WiFiMiniSolarCharger charger logic flow chart

OFF

Tcycle EXPIRED

FLOATING

Tcycle EXPIRED

BOOSTING

Tcycle EXPIRED

Tcycle nominally 10 seconds
for power loss in switching MOSFETs

MEASURE Vbb

MEASURE Vbb

CHARGER OFF

PAUSED

Tpause EXPIRED

Tpause nominally 0.1 seconds,
to allow Vpp to stabilise at open circuit value

Definitions:
Vpp: solar panel voltage
Vbb: battery voltage
lightTime: duration of daylight
darkTime: duration of absence of daylight
boostTime: duration of time spent in boost charge state
Vfloat: Voltage threshold for float state
Vboost: Voltage threshold for boost state
BoostLimit: time threshold for daily time in boost charge state

CHECK Vpp

LIGHT

DARK

INCREMENT darkTime
RESET boostTime
RESET lightTime

OFF

INCREMENT lightTime
RESET darkTime

COMPARE Vbb

Vbb<=Vfloat

Vbb>=Vboost

Vfloat<Vbb<Vboost

CHARGER ON

FLOATING

COMPARE boostTime

>=boostLimit

<boostLimit

OFF

CHARGER ON
INCREMENT boostTime

BOOSTING