

PowerFilm[®]

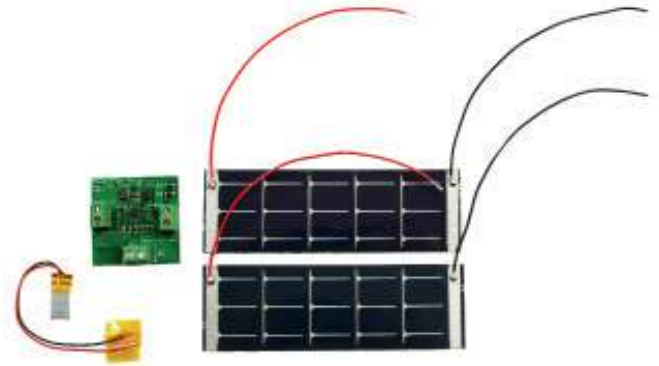
MADE IN THE USA

SOLAR

Indoor Solar Development Kit (LLDev-1)

What's In The Kit?

- Board
 - LLDEV-1 PCBA
- Panel
 - (2) LL200-3-37 Indoor Solar Panel with Leads
- Battery
 - Model: DTP301120
 - Nominal Voltage: 3.7V
 - Typical Capacity: 40 mAh
 - Includes protection circuit



Panel Dimensions

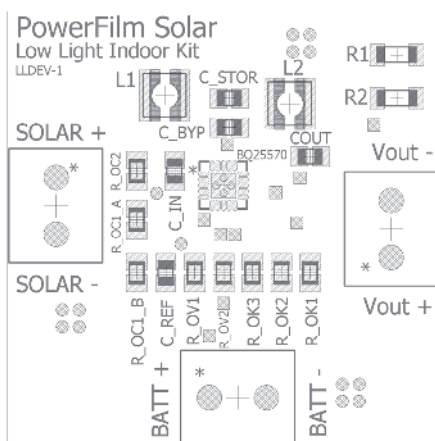
Number of Cells	Cell Width (cm)	Module Length (mm)	Panel Size (inches/mm)	Type
5	2	37	4.50 x 1.45 114 x 36.80	Single Junction

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		
Lux	V Operating	Power (mW)
200	2.1	0.17
400	2.3	0.39
600	2.4	0.67
800	2.5	0.89
1000	2.6	1.17

Board Layout



Absolute maximum open circuit voltage: 4.6V

Notes

Charge Control Configuration

The LLDEV-1 hardware is currently configured to charge a li-ion type battery with max voltage of 4.2V and the output voltage is set to 3.0V. The configuration can be customized by modifying SMD resistor dividers per the BQ25570 datasheet specifications which can be found using the link in additional resources below.

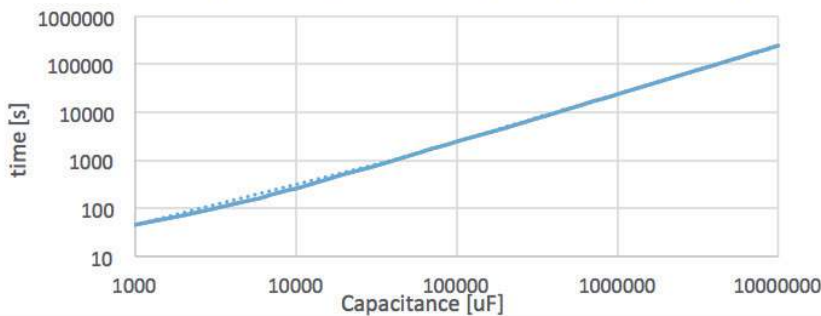
Capacitor / Super Capacitor Storage Element Operation

The LLDEV-1 is capable of running and operating with a capacitor as the storage element instead of the li-ion battery. The capacitor will maintain steady power to the system while light is available.

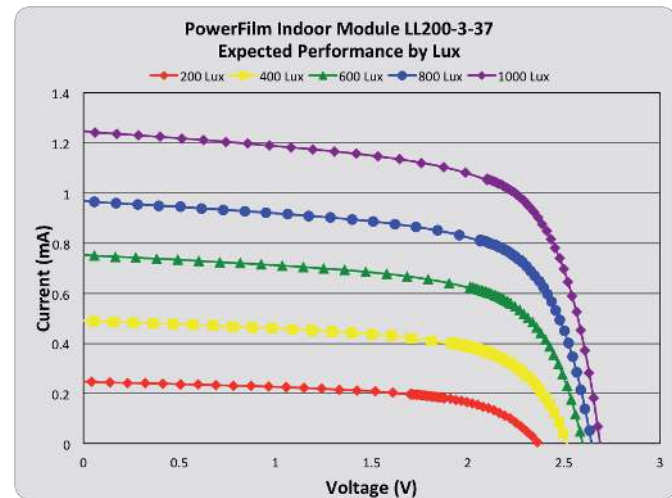
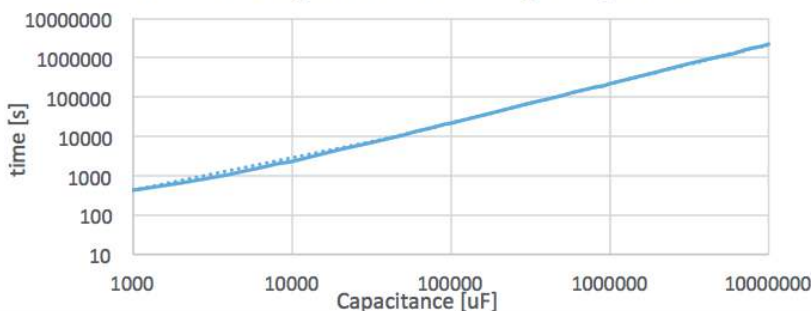
Charge and discharge rate will be greatly affected by the size of the capacitor. If the capacitor is completely discharged (0V) the charge rate will be slower because the harvester chip is not yet fully functional. Figures below show charge up times vs storage capacitance size for 0V-3V and 3V-4.2V.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

IV Curve

3V to 4.2V Charge Time vs Storage Capacitance



0V - 3V Charge Time vs Storage Capacitance



Additional Resources

[IC \(BQ25570\) Data Sheet](#)

[OEM Instructions](#)

[OEM Solar Panels](#)