



ON Semiconductor®

Power Bank Solution

LC709501F-A06 EVB Quick Guide

Jan 10, 2017

ON Semiconductor®



1. LC709501F-A06 EVB Overview

2. A06 EVB Functions

***Support USB Power Delivery(PD)

New

- USB1 PD(5V-12V) Output

New

- USB1 PD(5V-12V) Input

New

- USB1&USB3 2-port(PD & 5V) Output

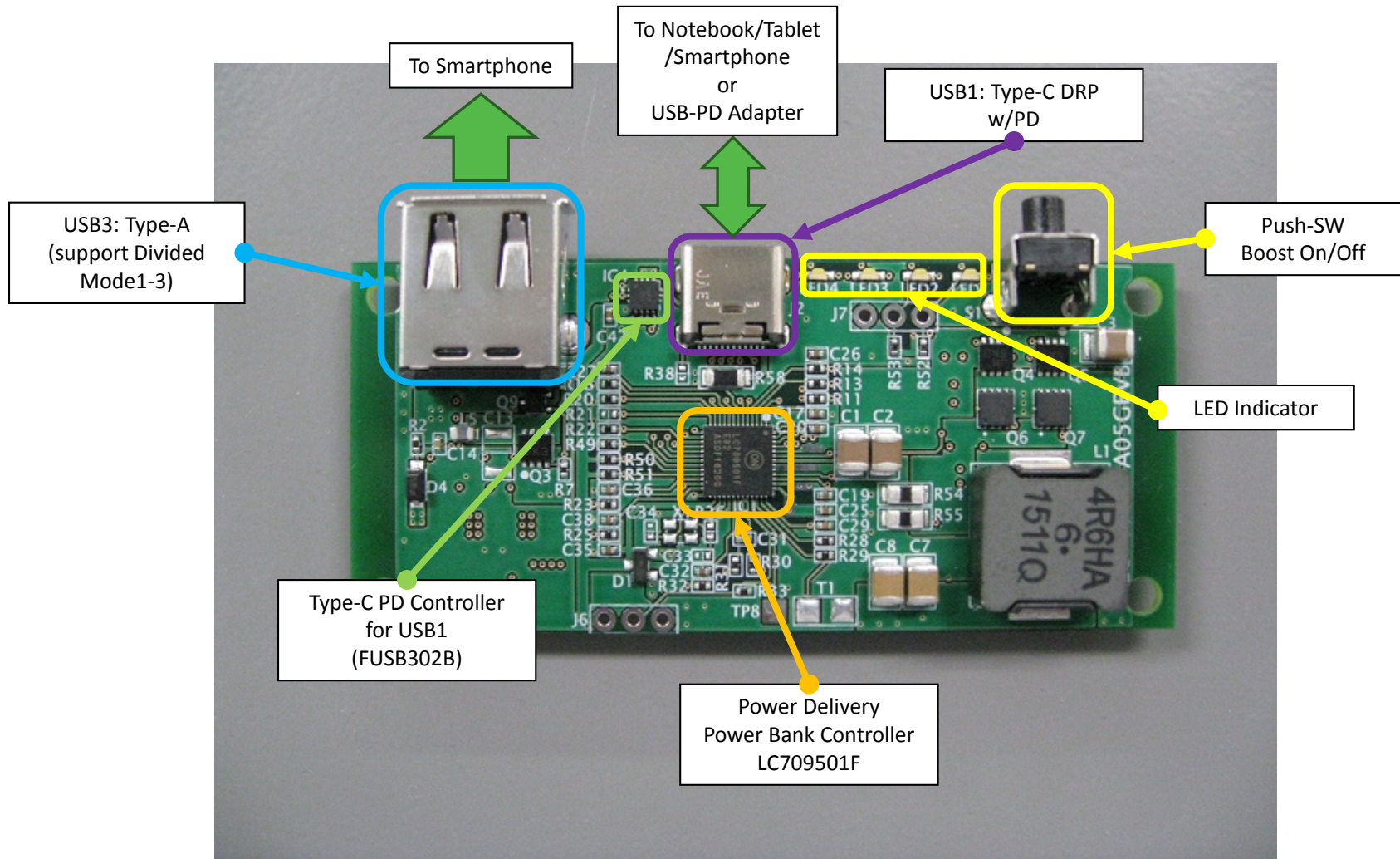
- USB1 QC3.0 Output (for none-PD device)

