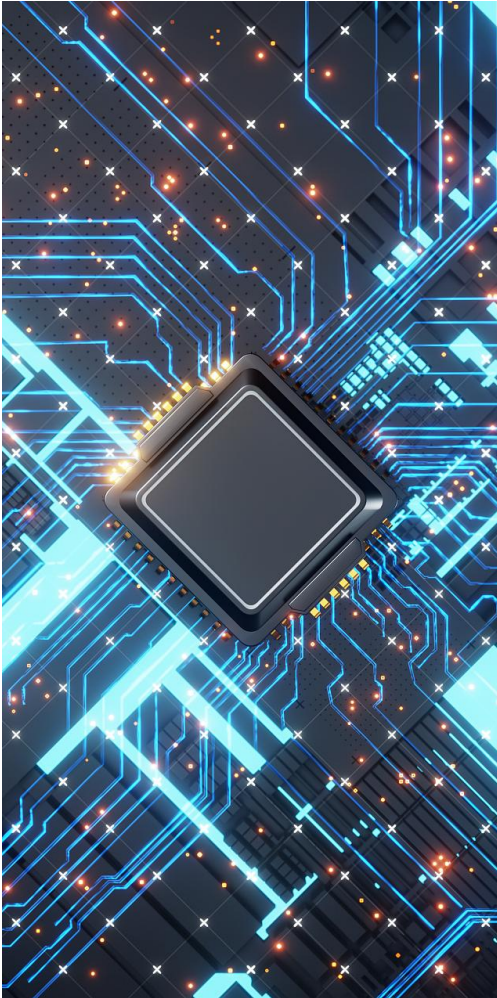
PMD040介绍



PMD040 Introduction.

PMD040介绍

PMD040 Introduction



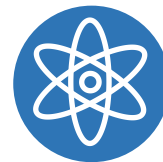
PMD040介绍

The PMD040 is a low power, high precision Delta-Sigma ADC. It builds in a delta-sigma ADC, a differential input channel and a temperature sensor. This ADC uses 2nd order delta-sigma modulator and low noise instrumentation amplifier to provide maximum gain of 128x. The effective resolution with PGA gain=128x can achieve 20.5 bit while power supply is 5V.



PMD040简介

The PMD040 has built in RC oscillator, it doesn't need external Xtal. It can be configured in multiple function through DOUT and SCLK.



PMD040简介

PMD040 also has a power switch to provide the load cell current. During normal mode, the switch is closed and the load cell current is flowing through the switch. During the power down mode, the switch is opened and it can turn off the supply current.

PMD040 Introduction



What's PMD040?

The PMD040 is a 24-bit Delta-Sigma A/D converter with a differential input channel. It includes **programmable gain amplifier (PGA)** functions, precision **24-bit delta sigma modulator**, **oscillator** and **temperature sensor**.



PGA & Output Rate

The PGA has a gain option of **1x, 2x, 4x, 8x, 16x, 32x, 64x, 128x**.

The delta-sigma ADC has 24-bit resolution and is comprised of a 2nd order modulator and 3rd digital filter. The output data rate is selectable from **10Hz, 20Hz, 40Hz, 80Hz, 160Hz, 320Hz, 640Hz, 1280Hz**.



Communication

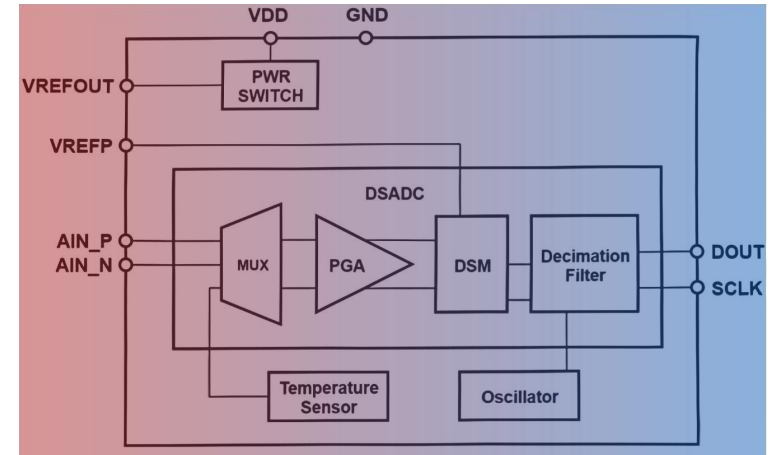
The PMD040 can be controlled by MCU through 2 wire **SPI interface**. It also can be put in power down mode to save power.

