PT6110

Analog Front End for Multi-cell Battery Monitoring and Balancing

GENERAL DESCRIPTION

The PT6110 is a highly integrated battery cells charge /discharge balancing management analog front end with a microcontroller for 3 to 5 serially connected Li-ion or $LiFePO_4$ battery pack. It is applicable in portable electrical tools or other multi-cell battery powered systems. The PT6110 contains a high precision amplifier buffering each battery cell voltage to an analog output pin. All output voltages are alternatively selected by the MCU and digitized by the ADC within that MCU. The integrated battery balance circuitry in the PT6110 provides a shunt current of 50mA without the need of any external transistors. The chip also includes important features such as an integrated LDO powering an external MCU and two gate drivers to two external MOSFETs used for charging and discharging.

The PT6110 works together with an MCU performs battery safety protections against battery over-voltage, under-voltage, and cell charge balancing. The PT6110 is available in QFN-20, SOP16 and HTSSOP20 packages.

FEATURES

Charger control

- 3~5 Li-ion or $LiFePO_4$ battery voltages are sampled and buffered.
- Cell balancing with 50mA shunt current
- MCU control the protection cutoff voltage

Discharge control

- MCU control the battery under-voltage protection
- 10~15V PWM or DC MOS gate driving voltage
- Max 200mA MOS gate driving voltage

LDO output

- Integrated LDO provides power supply to the external MCU

Other protection

- Protected from <1.0ms negation glitch toward ground generated from battery pack
- Internal over temperature shutdown (TSD)

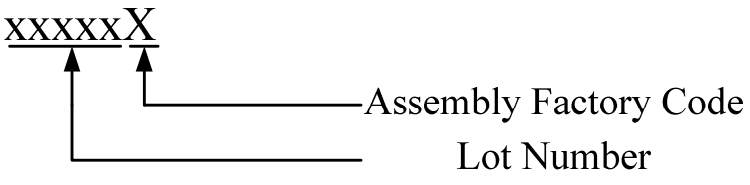
APPLICATIONS

- Portable electrical tools
- Electrical bicycles
- Multi-cell battery pack in portable devices

ORDERING INFORMATION

PACKAGE	TEMPERATURE RANGE	ORDERING PART NUMBER	TRANSPORT MEDIA	MARKING
QFN20	-40℃ to 85℃	PT6110EQFT	Tape and Reel（5000）	PT6110 xxxxxX
SOP16	-40℃ to 85℃	PT6110ESOP	Tube（50）	PT6110 xxxxxX
HTSSOP20	-40℃ to 85℃	PT6110ETSH	Tape and Reel (2500)	PT6110 xxxxxX

Note:



TYPICAL APPLICATION EXAMPLE

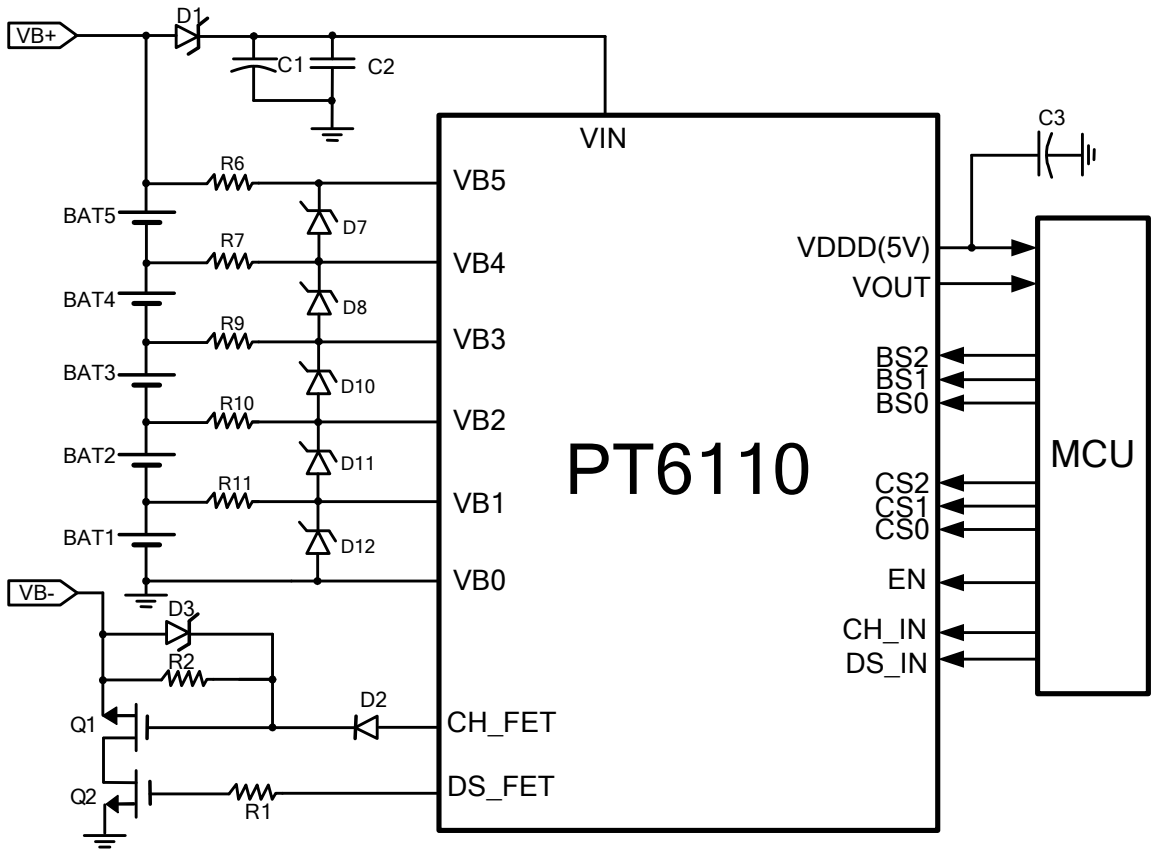


Figure 1. Typical application of PT6110 for 5 Li-ion battery cells

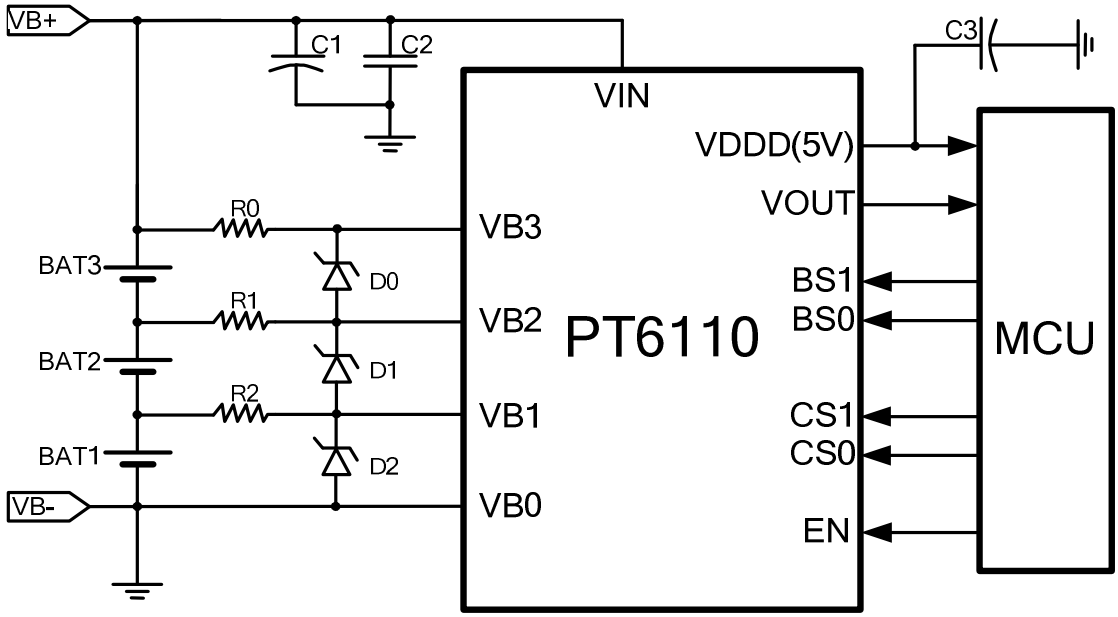


Figure 2. Typical application of PT6110 for 3 Li-ion(SOP16) battery cells monitoring