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LED Power Solutions Evaluation Board User Guide

April, 2019 – Rev. 0

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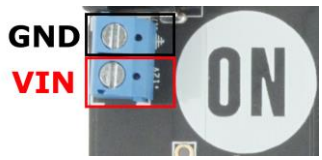
Startup Procedure

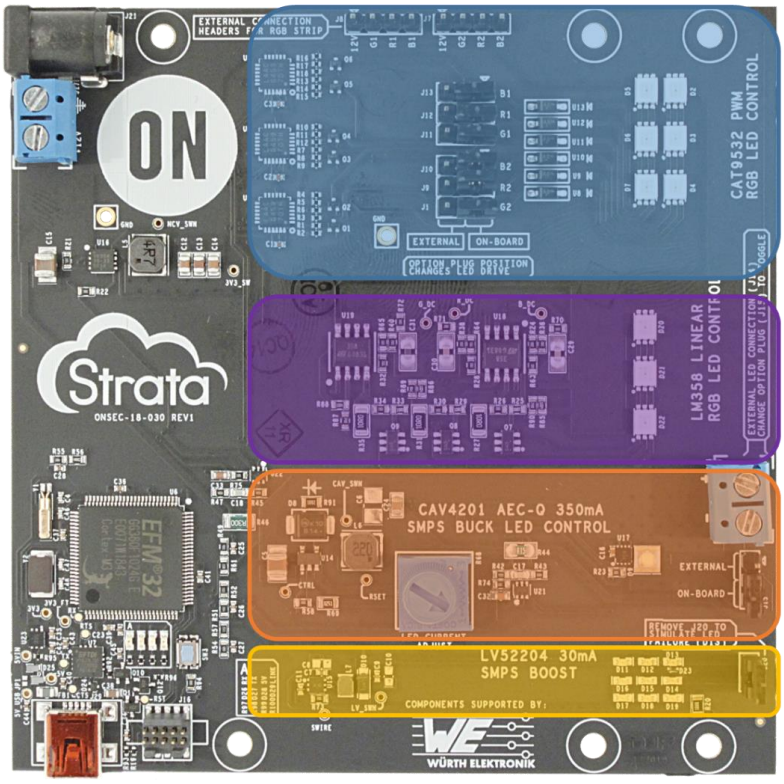
Note: Must have ‘Strata.exe’ installed, as well as an active internet connection to download USB Serial Port drivers if necessary.

Step 1: Plug in provided power supply into a DC connector at the top-left of the board

- Option 1: Barrel Connector
  - 5.5mm (O.D.) with VIN on center post
- Option 2: Screw Terminal



- An alternate supply of 5-24V may be used
  - Recommend 10W+ input capability for full LED testing
  - 10V or more needed for RGB (PULSE and LINEAR) due to LED forward voltage and series connection