PMD040介绍

Product introduction

PMD040介绍

The PMD040 is a 24-bit Delta-Sigma A/D converter with a differential input channel. It includes programmable gain amplifier (PGA) functions, precision 24-bit delta sigma modulator, oscillator and temperature sensor.



PGA

Internal Programmable Gain
Amplifier:
1x, 2x, 4x, 8x, 16x, 32x, 64x, 128x.

output Date Rate

Selectable output Date Rate:
10Hz, 20Hz, 40Hz, 80Hz, 160Hz,
320Hz, 640Hz, 1280Hz.

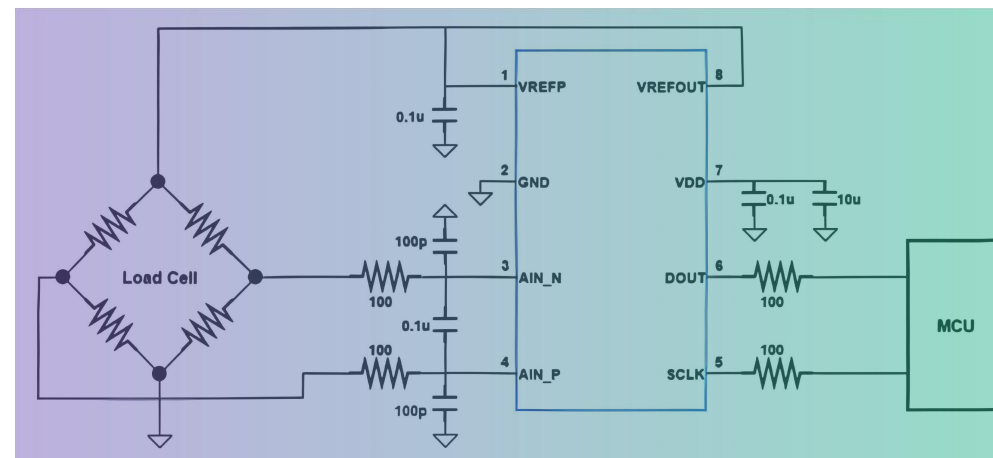
Power Down

It also be put in power down
mode to save power, with a
supply current as low as 0.1uA.

PMD040应用介绍

Product introduction

PMD040典型应用电路



负载输入

负载输入是典型的差分电压输入，可以有效抑制共模干扰。客户需要在差分输入的两个脚之间并联0.1uF电容。差分信号到地可并联100p小电容

参考电压

负载的参考电压有PMD040内部提供，系统可自行在工作模式和待机模式之间切换。客户需要将VREFOUT脚和VREFP脚连接，并在VREFP脚接0.1uF电容到地

信号输出

MCU可以接PMD040的DOUT和SCLK脚，进行SPI通信，读取24位AD数值和系统温度数值。为了防止电压不匹配和操作失误引起PMD040工作异常，建议DOUT和SCLK到MCU脚串联100欧姆电阻

