DA6102

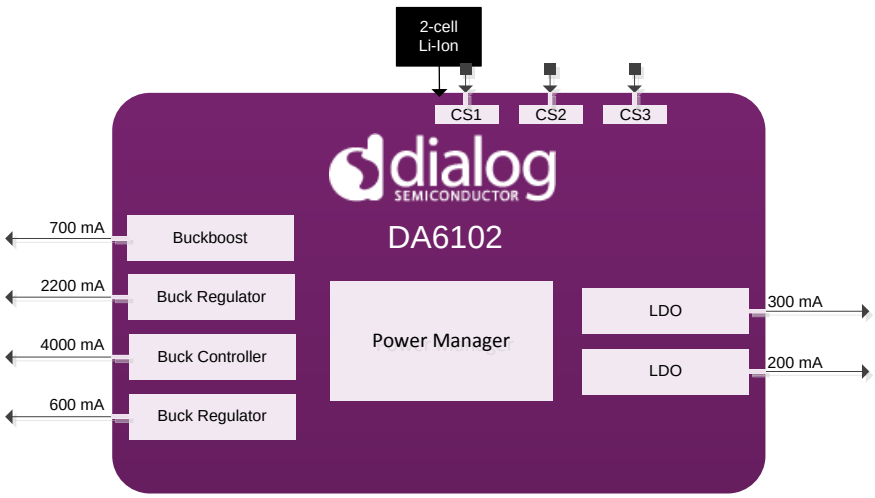
6-Channel System Power Management IC (PMIC) for 2S Battery Applications in a 10 mm^2 Package

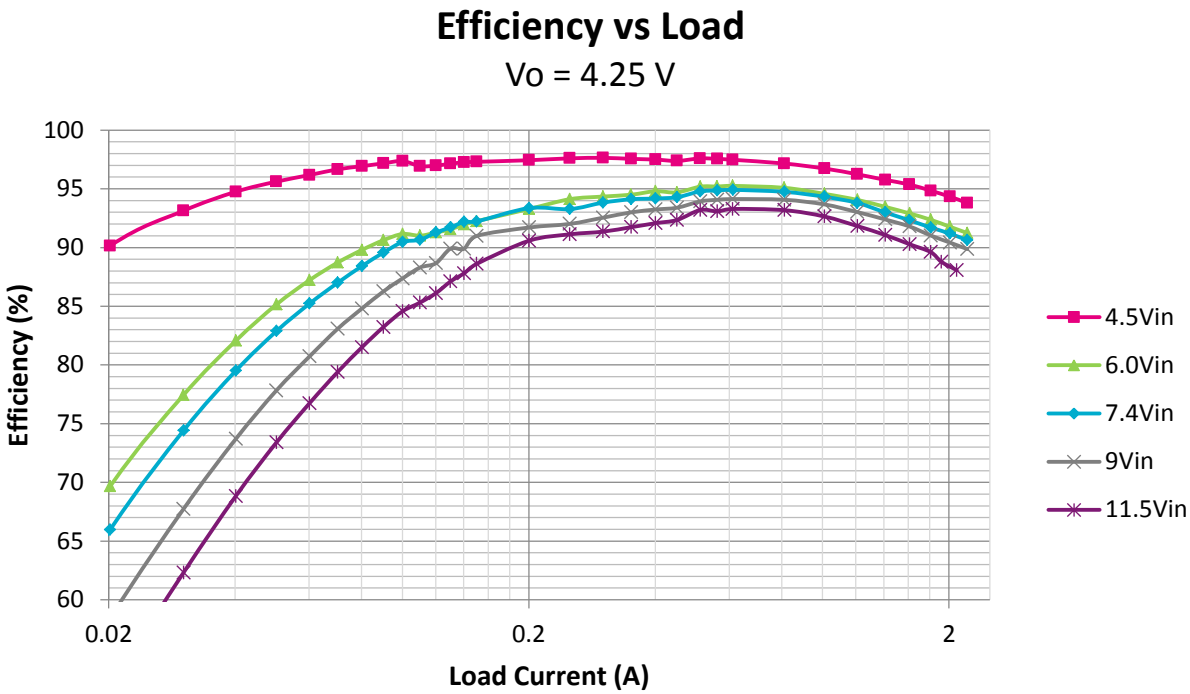
DA6102 is a highly integrated, compact PMIC for DSLR and mirror-less cameras, handheld POS terminals, and 2S battery applications. Excellent efficiency enables battery applications to extend battery life.

DA6102 enables multi-channel applications to be powered with 3 % to 6 % improved efficiency, requiring less volume when compared to a multiple discrete solution The wide input voltage range of DA6102 allows direct battery connection for each channel to maximize and extend battery life.

DA6102 features two buck regulators, one Buck-Boost regulator, one high-current buck controller, and two always-on LDOs. Extremely low RDSon FETs enable up to 94 % efficiency in buck and Buck-Boost regulation. This high level of integration combined with high frequency operation (up to 3 MHz) minimizes the PCB size (50 % smaller than traditional discreet solutions), enabling thinner profile end-applications, and the external component count for the smallest possible solution.

DA6102 is a highly configurable and flexible solution which enables very fast time to market. An I2C interface enables flexibility and easy configuration of the output voltage, switching frequency, power sequencing, and fault protection. Most features are also configurable by OTP for simple output voltage and start-up sequence setup. Each channel has a dedicated current limit, over- and under-voltage protection, with programmable masking and shutdown timer options. Dialog Semiconductor's **SmartCanvas™** GUI enables engineers to evaluate the DA6102 and be ready to market their end product quickly.





The PMIC also features a highly accurate input current sense with circuit breaker control for battery current sensing and over-current shutdown. Additional features include two external load switches, two LDO controllers, external clock synchronization, global enable pin, and a configurable PGOOD pin.

The DA6102 comes in an ultra-small 56-bump, 2.975 mm x 3.375 mm WLCSP package and operates over a -30 °C to +85 °C die temperature range.

Applications

- ► DSLR cameras
- ► MILC cameras
- ► Handheld Point-of-Sale terminals
- ► 2-Cell battery application

Benefits

- High efficiency
- Wide input voltage range
- Highly programmable start-up sequencing and protection features on each channel
- High accuracy ± 1 % input current sense monitoring
- High frequency operation – low-profile components

Key Features

- 4.5 V to 11.5 V input range
- Input current sense with circuit breaker
  - ± 1 % monitoring accuracy
- Programmable internal switching frequency
  - 1.0, 1.5, 2.0, 3.0 MHz
- External sync clock input
  - 1.5 MHz to 3 MHz range
- Programmable sequencing and soft-start
- Two always-on LDOs with integrated load switches
- Two integrated buck converters
- One integrated BuckBoost converter
- One high-current buck controller
- Two load switch controllers
- Two external LDO monitors
- Power Good flag
- Global enable input
- 2.975 mm x 3.375 mm WLCSP package
- CH1: BuckBoost regulator
  - 700 mA max
  - 5.1 V to 5.8 V output range
- CH2: Buck regulator
  - 2.2 A max
  - 3 V to 4.55 V output range
- CH3: Buck controller
  - Synchronous NFET drivers
  - 3.0 V to 3.75V output range
  - Supports up to 4 A
- CH4: Buck regulator
  - 600 mA max.
  - 3.2 V to 4.2 V output range
- LDO1: 300 mA, always-on
- LDO2: 200 mA, always-on
- Protection features on each channel
  - Current limit
  - Short circuit
  - Over-voltage
  - Output discharge

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