Solar Power Manager For 12V Battery
DFR0580
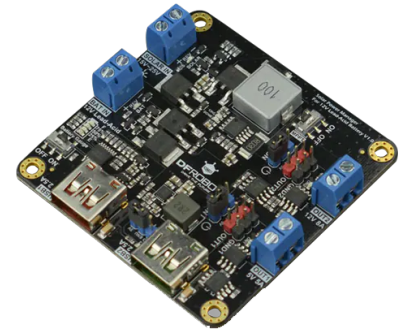
Description

DFRobot DFR0580 Solar Power Manager For 12V Battery is designed for IoT and renewable projects. The DFR0580 solar power manager is a medium-power high-efficiency solar power management module. This medium-power high-efficiency solar power management module allows charging a 12V lead-acid battery with a maximum of 4A using a standard 18V solar panel. The DFR0580 solar power development tool features the MPPT (Maximum Power Point Tracking) function that maximizes the output power of solar panels under various sunlight. This solar power manager improves charging performance by 10% to 30% compared to common PWM solar controllers. The DFR0580 solar power manager is suitable for applications within 100W, security monitoring, small robots, pumps, and environmental monitoring stations.

Features

- Constant voltage MPPT algorithm, maximizing solar energy conversion
- Designed for standard 18V solar panels and 12V lead-acid battery
- Multiple high-efficiency outputs for 12V or 5V large power devices
- Full protection functions, a safe and high-efficiency solar power module
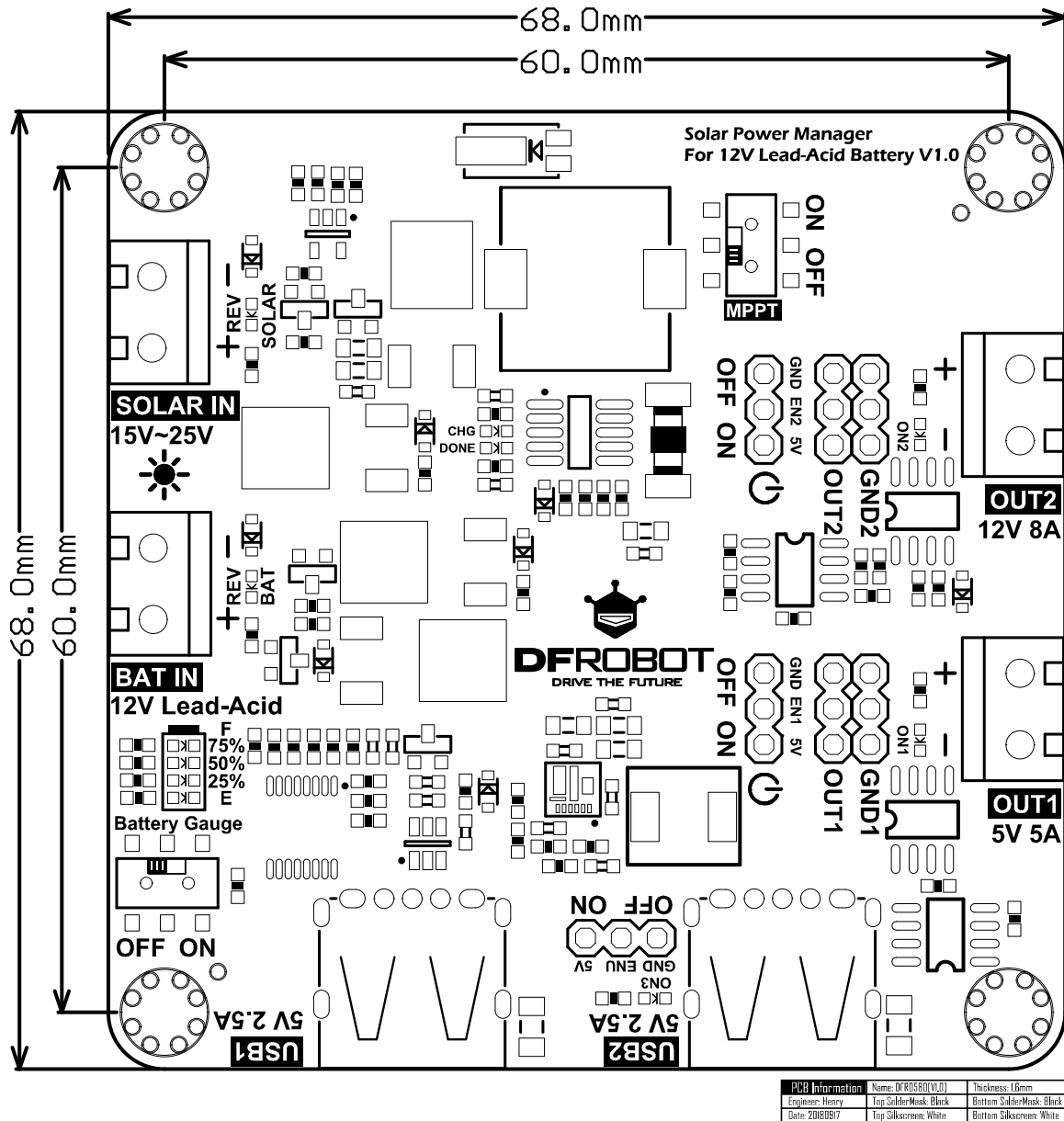- A variety of status indicators, system status at a glance