- USB1&USB3 2-port(QC3.0 & 5V) Output

- USB1 5V Output

- USB3 5V Output

LC709501F : A06(Type-C w/PD, Type-A) EVB Overview



LC709501F: A06 Feature details

Hardware	Board		LC709501A05GEVB
Software	Version		LC709501F-FW06
Input	Types	Type-C(DRP)	✓
	Mode	SDP	Auto Detection
		CDP	
		DCP	
		Divided Mode1(1A)	
		Divided Mode2(2.1A)	
		Divided Mode3(2.4A)	
	Power Delivery		
	Charge	5V	✓ 3.0A
		9V	✓ 3.0A
		12V	✓ 2.25A
Max Charge Wattage input1	Input	27W	
Output-1	Types of output1	Type-C(DRP)	✓
	Mode of output1	SDP(HOST)	N/A
		DCP	✓
		Divided Mode1(1A)	N/A
		Divided Mode2(2.1A)	N/A
		Divided Mode3(2.4A)	N/A
		QC3.0	✓
		QC2.0	✓
		Power Delivery	✓
		Discharge of output1	5V
	9V		✓ 3.0A
	12V		✓ 2.25A
	Max Charge Wattage output1	Output1	27W

Output-2	Types of output2	Type-A	✓
		SDP(HOST)	N/A
		DCP	✓
		Divided Mode1(1A)	✓
		Divided Mode2(2.1A)	✓
		Divided Mode3(2.4A)	N/A
	Discharge of output2	QC3.0	N/A
		QC2.0	N/A
		5V	✓ 2A
	Max Charge Wattage output2	9V	N/A
12V		N/A	
Output2		10W	
	PassThru		N/A
HOST	HOST (Smartphone Communication)	Host	N/A
		Android	N/A
		iOS	N/A
Smart phone Insert	Auto Detect	Case GND	-
		GND HighZ	-
		VDD Drop	✓
LED	LED		4
Button	Button		✓
Error	OVP		✓
	OCV		✓
	SHORT		✓
	Thermal		✓

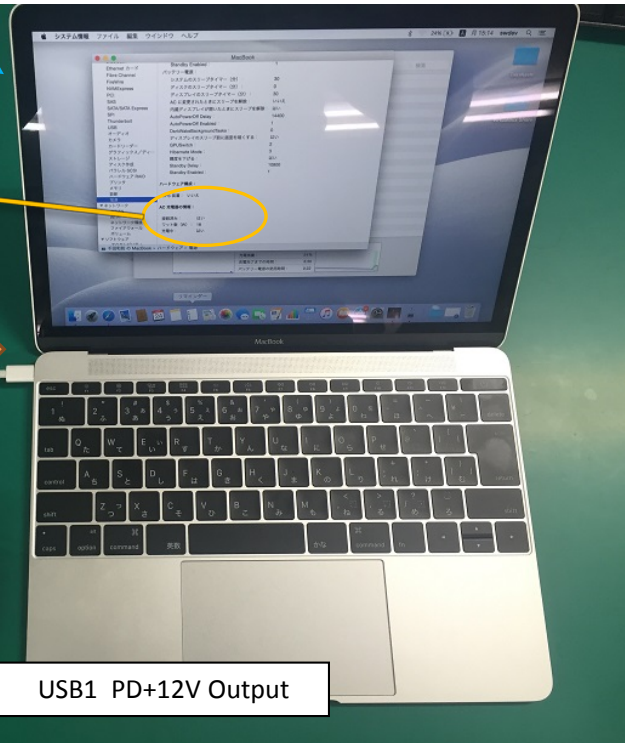
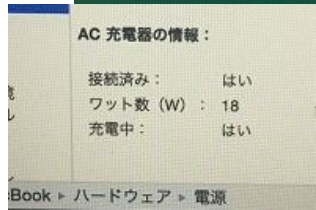
LC709501F : A06 EVB Functions

	USB1	USB3	Function	
	Type-C DRP w/PD	Type-A		
LC709501F-A06 Ver. 0.01	Note-PC/Tablet /Smartphone_1	N/A	USB1 PD(5V-12V) Output	FUNC1
	PD Adapter	N/A	USB1 PD(5V-12V) Input	FUNC2
	Note-PC/Tablet /Smartphone_1	Smartphone_2	USB1&USB3 2-port (PD & 5V) Output	FUNC3
	(None-PD) Smartphone_1	N/A	USB1 QC3.0 Output	-
	Smartphone_1	Smartphone_2	USB1&USB3 2-port(QC3.0 & 5V) Output	-
	N/A	Smartphone_2	USB3 5V Output	-

