

## DA9062

### Entry-level Power Management IC (PMIC) for applications providing up to 8.5 A continuous current

DA9062 is a PMIC optimized for supplying systems with single- and dual-core processors, I/O, DDR memory, and peripherals. The target application range covers mobile devices, medical equipment, entry-level IVI systems, and FPGA based applications.

DA9062 features four buck converters providing a total current of 8.5 A. High efficiency is achieved over a wide load range by automatically selecting Pulse Frequency Modulation (PFM) or Pulse Width Modulation (PWM) modes. All power switches are integrated, removing the need for external Schottky diodes. A high switching frequency allows low-profile inductors to be used. Buck1 and Buck2 can be used in a 5 A dual-phase configuration and Buck4 can be used as a DDR VTT supply. Four LDO regulators with programmable output voltage are integrated and provide up to 300 mA each.

Controlled by a programmable digital power manager, the eight user-programmable switched/linear regulators may be configured to meet the start-up sequence, voltage, and timing requirements for most applications. The power manager includes supply-rail qualification and system reset management. Dynamic Voltage Scaling (DVS) is available to achieve optimal processor energy-per-task performance. Dialog's patented SmartMirror™ dynamic biasing is implemented on all linear regulators.

Power mode transitions can be triggered with software control, GPIOs, or with button control. Several types of button press can be used to trigger different power mode transitions. DVS can be realised via the I<sup>2</sup>C interface or GPIO control.

The low-power Real Time Clock (RTC) with an external crystal oscillator provides time-keeping, alarm and wake-up functions. In addition, a watchdog timer is included for system monitoring purposes.

Five GPIOs can be used to implement system functions such as: application wakeup; 32 kHz oscillator with an external crystal; hardware regulator control; and sequencing control of external regulators, power switches, or other ICs.

DA9062 is also available as an automotive AEC-Q100 Grade 3 version.



*Available in QFN40, 6 mm x 6 mm,  
0.5 mm pitch package consumer  
and automotive grades*

