



# MEZS7-1ALinearCharger

## 1A, Standalone, Linear, Li-Ion Battery Charger with Thermal Regulation Solution Module

### DESCRIPTION

The MEZS7-1ALinearCharger is a complete solution module using the MP26029, a highly integrated, single-cell Li-ion/Li-polymer battery charger with thermal regulation. It uses the input from either an AC adapter or USB port to charge the battery. The charger features pre-charge, high-accuracy constant current (CC, up to 1A) and constant voltage (CV) regulation, charge termination, and auto-recharge.

### ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input voltage	V <sub>IN</sub>	4.35 to 5.50	V
Charge current	I <sub>CC</sub>	30 to 1000	mA
Battery voltage	V <sub>BATT</sub>	4.2	V

### FEATURES

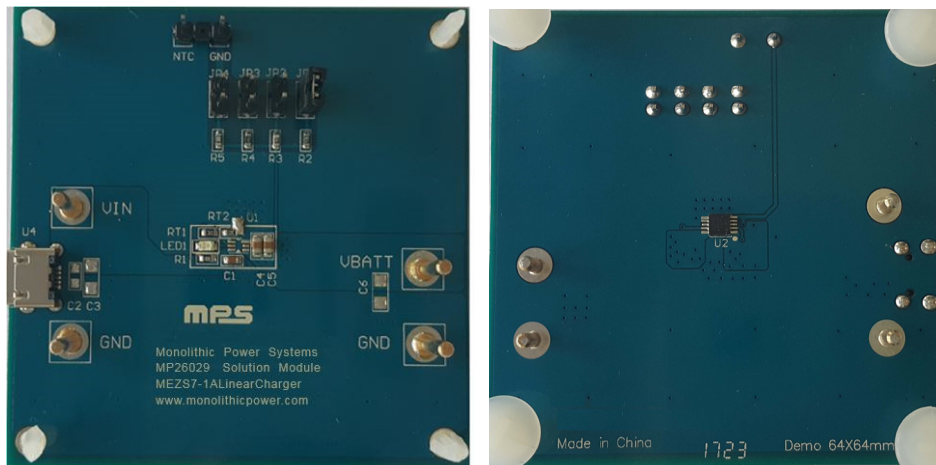
- Fully Autonomous Charger for Single-Cell Li-ion/Polymer Batteries
- Configurable 30mA to 1A Charge Current
- 0.5% Charging Voltage Accuracy
- 13V Maximum Voltage for the Input Source
- Fully Integrated Power Switches and No External Blocking Diode Required
- Built-In Robust Charging Protection, including Battery Temperature Monitor and Safety Timer
- On-Chip Thermal Limiting Regulation

### APPLICATIONS

- Smart Handheld Devices
- Digital Cameras
- Bluetooth
- Toys

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### MEZS7-1ALINEARCHARGER SOLUTION MODULE



(LxWxH) 6.35cmx6.35cmx0.16cm

Board Number	MPS IC Number
MEZS7-1ALinearCharger	MP26029GQ-xxxx* (1)

#### Note:

1) "xxxx" is the register setting option. The factory default is "0000". For customer options, contact an MPS FAE to obtain an "xxxx" value.

## QUICK START GUIDE

This board is designed for the MP26029, a standalone, 1A, linear Li-ion battery charger with thermal regulation. The BATT output voltage on this board is preset to 4.2V for single-cell Li-ion batteries. The board layout accommodates most commonly used capacitors.

The LED pin is a fault and charging indicator. Table 1 shows the status of the STAT pin while the device is in different charging states.

**Table 1: STAT Pin Statuses**

Charging State	STAT
Charging	Low
Charging complete	High
Charging suspended due to a fault	Blinking at 1Hz

Table 2 shows how to set the charge current ( $I_{CC}$ ) using the jumpers (JP1, JP2, JP3 and JP4).

**Table 2: Setting the Charge Current**

JP	JP1	JP2	JP3	JP4
$I_{CC}$	1006mA	484mA	114mA	32mA

1. Attach the ends of the battery to:
  - a. Positive (+): BATT
  - b. Negative (-): GND
2. Attach the input voltage ( $V_{IN} = 5V$ ) to the VIN pin, then attach input ground to the GND pin.

