



# Single-Lead, Heart Rate Monitor Front End

Data Sheet

AD8232

## FEATURES

- Fully integrated single-lead ECG front end
- Low supply current: 170  $\mu$ A (typical)
- Common-mode rejection ratio: 80 dB (dc to 60 Hz)
- Two or three electrode configurations
- High signal gain ( $G = 100$ ) with dc blocking capabilities
- 2-pole adjustable high-pass filter
- Accepts up to  $\pm 300$  mV of half cell potential
- Fast restore feature improves filter settling
- Uncommitted op amp
- 3-pole adjustable low-pass filter with adjustable gain
- Leads off detection: ac or dc options
- Integrated right leg drive (RLD) amplifier
- Single-supply operation: 2.0 V to 3.5 V
- Integrated reference buffer generates virtual ground
- Rail-to-rail output
- Internal RFI filter
- 8 kV HBM ESD rating
- Shutdown pin
- 20-lead, 4 mm  $\times$  4 mm LFCSP and LFCSP\_SS package
- Qualified for automotive applications

## APPLICATIONS

- Fitness and activity heart rate monitors
- Portable ECG
- Remote health monitors
- Gaming peripherals
- Biopotential signal acquisition

## FUNCTIONAL BLOCK DIAGRAM

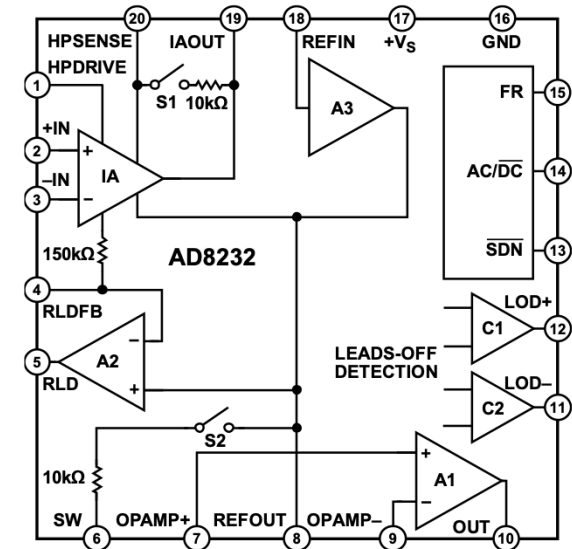


Figure 1.

<https://www.analog.com/en/products/ad8232.html>



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Choice Black Friday AD8232 electrocardiog...

