

LX2202 EVALUATION BOARD USB LITHIUM ION BATTERY CHARGER



INTRODUCING TO PRODUCT

The LX2202 Linear Battery Charger is a multi-state (2 stage) Li-Ion battery charger (Constant current / Constant voltage) that is designed to minimize battery charge time (even from current limited sources such as USB) and provide a simplified interface to control battery discharge.

KEY FEATURES

- Up to 2A Charge Current
- Internal Pass Element Can Function as a Reverse Direction Load Switch
- USB Compliant Charging States using optional USB input
- Isolated Battery Topology
- Low RdsON in Discharge Mode
- Full Capacity Charging
- True Charge Indicator
- Wall Supply Regulator Tolerance 5V + 10%
- Topping Charge with Voltage Monitoring Mode
- Improved charge/discharge mode detection circuitry
- Small, High Power 20-lead MLP package
- Selectable Li-Ion Battery for 4.1V or 4.2V Applications

APPLICATIONS

- Batteries up to 4AH Ratings (C/2)
- Cell Phones
- PDAs
- Charging Cradles
- Digital Cameras
- Low Cost Single Li-Ion Cell Chargers

PART SPECIFIC INFORMATION

Part Number	Product
LX2202CLQ ¹	Li-Ion Battery Charger

TABLE 1 – PART INFORMATION

IC	EVALUATION BOARDS
LX2202CLQ ¹	LX2202 Evaluation Board

TABLE 2 – EVALUATION BOARD INFORMATION

1. LX2202CLQ: patent Pending

SCHEMATIC FOR LX2202 EVALUATION BOARD

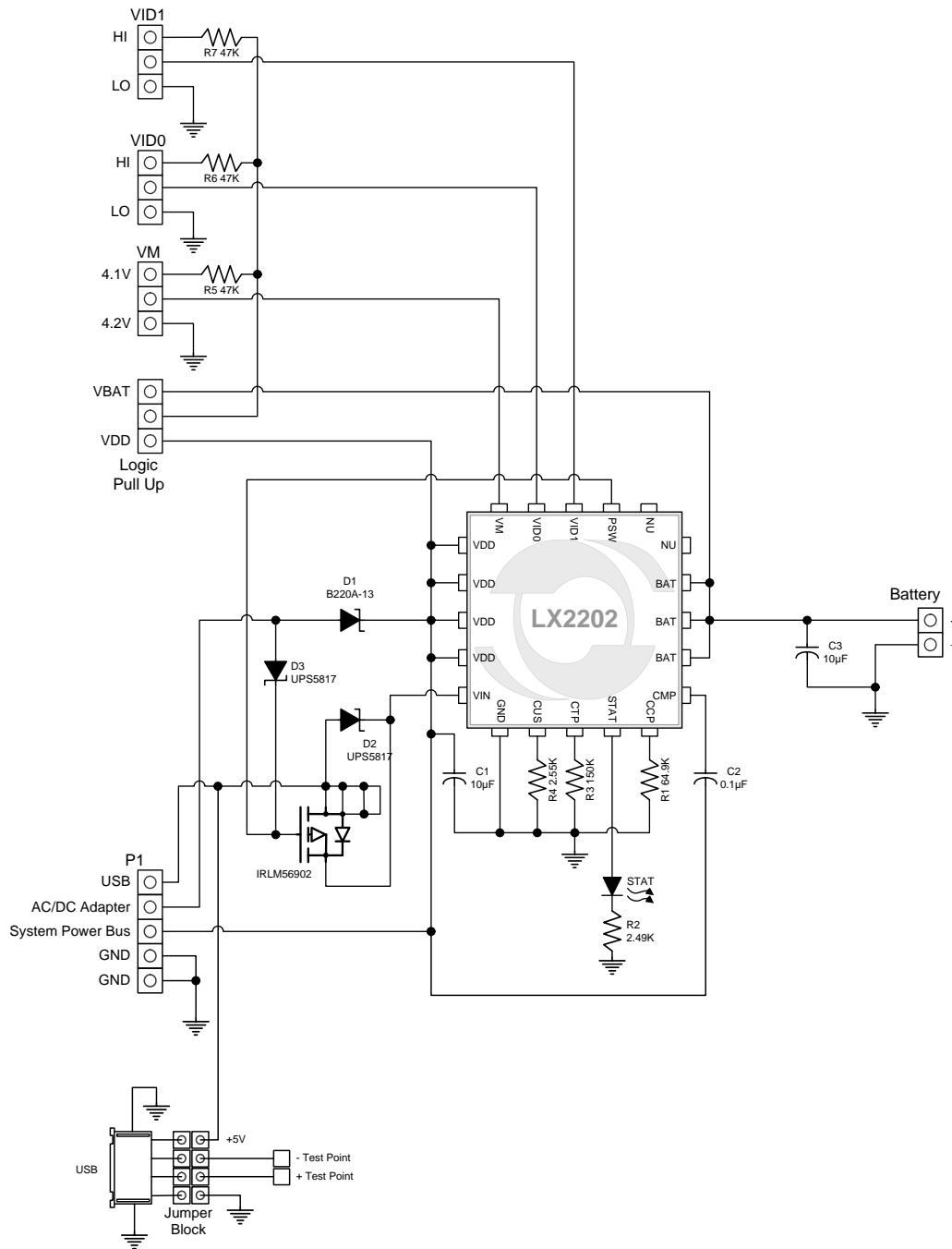


Figure 1 – LX2202 Evaluation Board Schematic

LX2202 EVAL BOARD

OVERVIEW

