

# ON Semiconductor

## Is Now

# onsemi™

To learn more about onsemi™, please visit our website at  
[www.onsemi.com](http://www.onsemi.com)

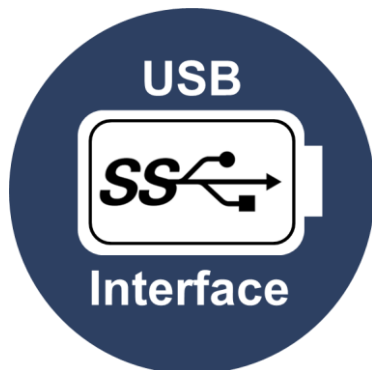
---

**onsemi** and **onsemi** and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi** product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner. Other names and brands may be claimed as the property of others.



**ON Semiconductor®**

# **Strata Enabled FUSB3307 EVB User Guide**



## Table of Contents

INTRODUCTION .....	3
Device Features .....	3
Applications .....	3
INSTALLATION .....	4
INCLUDED WITH EVALUATION KIT .....	4
STARTUP PROCEDURE .....	4
TYPE C CONNECTION .....	5
BASIC PAGE .....	6
ADVANCED PAGE .....	7
• Faults .....	8
• Foldback .....	8
• Port Section .....	9

## Introduction

The Strata enabled FUSB3307 EVB offers an easy to use User Interface (UI) within the Strata Developer Studio. Through the Strata UI, the developer can control some of the parts features as well as access the most up to date datasheets, BOMs, schematics and other collateral. This document will explain how to get the EVB up and running with Strata.

### Device Features

- PD 3.0 v1.2 and Type-C r1.4 Compliant
- Constant Voltage (CV) and Constant Current Limit (CL) Regulation
- Small Current Sensing Resistor (5 m) for High Efficiency
- Gate Driver for N-Channel MOSFET as a Load Switch
- CC1/CC2 Pin Protection up to 26 V
- Built-in Cable-Drop Compensation
- Selectable Resistor Divider or Battery Charging (BC1.2) Modes
- Built-in Output Capacitor Bleeding Function for Fast Discharge
- Adaptive UVP, Adaptive OVP, OTP and VBUS Fault Detection

### Applications

- Battery Wall Chargers for Tablet PC's and Laptops
- AC-DC PD3.0 Compliant Adapters
- DC-DC Car Chargers for Individual Port Power Control

## Installation

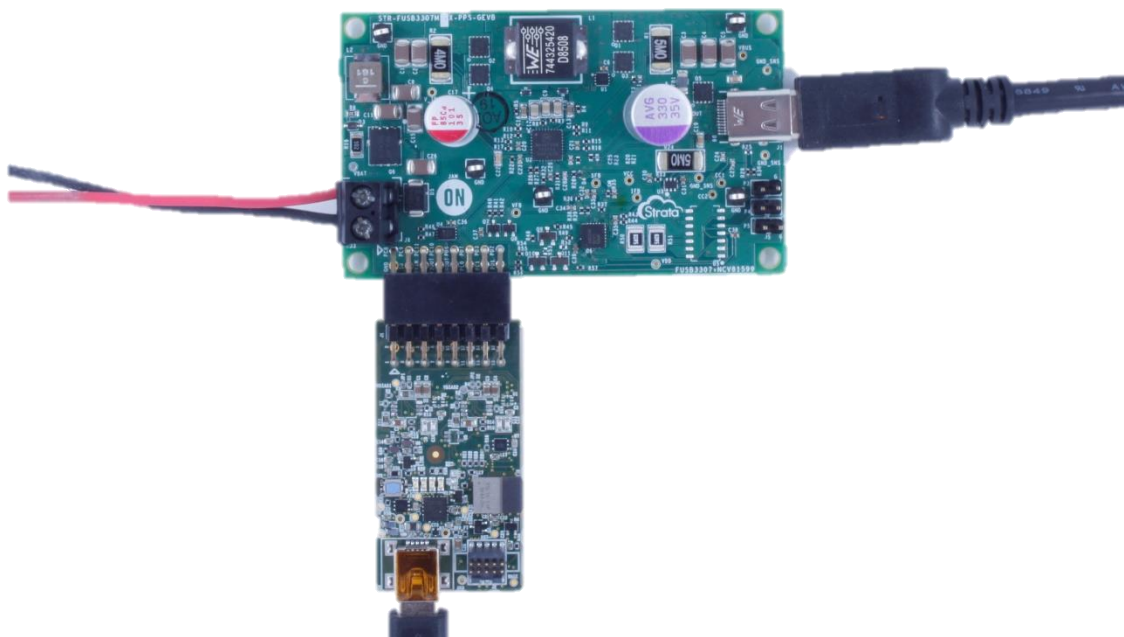
Go to [www.onsemi.com/strata](http://www.onsemi.com/strata) to download the most recent version of Strata and follow the installation prompts.

