

DA9213, DA9314 and DA9215

Multiphase DC-DC for Core and GPU rails up to 20 A

DA9213, DA9214 and DA9215 are DC-DC buck converter optimised for the supply of CPUs, GPUs, and DDR memory rails in smartphones, tablets, FPGAs and other portable applications. The fast transient response (10 A/ μ s) and load regulation are optimised for the latest generation of multi core application processors.

DA9213 operates as a single four-phase buck converter delivering up to 20A output current.

DA9214 integrates two dual-phase buck converters, capable of delivering 2x 10A output current.

DA9215 integrates a three-phase buck converter capable of delivering 15A and a singlephase buck converter delivering 5A output current.

The output voltage is programmable in the range 0.3 - 1.57 V The input voltage range of 2.8 -5.5 V makes it suited for a wide variety of low voltage systems, including all Li-Ion battery powered applications.

To guarantee the highest accuracy and to support multiple PCB routing scenarios without loss of performance, a remote sensing capability is implemented in DA9213, DA9214 and DA9215.

A programmable soft start-up limits the inrush current from the input node and secures a slope controlled activation of the rail.

The Dynamic Voltage Control (DVC) supports adaptive adjustment of the supply voltage depending on the processor load, either via direct register writes through the communication interface (I2C or SPI compatible) or via an input pin.

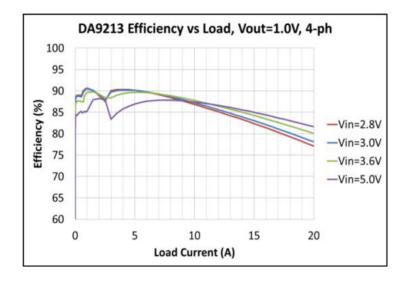
DA9213, DA9214 and DA9215 feature integrated over-temperature and over-current protection for increased system reliability without the need for external sensing components. The safety feature set is completed by a VDDIO under voltage lockout.

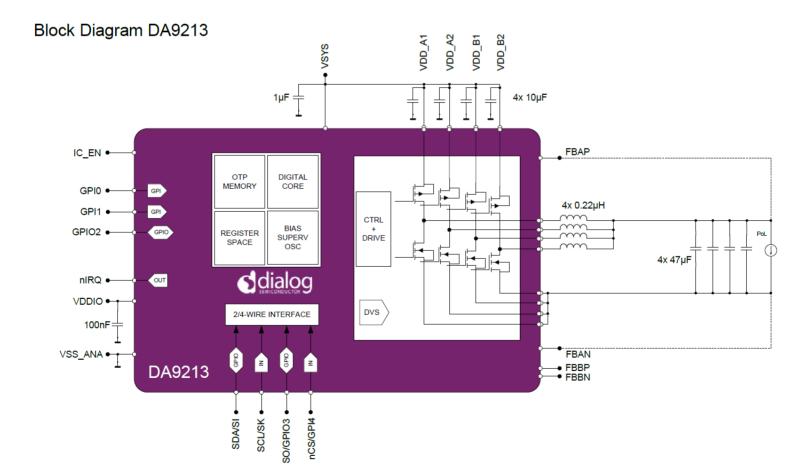
The configurable I2C address selected via GPI allows multiple instances of DA9213, DA9214 and DA9215 to be placed in the application sharing the same interface with different addresses.

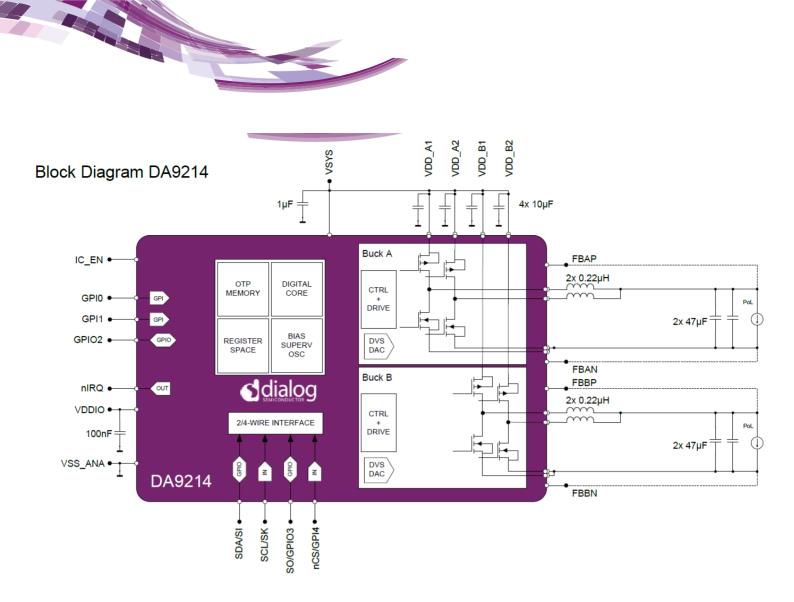


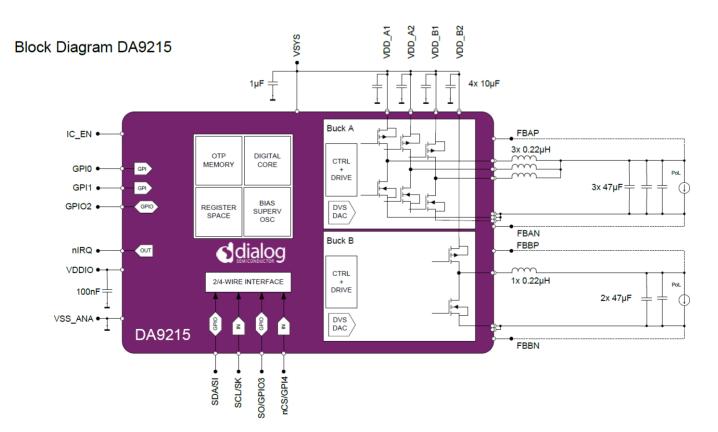


Efficiency Diagram DA9213









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Features

- 2.8 V to 5.5 V Input voltage
- 0.3 V to 1.57 V Output voltage
- 20A DA9213
- 2x 10A DA9214
- 1x 15A + 1x 5A DA9215
- ±1 % Accuracy (static) •
- ±3 % Accuracy (dynamic)

- Automatic Phase Shedding
- 3 MHz nominal Switching Frequency
- I2C/SPI compatible Interface
- Adjustable Soft Start
- -40 to +85 °C Temperature Range
- Package 66 WL-CSP 0.4 mm pitch

Benefits

- Integrated power switches
- **Dynamic Voltage Control** (DVC)
- Remote sensing at point of load

Applications

- Smartphones
- Tablet PCs
- **Cordless Phones**
- Infotainment

- High efficiency over a wide output range
- Low output ripple
- Small <1mm height components

- Ultrabooks™
- **Portable Navigation Devices**
- **Portable Media Players**
- TVs

Dialog Semiconductor Worldwide Sales Offices - www.dialog-semiconductor.com

United Kingdom Phone: +44 1793 757700 Phone: +31 73 640 88 22

Germany Phone: +49 7021 805-0 **The Netherlands**

North America Phone: +1 408 845 8500

Japan Phone: +81 3 5425 4567

Taiwan Phone: +886 281 786 222

Singapore Phone: +65 648 499 29 Hong Kong

email: info@diasemi.com

Korea Phone: +82 2 3469 8200

China (Shenzhen) Phone: +852 3769 5200 Phone: +86 755 2981 3669

China (Shanghai) Phone: +86 21 5424 9058

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