

## DA9061

### Entry-level Power Management IC (PMIC) for applications providing up to 6 A continuous current

DA9061 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.

DA9061 features three buck converters providing a total current of 6 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. Four LDO regulators with programmable output voltage are integrated and provide up to 300 mA each.

Controlled by a programmable digital power manager, the seven 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.

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.

DA9061 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

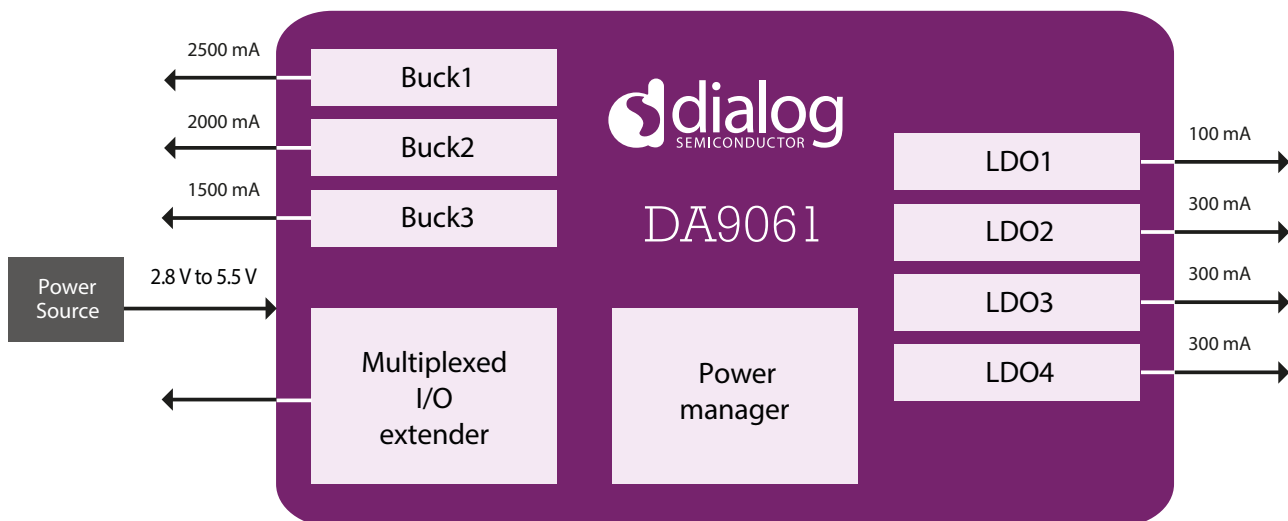
## Features

- ▶ Input voltage 2.8 V to 5.5 V
- ▶ Three buck converters, 0.3 V to 3.34 V up to 2.5 A
  - 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
- ▶ -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 / 2 x 47 $\mu$ F	3 MHz, DVS with variable slew rate, 10 mV steps
Buck2	0.8 V to 3.34 V	2.0 A	1.0 $\mu$ H / 2 x 22 $\mu$ F or 2 x 47 $\mu$ F	3 MHz, DVS with variable slew rate, 20 mV steps
Buck3	0.53 V to 1.8 V	1.5 A	1.0 $\mu$ H / 2 x 22 $\mu$ F	3 MHz, DVS with variable slew rate, 10 mV steps
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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