02

电子秤产品介绍



使用PGS134搭配PMD040开发电子秤Demo

产品介绍

Product introduction



体重秤

家用体脂秤



厨房秤

家用厨房秤



计价秤

商场计价秤



珠宝秤

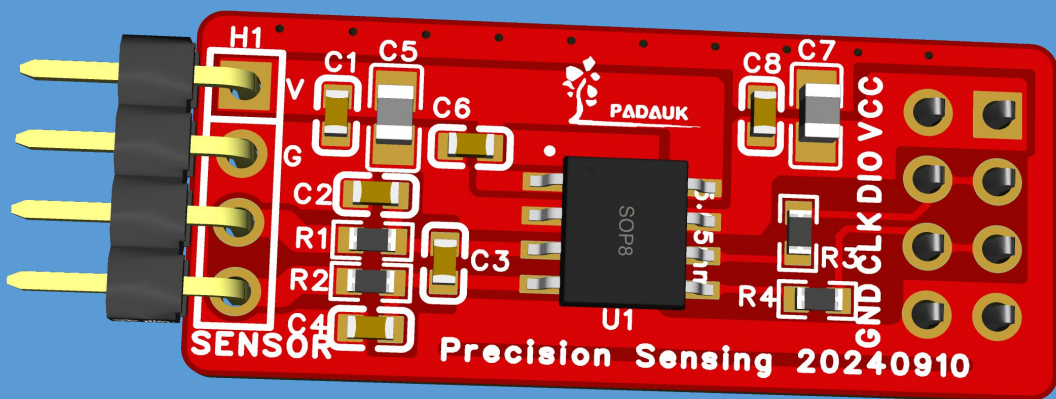
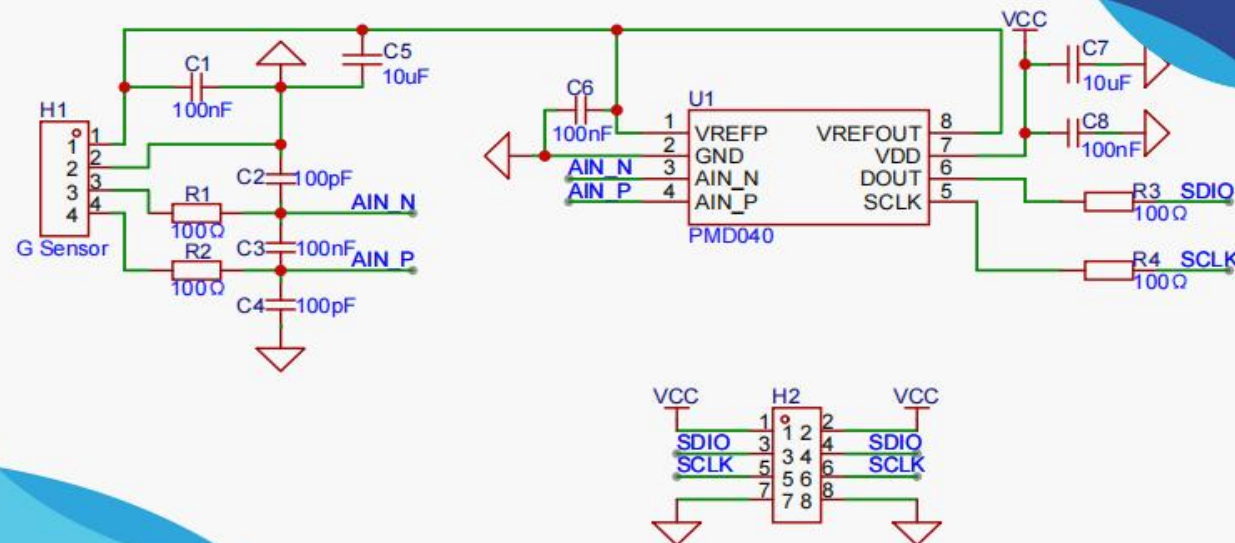
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24位AD侦测模块电路

