

# PowerFilm<sup>®</sup>

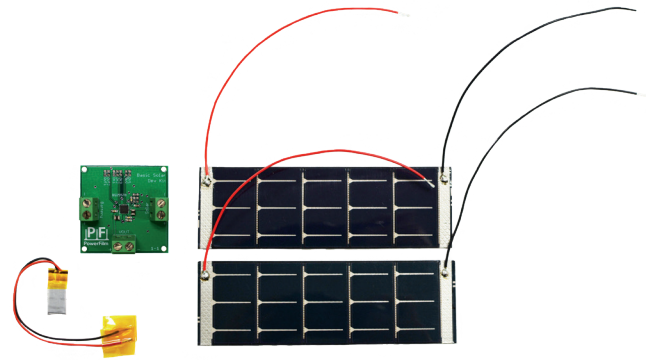
MADE IN THE USA

## SOLAR

## Indoor Solar Development Kit (DEV-IN-BASIC)

### What's In The Kit?

- DEV-IN-BASIC circuit board assembly.
- (2) LL200-3-37 Indoor Solar Panel with leads.
- 40mAh rechargeable Li-Polymer battery.
- Instructions, hardware and software files, and product documentation.



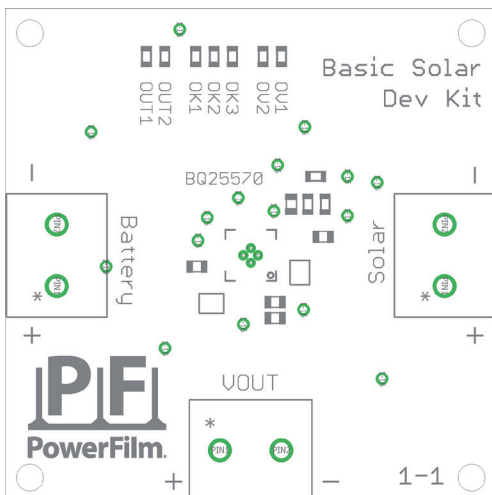
### Use Cases

- Designed for artificial lighting.
- Capable of powering low power wireless RF modules and sensors.
- Well suited for applications with intermittent high current pulsing common in most wireless protocol.

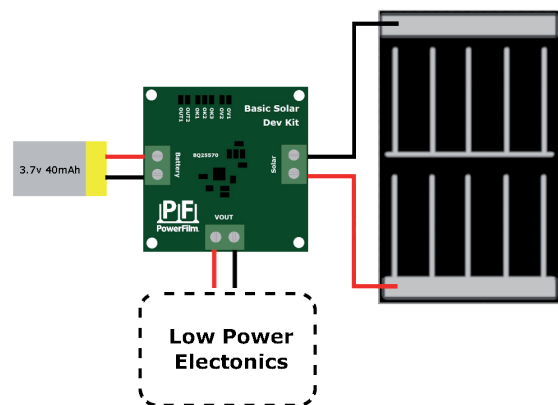
### Expected Power

- 200 lux:
- 170uW
- 1000 lux:
- 1,170uW

### Board Layout



### System Diagram



## Notes

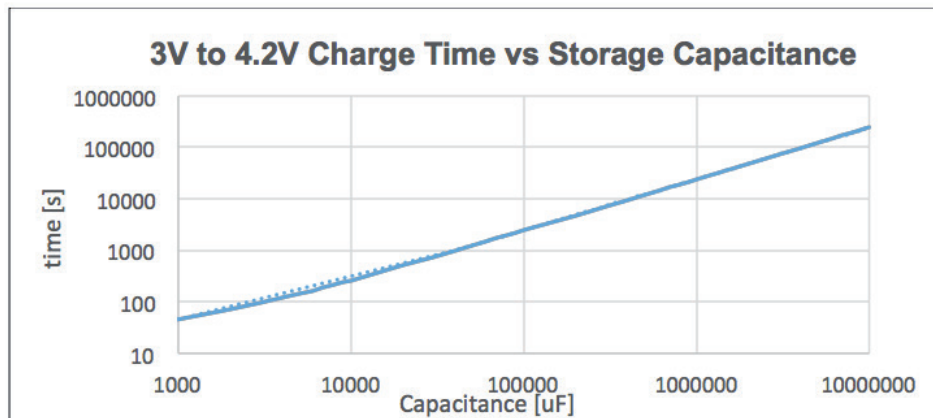
### Charge Control Configuration

The Indoor Solar Development Kit hardware is currently configured to charge a Li-Polymer type battery with max voltage of 4.2V and the output voltage set to 3.0V. The configuration can be customized by modifying SMD resistor dividers per the BQ25570 datasheet specifications which can be found under “Additional Resources” on the Indoor Solar Development Kit’s product page on our website.

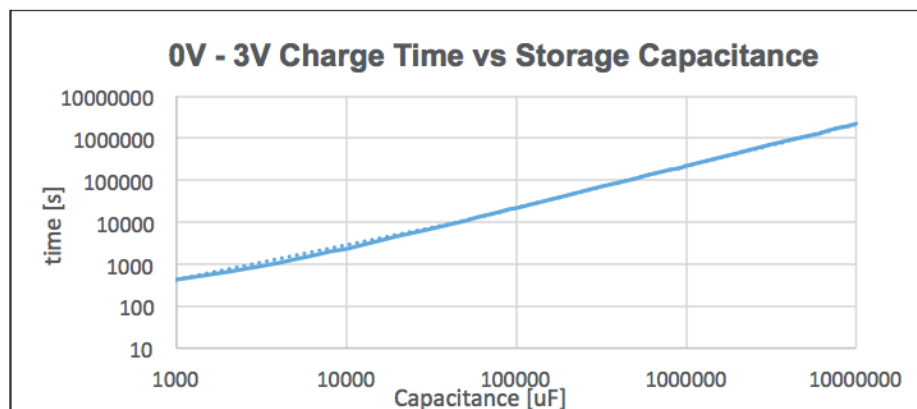
### Capacitor / Super Capacitor Storage Element Operation

The DEV-IN-BASIC is capable of running and operating with a capacitor as the storage element instead of the Li-Polymer battery. The capacitor will maintain steady power to the system while light is available.

Charge and discharge rate will be greatly affected by the size of the capacitor. If the capacitor is completely discharged (0V) the charge rate will be slower because the harvester chip is not yet fully functional. Figures below show typical charge up times vs storage capacitance size for 0V-3V and 3V-4.2V. Capacitor must be rated for 6V or greater.



3V to 4.2V charge time vs storage capacity at 300 lux.



0V-3V charge time vs storage capacitance at 300 lux.