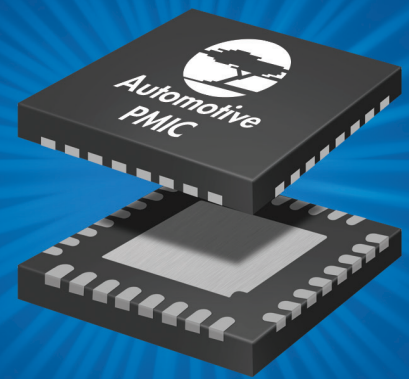


CYPRESS

# S6BP501A/502A

HIGH-STABILITY, 3-CH POWER MANAGEMENT ICs FOR AUTOMOTIVE INSTRUMENT CLUSTER SYSTEMS



## PRODUCT OVERVIEW

### INTRODUCTION

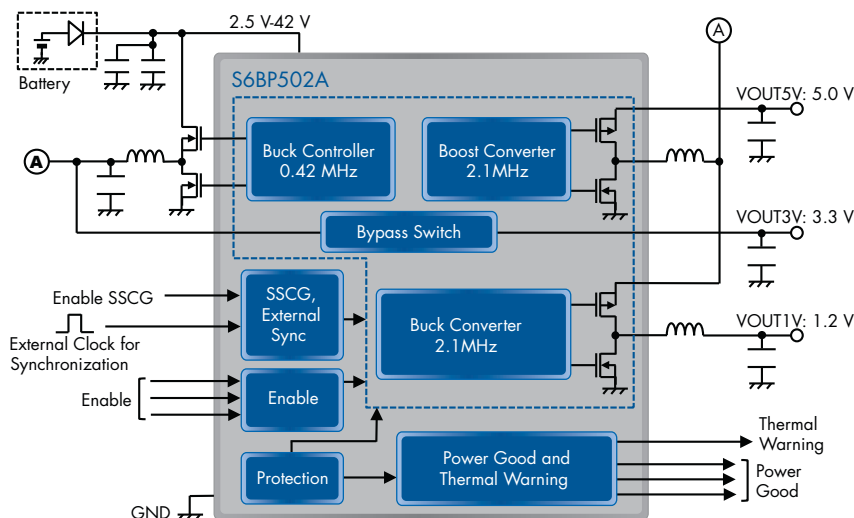
Cypress S6BP501A and S6BP502A are automotive-grade, 3-channel output power management ICs (PMICs). This family of PMICs comes with a buck controller, a buck converter, as well as a boost converter and make 5.0V, 3.3V, 1.2V from automotive battery input powered by a by single chip. The 5.0V of stable power supply overcomes battery fluctuations such as cold-cranking and load dumping. These PMICs have quiescent current as low as 15 $\mu$ A, and suitable for instrument cluster systems. Cypress S6BP501A and S6BP502A PMICs also integrate a Spread Spectrum Clock Generator (SSCG) and can synchronize with external clock signals for EMI countermeasure. Additionally, the PMICs have built-in thermal warning indicators and power good monitors that help you design safety systems.

### STABLE POWER SUPPLY

Increasing stop-start system causes frequent battery fluctuations due to restarting the engine. The Cypress PMIC family overcomes extreme battery fluctuations down to 2.5V by combining a high-voltage buck controller and a boost converter. Combination of the controller and converter provides 5.0V of stable power supply without large input electrolytic capacitors.

### COMPREHENSIVE INSTRUMENT CLUSTER SOLUTION

This single chip PMIC solution provides power to the car's MCU and memory, as well as other peripheral devices within the instrument cluster system. Cypress's total solution simplifies connectivity across MCUs, memories, and PMICs without having to worry about complex and expensive system designs.



