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TIDA-00242

TI Designs: bq25570 Power and VI Curve

The Initial startup curve for the Energy Harvester

Setup

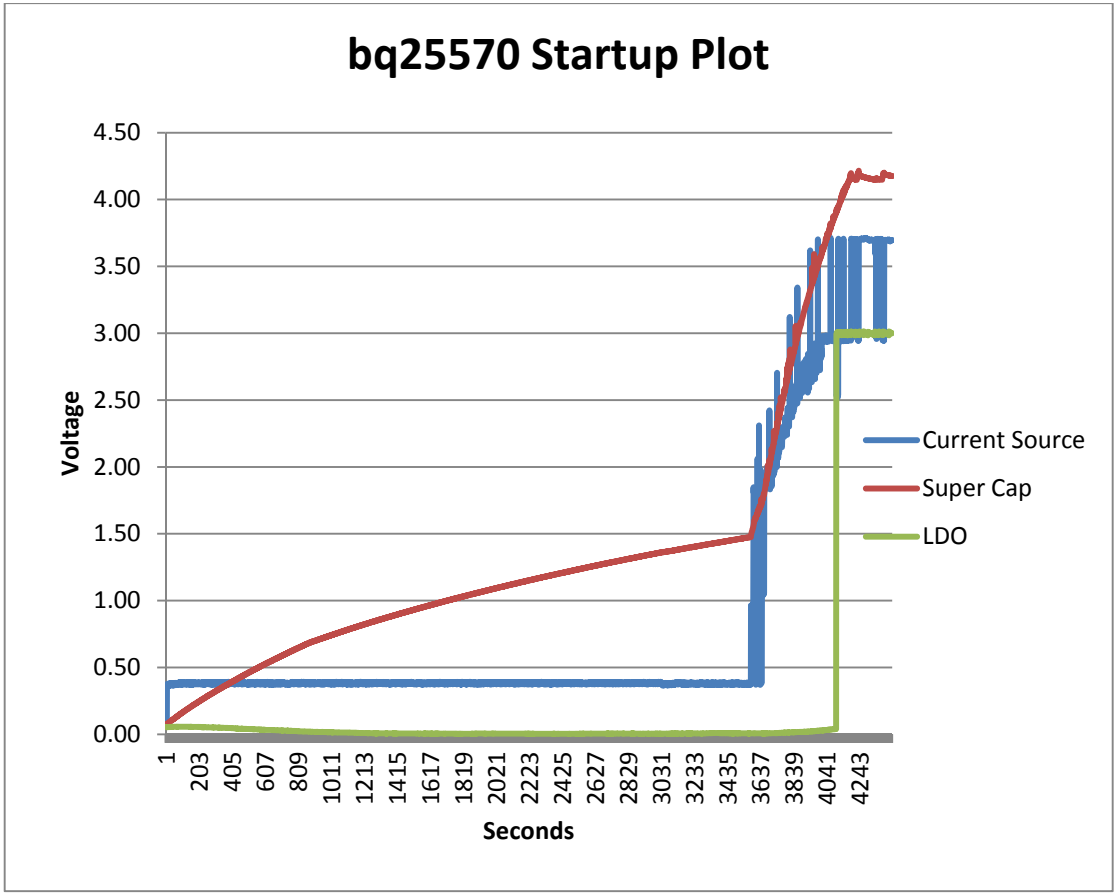
Device: bq25570
Current Source: Solar Cell (4 cells in series)
Pat Number: KXOB-22-04X3 Mfg: IXYS
Light level: Office Lighting with Desk lamp (600 LUX)
Open Circuit Cell Voltage: 1.022Vdc (X4 = 4.088Vdc)
MPPT @80%: 3.0Vdc
Power Level: 600uA @ 1.8mW
Storage Type: 47mF Super Capacitor

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)



