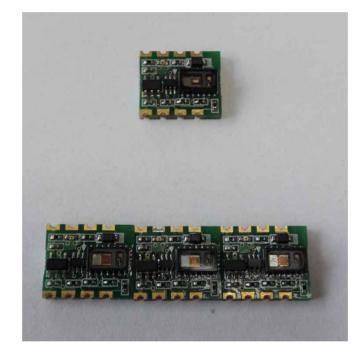
OSTSen-30101 User Guide



Ver 1.0

Onsystech

1. OSTSen-30101 Overview

OSTSen-30101 is a pulse oximetry and heart-rate monitoring module, which is based on Maxim Integrated MAX30101. The MAX30101 is an integrated pulse oximetry and heart-rate monitor module. It includes internal LEDs, photodetector, optical elements, and low-noise electronics with ambient light rejection. The MAX30101 provides a complete system solution to ease the design-in process for mobile and wearable devices.

The MAX30101 operates on a single 1.8V power supply and a separate 5.0V power supply for the internal LEDs. Communication is through a standard I2C-compatible interface. The module can be shut down through software with zero standby current, allowing the power rails to remain powered at all times.

2. Application

- Wearable Devices
- Fitness Assistant Devices

3. Features

- Heart-Rate Monitor and Pulse Oximetry Sensor in LED Reflective Solution
- Tiny 5.6mm x 3.3mm x 1.55mm 14-Pin Optical Module
- Integrated Cover Digital Glass for Optimal, Robust Performance
- Ultra-Low Power Operation for Mobile Devices
- Programmable Sample Rate and LED Current for Power Savings
- Low-Power Heart-Rate Monitor (<1mW)
- Ultra-Low Shutdown Current (0.7uA typical)
- Fast Data Output Capability
- High Sample Rates
- Robust Motion Artifact Resilience
- High SNR
- -40°C to +85°C Operating Temperature Range

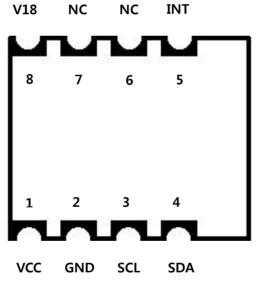
4. Application Information

4.1 Module Pin Out and Signal Description

Pin Number	Pin Name	Pin Description		
1	VCC	Power supply voltage (2.5V ~ 6V)		
2	GND	Power supply ground		
3	SCL	I2C Serial clock 7bit device address : 0x57		
4	SDA	I2C Serial data		
5	INT	Active-Low Interrupt (Open-Drain)		
8	V18	1.8V Voltage Output		
6,7	NC	Not Connect		

• MAX30101 I2C 7bit Device Address : 0x57

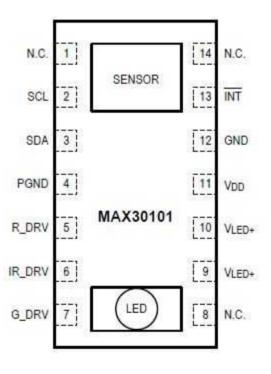
MSB							LSB
1	0	1	0	1	1	1	R/W



< Top View >

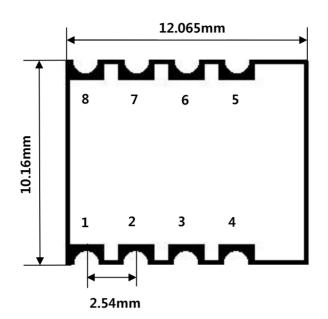
Pin Number	Pin Name	Pin Description
1,8,14	N.C.	No Connection
2	SCL	I2C Clock Input
3	SDA	I2C Clock Data, Bidirectional (Open-Drain)
4	PGND	Power Ground of the LED Driver Blocks
5	R_DRV	Red LED Driver
6	IR_DRV	IR LED Driver
7	G_DRV	Green LED Driver
9	VLED+	LED Power Supply(anode connection) Use a bypass
10	VLED+	capacitor to PGND for best performance
11	Vdd	Analog Power supply
12	GND	Analog Ground
13	INT	Active-Low Interrupt(Open-Drain)

4.2 MAX30101 Pin out and Signal Description



< MAX30101 Pinout (top view) >

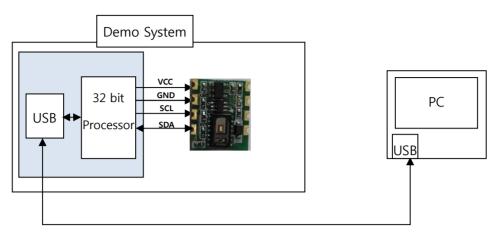
5. Module Dimension





< OSTSen-30101 module >

6. Demo System



OSTSen-30101 Data Display on PC

RealTerm: Serial Capture Program 2.0.0.70	
R13441 IR13927 G116 104+ R13431 IR13927 G116 104+ R13432 IR13257 G116 104+ R13493 IR13557 G113 104+ R13493 IR13837 G168 104+ R13493 IR13837 G168 104+ R13364 IR13757 G10 104+ R13433 IR13757 G10 104+ R1343 IR13757 G10 104+ R1343 IR13757 G10 104+ R1345 IR13757 G10 104+ R13451 IR13757 G10 104+ R13451 IR13831 G112 104+ R13451 IR13756 G10 104+ R13651 IR13756 G10 104+ R13551 IR13756 G16 104+ R13641 IR13941 G127 104+ R13651 IR12750 G164 104+ R13641 IR13951 G127 104+ R13651 IR1426 G1427 </th <th>4 m 1</th>	4 m 1
Display Port Capture Pins Send Echo Port 12C	12C-2 <u>\n Clear Freeze</u> ?
Parity Data Bits Stop Bits Stop Bits Stop Bits Bits Stop Bits Stop Bits Bits Stop Bits	Status Spyl Change Disconnect Inscription (1) Status Disconnect IRVD (2) IRVD (2
You can use ActiveX automation to control me!	Char Count:19208 CPS:0

7. Reference

- 1) <u>https://www.maximintegrated.com/en/products/analog/sensors-and-sensor-interface/MAX30101.html</u>
- 2) https://datasheets.maximintegrated.com/en/ds/MAX30101.pdf
- 3) https://github.com/sparkfun/SparkFun_MAX3010x_Sensor_Library
- If you need more information or have some questions about OSTSen-30101, contact ostsen@naver.com.