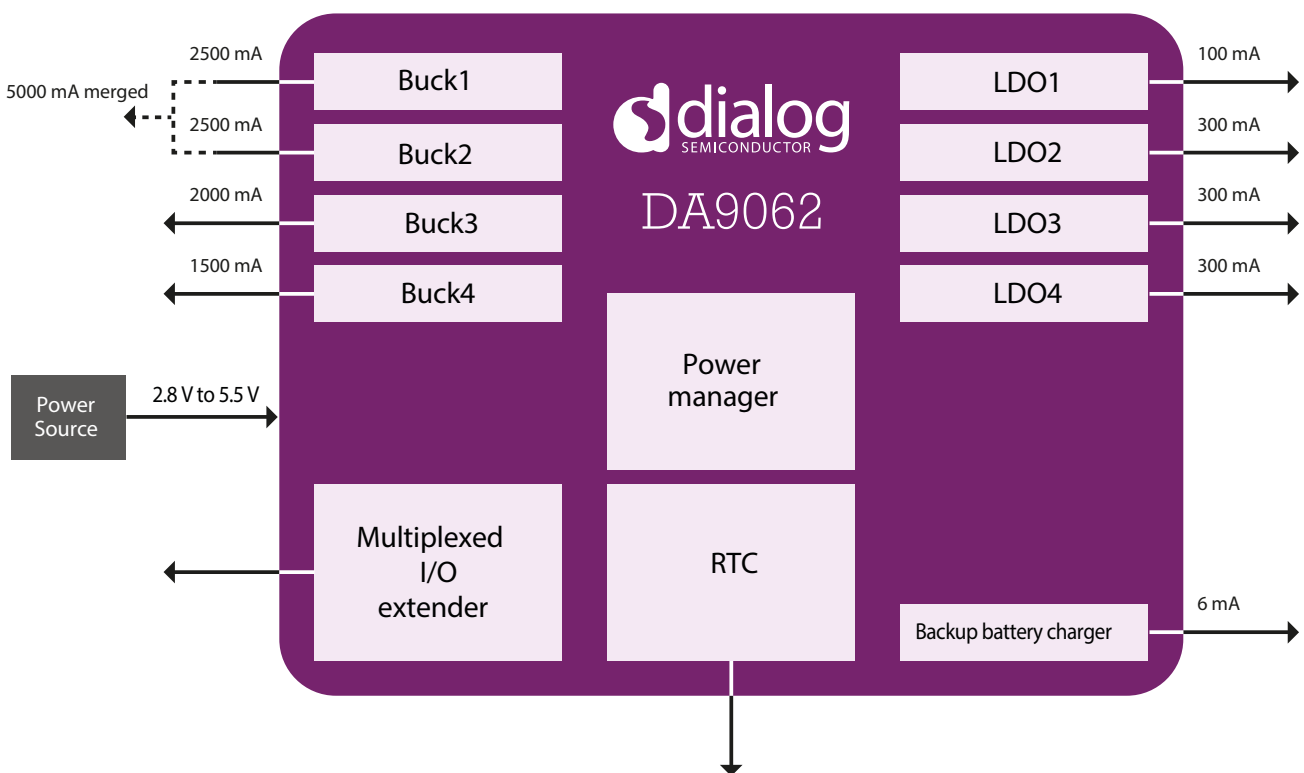
## Features

- ▶ Input voltage 2.8 V to 5.5 V
- ▶ Four buck converters, 0.3 V to 3.34 V up to 2.5 A
  - Dual-phase mode up to 5 A
  - DDR VTT supply mode
  - DVS support
- ▶ 3 MHz switching frequency allows use of low-profile inductors
- ▶ Four LDO regulators, 0.9 V to 3.6 V up to 300 mA
- ▶ Five GPIOs
- ▶ Programmable power manager
- ▶ System supply monitoring
- ▶ Junction temperature monitoring
- ▶ Watchdog timer
- ▶ Coin cell/super-capacitor charger
- ▶ 1.5  $\mu$ A RTC with alarm and wakeup
- ▶ -40 °C to +125 °C junction temperature operation
- ▶ Automotive AEC-Q100 Grade 3 version

## Typical applications

- ▶ Portable industrial and medical devices
- ▶ TV dongle
- ▶ eReaders
- ▶ Supply for single- and dual-core application processors; for example the i.MX™ families
- ▶ Power supply for FPGAs
- ▶ Automotive infotainment/dashboard
- ▶ IoT devices

## Block diagram



## Generated supply domains

| Regulator | Supplied voltage | Supplied max. current | External component                                   | Notes  |
|-----------|------------------|-----------------------|--|--|
| Buck1     | 0.3 V to 1.57 V  | 2.5 A                 | 1.0 $\mu$ H /<br>2 x 47 $\mu$ F                      | 3 MHz, DVS with variable slew rate, 10 mV steps  |
| Buck2     | 0.3 V to 1.57 V  | 2.5 A                 | 1.0 $\mu$ H /<br>2 x 47 $\mu$ F                      | 3 MHz, DVS with variable slew rate, 10 mV steps, can be combined with Buck1 as a 5 A dual-phase buck |
| Buck3     | 0.8 V to 3.34 V  | 2.0 A                 | 1.0 $\mu$ H /<br>2 x 22 $\mu$ F or<br>2 x 47 $\mu$ F | 3 MHz, DVS with variable slew rate, 20 mV steps  |
| Buck4     | 0.53 V to 1.8 V  | 1.5 A                 | 1.0 $\mu$ H /<br>2 x 22 $\mu$ F or<br>2 x 47 $\mu$ F | 3 MHz, DVS with variable slew rate, 10 mV steps, can be used as a DDR VTT supply                     |
| LDO1      | 0.9 V to 3.6 V   | 100 mA                | 1.0 $\mu$ F  | Programmable in 50 mV steps, can be configured as an 'always-on' supply                              |
| LDO2      | 0.9 V to 3.6 V   | 300 mA                | 2.2 $\mu$ F  | Programmable in 50 mV steps  |
| LDO3      | 0.9 V to 3.6 V   | 300 mA                | 2.2 $\mu$ F  | Programmable in 50 mV steps  |
| LDO4      | 0.9 V to 3.6 V   | 300 mA                | 2.2 $\mu$ F  | Programmable in 50 mV steps  |

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