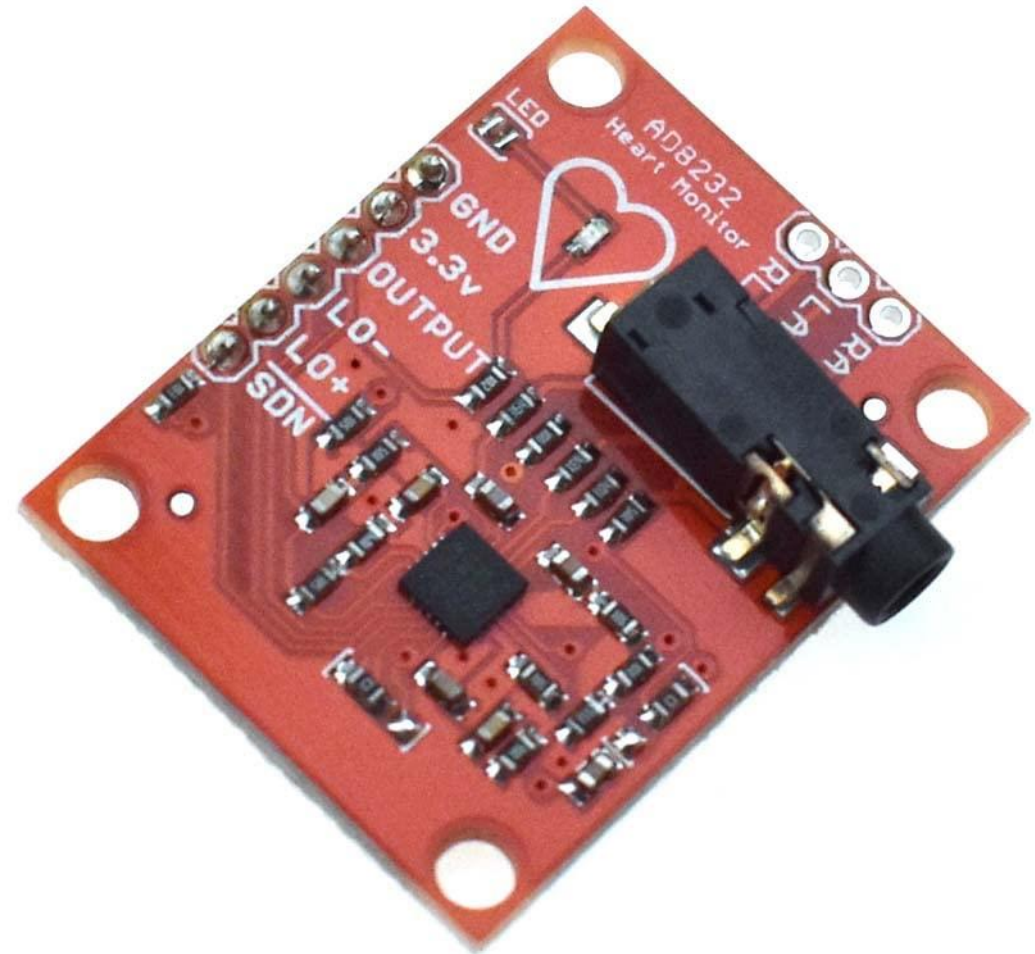
**0,99€**

★★★★★ 5 | 71 vendidos

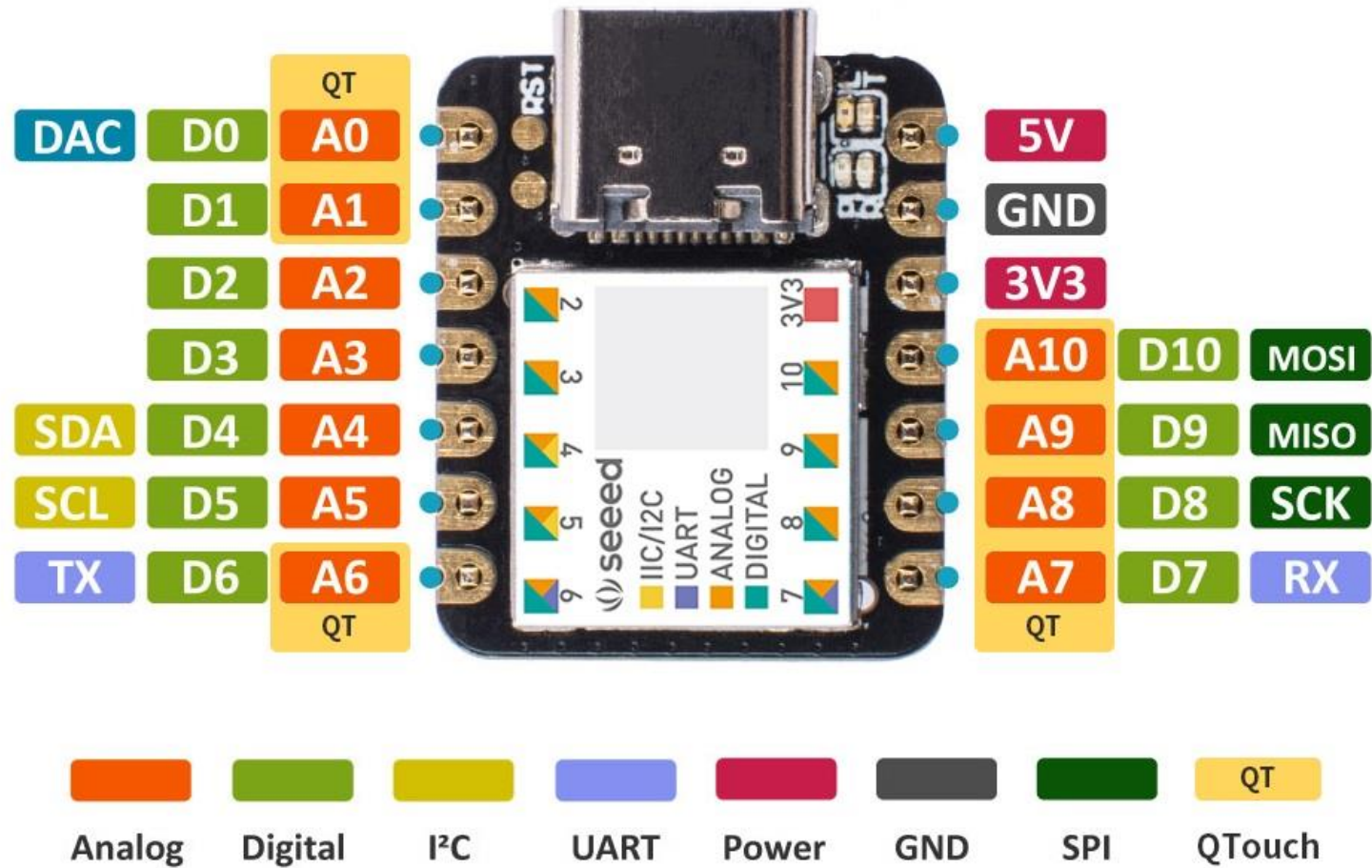
% -2€ en 10€

⚡ Ahorra 0,05€

<https://es.aliexpress.com/item/1005008999289571.html>

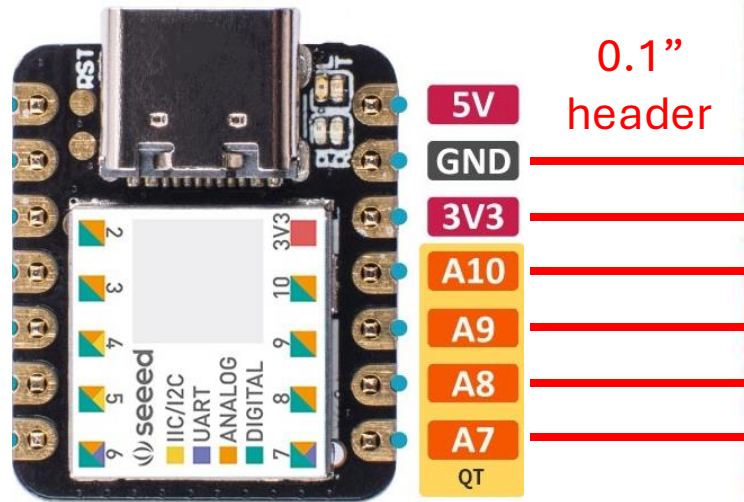


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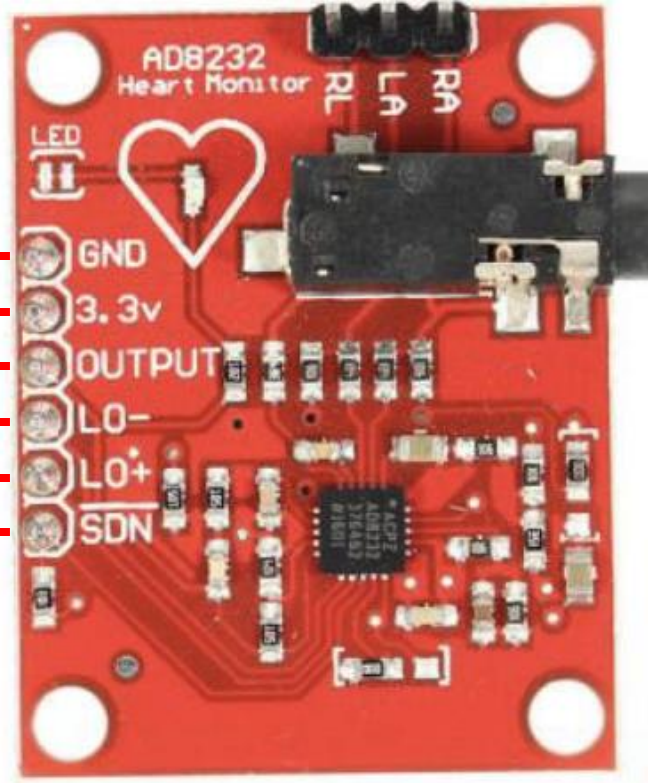


Seed XIAO MCU

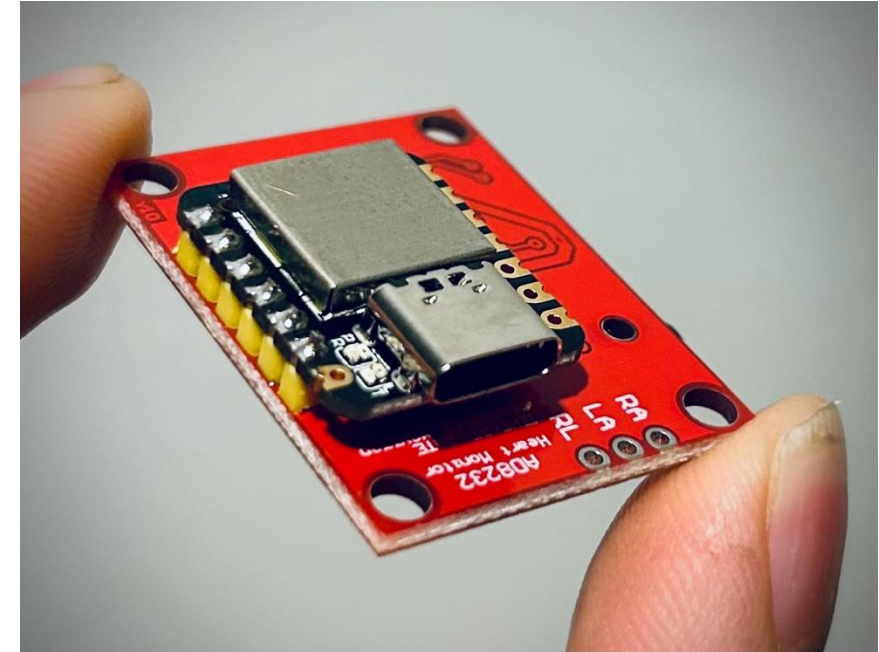


Simple hookup, could not be simpler!

AD8232 module



Solder in place, then connect USB to PC



## MCU code in Arduino

```
1 #define L0plus 8
2 #define L0minus 9
3 uint16_t val = 0;
4
5 void setup() {
6     Serial.begin(19200);
7     pinMode(L0plus, INPUT); // Setup for leads off detection L0 +
8     pinMode(L0minus, INPUT); // Setup for leads off detection L0 -
9     analogReadResolution(12);
10    delay(100);
11 }
12
13 void loop() {
14
15     if((digitalRead(L0plus) == 1) || (digitalRead(L0minus) == 1)){Serial.println(0);}
16     else{
17         val = 0;
18         val += analogRead(A10);
19         val += analogRead(A10);
20         val += analogRead(A10);
21         val += analogRead(A10);
22         val = val>>2;
23
24         Serial.print("1000,4000,"); Serial.println(val);}
25     delay(15);
26 }
```



After uploading the MCU code, connect electrodes to ECG subject and open Arduino serial plotter

