

TI Designs: bq25570 Power and VI Curve



The Initial startup curve for the Energy Harvester

Setup

Device: bq25570

Current Source: Solar Cell (4 cells in series)

Pat Number: KXOB-22-04X3 Mfg: IXYS

Light level: Office Lighting with Desk lamp (600 LUX)

Open Circuit Cell Voltage: 1.022Vdc (X4 = 4.088Vdc)

MPPT @80%: 3.0Vdc

Power Level: 600uA @ 1.8mW

Storage Type: 47mF Super Capacitor

Operations

Initial Startup: <1.5Vdc, Slow charge

Normal Charge: >1.5Vdc, Fast charge

LDO Turn On: 3.90Vdc

Storage Cell Max voltage: 4.20Vdc

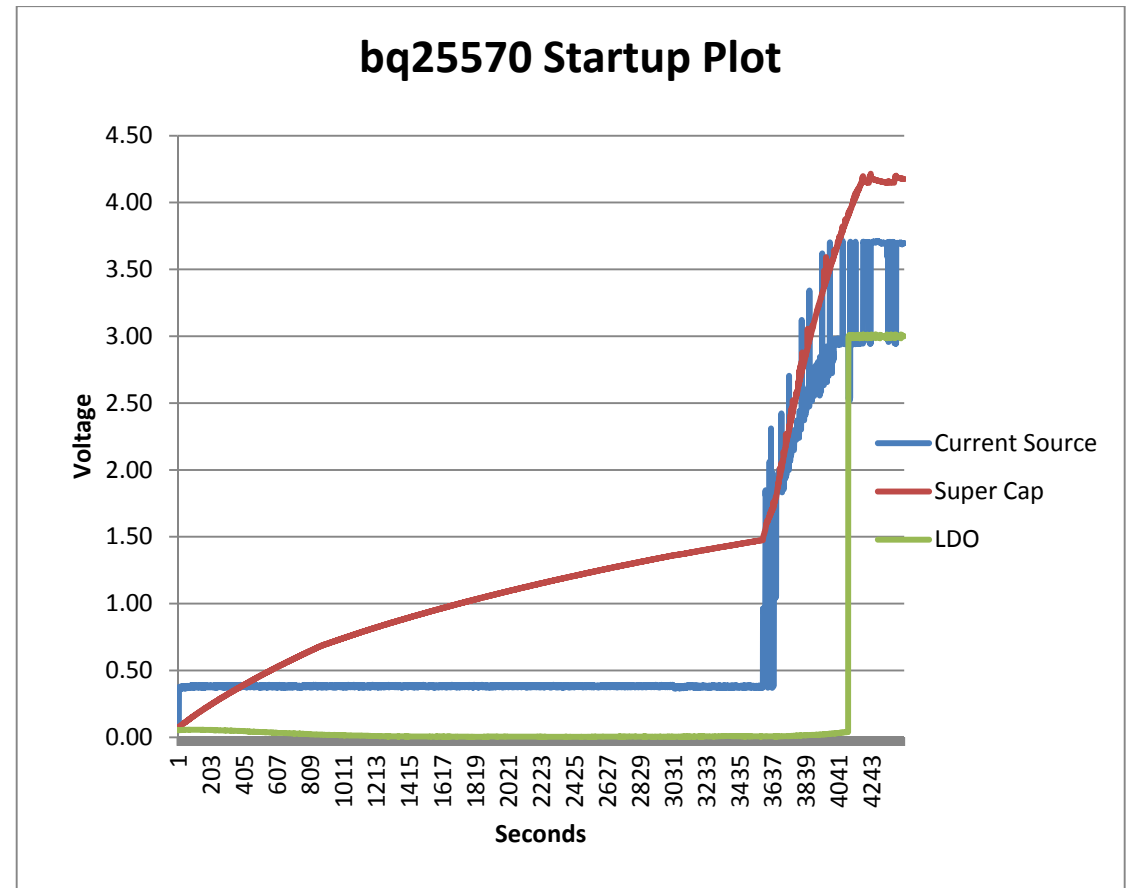
LDO Turn Off: 3.20Vdc

Plot

Sampling Interval: 1 Second

Sampling Rate: 1 sample per 1 Second

Sample Count: 4443 seconds (74.51 Minutes)



An IMPORTANT NOTICE at the end of this TI reference design addresses authorized use, intellectual property matters and other important disclaimers and information.