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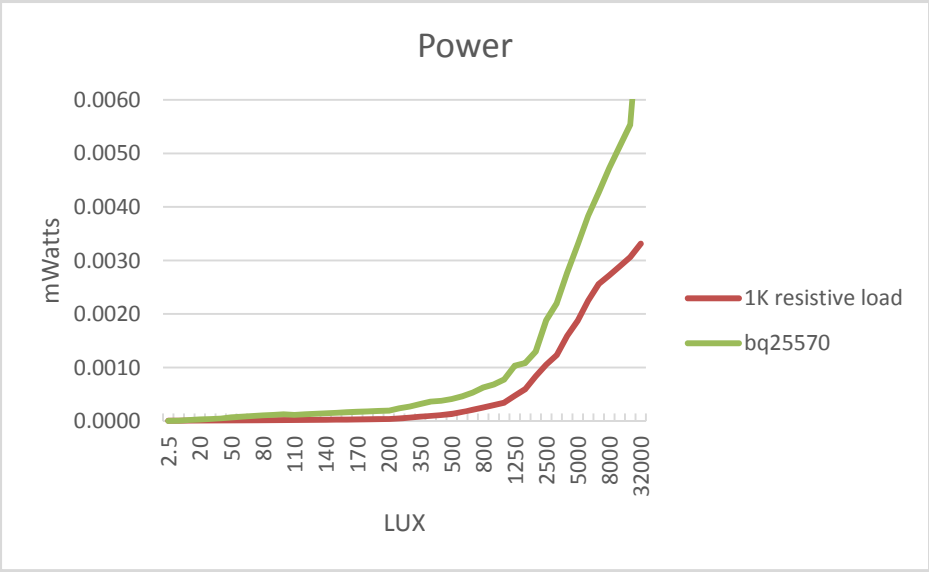
Solar Cell Data curve for a resistive load compared to the bq25570

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

Description of light source	Lux	Wattage	
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



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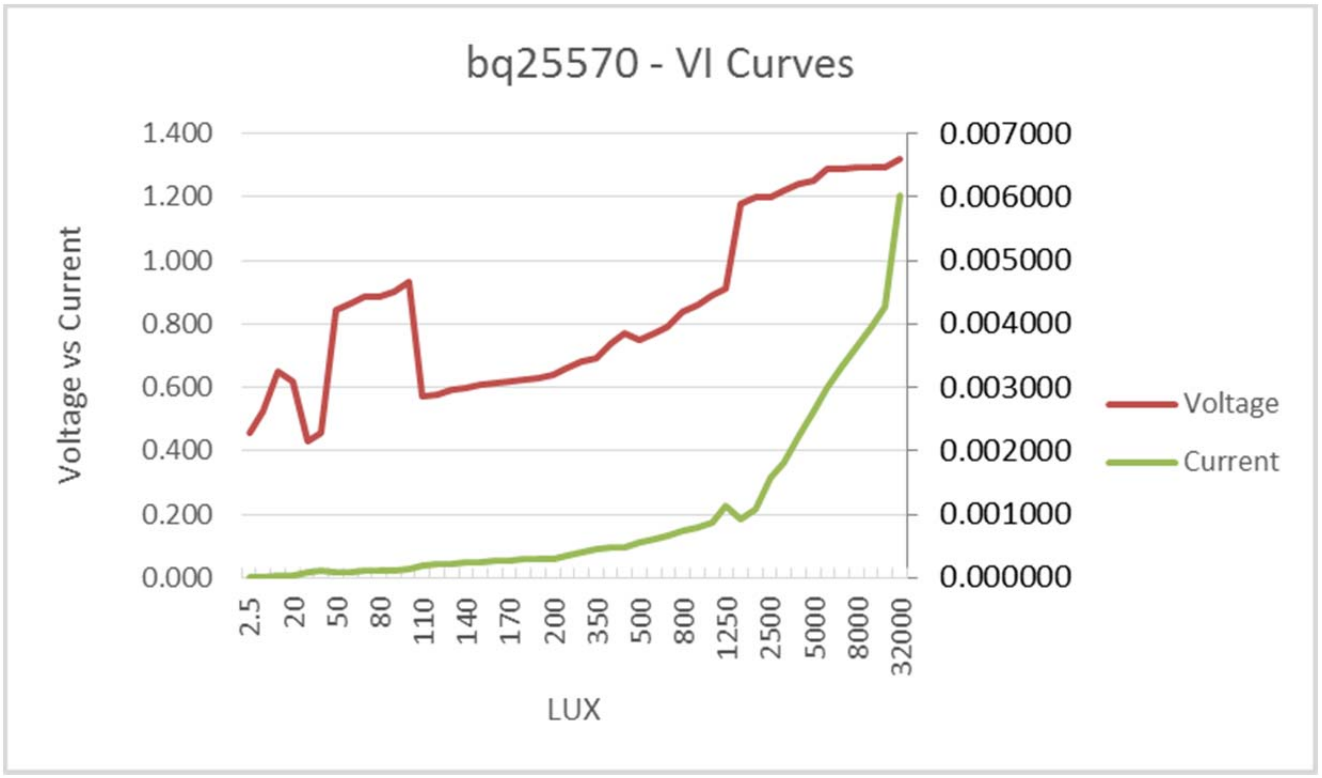
MPPT 80% - Voltage and Current Input regulation curves for the bq25570



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