The LX2202 Evaluation Board (EB) is available from Microsemi for evaluating the performance of the LX2202 battery charger integrated circuit. The key features to be shown include : USB and AC/DC adapter input, Conditioning mode, Constant voltage mode, programmable termination current , Top off charge, inherent load disconnect , Over voltage sense, UVLO and programmable constant current capability.

CONNECTIONS

P1		
Function	Board Label	Pin Number
Input Power (USB)	USB	1
Input Power (Adapter)	AC / DC Adapter	2
Battery Discharge Path	System Power Bus	3
Ground	GND	4
Ground	GND	5

Table 3 – P1 Connections

Battery		
Function	Board Label	Pin Number
Battery Positive Connection	+	1
Battery Ground Connection	-	2

Table 4- Battery Connections

USB		
Function	Board Label	Pin Number
Input Power (USB)	+5V	1
D-	D-	2
D+	D+	3
Ground	GND	4

Table 5 – USB Connections

JUMPERS

The LX2202 Evaluation Board has 5 jumper blocks. The Logic Control jumpers have two possible positions and are designed to be installed in one position or the other. The USB P2/P3

Jumper block allows you to connect a single type A USB connector to the demo PCB.

The function of the jumpers is listed below.

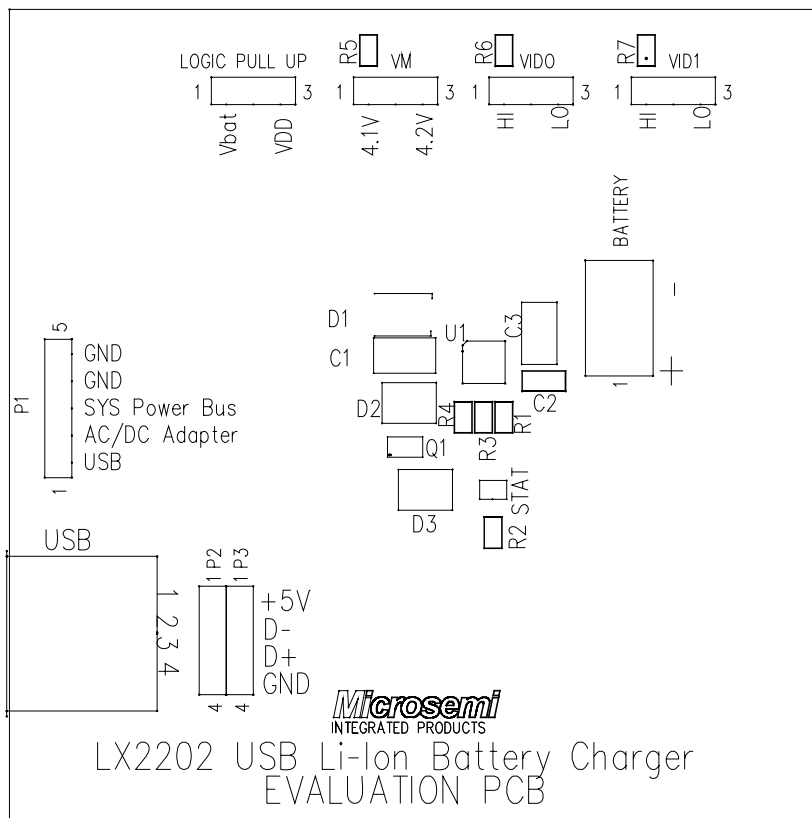
Logic Control		
Jumper	Position	Connection
Logic Pull Up	VBAT	PIN 1 – PIN 2
	VDD	PIN 2 – PIN 3
VM	4.1V	PIN 1 – PIN 2
	4.2V	PIN 2 – PIN 3
VID0	HI	PIN 1 – PIN 2
	LO	PIN 2 – PIN 3
VID1	HI	PIN 1 – PIN 2
	LO	PIN 2 – PIN 3