PULSE
2-Channel PWM RGB Control

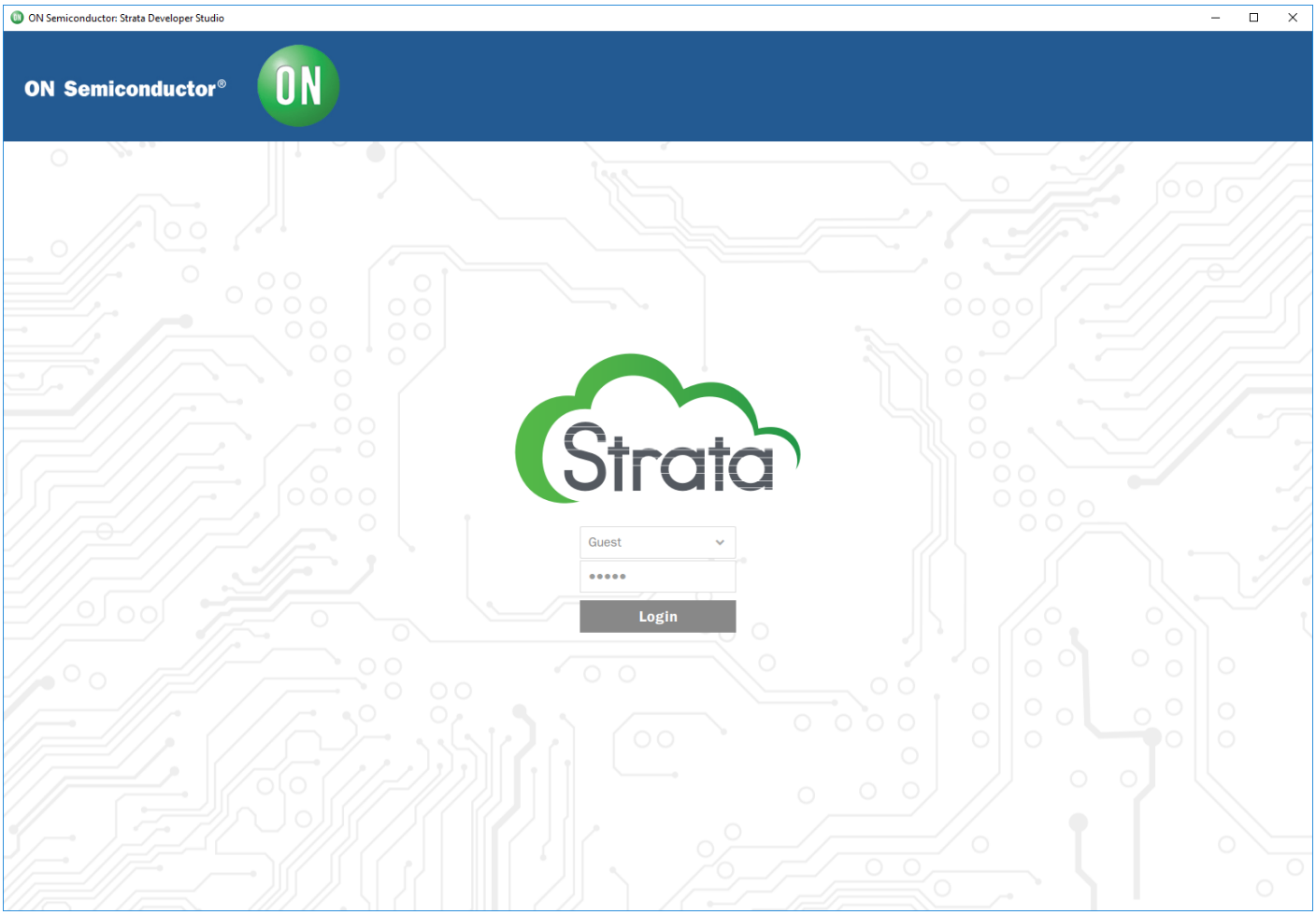
LINEAR
1-Channel Linear RGB Control

BUCK
High Current (350mA) AECQ Buck Controller

BOOST
Boost Controller for LED Backlighting