Specifications

- CN3767 solar power management IC
- 15V to 25V solar input voltage range
- 12V lead-acid battery input
- Charge current:
  - 4A maximum trickle charging
  - Constant current
  - Constant voltage
  - Float charging four stages charging dedicated for 12V lead-acid battery
- 10.8V over-discharge protection voltage
- 94% solar charge average efficiency
- -40°C to 85°C operating temperature range
- 68mm x 68mm dimensions
- 13.55V float charge voltage
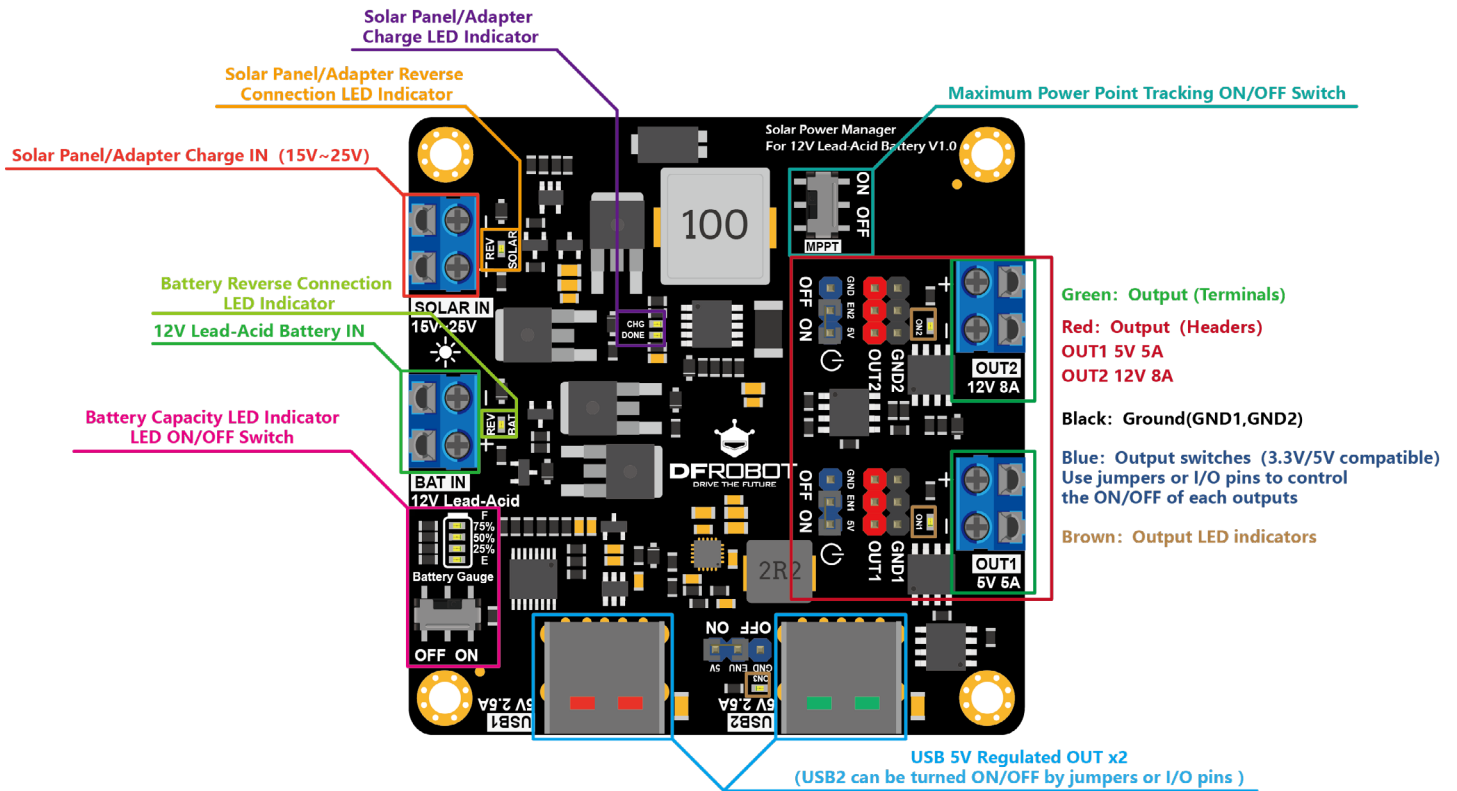- OUT1 5V 5A, OUT2 12V 8A, USB1 5V 2.5A outputs[Note1]
- <4mA quiescent current

Applications

- Street lighting
- Intelligent agriculture
- Environmental monitoring station

Schematic

Board Overview

Solar Panel/Adapter Charge LED Indicator

Solar Panel/Adapter Reverse Connection LED Indicator

Maximum Power Point Tracking ON/OFF Switch

Solar Panel/Adapter Charge IN (15V~25V)

Solar Power Manager For 12V Lead-Acid Battery V1.0

Battery Reverse Connection LED Indicator

12V Lead-Acid Battery IN

Battery Capacity LED Indicator LED ON/OFF Switch

SOLAR IN 15V~25V

BAT IN 12V Lead-Acid

Battery Gauge

Green: Output (Terminals)

Red: Output (Headers)
OUT1 5V 5A
OUT2 12V 8A

Black: Ground(GND1,GND2)

Blue: Output switches (3.3V/5V compatible)
Use jumpers or I/O pins to control the ON/OFF of each outputs

Brown: Output LED indicators

USB 5V Regulated OUT x2
(USB2 can be turned ON/OFF by jumpers or I/O pins)

Mouser Part Number

[View Part](#)

To learn more, visit https://www.mouser.com/new/dfrobot/dfrobot-dfr0580-solar-power-manager/