PM6612

2 to 4-cell Li-Ion, Li-$FePO_4$ battery charger with SMBus interface, N-channel RBFET and BATFET MOSFET selectors

Data brief

Features

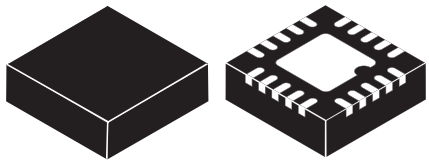
- Buck converter
  - Synchronous buck converter with N-channel high-side, low-side power MOSFET integrated drivers
  - 350 kHz or 700 kHz switching frequency, selectable with SMBus
  - AC adapter input voltage range 9 V - 24 V
  - 5 V bias input voltage supply
  - Battery charge voltage range 2.5 V -18 V
  - ±0.5% charge voltage accuracy
  - 0.1% cell charge voltage resolution
  - ±3% charge current accuracy
  - ±3% input current accuracy
  - Overvoltage, overcurrent protection
  - Battery, inductor, power MOSFET short-circuit protection
  - Internal loop compensation network
  - Integrated soft-start
- Selector
  - N-channel BATFET MOSFET driver
  - N-channel RBFET MOSFET driver
- System
  - 1 mA quiescent supply current
  - 17 µA - 35 µA sleep mode current (BATFET charge pump off - on)
  - Thermal shutdown

Applications

- Mobile PC:
  - UMPC/MID and tablets
  - Netbook and notebook computers

Description

The PM6612 is a high efficiency battery charger with SMBus communication interface. It includes



QFN3x3 20L

a synchronous switching DC-DC converter with N-channel high-side and low-side Power MOSFET drivers. The possibility to set the switching frequency with SMBus by choosing one of the two preset values of 350 kHz or 700 kHz assures the best trade-off between power conversion efficiency and PCB cost and size.

Integrated loop compensation network and soft-start allow the reduction of the number of external components.

The PM6612 integrates 2 charge pumps to drive N-channel BATFET and RBFET MOSFETs.

The SMBus communication interface is used to set the battery charge current and voltage.

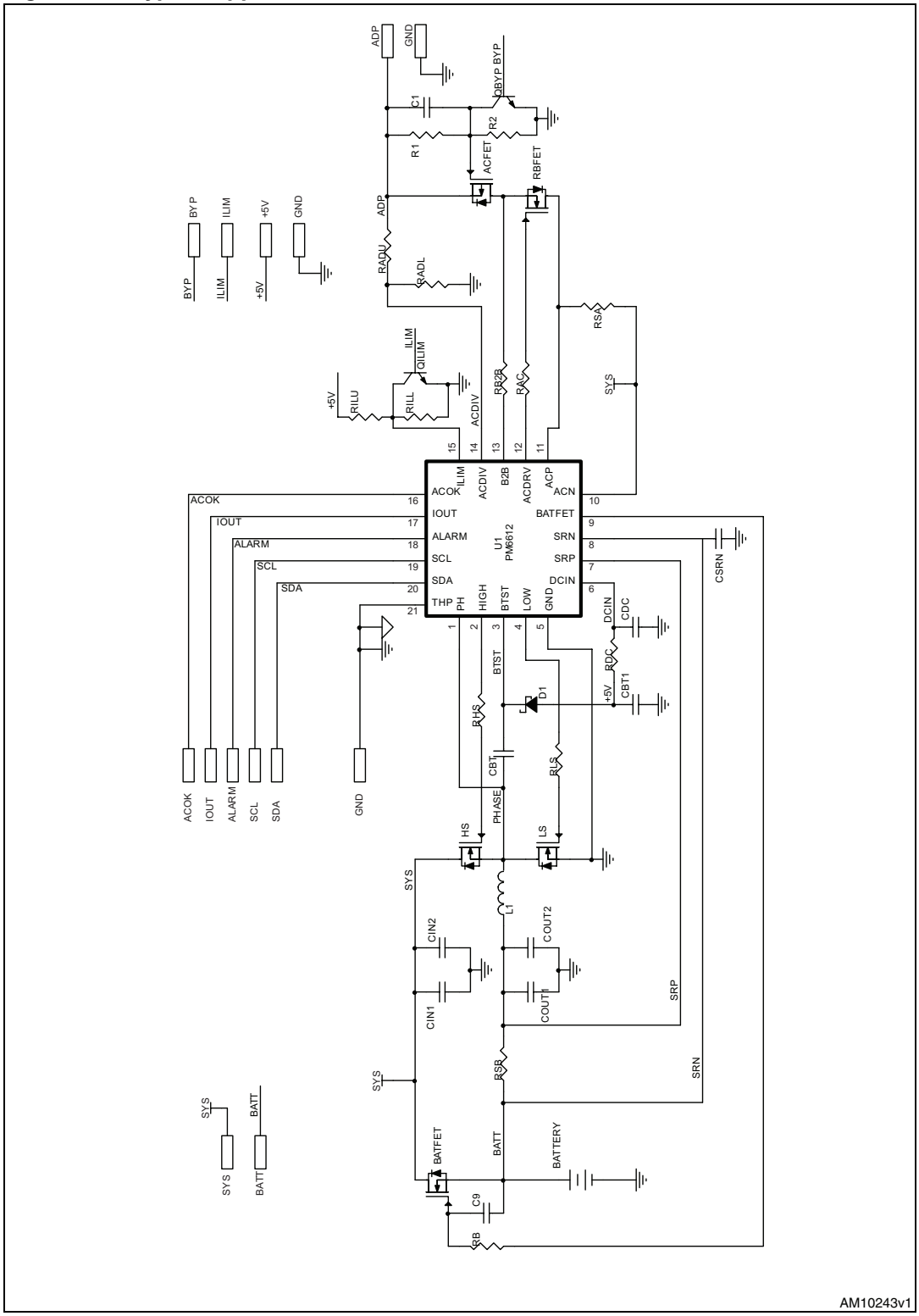
The PM6612 charges 2 to 4-series Li-Ion or $LiFePO_4$ cells, for mobile PC applications. It is available in a compact QFN20L 3x3 mm, package.

