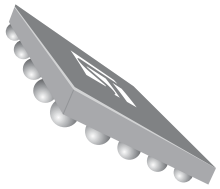
STBCFG01

Switch-mode single Cell Li+ battery charger with OTG boost, voltage mode fuel gauge and LDO

Data brief



Flip chip 2.3x2.2 mm2 0.4 mm pitch

Features

- High efficiency switching battery charger
  - 2 MHz or 3 MHz switching frequency
  - 1.2 A max. charging current
  - 20 V tolerant input with OVP
  - Programmable input current limitation and dynamic input current limit
  - Battery overvoltage protection
  - Auto-recharge
  - Integrated current sensing resistor
  - USB compatible
- Voltage mode fuel gauge
  - No need for external sensing resistor
  - Battery swap detection through ID resistor
  - Low battery voltage and low SOC programmable alarms
- 50 mA LDO for system boot in dead battery condition
- USB OTG V_{BUS} generation (500 mA)
  - USB overvoltage protection
  - Programmable battery overcurrent protection
- Automatic 60 mA input pre-bias
- I^2C compatible control interface
- Interrupt output pin
- Flip chip package, 25 bumps

Applications

- Mobile phones
- Smart phone

Description

The STBCFG01 is a switching battery charger integrating the functions needed to charge single cell Li-Ion batteries, monitor the battery charge state and generate 5 V to supply USB OTG bus powered devices.

The IC also integrates an LDO regulator to support system boot in dead battery conditions.

The battery charger features a smart input current limit: the maximum input current can be selected through I^2C and if the input voltage drops below a programmable threshold the input current is reduced even if the selected maximum current limit has not been reached yet. The dynamic input current limit can be disabled.

An automatic input pre-bias load makes the device suitable for applications using voltage sources needing a minimum external load for proper regulation.

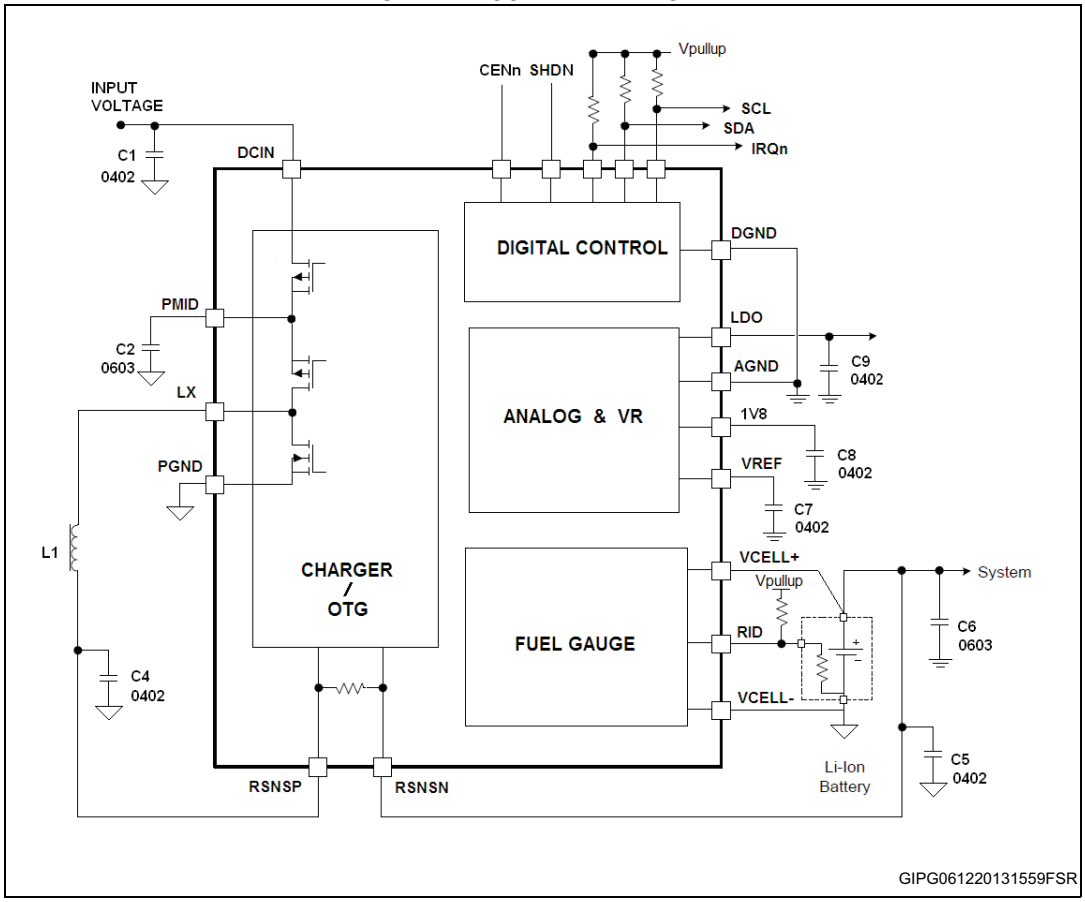
The STBCFG01 also integrates a voltage mode fuel gauge to provide accurate state of charge evaluation without the current sensing resistor.

