

## Photoplethysmography detection reference design based on the VD6283TX



Fully assembled board developed for performance evaluation only, [not available for sale](#)

### Features

- Photoplethysmography technique with a cost-effective solution
- Optical front-end with two [VD6283TX](#) to maximize the reading coverage
- Full data acquisition and transmission thanks to the [BlueNRG-2](#)
- Compact design: <math><200\text{ mm}^2</math>

### Description

The [STDES-MORFEA3](#) reference design demonstrates the [VD6283TX](#) capabilities to detect a good multicolor photoplethysmography (PPG).

Photoplethysmography is a simple and low-cost optical technique, which can be used to detect the blood volume changes in the microvascular bed of tissue. It is a noninvasive method for measurements at the skin surface.

The [VD6283TX](#) is a miniaturized spectrometer capable to acquire some part of the light in the visible range and a part in the infrared. The [VD6283TX](#) is used in mobile phones to adjust the white color in images.

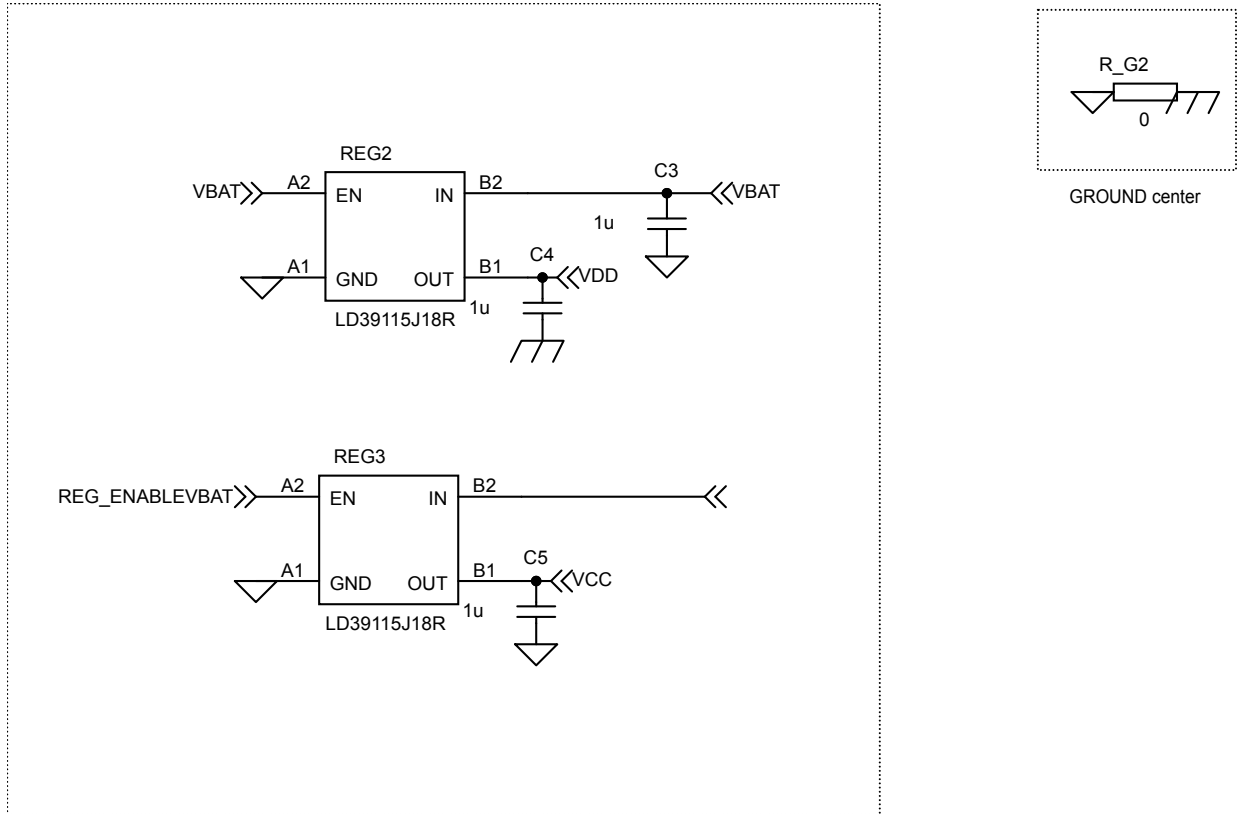
The devices included in this reference design are sold under ST terms and conditions. They are not designed, intended, nor authorized for use as critical components in: life-support systems, any FDA Class 3 medical devices, medical devices with a similar or equivalent classification in a foreign jurisdiction, or any devices intended for implantation in the human body.