S6BP502A Typical Application Block diagram

### FEATURES

#### INPUT VOLTAGE RANGE

- 2.5 V-42 V

#### QUIESCENT CURRENT

- 15  $\mu$ A

#### SWITCHING FREQUENCY

- VOUT1V, VOUT5V
  - Internal clock operation: 2.1MHz
  - External clock operation: 1.8MHz-2.4MHz
- VOUT3V (one-fifth-divided clock)
  - Internal clock operation: 0.42MHz
  - External clock operation: 0.36MHz-0.42MHz
- Built-in SSCG

#### PROTECTION FUNCTIONS

- Under Voltage Protection (UVP)
- Over Voltage Protection (OVP)
- Under Voltage Lock-out (UVLO)
- Thermal Shut Down (TSD)
- Over Current Protection (OCP)

#### VOLTAGE SUPERVISOR

- Independent Power Good pins

#### TEMPERATURE SUPERVISOR

- Built-in Thermal Warning Function

#### PACKAGE

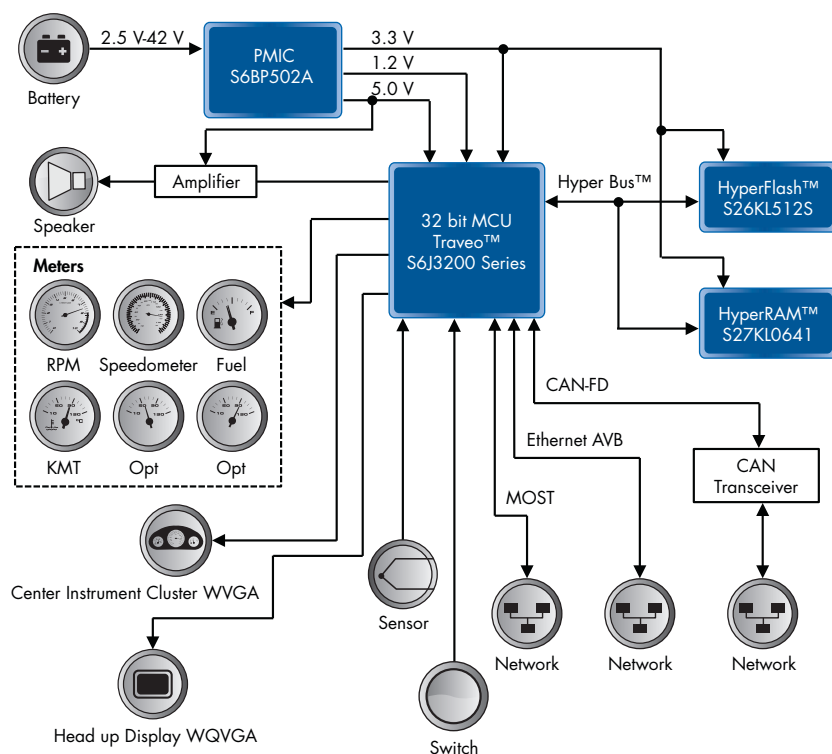
- 32-pin Thermally Enhanced Side-Wettable QFN

#### QUALIFICATION

- AEC-Q100 Grade 2

#### APPLICATIONS

- Low-end/mid-range Instrument Cluster System
- Body Control Module
- Automotive and Industrial



Solution Example for Instrument Cluster System

## DRIVING YOUR AUTOMOTIVE EXPERIENCE

This robust PMIC solution can power MCUs, memories, and other peripheral devices for automotive.

Cypress Traveo™ provides a single-chip solution for Dual Color TFT LCD and Stepper Motor Hybrid Dashboard HyperFlash™ and HyperRAM™ with access speeds of up to 333MB/s and a HyperBus™ interface.

## S6BP501A/502A DEVICE PORTFOLIO

Part Number	Input Voltage	Maximum Output Current			Package	Main Application
		VOUT1V (1.0 to 1.3V)	VOUT3V (3.2 to 3.4V)	VOUT5V (5.0 to 5.2V)		
S6BP501A	2.5 - 42V	1.4A	1.6A	1.3A	32-QFN (Side-Wettable)	Low-end Hybrid Instrument Cluster System Power supply for Traveo™ S6J330 Series
S6BP502A	2.5 - 42V	2.0A	1.9A	1.3A	32-QFN (Side-Wettable)	Mid-range Hybrid Instrument Cluster System Power supply for Traveo™ S6J3200 Series

## GET STARTED NOW

For more information on Cypress's PMIC family, please visit [www.cypress.com/automotive-pmic](http://www.cypress.com/automotive-pmic)

To request evaluation kits and samples, please contact local sales or resellers.

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