Table 1. Device summary

Part number	Package	Packaging
STBCFG01J	Flip chip 2.3x2.2 mm^2 0.4mm pitch	Tape and reel

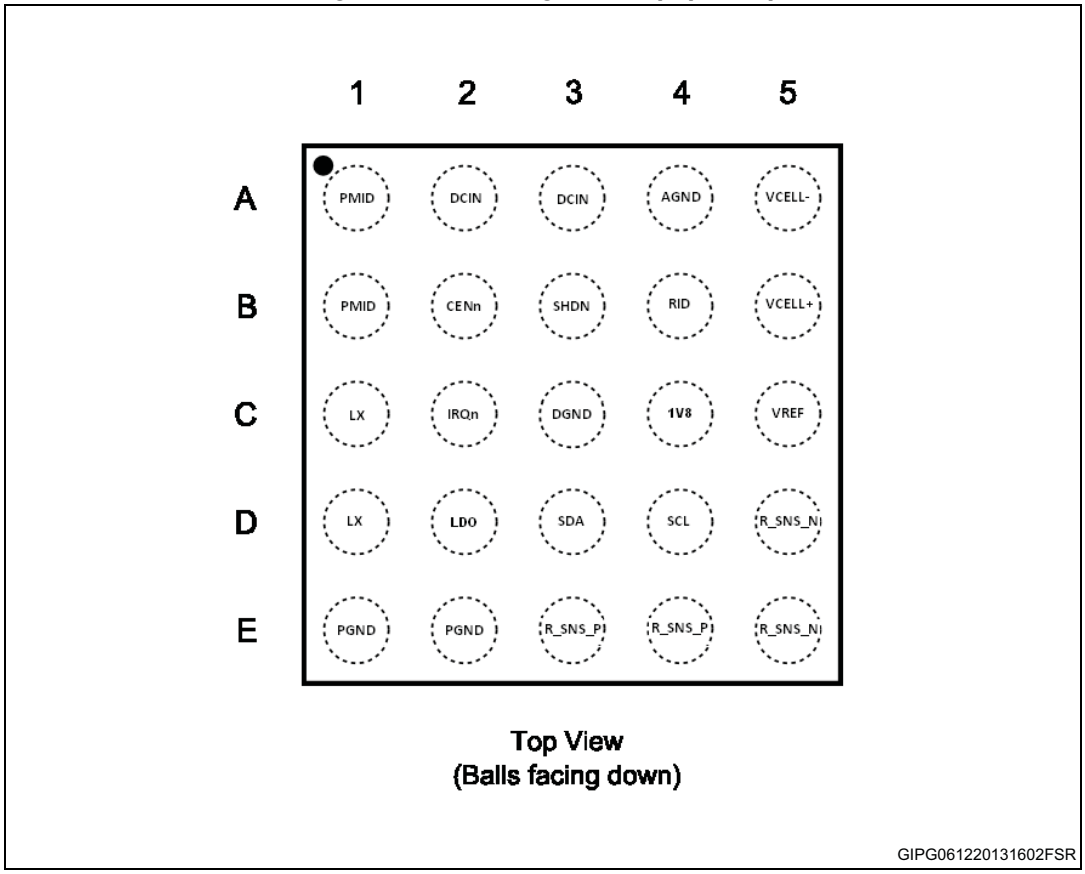
1 Application schematic

Figure 1. Application diagram



2 Pin configuration

Figure 2. Pin configuration (top view)