电路简单，仅需要一颗PMD040

H1为传感器接入接口

H2为对外SPI通信接口

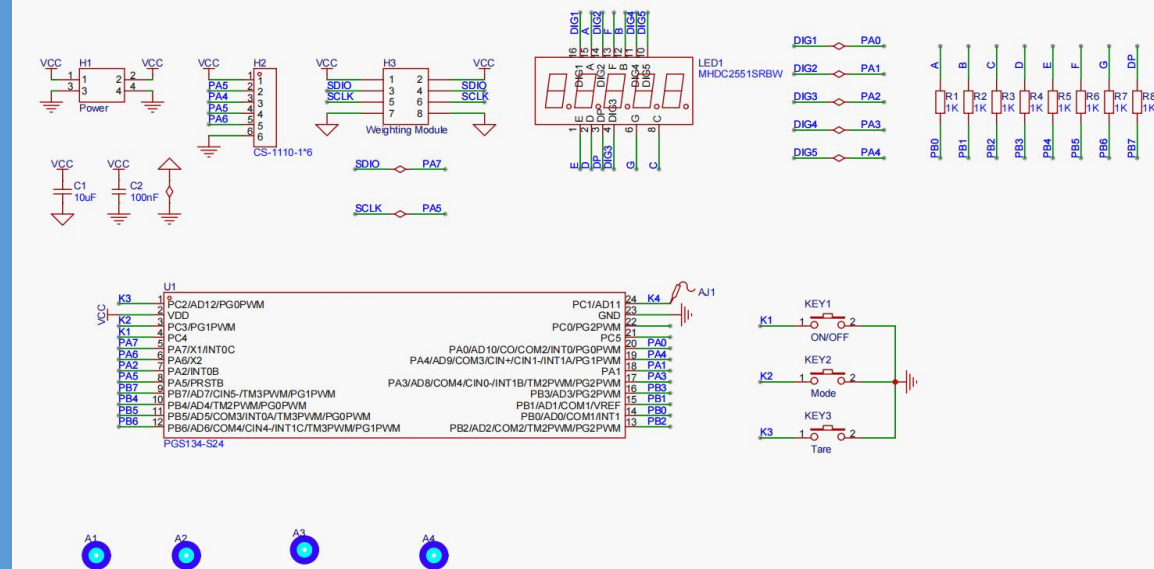


PABA尺寸：31mm x 13.5mm

尺寸小，连接简单

电子秤逻辑部分

显示和逻辑部分可选择PGS134，4KW大内存，