Table 6 –Logic Control Jumpers

USB Connection		
Jumper	Position	Connection P2 / P3
+5V	ON	PIN 1 – PIN 1
D-	ON	PIN 2 – PIN 2
D+	ON	PIN 3 – PIN 3
GND	ON	PIN 4 – PIN 4

Table 7 – USB Jumpers

LX2202 EVAL PRINTED CIRCUIT BOARD LAYOUT



SGE#3528 X4 SilkScreen Top RR

Figure 2 – LX2202 Evaluation PCB Silkscreen

LX2202 EVALUATION BOARD HOOK UP

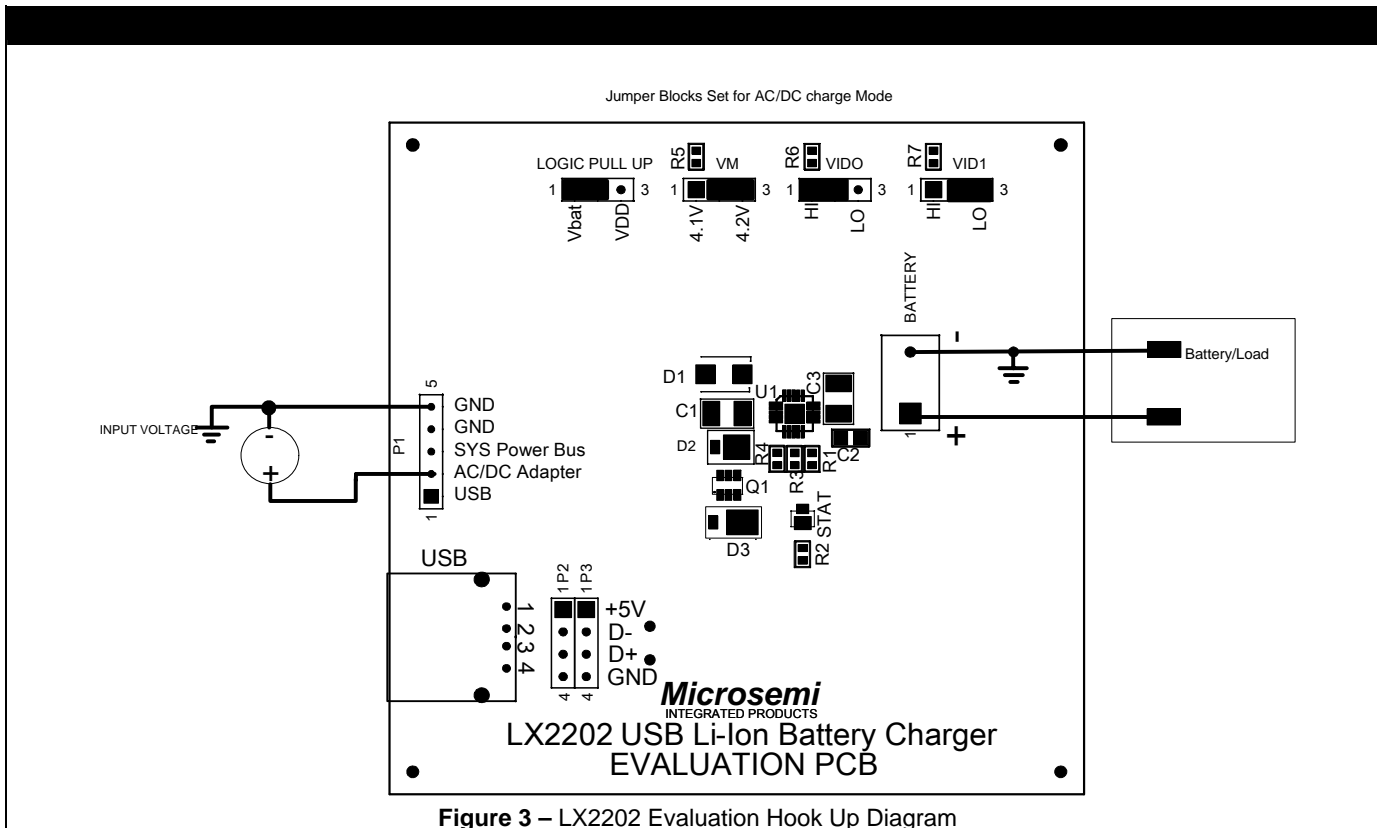


Figure 3 – LX2202 Evaluation Hook Up Diagram

The following is a demonstration scenario that can be used to evaluate the LX2202:

Directions for hook up (AC adapter only mode):

- 1) Place VID0 and VID1 jumpers blocks to LO position.
- 2) Place LOGIC PULL UP jumper block to VDD position.
- 3) Connect a 1AH single cell Lithium Ion battery to the Battery terminal block(observing polarity).
- 4) Apply a 5.00V power supply (>2A) between AC/DC Adapter and GND on P1 Connector.
- 5) Move VID0 jumper to the HI position.

LX2202 EVALUATION BILL OF MATERIALS

MISCELLANEOUS COMPONENTS

Line Item	Part Description	Manufacturer & Part #	Case	Reference Designators	Qty
1	Microsemi LX2202 Li-ION Battery Charger IC Controller	MICROSEMI LX2202CLQ	MLPQ	U1	1