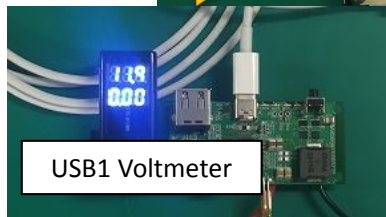


LC709501F : <FUNC1> USB1 PD(5V-12V) Output

USB1: Apple macbook
Type-C DRP



USB1 PD+12V Output



<FUNC1> USB1 PD(5V-12V) Output

- ◆ When a PD device is plugged into USB1 Type-C DRP connector, it will automatically detect the PD device by the communication of the “USB Power Delivery” specifications and check the chargeable types to supply voltage within the range of 5V~12V.
ex.) macbook:12V output
- ◆ LED1 will flash during power supply.
- ◆ Power supply will automatically stop when full-charge is detected on the smartphone.
- ◆ Type-C cable can be connected upside down for the automatic detection and power supply.

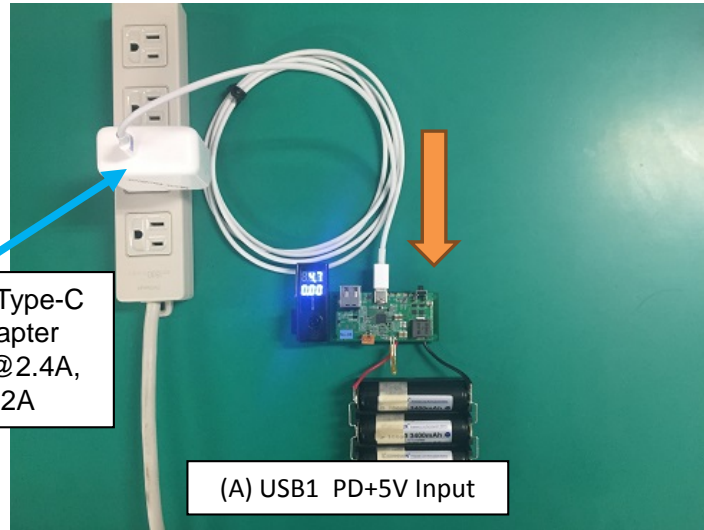
USB1: LG G5
Type-C DRP



USB1 PD+9V Output



LC709501F : <FUNC2> USB1 PD(5V-12V) Input

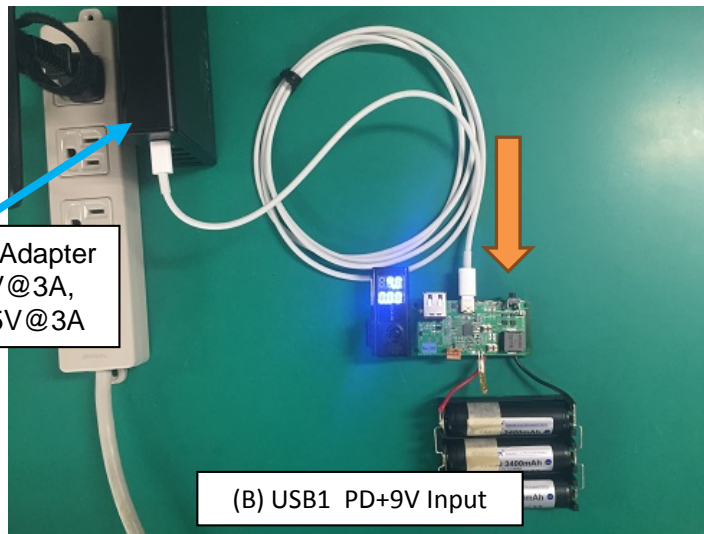


Apple USB Type-C
Power Adapter
Output: 5V@2.4A,
14.8V@2A

(A) USB1 PD+5V Input

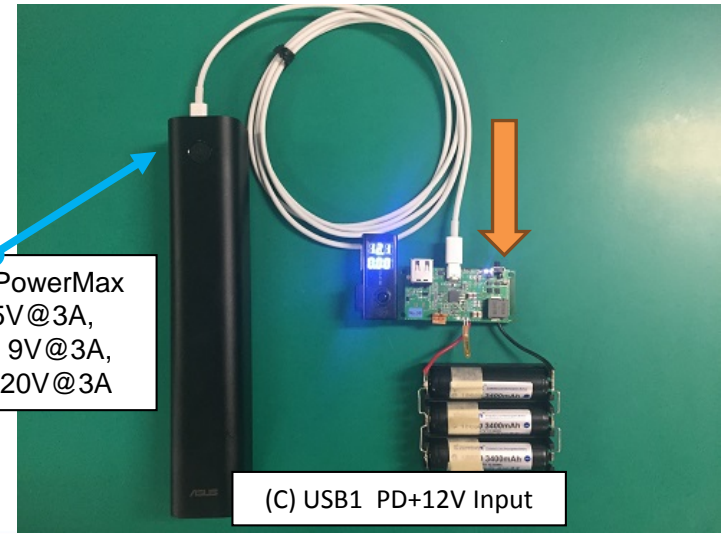
<FUNC2> USB1 PD(5V-12V) Input

- ◆ When an USB adapter is plugged into an USB1 Type-C DRP connector, it choose the most suitable voltage by the communication of the “USB Power Delivery” specifications, it will automatically start to charge the internal battery.
- ◆ Number of LEDs will flash based on the battery remaining amount while charging internal battery.
- ◆ Battery charging will automatically stop once it is fully charged.



