

QSG157: USB High Power Type-C 60W Charger Reference Design (SLRDK1001A)



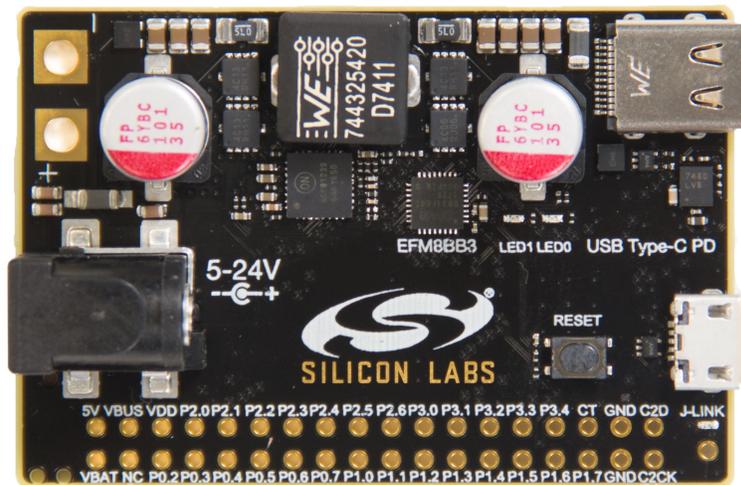
SLRDK1001A is a reference design for a small and cost effective USB Type-C 60W charger. A Silicon Labs EFM8BB3 Busy Bee microcontroller is used for USB Type-C Power Delivery (PD) negotiation.

The USB Type-C 60W Charger Reference Design ships with ready-to-use demo firmware that is capable of operating in source mode, delivering up to 60 W (3.0 A at 20 V) of output power.

An on-board SEGGER J-Link debugger enables easy customization and development.

KIT CONTENTS

- EFM8BB3 USB Type-C 60W Charger Reference Design Board
- USB Type-C cable
- USB micro cable
- Getting Started card



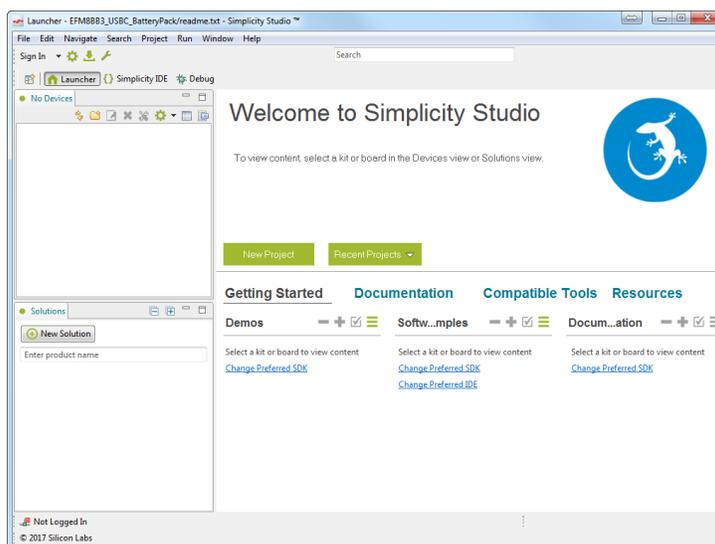
1. Getting Started

Set Up the Hardware

1. Supply 5-24V to the board using either:
 - A bench power supply (not provided) connected to the two test points on the left side of the board.
 - An AC-to-DC adapter, such as Toshiba PA3396U-1ACA or PA3467U-1ACA (not provided) connected to the 2.5mm barrel connector.
2. Connect a USB Type-C device (phone, tablet, laptop, etc.) to the board.
3. Observe the USB Type-C device is being powered by the board.

