



EV2608DQ-00A

Dual Input 28V 1A Linear Li-Ion Battery Charger Evaluation Board

DESCRIPTION

The EV2608DQ-00A is an evaluation board for the MP2608, a dual input, linear, high-performance single cell Li-Ion battery charger. It accepts two power inputs, one from a USB (Universal BUS) and the other from an AC adapter.

By integrating high voltage input protection into the charger IC, the MP2608 can tolerate an input surge up to 28V.

The MP2608 features constant current (CC) and constant voltage (CV) charging modes with programmable charge currents (100mA to 1A), current blocking and trickle charge. The charge current for Adapter input can be programmed by an external resistor, while the charge current for USB input is pre-set at 450mA.

The device also provides programmable battery full threshold, thermal protection and charge status indications to the system.

ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	V _{IN}	4.5 to 5.8	V
Charge Current	I _{CHG}	800	mA

FEATURES

- Input Surge up to 28V
- Adapter and USB Dual Input
- Programmable Charge Current for AC Adapter: 100mA to 1A
- Pre-set USB charge Current:450mA
- Proprietary Over-Voltage Protection
- Proprietary Constant Voltage Auto Recharge
- 0.75% V_{BATT} Accuracy
- Thermal Protection
- Fault and Charge Status Indicator
- Internal Soft-Start
- Fully Assembled and Tested

APPLICATIONS

- Cell Phones
- MP3 Players
- Smart Phones
- PDAs
- Digital Cameras

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EV2608DQ-00A EVALUATION BOARD

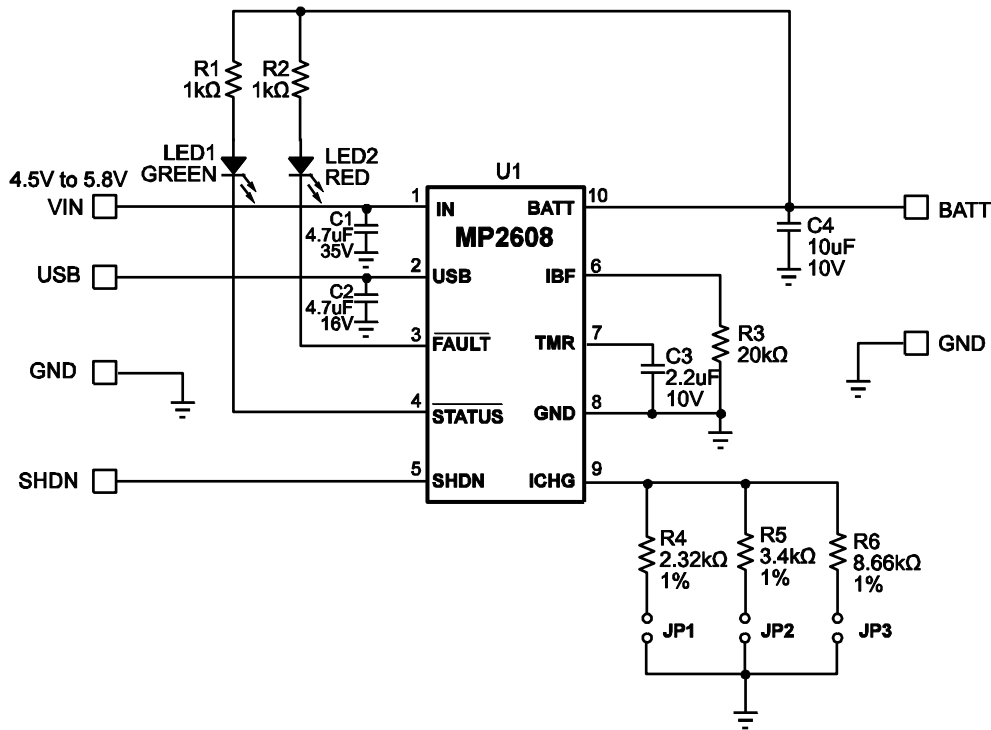
TBD

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(L x W x H) 2.0" x 1.9" x 0.5"
(5.0cm x 4.8cm x 1.2cm)

Board Number	MPS IC Number
EV2608DQ-00A	MP2608DQ

EVALUATION BOARD SCHEMATIC



EV2608DQ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	4.7uF	Ceramic Cap., 35V, X7R	1210	muRata	GRM32ER71H475KA88L
					Holystone	C1210B475M035T
1	C2	4.7uF	Ceramic Cap., 16V, X7R	1206	Murata	GRM31CR71C475K
1	C3	2.2uF	Ceramic Cap., 10V, X7R	0805	Murata	GRM21BR71A225K
1	C4	10uF	Ceramic Cap., 10V, X7R	1206	muRata	GRM31CR71A106K
2	R1, R2	1kΩ	Film Res., 5%	0603	Panasonic	ERJ-3GEYJ102V
1	R3	20kΩ	Film Res., 1%	0603	Panasonic	ERJ-3EKF2002V
1	R4	2.32kΩ	Film Res., 1%	0603	Panasonic	ERJ-3EKF2321V
1	R5	3.4kΩ	Film Res., 1%	0603	Panasonic	ERJ-3EKF3401V
1	R6	8.66kΩ	Film Res., 1%	0603	Panasonic	ERJ-3EKF8661V
1	LED1		LED Green, Surface Mount	0805	Panasonic	LNJ306G5URA
1	LED2		LED RED, Surface Mount	0805	Panasonic	LNJ206R5RRX
1	JP1, 2, 3		3x2-Pin Connector Header, 0.100"		Molex	10-89-1601
1	U1		Linear Charger	QFN10	MPS	MP2608DQ

