**MAX30102 :**

**Description:**

The MAX30102 is a versatile sensor used for heart rate monitoring and pulse oximetry.

**Components:**

Features two Light Emitting Diodes (LEDs), a photodetector, and signal processing devices.

**Functionality:**

Detects heart rate and performs pulse oximetry using the emitted light.

**Features:**

Operating Voltage: 1.8V to 3.3V

Input Current: 20mA

Ambient Light Cancellation: Integrated for accurate measurements

Sample Rate Capability: High sample rate for precise data collection

Data Output: Fast data output capability

**Pin Configuration:**

1. VIN: Voltage Input

2. SCL: I2C Serial Clock

3. SDA: I2C Serial Data

4. INT: Active low interrupt

5. IRD: IR LED Cathode and LED Driver Connection Point

6. RD: Red LED Cathode and LED Driver Connection Point

7. GND: Ground pin

**Working Principle:**

Light Emission: Emits red light at 660nm and infrared light at 940nm.

Absorption Properties: Detects differences in absorption between oxygenated and deoxygenated hemoglobin.

Sensor Components: Consists of emitting diodes and a photoreceiver.

Measurement Process: Light emitted is absorbed by blood, and reflected light is detected and processed by a microcontroller.