## Included with Evaluation Kit

1. PCB with Strata Linked Board
2. USB Mini-B cable

## Startup Procedure

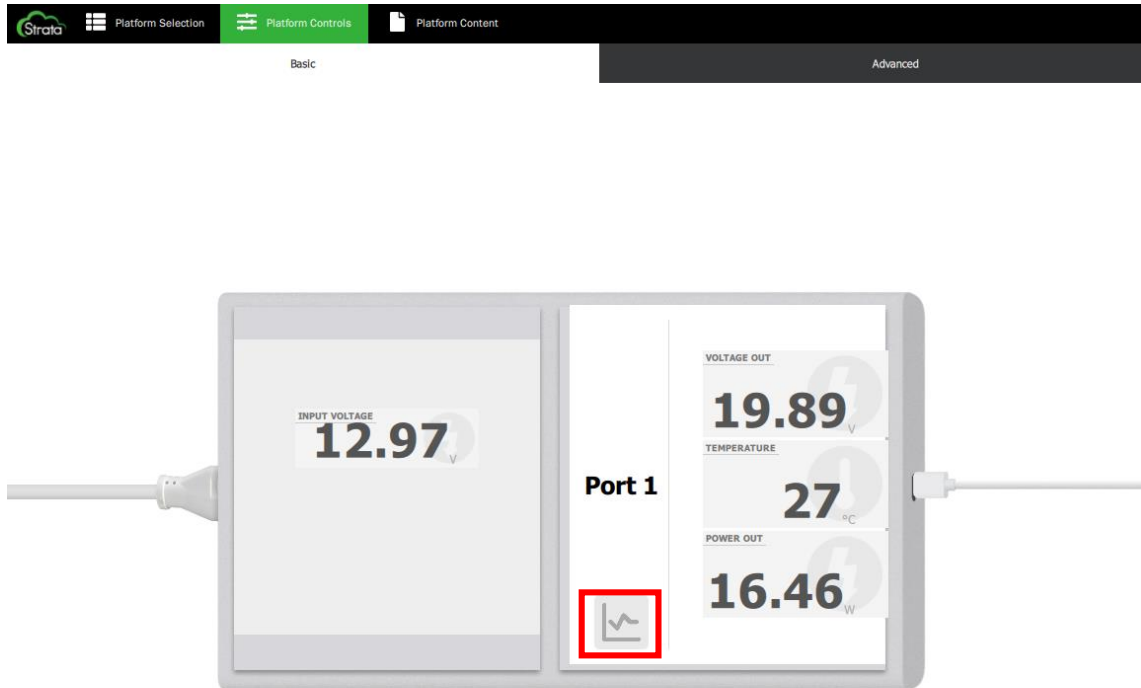
1. Connect a power supply to the 2 pin screw terminal
  - a. 4.5V to 32V can be used
    - i. Depending on the load a current limit will be seen if the input voltage is too low
2. Connect your computer to the board using a USB Mini-B cable
3. Login with your credentials
4. Your board will be detected, UI will appear, and relevant collateral will be downloaded to your computer