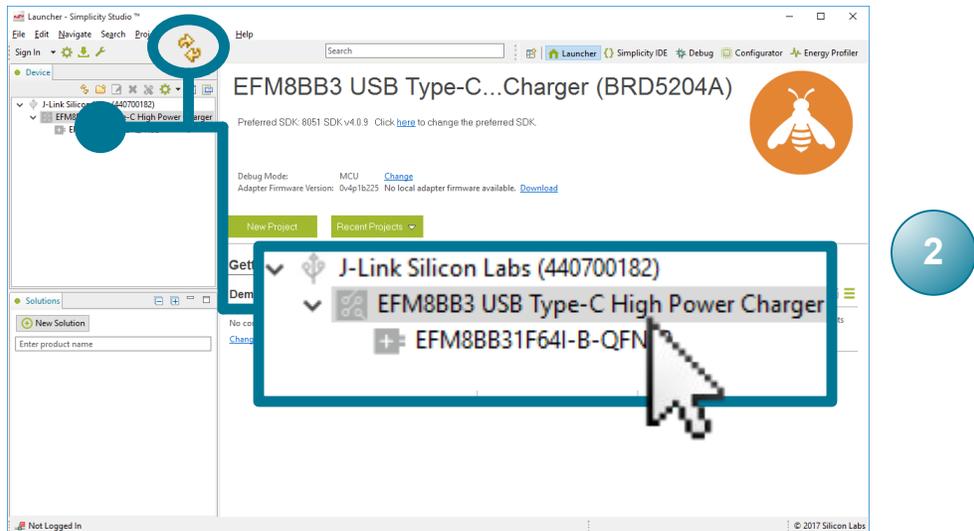
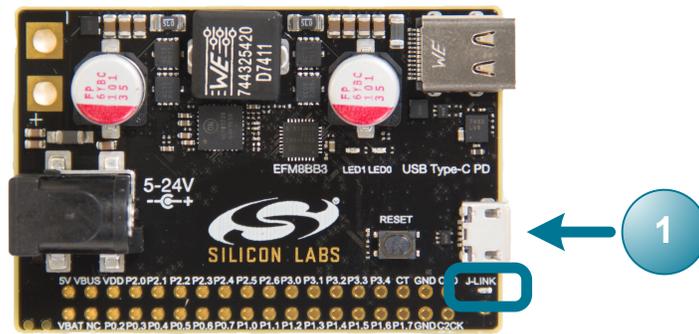
Access the Reference Design Firmware

To view, edit, or build the reference design firmware, download [Simplicity Studio](#) from the Silicon Labs website and install or update to the **[8051 SDK v4.0.10]** package or later.



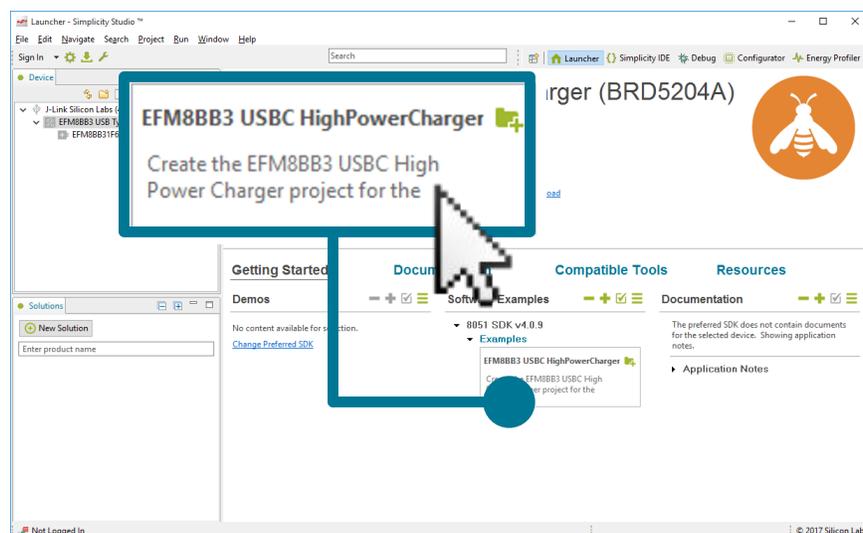
Detect Your Device in Simplicity Studio

1. Connect the board to the PC running Simplicity Studio using the J-LINK micro USB connector and the provided cable. The blue LED near the connector should turn on.
2. Click the **[Refresh]** button in the **[Device]** area. The board may take some time to appear due to driver installations for the debug adapter.