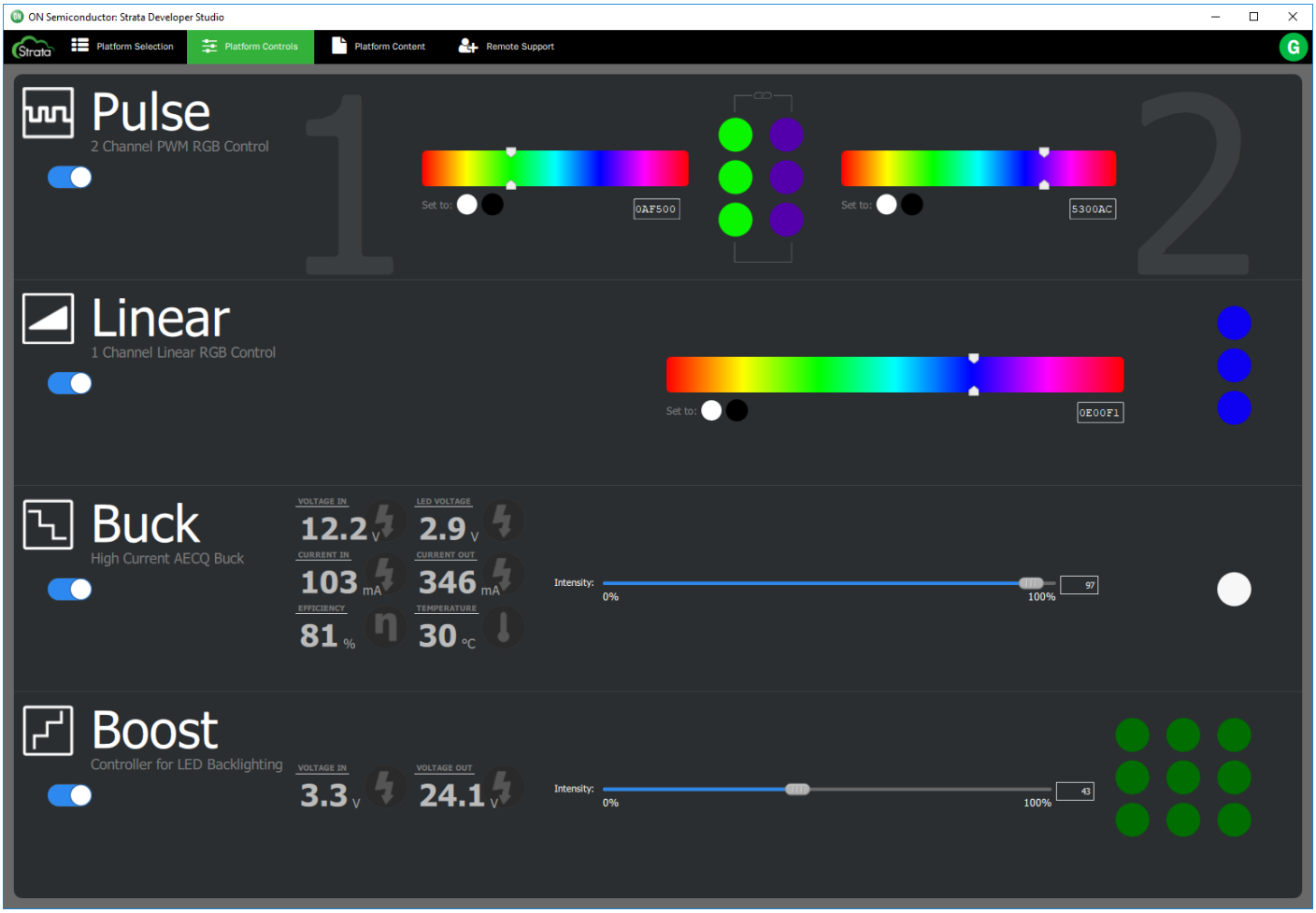
Step 2: Open the ‘Strata’ application found at onsemi.com/strata and press ‘Continue’

Step 3: Login to Strata as a Guest. Press ‘Login’ button.