FUSB3307 EVB with Strata Linked EVB

## Type C Connection

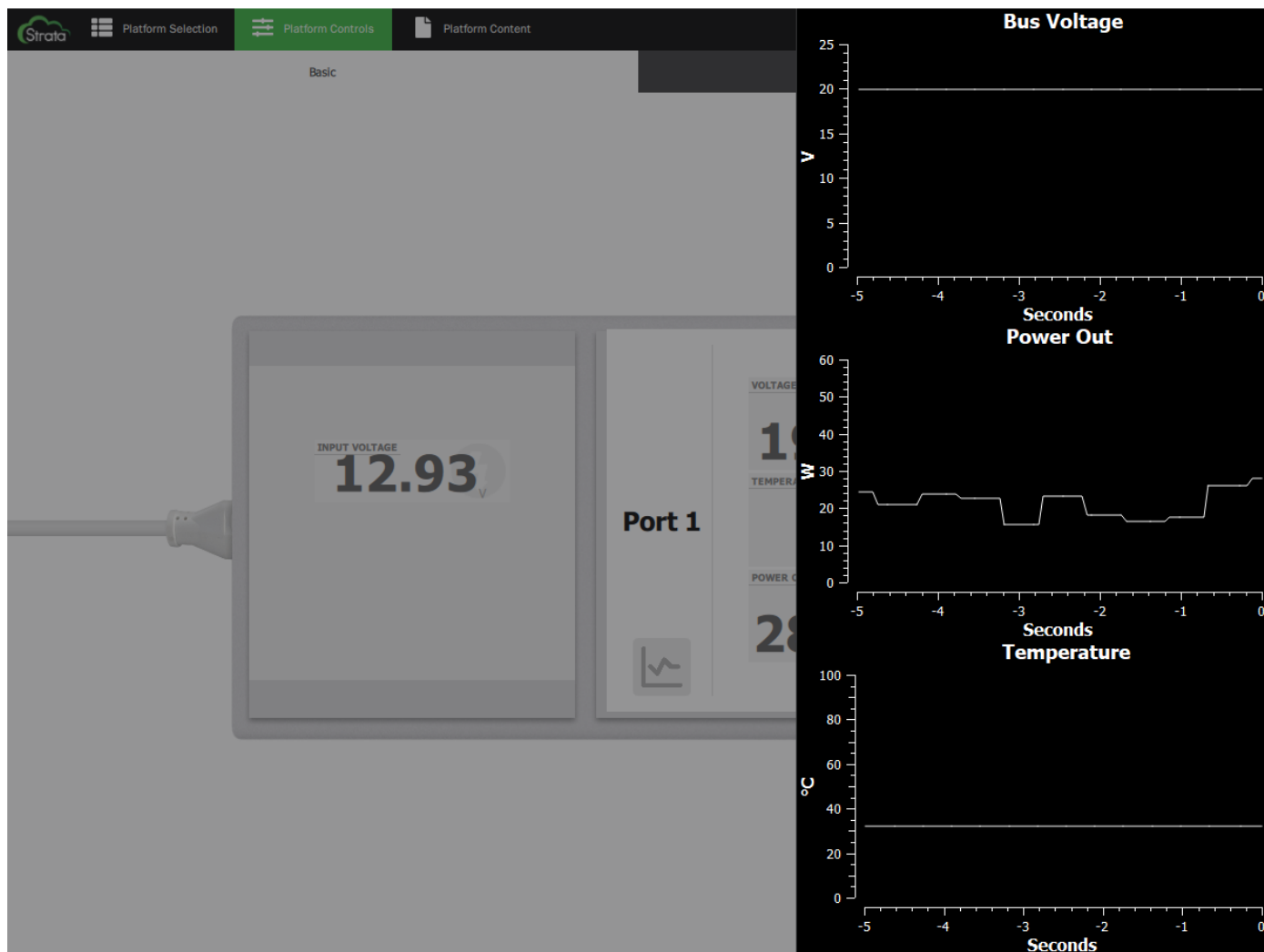
1. Connect a type C cable to the EVB and connect the other end to a type-C device
  - a. If a non-PD device is used a maximum VBUS voltage of 5V is available
2. The device should show up as seen below