自带EEPROM可以存储校准信息
H2用于程序升级烧录
H3用于连接PMD040 AD侦测模块



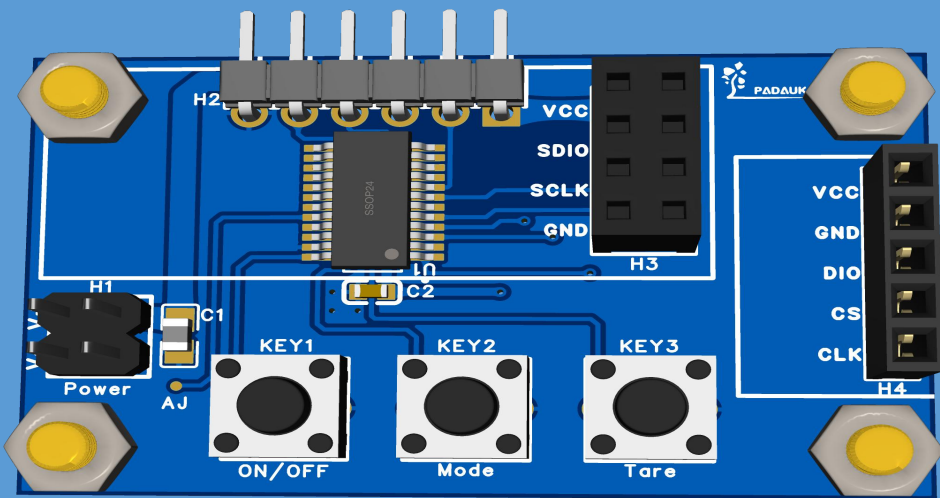
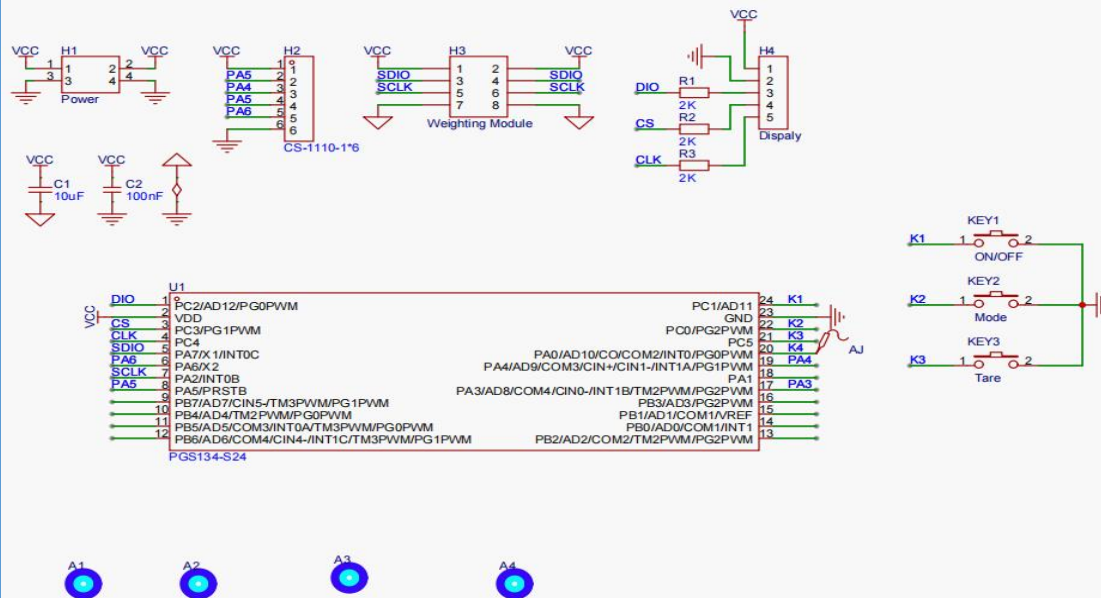
电子秤逻辑部分