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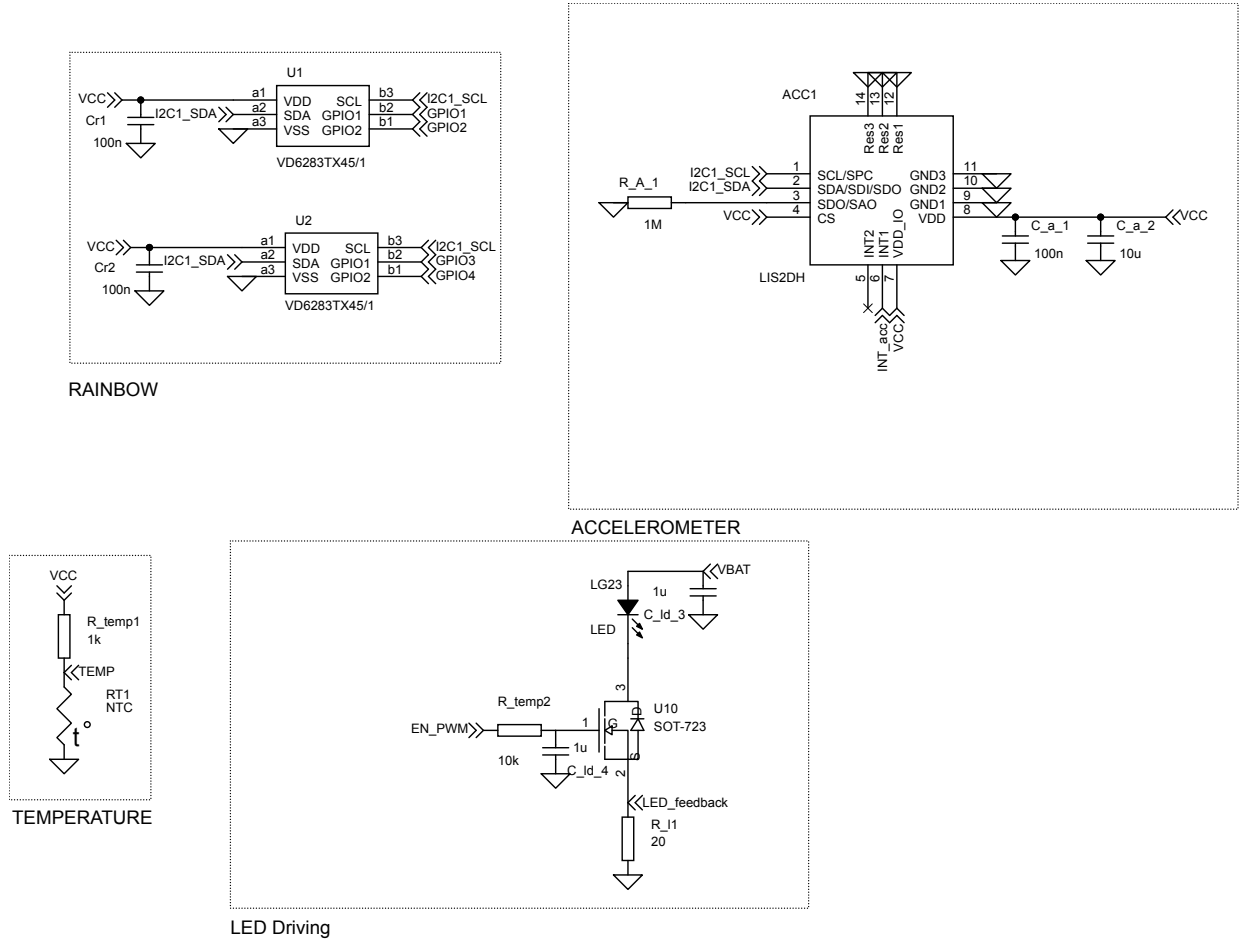
Product summary	
Photoplethysmography detection reference design based on the VD6283TX	<a href="#">STDES-MORFEA3</a>
Hybrid filter multispectral sensor with light flicker engine	<a href="#">VD6283TX45/1</a>
Programmable Bluetooth® Low Energy 5.2 wireless SoC	<a href="#">BLUENRG-234</a>
150 mA low quiescent current low noise voltage regulator	<a href="#">LD39115J18R</a>
Applications	Diagnostic Equipment

