DA9155M

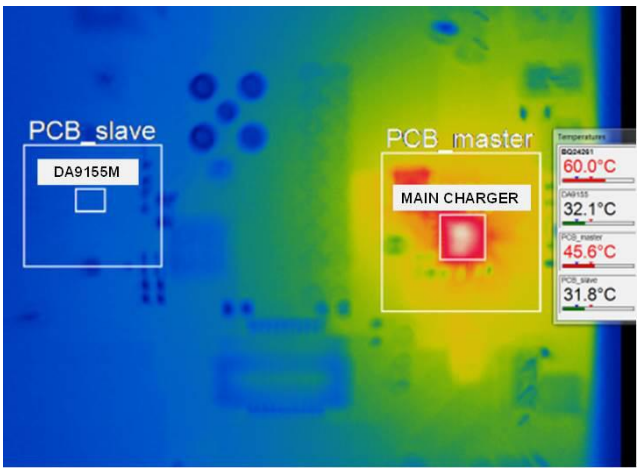
2.5 A Companion Charger IC for Rapid Charging Applications

DA9155M offers a small solution that can be easily added on to existing main charger circuits and solves the heat dissipation problem created when the rapid charging feature is adopted. DA9155M is compatible to all rapid charging technologies using high-voltage input.

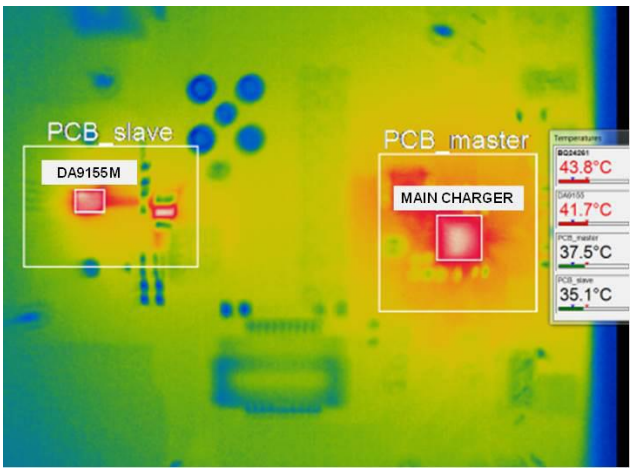
DA9155M features a buck converter capable of 2.5 A constant output current and regulates the output current with ±5 % accuracy for single cell Li-ion batteries. Current sensing is performed with a fully integrated circuit.

The peak efficiency of the buck converter is 92 %.

Thermal power dissipation is lowered by 16 °C at 10 W charging power with the help of DA9155M.

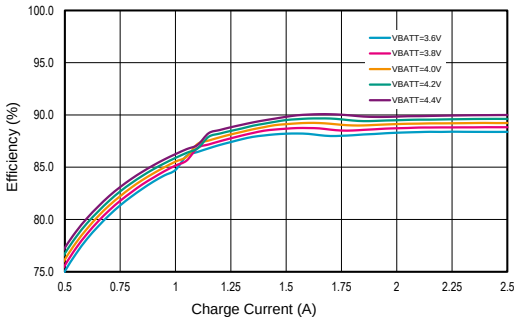


Master Charger 3 A Charging Current with 60 °C Case Temperature (V_{IN} = 9 V)

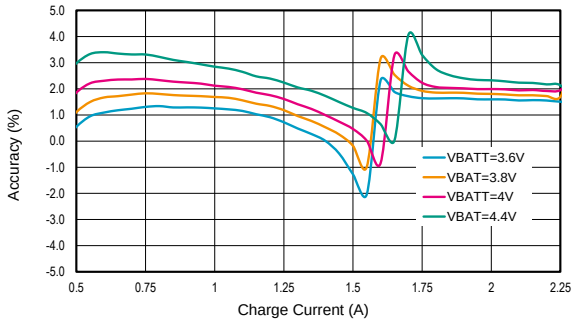


Master Charger 1.5 A and DA9155M 1.5 A with 43.8 °C Case Temperature (V_{IN} = 9 V)