ANKER PD Adapter
Output: 5V@3A,
9V@3A, 15V@3A

(B) USB1 PD+9V Input



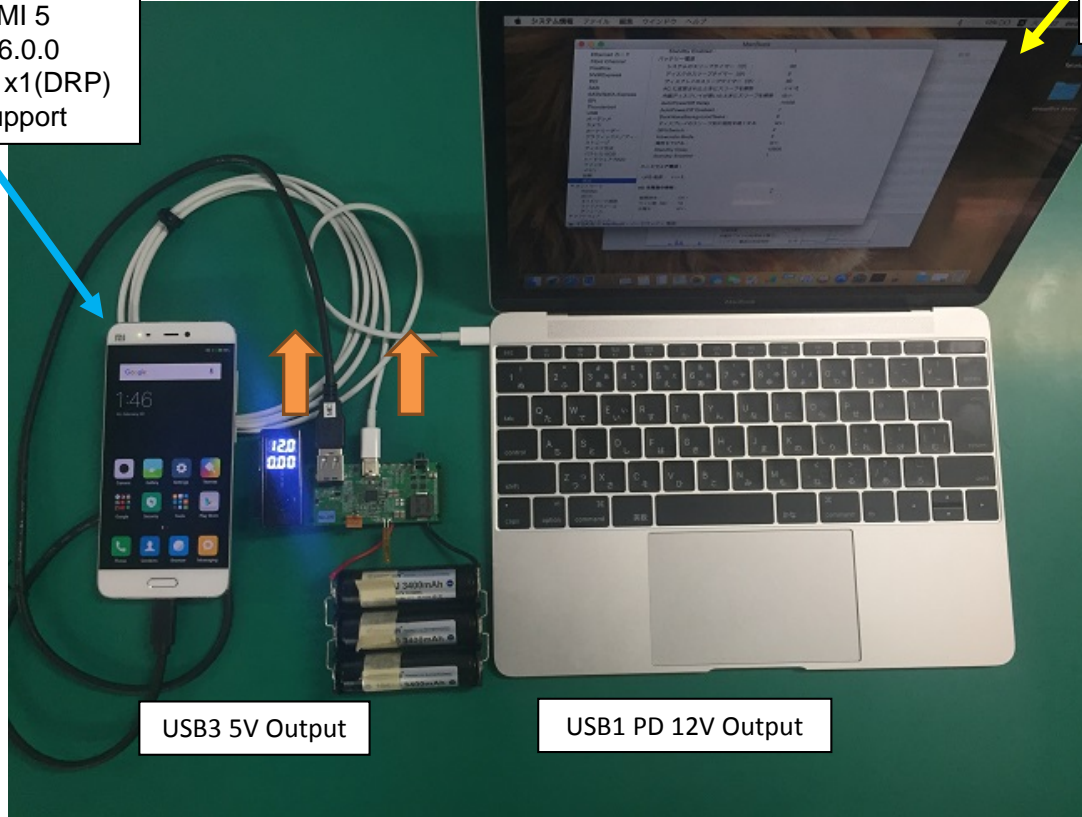
ASUS ZenPowerMax
Output: 5V@3A,
7.5V@3A, 9V@3A,
12V@3A, 20V@3A

(C) USB1 PD+12V Input

LC709501F : <FUNC3> USB1&USB3 2-port(PD & 5V) Output

USB1:
Xiaomi MI 5
Android 6.0.0
USB Type-C x1(DRP)
QC3.0 support

USB3: Apple
macbook
Type-C DRP



<FUNC3> USB1&USB3 2-port(PD&5V) Output

- ◆ Two smartphones can be charged at the same time when Smartphone_1 is connected to USB1 Type-C DRP and Smartphone_2 is connected to USB2 Type-A connector.
- ◆ At this time, USB3 is supplied with a voltage of 5V fixed, USB1 is supplied a voltage within a range of 5V – 12V.
- ◆ LED1 is flashing while charging two smartphones.