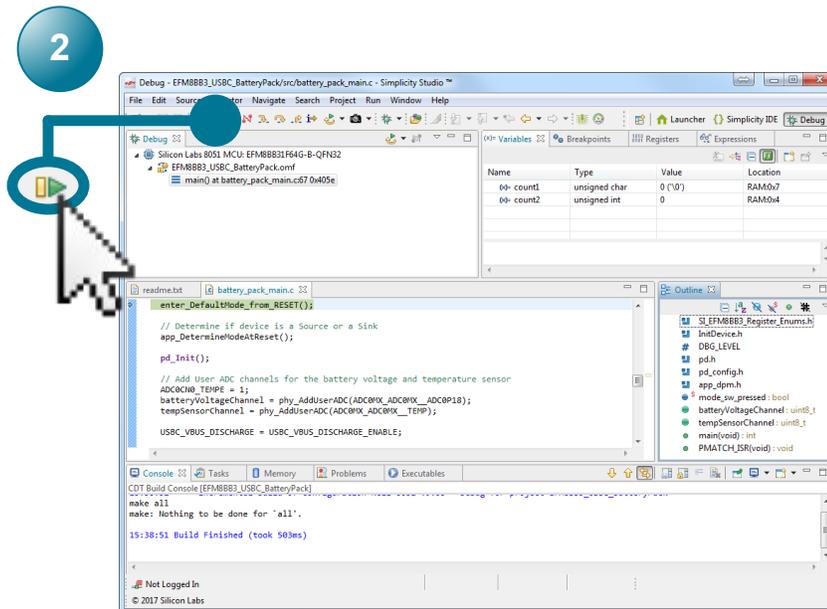
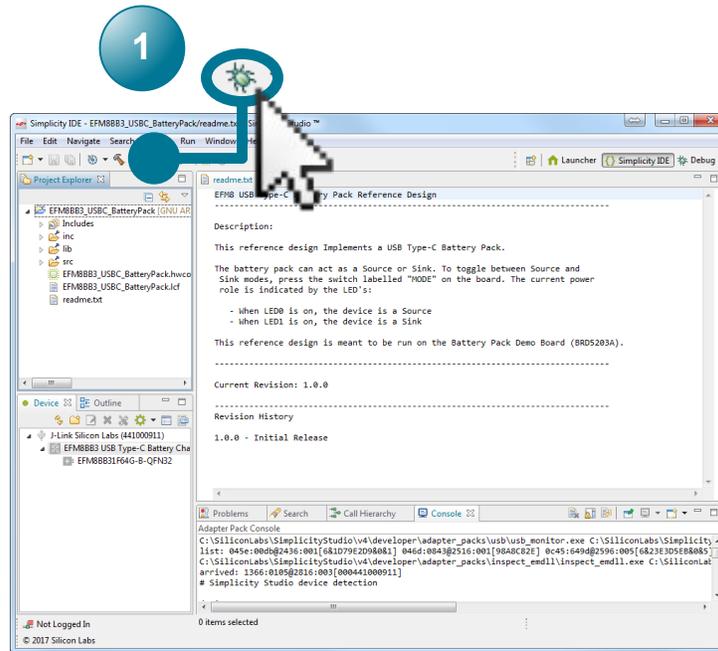
Open the Reference Design Project

In the [Getting Started] area, click on the [EFM8BB3 USBC High Power Charger] example in the [Software Examples] column to open the example in the Simplicity IDE.



Download the Code

1. Build and download to the device using the **[Debug]** button.
2. Press the **[Resume]** button to start running the firmware.