# 1 Schematic diagrams

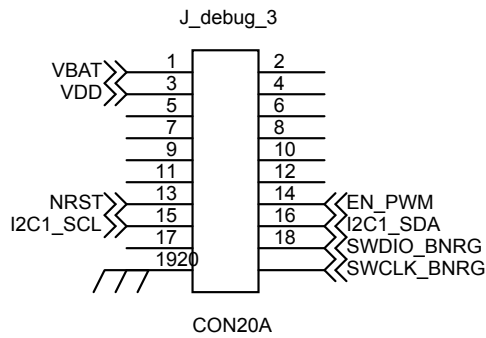
Figure 1. STDES-MORFEA3 circuit schematic (1 of 4)



**Figure 2. STDES-MORFEA3 circuit schematic (2 of 4)**

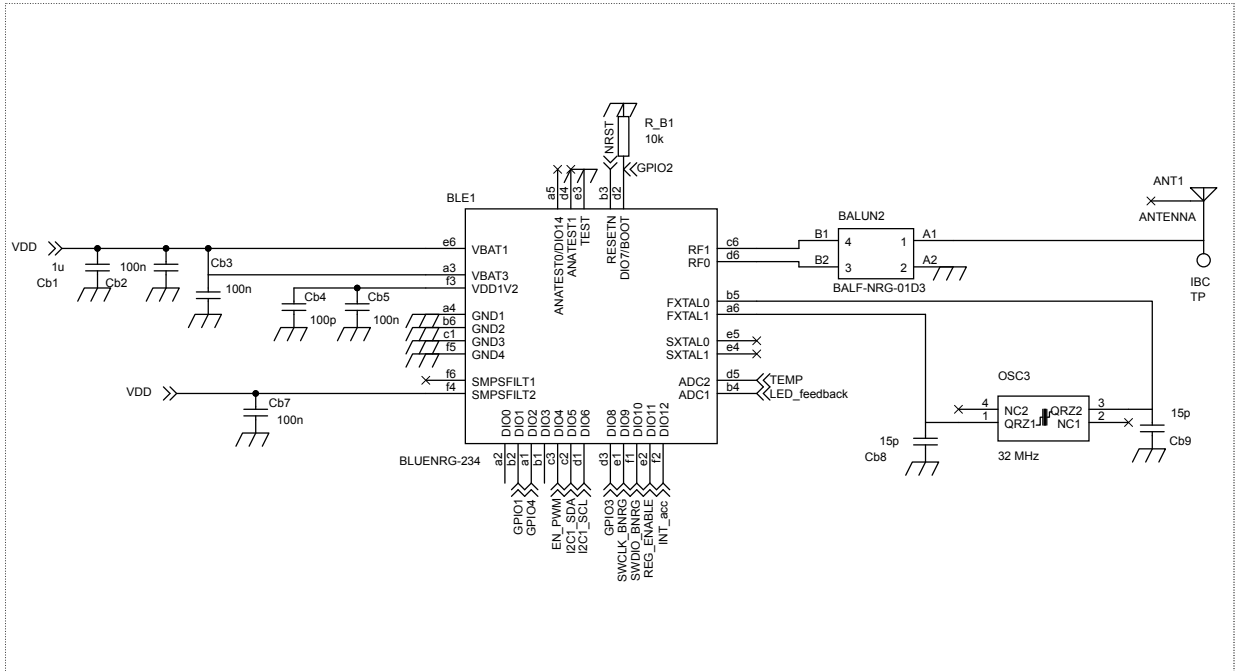


**Figure 3. STDES-MORFEA3 circuit schematic (3 of 4)**

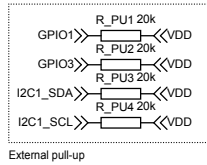


DEBUG connector to load and debug the board. This connector allows the user to expand the board with other PCBs that mount the header of the same connector

**Figure 4. STDES-MORFEA3 circuit schematic (4 of 4)**



Bluetooth Low Energy module



## Revision history

**Table 1. Document revision history**

Date	Revision	Changes
03-Oct-2022	1	Initial release.

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