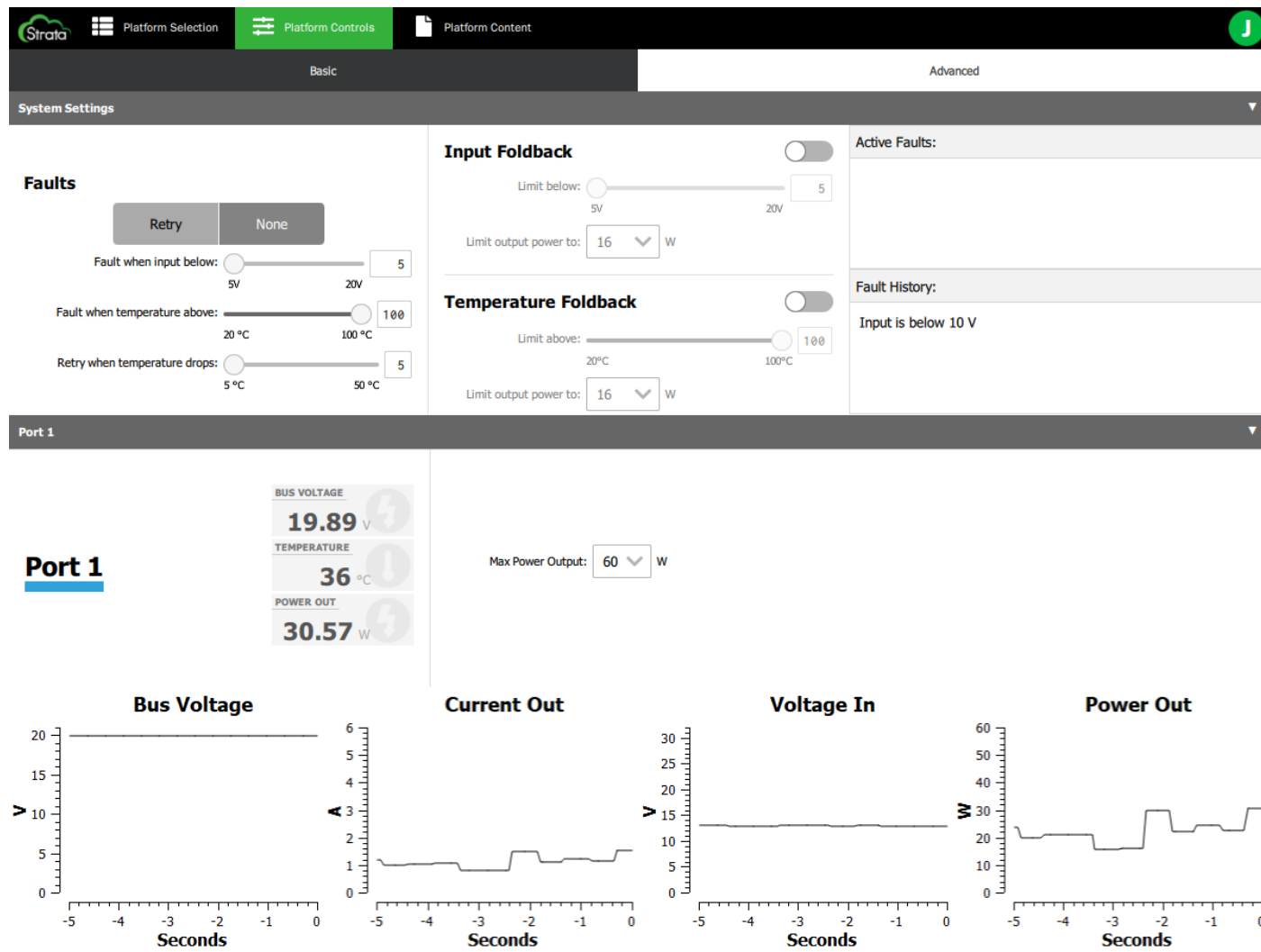
## Basic Page

The basic page is the first page that shows up when a device is connected. It will include the basic parameters Vin, VBUS, Board Temperature and Power Out.

Graphs for VBUS, Power out and temperature are available by clicking the graph button. See red square in image above. The graphs are live data and can be seen in the image below.



## Advanced Page



Among the live telemetry the advanced page includes output power control as well as protection features. These include the following:

- Bus Voltage** – Voltage measured on the Type C connector
- Current Out** – Current that is through the Type-C connector
- Power Out** – Calculated output power using the Bus voltage and output current
- Voltage In** – Input voltage to from the screw terminal
- Temperature** – Temperature in °C of the EVB
  - It is measured close to the boost high side MOSFET
  - Usually the hottest part of the board
- Input Fault** – Range is 5V and 20V
- Temperature Fault** – Range is 20°C to 100°C
- Input Foldback** – Range of 5V to 20V
  - Power limits** – [30, 60]W
- Temperature Foldback** – Range of 20°C to 100°C
- Active Faults** – Shows current faults
- Fault History** – Shows all faults while board is connected
- Max Power Output** – Limits of [30, 60]W are available