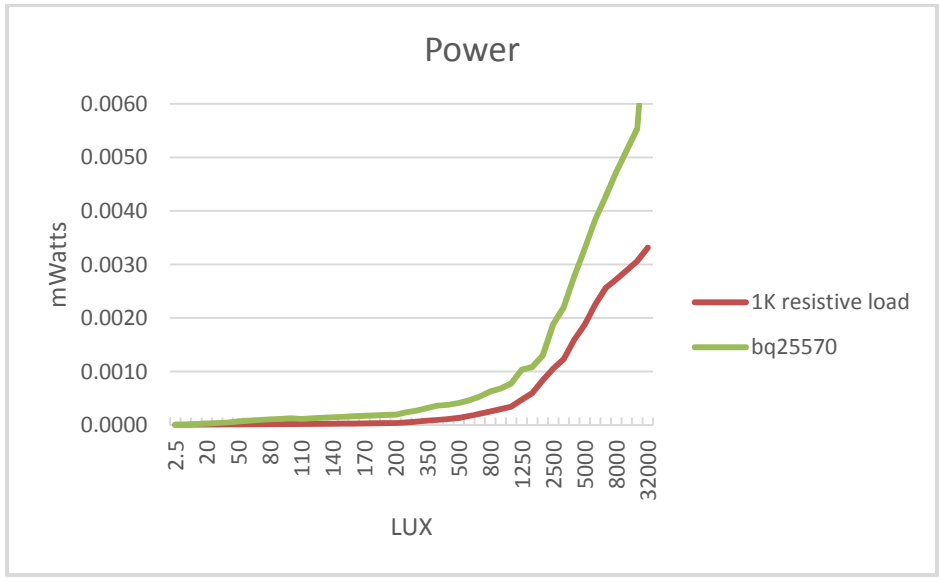
TI Designs: bq25570 Power and VI Curve



Solar Cell Data curve for a resistive load compared to the bq25570

KXOB22-04X3 Bq25570
Single solar cell Solar Cell is an KXOB-22-04X3 from IXYS

<u>Description of light source</u>	<u>Lux</u>	<u>Wattage</u>	
Family living room lights	50	0.000069	W
Office building hallway/toilet lighting	80	0.000102	W
Very dark overcast day	100	0.000126	W
Office lighting	350	0.000317	W
Sunrise or sunset on a clear day.	400	0.000363	W
Overcast day, typical TV studio lighting	1000	0.000774	W
Full daylight (not direct sun)	10000	0.005536	W
Direct sunlight	32000	0.007937	W

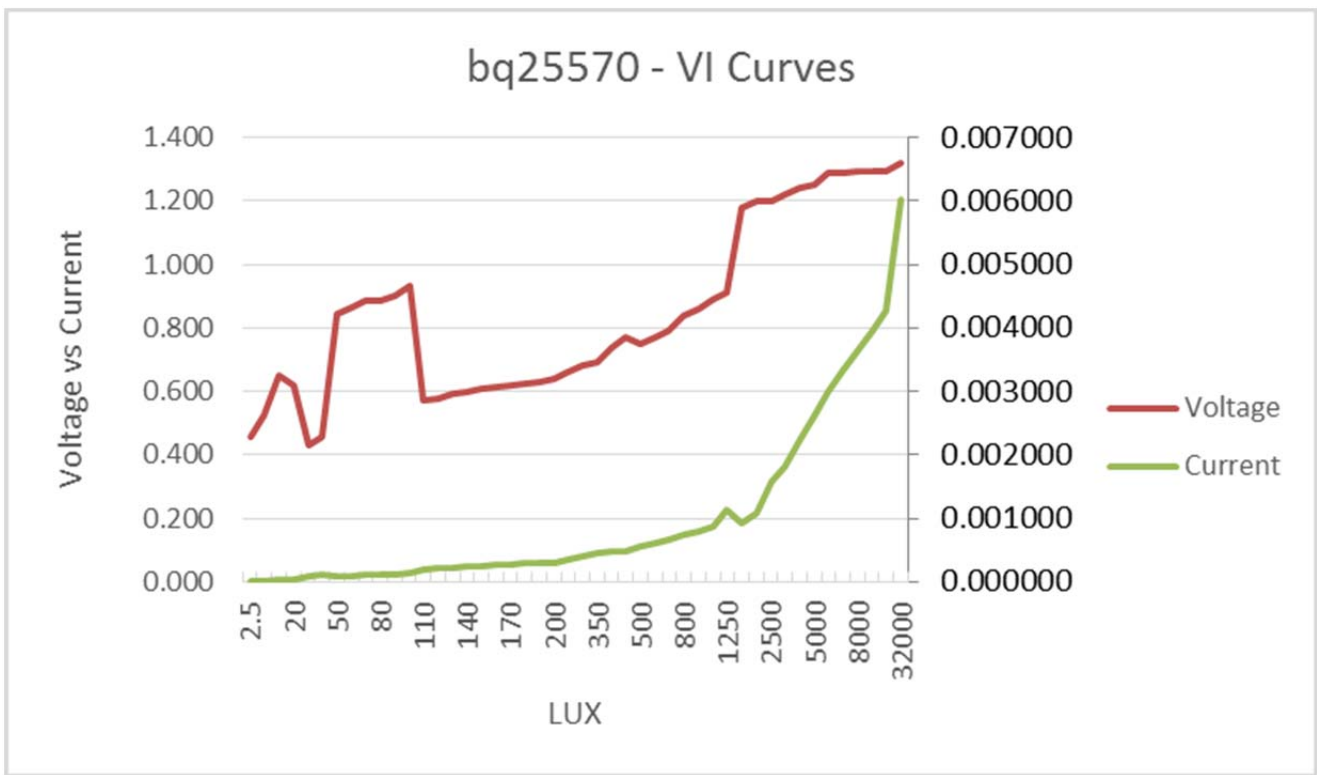


An IMPORTANT NOTICE at the end of this TI reference design addresses authorized use, intellectual property matters and other important disclaimers and information.

TI Designs: bq25570 Power and VI Curve



MPPT 80% - Voltage and Current Input regulation curves for the bq25570



An IMPORTANT NOTICE at the end of this TI reference design addresses authorized use, intellectual property matters and other important disclaimers and information.

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

TI objects to and rejects any additional or different terms you may have proposed.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2021, Texas Instruments Incorporated