3 Package mechanical data

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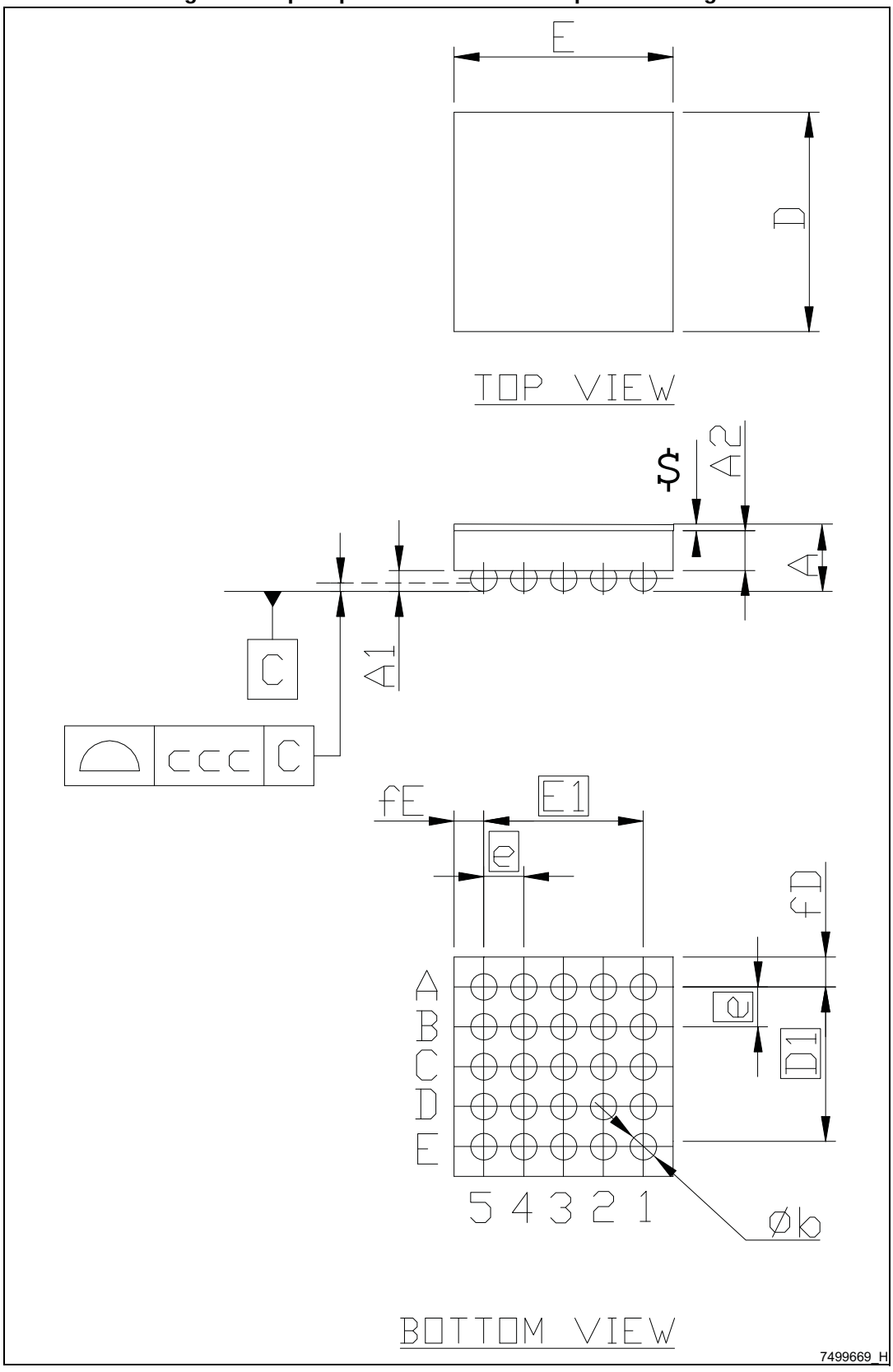
Table 2. Flip chip 2.3x2.2 mm^2 0.4 mm pitch mechanical data

Ref.	mm		
	Min.	Typ.	Max.
A	0.495	0.55	0.605
A1	0.17	0.20	0.23
A2	0.275	0.30	0.325
b	0.23	0.26	0.29
D	2.25	2.28	2.31
D1		1.6	
E	2.16	2.19	2.22
E1		1.6	
e		0.4	
fD	0.33	0.34	0.35
fE	0.285	0.295	0.305
ccc		0.075	
$		0.05	

Figure 3. Flip chip 2.3x2.2 mm^2 0.4 mm pitch drawings



4 Revision history

Table 3. Document revision history

Date	Revision	Changes
10-Dec-2013	1	Initial release.

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