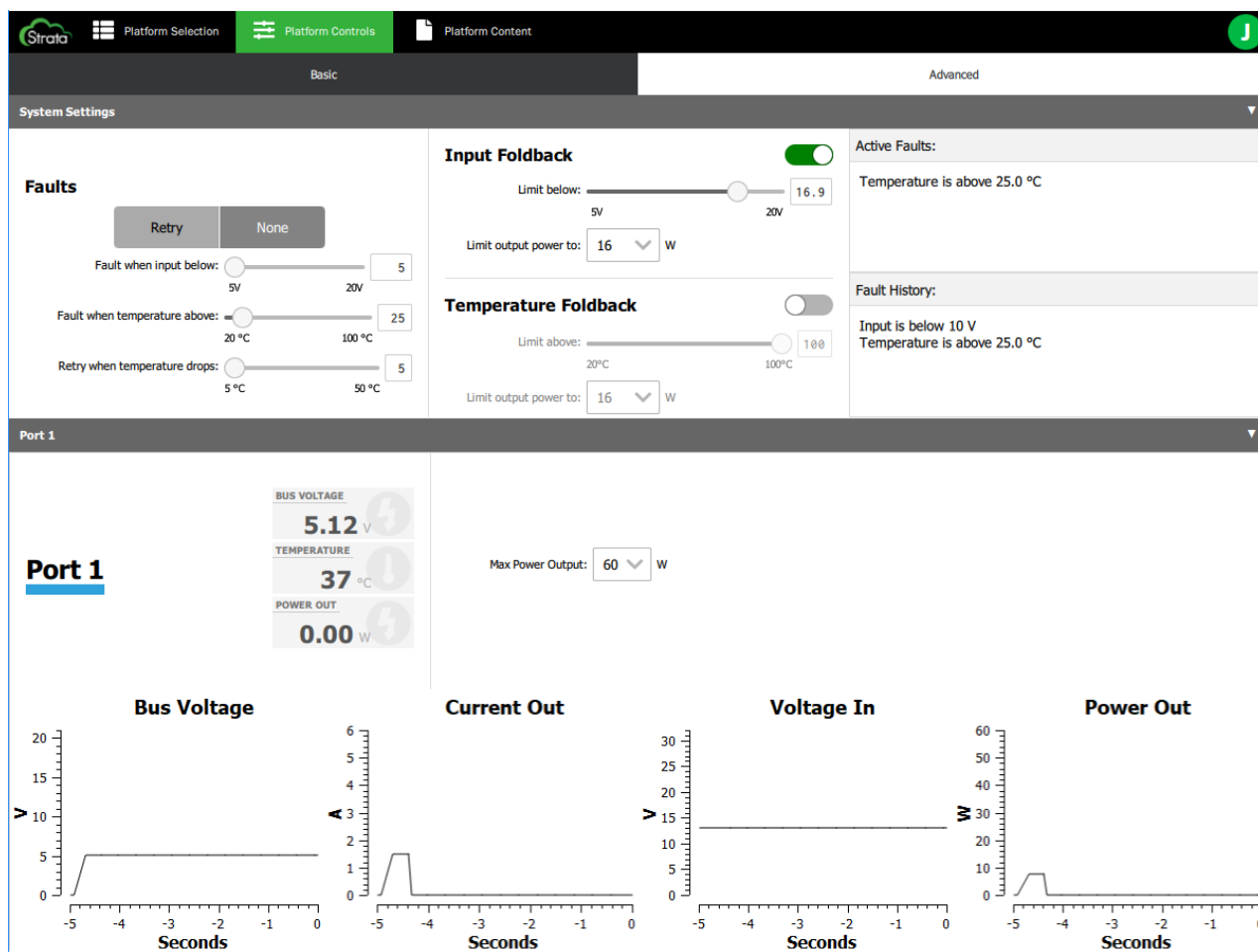
## Faults

In the faults section allows the user to set fault protection for exceeding high temperatures, or low input voltages. There are two actions that will be taken.