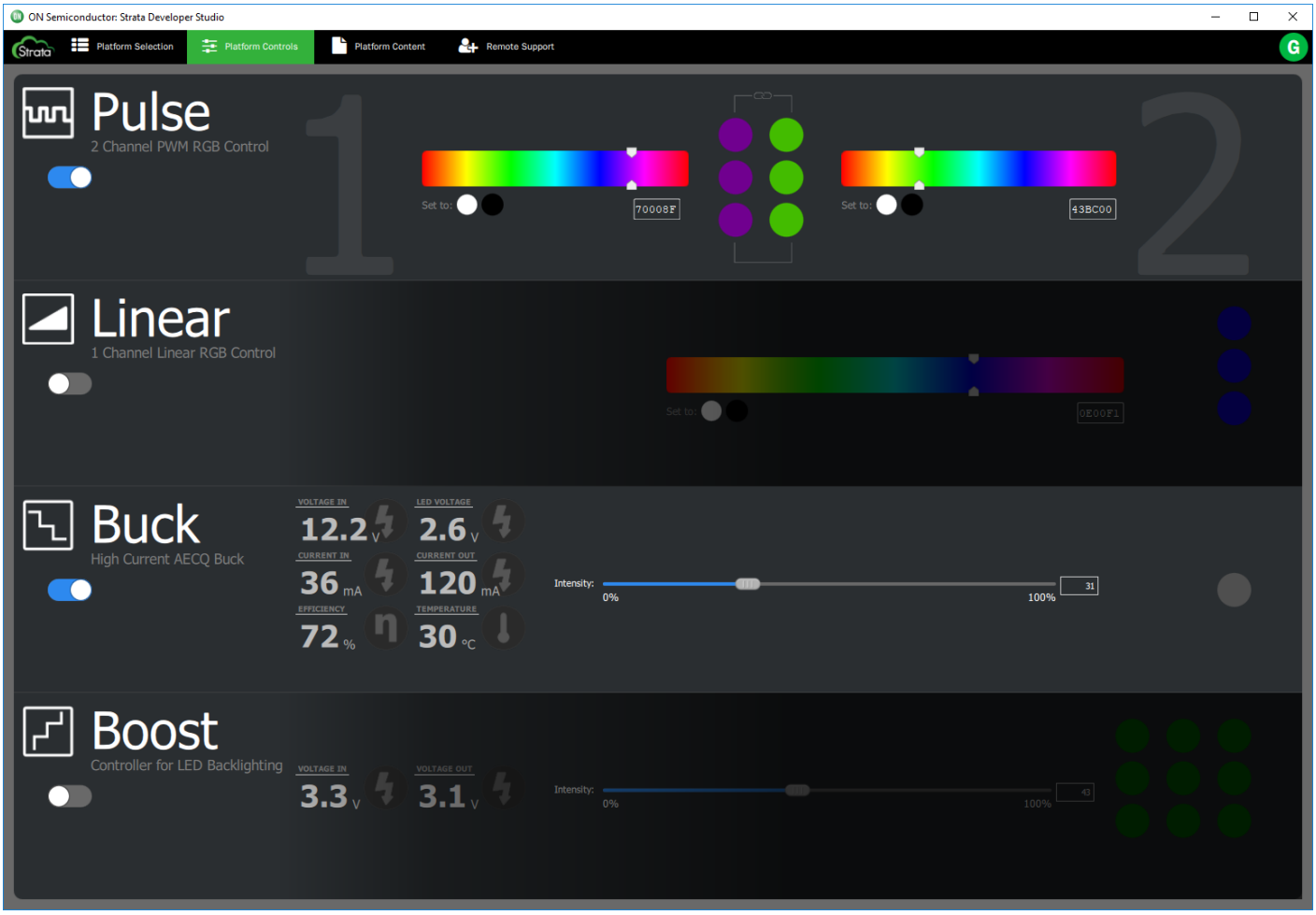
Step 4: Plug USB Mini-B into the EVK and PC.

- This will bring up the LED controls within Strata



Step 5: Adjust LED settings.

- Under each LED control section on the left side, the enable can be toggled on or off via the horizontal toggle switch
- For enabled connections, color and intensity can be adjusted with sliders or the text box
    - PULSE
        - Color slider and HEX color code box per channel
        - White (all-on)/Black (all-off) buttons per channel
        - Link to make both channels the operate to the same colors
    - LINEAR
        - Color slider and HEX color code box
        - White (all-on)/Black (all-off) buttons
    - BUCK
        - Intensity slider and Percentage (0-100%) text box
    - BOOST
        - Intensity slider and Percentage (0-100%) text box
- Telemetry readouts will be provided where available
    - BUCK
        - Input Voltage, LED Voltage, Input Current, LED Current, Efficiency, Temperature
    - BOOST
        - Input Voltage, BOOST Output Voltage