显示和逻辑部分可选择PGS134，4KW大内存，

自帶EEPROM可以存儲校淮信息

H2用于程序升级烧录

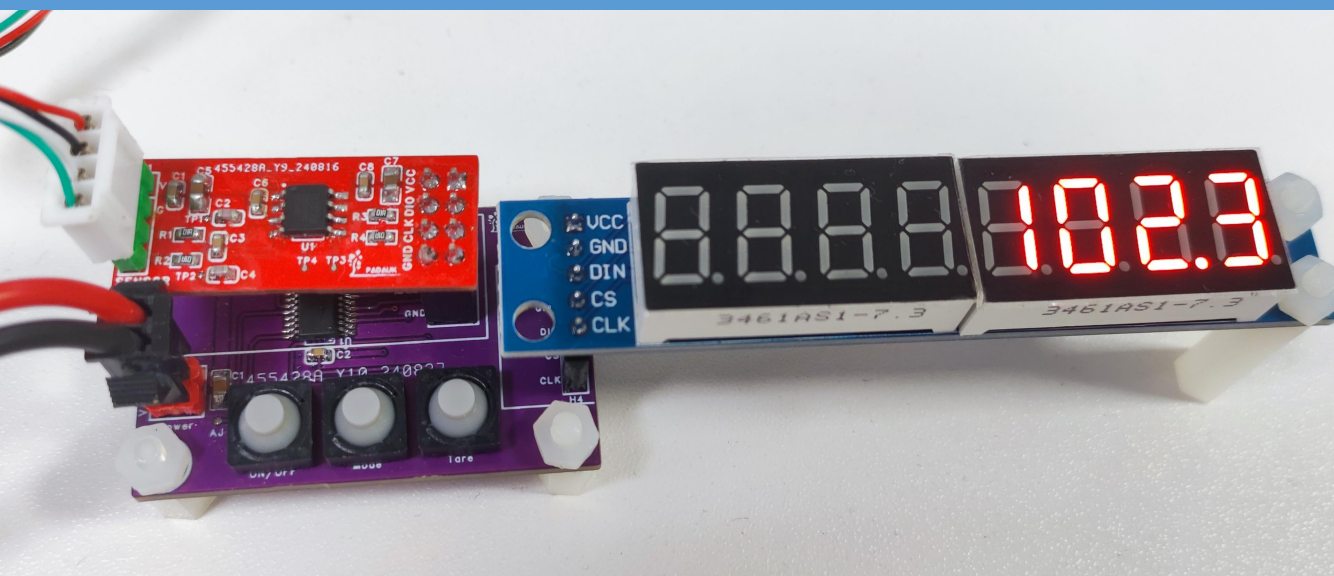
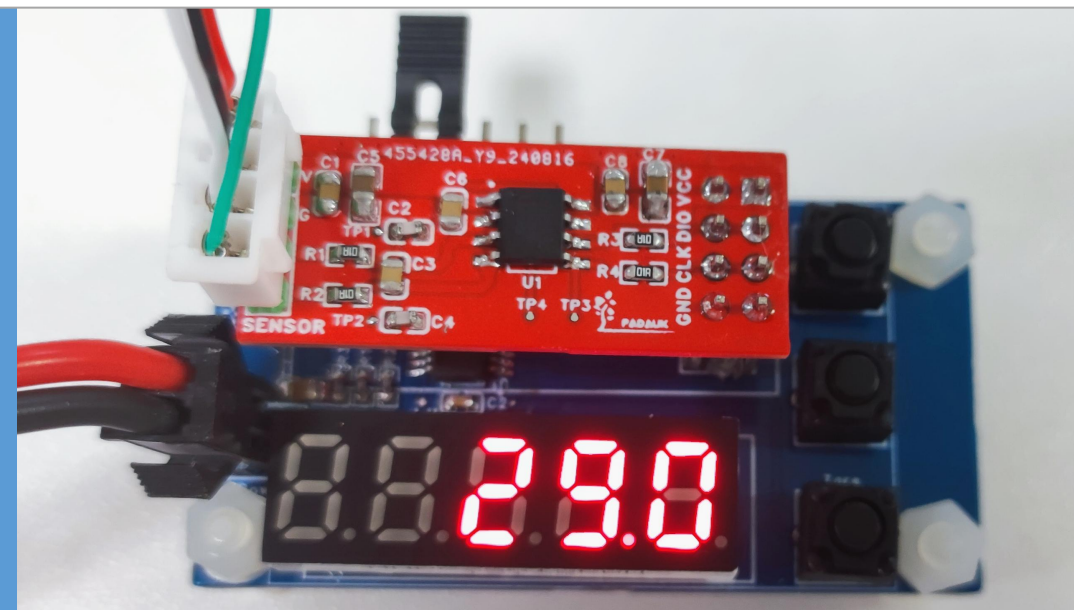
H3用于连接PMD040 AD侦测模块