1. **None** – Will not enable any protection, but will still show up in the active faults when tripped
2. **Retry** - Activates the protection feature
  - a. Sets the maximum output power to 30W
  - b. Input fault – Once the voltage rises above the set value the power setting will return to the original state
  - c. Temperature fault – Once the temperature falls below the value by the hysteresis value the power will return to its original setting
  - d. Temperature Hysteresis – Range of 5°C to 50°C in 5°C increments

## Foldback

1. **Input** - Allows the user to set a minimum input voltage for normal operation. The range is from 5V to 20V in increments of 100mV. Power settings are [30, 60]W
2. **Temperature** – Limits the power when the board temperature is above the threshold. Range is from 20°C to 100°C in increments of 5°. There is a non-adjustable hysteresis of 5°C



## Port Section

The lower section of the advanced page is where the normal operation can be configured. The Max Power Output drop down box has 2 settings: [30, 60] W. All of the live telemetry is also visible in this section.

Please note that the output voltage cannot be selected. Selecting a different power setting may not have an effect on the output voltage.

ON Semiconductor and the ON Semiconductor logo are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

The evaluation board/kit (research and development board/kit) (hereinafter the "board") is not a finished product and is as such not available for sale to consumers. The board is only intended for research, development, demonstration and evaluation purposes and should as such only be used in laboratory/development areas by persons with an engineering/technical training and familiar with the risks associated with handling electrical/mechanical components, systems and subsystems. This person assumes full responsibility/liability for proper and safe handling. Any other use, resale or redistribution for any other purpose is strictly prohibited.

The board is delivered "AS IS" and without warranty of any kind including, but not limited to, that the board is production-worthy, that the functions contained in the board will meet your requirements, or that the operation of the board will be uninterrupted or error free. ON Semiconductor expressly disclaims all warranties, express, implied or otherwise, including without limitation, warranties of fitness for a particular purpose and non-infringement of intellectual property rights.

ON Semiconductor reserves the right to make changes without further notice to any board.

You are responsible for determining whether the board will be suitable for your intended use or application or will achieve your intended results. Prior to using or distributing any systems that have been evaluated, designed or tested using the board, you agree to test and validate your design to confirm the functionality for your application. Any technical, applications or design information or advice, quality characterization, reliability data or other services provided by ON Semiconductor shall not constitute any representation or warranty by ON Semiconductor, and no additional obligations or liabilities shall arise from ON Semiconductor having provided such information or services.

The boards are not designed, intended, or authorized for use in life support systems, or any FDA Class 3 medical devices or medical devices with a similar or equivalent classification in a foreign jurisdiction, or any devices intended for implantation in the human body. Should you purchase or use the board for any such unintended or unauthorized application, you shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the board.

This evaluation board/kit does not fall within the scope of the European Union directives regarding electromagnetic compatibility, restricted substances (RoHS), recycling (WEEE), FCC, CE or UL, and may not meet the technical requirements of these or other related directives.

FCC WARNING – This evaluation board/kit is intended for use for engineering development, demonstration, or evaluation purposes only and is not considered by ON Semiconductor to be a finished end product fit for general consumer use. It may generate, use, or radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to part 15 of FCC rules, which are designed to provide reasonable protection against radio frequency interference. Operation of this equipment may cause interference with radio communications, in which case the user shall be responsible, at its expense, to take whatever measures may be required to correct this interference.

ON Semiconductor does not convey any license under its patent rights nor the rights of others.

LIMITATIONS OF LIABILITY: ON Semiconductor shall not be liable for any special, consequential, incidental, indirect or punitive damages, including, but not limited to the costs of requalification, delay, loss of profits or goodwill, arising out of or in connection with the board, even if ON Semiconductor is advised of the possibility of such damages. In no event shall ON Semiconductor's aggregate liability from any obligation arising out of or in connection with the board, under any theory of liability, exceed the purchase price paid for the board, if any.

---

## PUBLICATION ORDERING INFORMATION

### LITERATURE FULLFILLMENT:

Literature Distribution Center for ON Semiconductor 19521 E.  
32nd Pkwy, Aurora, Colorado 80011 USA

**Phone:** 303-675-2175 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 303-675-2176 or 800-344-3867 Toll Free USA/Canada  
**Email:** [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

### N. American Technical Support:

800-282-9855 Toll Free USA/Canada

### Europe, Middle East and Africa Technical Support:

Phone: 421 33 790 2910

### ON Semiconductor Website:

<https://www.onsemi.com/>

### Order Literature:

<https://www.onsemi.com/orderlit>

For additional information, please contact your local Sales Representative