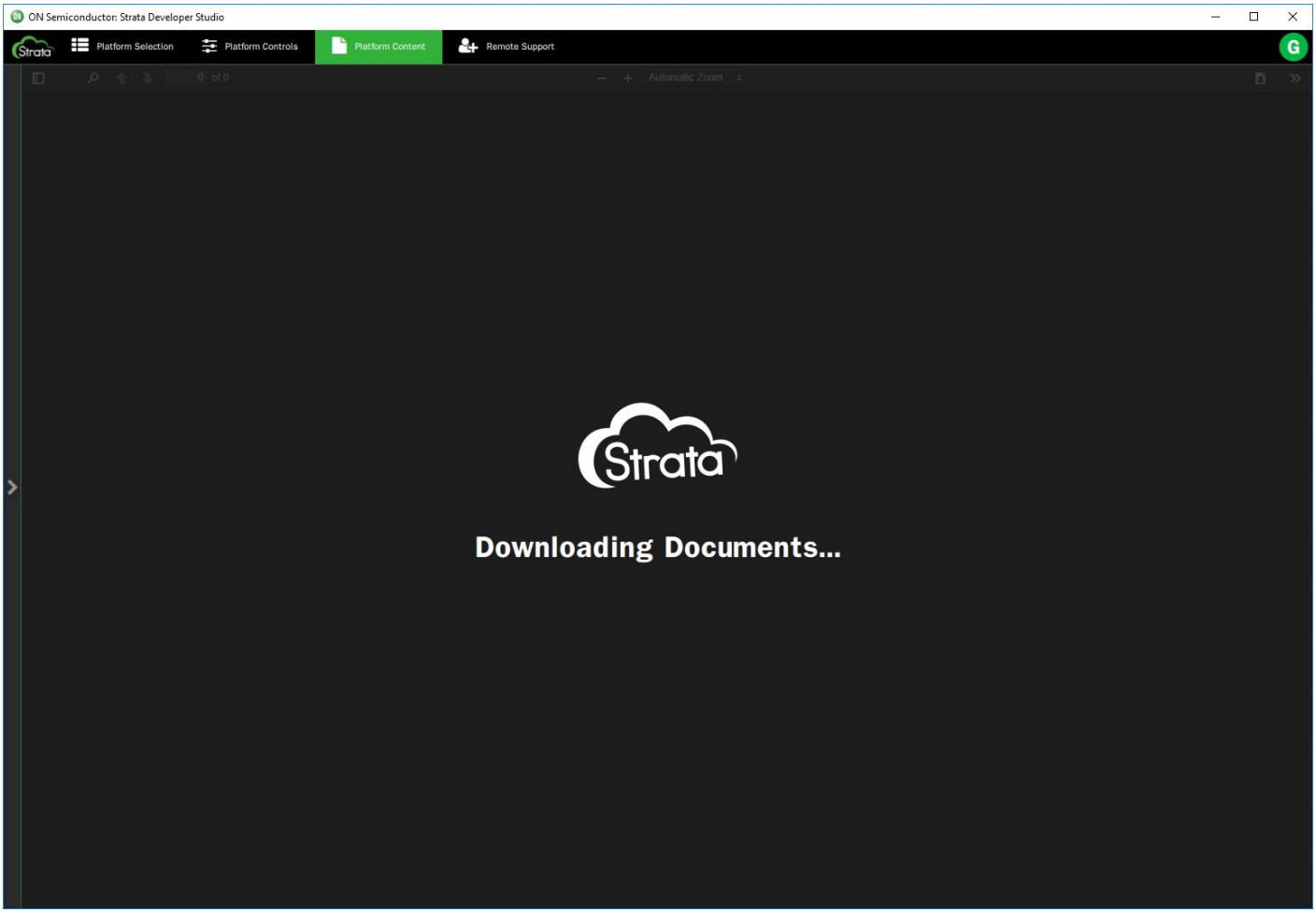
Collateral Viewing

Click the “Platform Content” Button at the top of Strata to view system content.