### SOLUTION MODULE SCHEMATIC

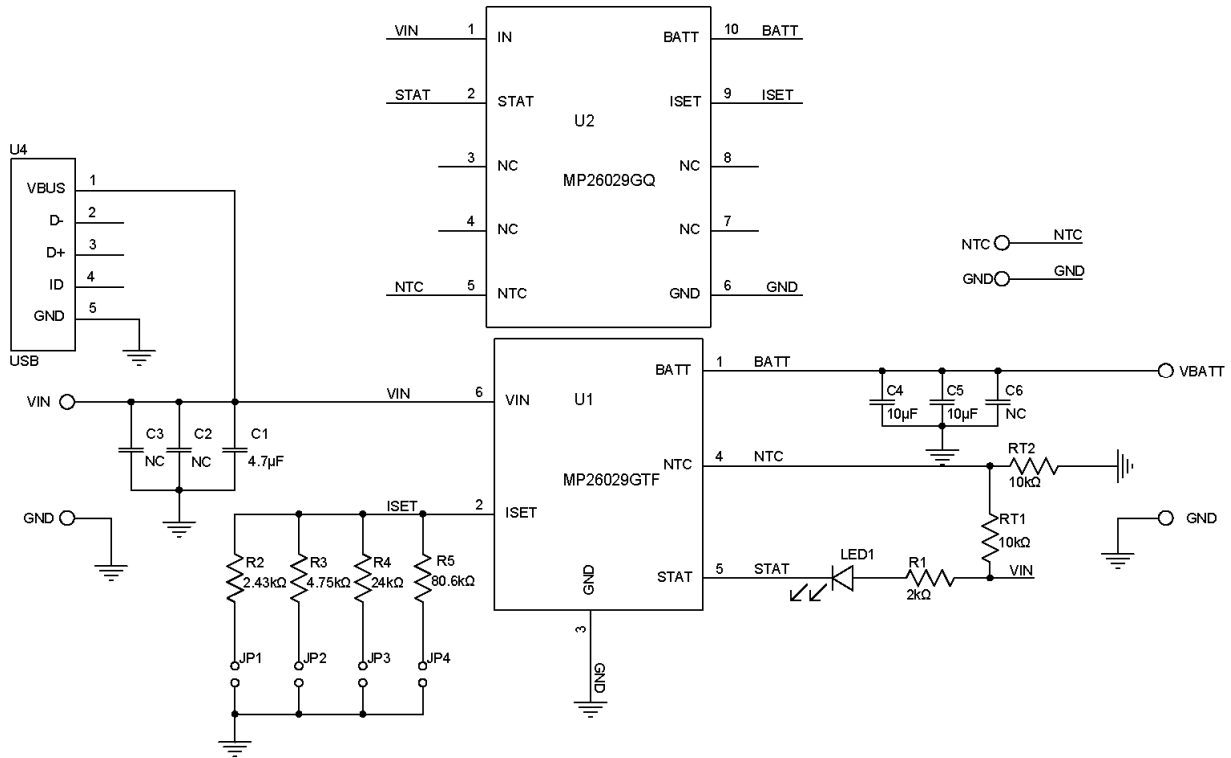
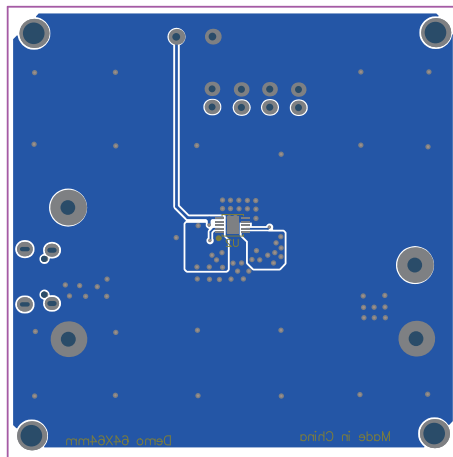
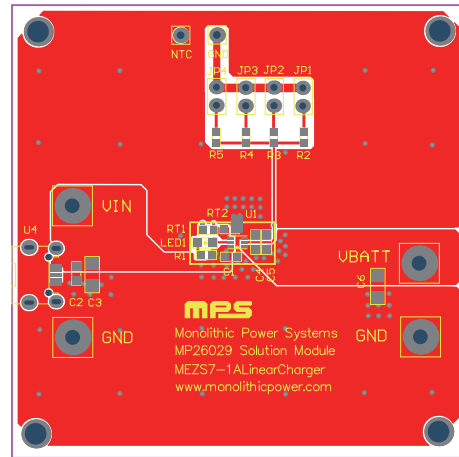
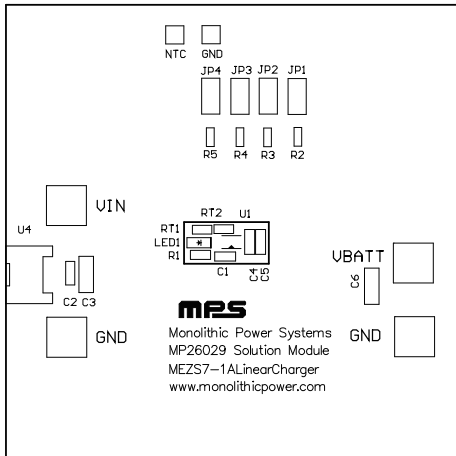


Figure 1: Solution Module Schematic

**MEZS7-1ALINEARCHARGER BILL OF MATERIALS**

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	4.7 $\mu$ F	Ceramic capacitor, 25V, X6S, 0603	0603	muRata	GRM188C81E475KE11D
1	C2	NC	Ceramic capacitor, 25V, X7R, 0805	0805	muRata	GRM21BR71E225KA73L
2	C3, C6	NC	Ceramic capacitor, 25V, X7R, 1206	1206	muRata	GRM31CR71E475KA88L
2	C4, C5	10 $\mu$ F	Ceramic capacitor, 10V, X7R, 0805	0805	muRata	GRM21BR71A106ME51L
1	LED1		Red LED	0805	Bright LED	BL-HUF35A-TRB
1	R1	2k $\Omega$	Film resistor, 1%	0603	Yageo	RC0603FR-072KL
1	R2	3.01k $\Omega$	Film resistor, 1%	0603	Yageo	RC0603FR-073K01L
1	R3	6.04k $\Omega$	Film resistor, 1%	0603	Yageo	RC0603FR-076K04L
1	R4	24k $\Omega$	Film resistor, 1%	0603	Yageo	RC0603FR-0724KL
1	R5	80.6k $\Omega$	Film resistor, 1%	0603	Yageo	RC0603FR-0780K6L
2	RT1, RT2	10k $\Omega$	Film resistor, 1%	0603	Yageo	RC0603FR-0710KL
1	U1	NC	1-cell linear charger	SOT563	MPS	MP26029GTF-xxxx
1	U2		1-cell linear charger	QFN-10 (3mmx3mm)	MPS	MP26029GQ-xxxx
1	U4		Micro-B USB receptacle	DIP	Wurth	629105150521

PCB LAYOUT



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