整体尺寸：45mm x 28mm

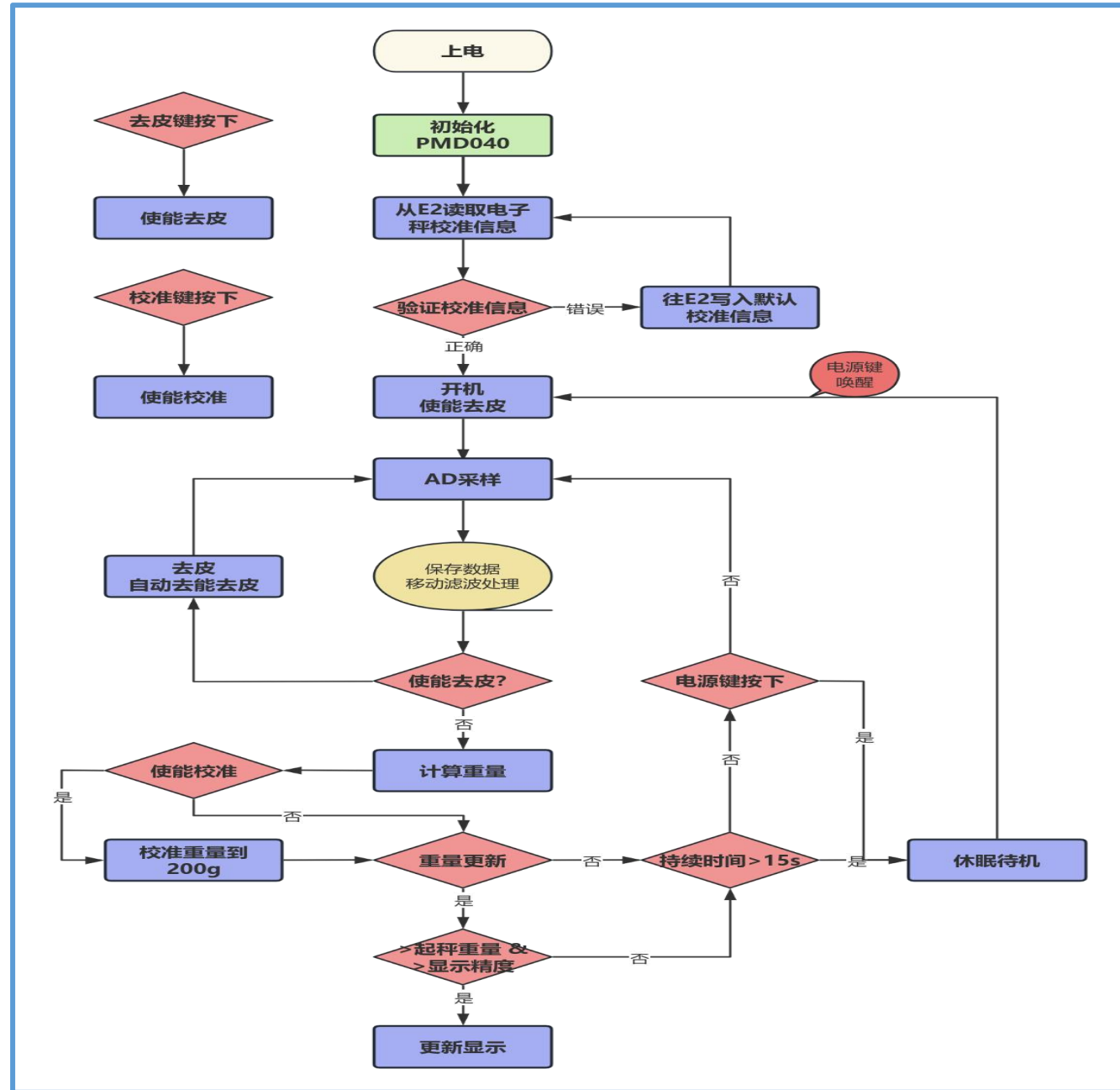
H4用于连接MAX7219数码管显示模块

连接效果图1



连接效果图2

电子秤程序框图



03

产品优势



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产品优势

Product introduction



产品优势1

24位高精度ADC，可以适用于绝大多部分精密传感器模拟电压采集



产品优势2

集成OPA，最大128倍增益，轻松采集微弱信号



产品优势3

10-1080Hz采样频率，轻松适应各种快速传感应用



产品优势4

拥有高效FAE服务团队，系统工程开发团队，提供完整方案技术支持，为你方案开发保驾护航

产品优势

Product introduction

PMD040

- ☑ 24位高精度ADC
- ☑ 输出频率10Hz~1280Hz
- ☑ 待机电流<0.1uA
- ☑ 自带参考电压输出



VS

XX710

- ☑ 24位高精度ADC
- ☒ 输出频率10Hz和40Hz
- ☒ 待机电流<1uA
- ☒ 需外接模拟电源输入



04

应用场景



PMD040应用场景

应用场景

Product introduction

- 应用场景1

体重秤

- 应用场景2

称重传感器

- 应用场景3

应变器

- 应用场景4

仪器仪表、精密传感等

Product introduction

谢谢大家观看

PMD040应用实现

● 汇报人：你的名字