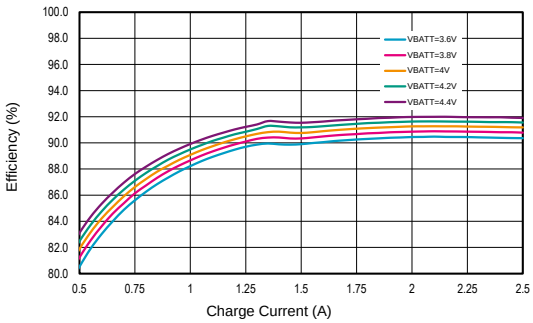
Typical Characteristics



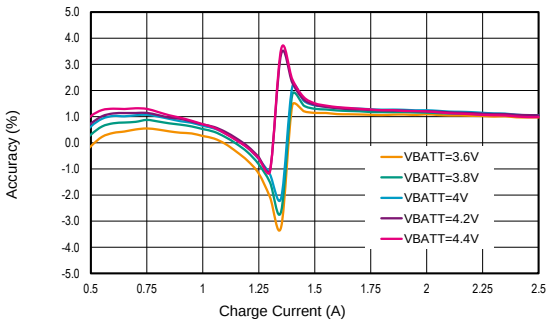
Efficiency V_{IN} = 12 V



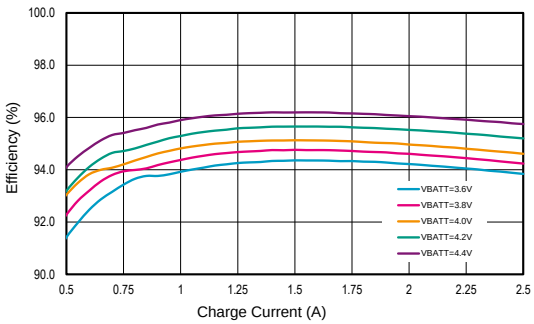
Accuracy V_{IN} = 12 V



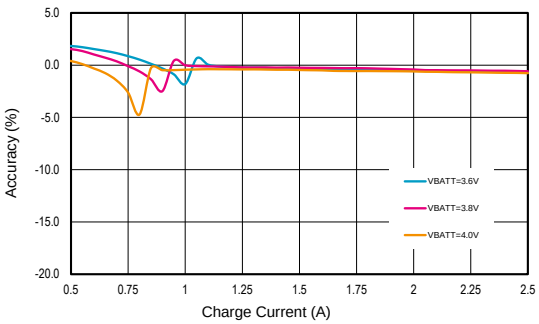
Efficiency V_{IN} = 9 V



Accuracy V_{IN} = 9 V

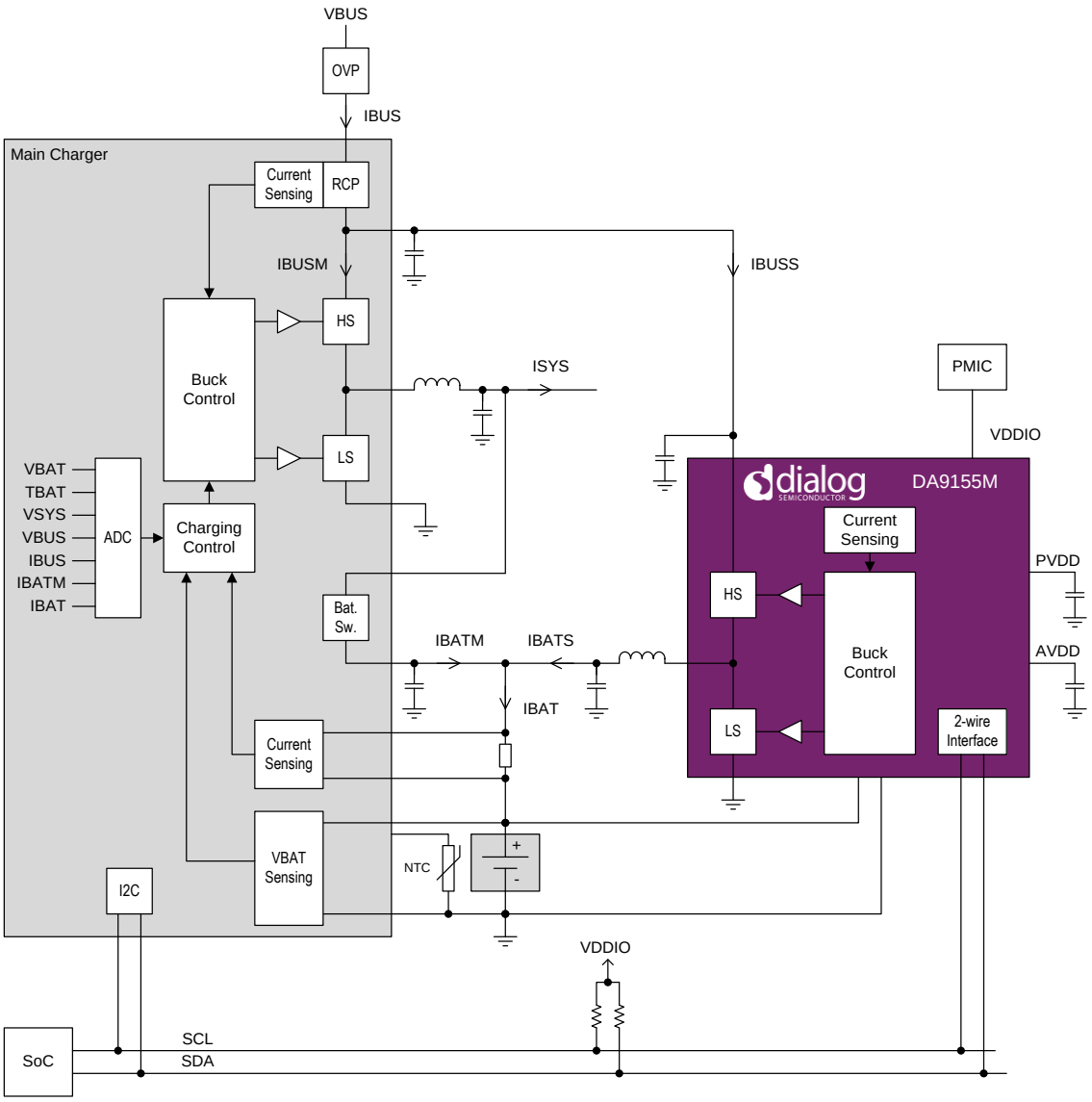


Efficiency V_{IN} = 5 V

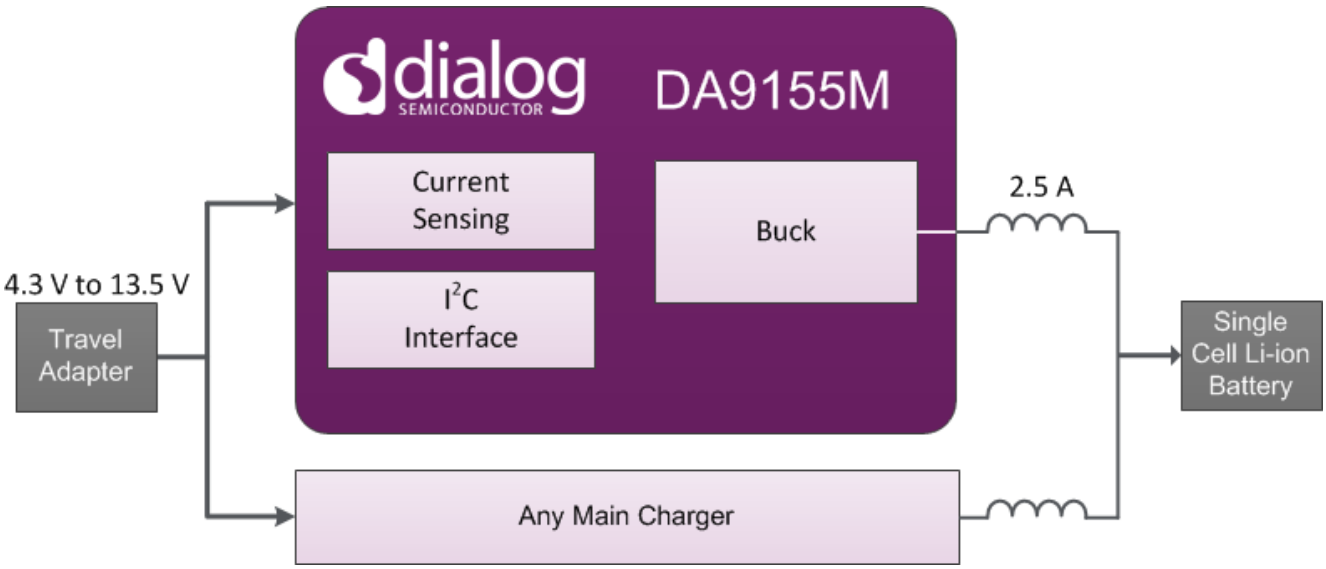


Accuracy V_{IN} = 5V

System Diagram



Block Diagram



Key Features

- Input voltage 4.3 V to 13.5 V
- Input voltage monitoring
- Buck converter with output current regulation
  - Output current 2.5 A
  - ± 5 % current regulation accuracy
  - Selectable switching frequency
- Fault detection (V_{IN} and V_{BAT} monitoring)
- Safety timer
- Junction temperature monitoring
- - 40 °C to + 85 °C temperature range
- WLCSP 0.4 mm pitch

Typical Applications

- Smartphones
- Tablet PCs
- Battery Packs

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