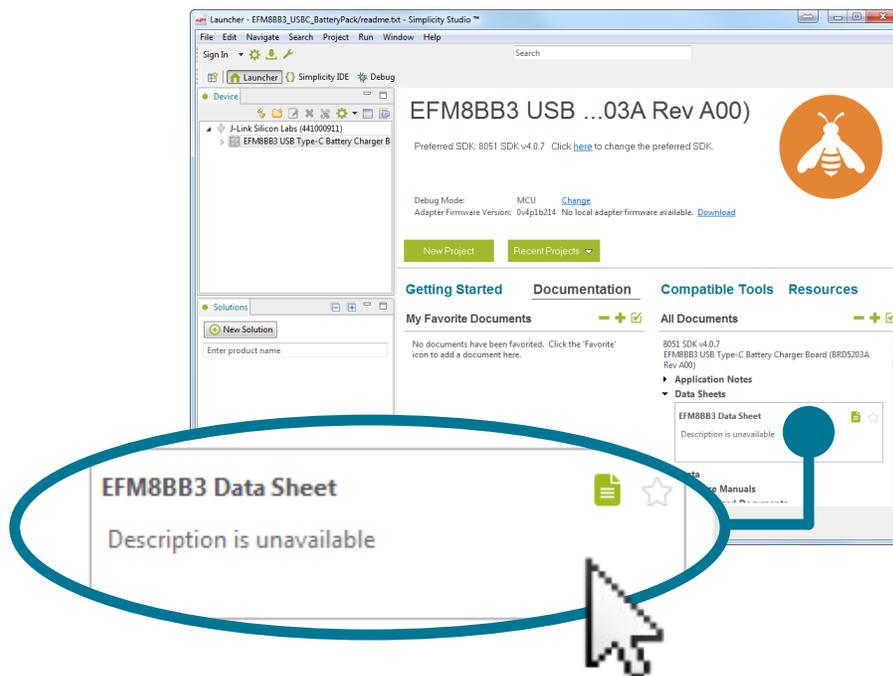


2. Resources

Hardware, Software, and Device Overviews

The user guide, [UG297: USB High Power Type-C 60W Charger Reference Design](#), contains detailed information on the board and status information presented by the LEDs. This user guide is available on the Silicon Labs website (www.silabs.com/support/resources.ct-manuals_user-guides.p-microcontrollers_8-bit-mcus_efm8-busy-bee) or in **Simplicity Studio** in the **[Documentation]** area.

The EFM8BB3 device data sheet and reference manual contain detailed information on the operation of the device. Device documentation can be found on the Silicon Labs website (www.silabs.com/support/resources.ct-data-sheets.ct-manuals_reference-manuals.p-microcontrollers_8-bit-mcus_efm8-busy-bee) or in **Simplicity Studio** in the **[Documentation]** area.

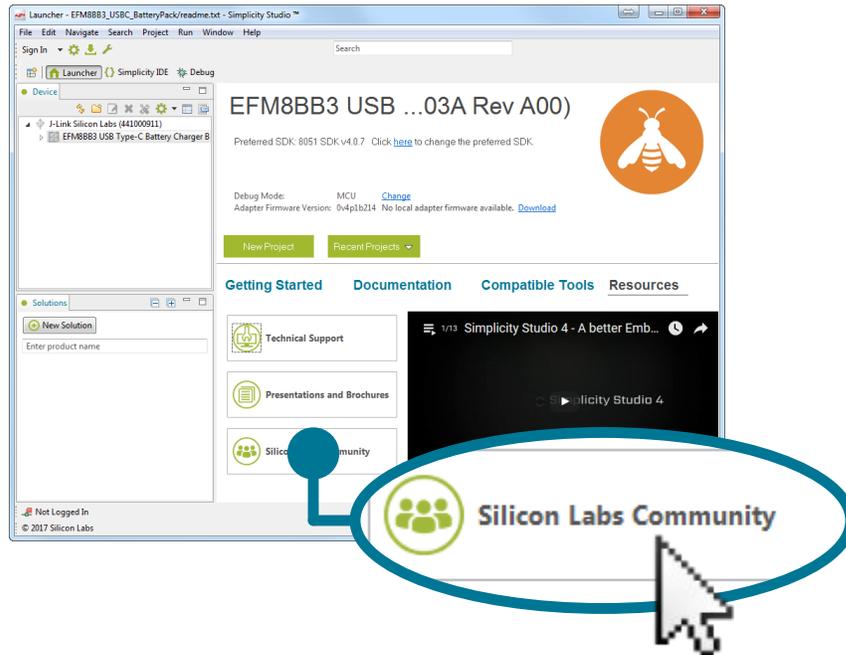


Learn More About USB Type-C

Additional resources and information on USB Type-C can be found on the Silicon Labs website (www.silabs.com/usb-type-c).

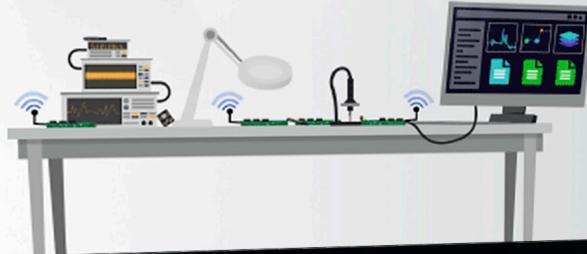
Community and Support

Have a question? Visit the community by visiting the [Silicon Labs Community website](#) or by clicking the **[Community]** link in the **[Resources]** area in [Simplicity Studio](#).



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