2	LED Green SMT	MICROSEMI UPGLED	PowerMite	STAT	1
3	MOSFET P Channel 20V	IR IRLMS6802	TSOP	Q1	1
4	Diode Schottky 20V 2A	DIODES INC B220A-13	SMA	D1	1
5	Diode Schottky	MICROSEMI UPS5817	PowerMite	D2, D3	2
6	Terminal Blk 7mm 2 position	OST ED655/2DS	Vertical	Battery	1
7	Header .100 5Pin			P1	1
8	Header .100 3Pin			VID0, VID1, VM, LOGIC, PULL UP	4
9	Header .100 4Pin			P2, P3	2
10	USB Single PCB R/A	SWITCHCRAFT SUSB		USB	1
11	Test Point	KEYSTONE 5007		D+, D-	2
12	PCB – SGE#3528 X4				1

CAPACITORS

Line Item	Part Description	Part Description	Case	Reference Designators	Qty
1	Capacitor, 0.1µF, 10V, 20%	TAIYO YUDEN CE L4K212BJ104MD-T	0805	C2	1
2	Capacitor, 10µF, 6.3V, 20%	TAIYO YUDEN CE JMK325BJ106MF-T	1210	C1, C3	2

RESISTORS

Line Item	Part Description	Part Description	Case	Reference Designators	Qty
1	Resistor, 64.9K, 1%, 1/16W	PANASONIC ERJ-3EKF6492V	0603	R1	1
2	Resistor, 2.49K, 1%, 1/16W	PANASONIC ERJ-3EKF2491V	0603	R2	1
3	Resistor, 150K, 5%, 1/10W	PANASONIC ERJ-3GEYJ154V	0603	R3	1
4	Resistor, 2.55K, 1%, 1/16W	PANASONIC ERJ-3EKF2551V	0603	R4	1
5	Resistor 47K, 5%, 1/10W	PANASONIC ERJ-3GEYJ473V	0603	R5 – R7	3