PRINTED CIRCUIT BOARD LAYOUT

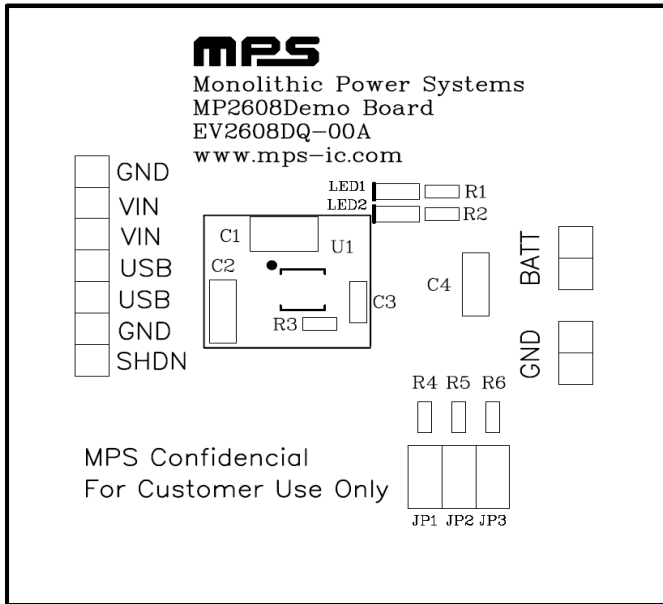


Figure 1—Top Silk Layer

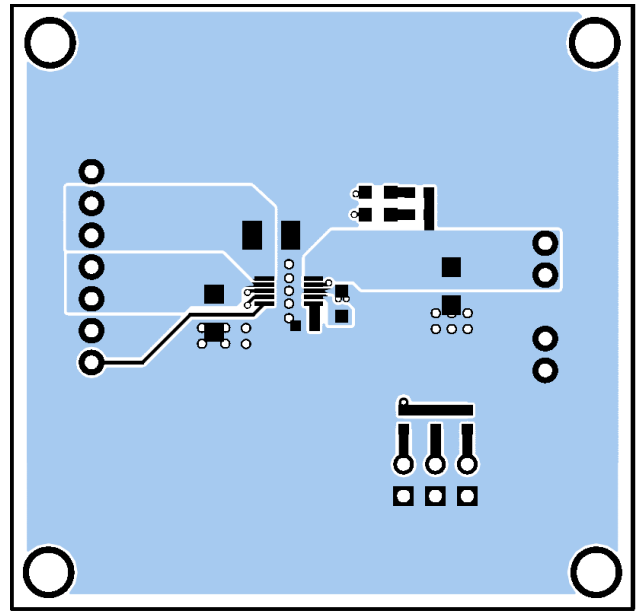


Figure 2—Top Layer

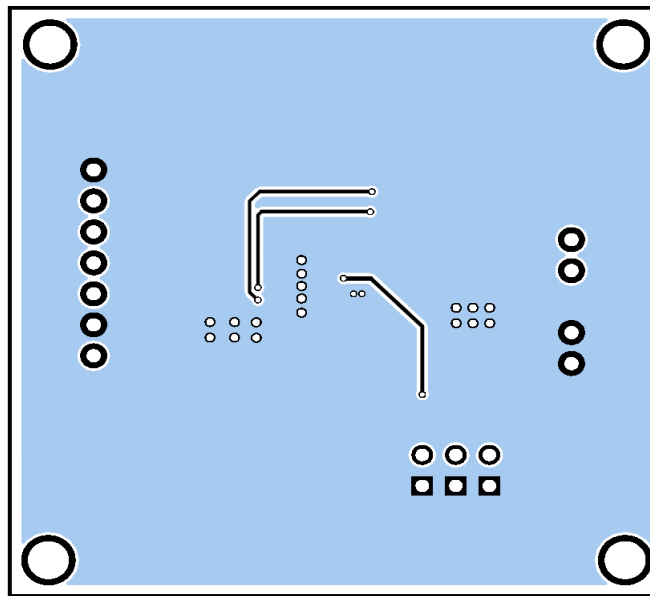


Figure 3—Bottom Layer

QUICK START GUIDE

The output voltage on this board is preset to 4.2V (for a single cell battery). The board layout accommodates most commonly used capacitors.

The LEDs are power indicators. When LED1 is on, the battery is charging, and when the battery is full or there is no battery connected, LED1 will turn off. LED2 is used to indicate the fault conditions, if there is any fault condition, such as timer out, LED2 will turn on, it is off during normal operation.

Attach the input to the IN pin, Set the charge current I_{CHG} using the jumpers JP1, JP2 and JP3 per the following table:

JP1	JP2	JP3	I_{CHG}
X		X	1000mA
X			800mA
	X	X	700mA
	X		500mA
		X	200mA

where “X” indicates a connection.

1. Attach the positive and negative ends of the load to the VOUT and GND pins, respectively.
2. Attach the input voltage ($V_{IN}=5V$) and the input ground to the VIN and GND pins, respectively.
3. Set the battery full threshold I_{BF} using R5:

$$I_{BF} = \frac{1700}{R3(\Omega)}$$

4. Attach the input voltage to USB pin, and the charge current is constant at 450mA regardless of the connection of JP1, JP2 and JP3.

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