Table 1. Device summary

Order code	Package	Packing
PM6612	QFN3x3 20L	Tape and reel

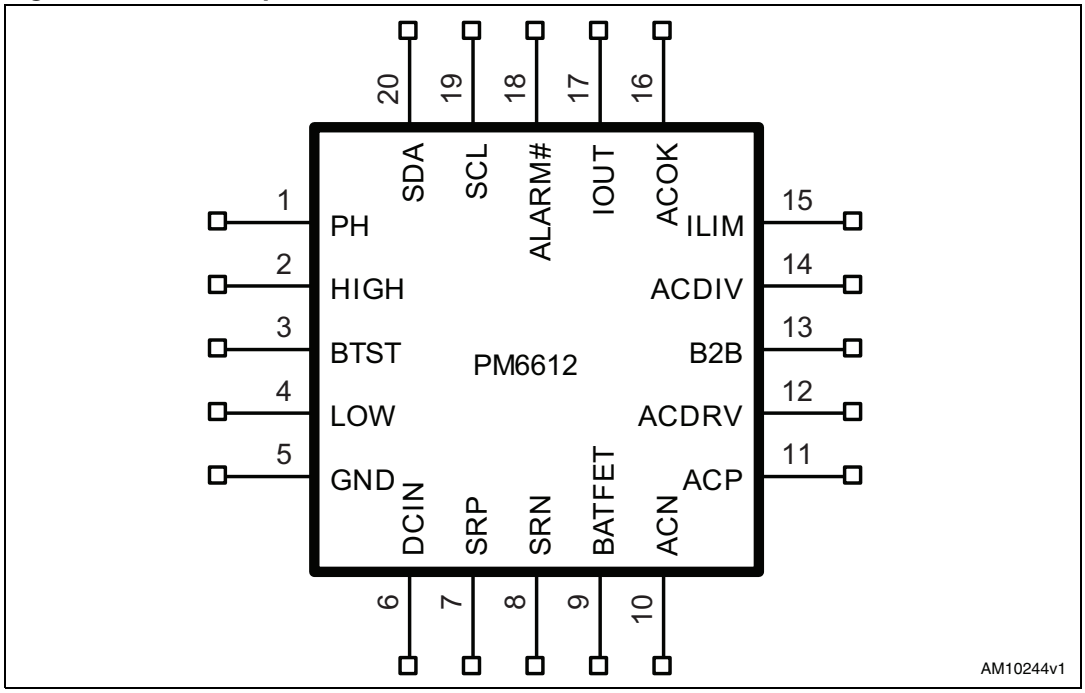
1 Typical application circuit

Figure 1. Typical application circuit



2 Device pinout

Figure 2. PM6612 pinout



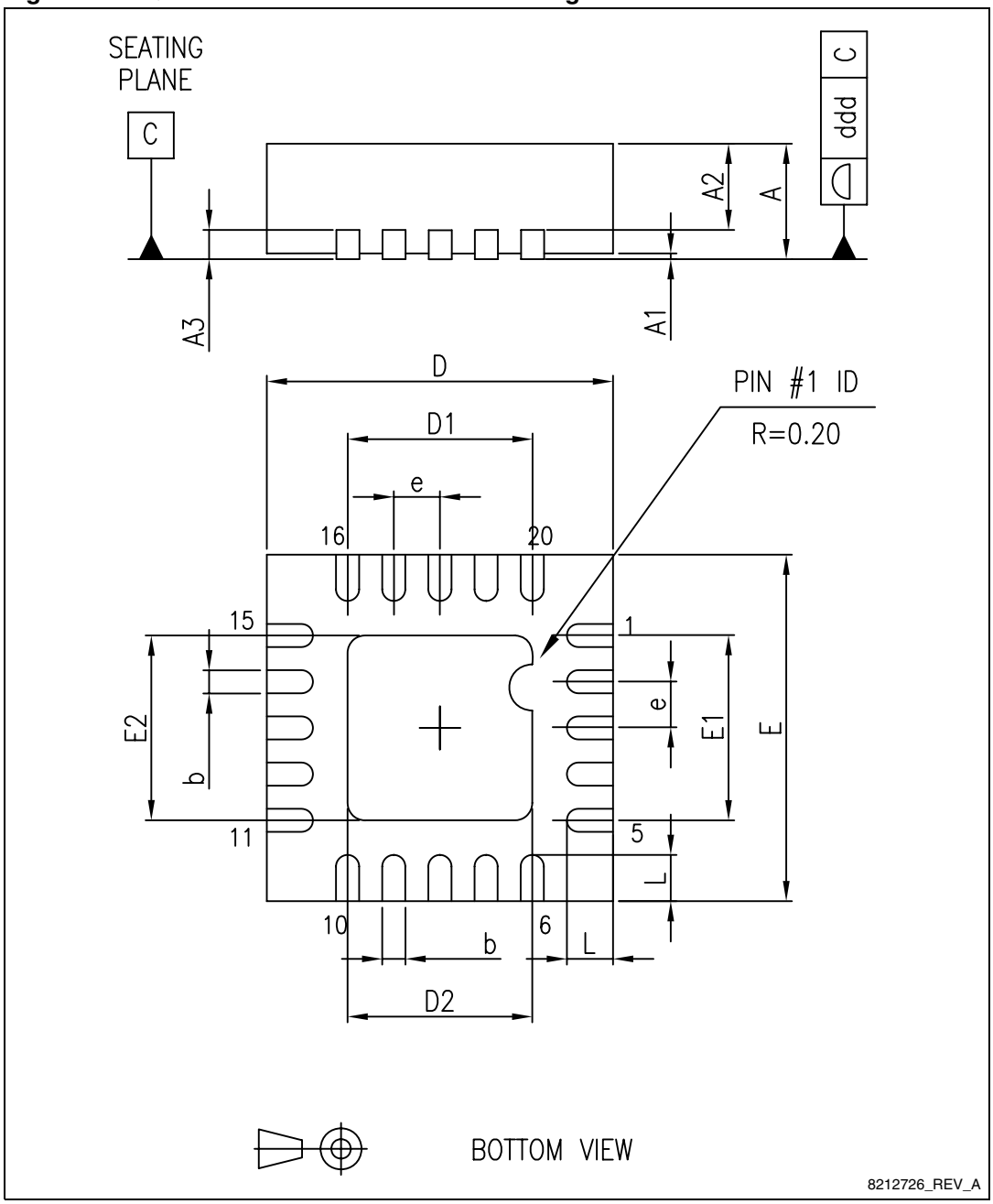
3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: *www.st.com*. ECOPACK is an ST trademark.

Table 2. QFN3x3 20L mechanical data

Dim.	mm.		
	Min.	Typ.	Max.
A	0.80	0.90	1.00
A1		0.02	0.05
A2		0.65	1.00
A3		0.20	
b	0.15	0.20	0.25
D	2.85	3.00	3.15
D1		1.60	
D2	1.50	1.60	1.70
E	2.85	3.00	3.15
E1		1.60	
E2	1.50	1.60	1.70
e	0.35	0.40	0.45
L	0.30	0.40	0.50
ddd			0.07

Figure 3. QFN3x3 20L mechanical data drawing



4 Revision history

Table 3. Document revision history

Date	Revision	Changes
09-Feb-2012	1	Initial release.

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