Note: While content is stored to your computer, an internet connection ensures that you always have the latest versions

Available collateral includes:

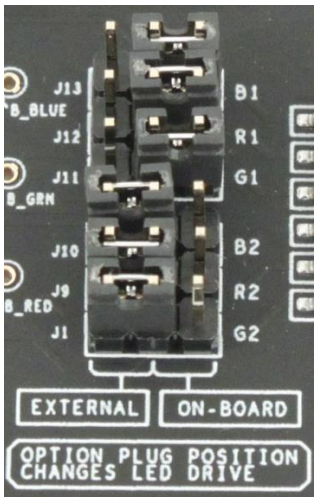
- Schematic
- Layout
- BOM
- Test Report
- User Guide
- FAQ



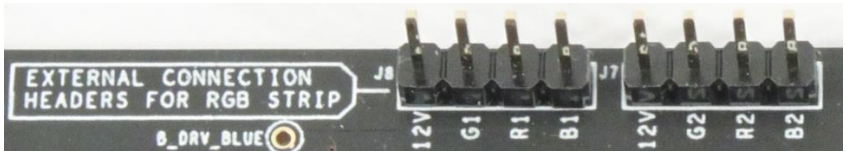
LED Power Solutions Control and External Features

Pulse

- RGB Color sliders provided to change LED color
  - 6-digit HEX color code may also be manually typed
    - RED – FF0000
    - GREEN – 00FF00
    - BLUE – 0000FF
    - MAGENTA – FF00FF
    - AQUAMARINE – 7FFFDA
    - Etc…
- External Connection for RGB Strips via 4 pin header
  - To use external connection, adjust option plug (J1,9,10,11,12,13) from ‘ON-BOARD’ to ‘EXTERNAL’



  - Pinout for external connections are Vin (12V provided), Green PWM, Red PWM, Blue PWM



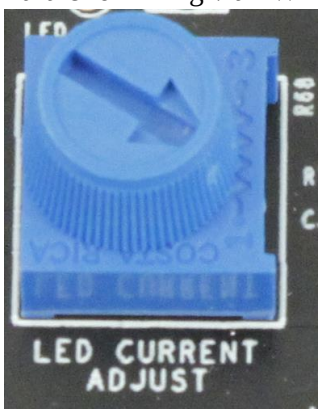
NOTE: Current limit is not provided. Make sure RGB strip has built in current limiting

Linear

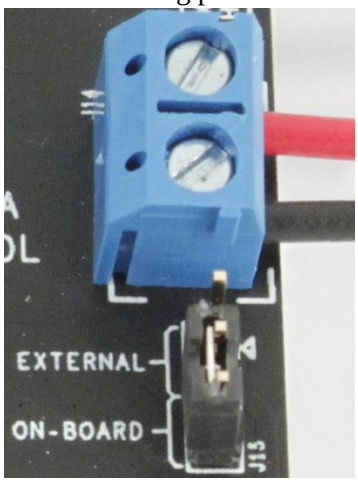
- RGB Color sliders provided to change LED color
  - 6-digit HEX color code may also be manually typed

Buck

- A PWM slider is provided to change PWM intensity percentage
  - Text box may also be manually typed to 1% increments
  - Adjusting the potentiometer R68 will change max regulated LED current from 350mA to 60mA Further dimming via PWM is still available through the user interface

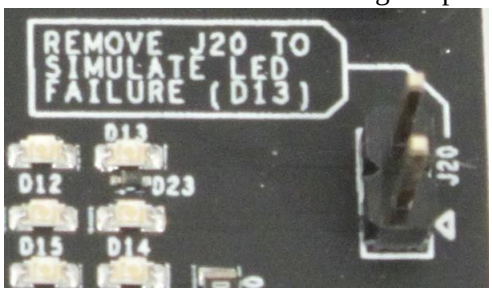


- Telemetry
  - Live readouts are provided for Vin, Vled, Iin, Iled, efficiency, and temperature of the on-board LED
- External Connection for high current LEDs provided via screw terminal J14
  - To use external LED connection, adjust option plug J15 from ‘ON-BOARD’ to ‘EXTERNAL’
  - LED voltage must be less than supplied input voltage
    - If using provided 12V supply, Vled external must be less than 11.9V



Boost

- A PWM slider is provided to change PWM intensity percentage
  - Text box may also be manually typed to 1% incremented
- Simulated LED Failure
  - Removal of the option plug J20 will simulate an LED failure (fails open) of D13. The parallel shunt device HBL5006 (D23) will continue to pass current when D13 is removed from the series string and continue to allow the LED string to operate



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